SAU

QUALITY TOOLS ENGINEERING

Turning | Milling | Drilling | Tapping | Inserts | Taper Shanks

GK 220

GENERAL CATALOGUE

FRESATURA

MILLING / FRÄSEN / FRAISAGE / FRESADO

SAU
QUALITY TOOLS ENGINEERING

SAU
QUALITY TOOLS ENGINEERING

FRESATURA
MILLING
FRÄSEN
FRAISAGE
FRESADO

- FRESE INTEGRALI IN METALLO DURO
- SOLID CARBIDE MILLING CUTTERS
- HM FRÄSER
- FRAISES EN CARBURE MONOBLOC
- FRESAS INTEGRALES EN METAL DURO

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- FRESE PER SPIANATURA E SMUSSI
- FACE AND CHAMFERRING MILLING CUTTERS
- FRÄSER ZUM PLANEN UND ZUM FASEN
- FRAISES À SURFACER ET ARRONDIR
- FRESAS PARA PLANEAR Y BISELES

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- FRESE PER SPALLAMENTI
- SHOULDER MILLING CUTTERS
- ECKFRAESER
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FRESE FORANTI
- HELICAL END MILLS-GROOVING END MILLS
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BORHNUTENFRÄSER, SCHEIBENFRÄSER
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- FRESA HELICOIDALES-FRESAS PARA RANURAS
FRESAS TALADRADORAS

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- COPY MILLING CUTTERS
- KOPIERFRAESER
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- INSERTI PER FRESATURA
- MILLING INSERTS
- WENDEPLATTEN ZUM FRÄSEN
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- PLAQUITAS DE FRESADO

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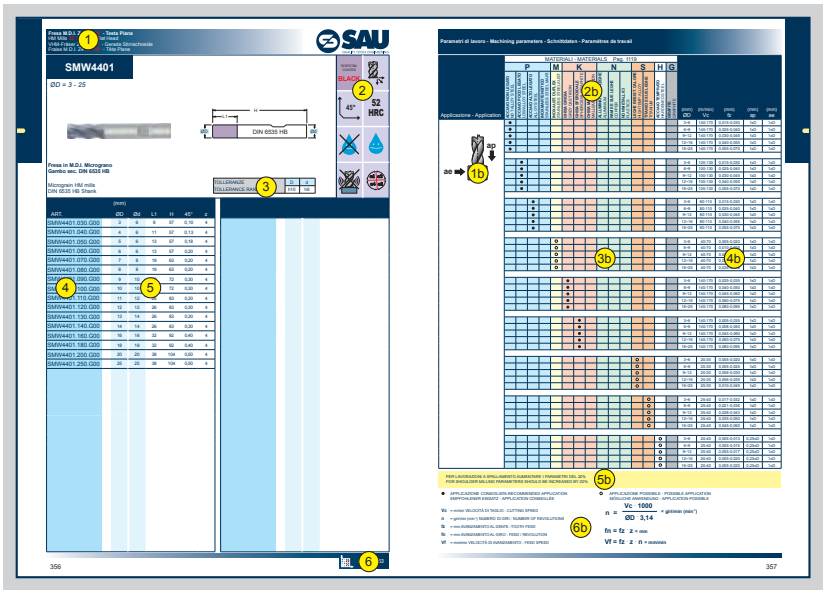
INDICAZIONI DI LETTURA
READING INSTRUCTIONS
HINWEISE ZUR ABLESUNG
INDICATIONS DE LÉCTURE



1 = NUMERO TAGLIENTI E ANGOLO ELICA
2 = CARATTERISTICHE TECNICHE (PAG. 237)
3 = TOLLERANZE COSTRUTTIVE
4 = ELENCO ARTICOLI
5 = MISURE E DATI
6 = ULTERIORI DATI TECNICI E CONSIGLIO D'USO

1B = LAVORAZIONI ESEGUIBILI
2B = GRUPPI MATERIALI
3B = INDICAZIONE MATERIALI LAVORABILI E CAMPI D'IMPIEGO
4B = PARAMETRI DI LAVORO
5B = NOTA PER PARAMETRI EVENTUALI ALTRE LAVORAZIONI
6B = FORMULE E PARAMETRI

1 = NUMBER OF FLUTES AND HELIX ANGLE
2 = TECHNICAL FEATURES (PAG. 237)
3 = CONSTRUCTIVES TOLERANCE
4 = ITEM
5 = MEASURES AND DATA
6 = FURTHER TECHNICAL DATA AND SUGGESTIONS

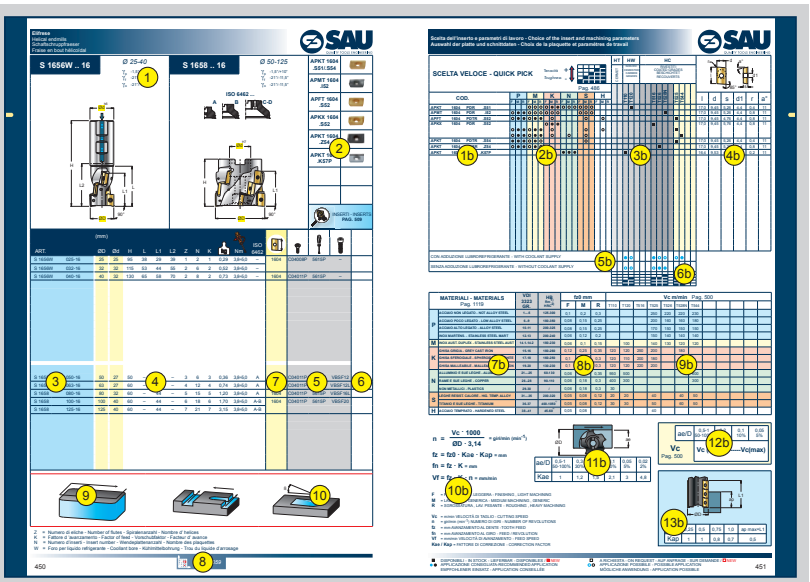
1B = POSSIBLE MACHINING OPERATIONS
2B = MATERIAL GROUPS
3B = INFORMATION ON WORKABLE MATERIALS AND FIELDS OF APPLICATION
4B = MACHINING PARAMETERS
5B = NOTE ON PARAMETERS FOR POSSIBLE ADDITIONAL APPLICATIONS
6B = FORMULAS AND PARAMETERS

1 = ANZAHL SCHNEIDEN UND SPIRALWINKEL
2 = TECHNISCHE HAUPTMERKMALE (PAG. 237)
3 = KONSTRUKTIONSTOLERANZEN
4 = ARTIKEL
5 = ABMESSUNGEN UND DATEN
6 = WEITERE TECHNISCHE DATEN UND TIPPS

1B = MÖGLICHE BEARBEITUNGEN
2B = MATERIALGRUPPEN
3B = ANGABE DER BEARBEITBAREN MATERIALIEN UND ANWENDUNGSGEBIETE
4B = SCHNITTDATEN
5B = ANMERKUNG ZU DEN PARAMETERN FÜR EVENTUELLE WEITERE BEARBEITUNGEN
6B = FORMELN UND PARAMETER

1 = NOMBRE TRANCHANTS ET ANGLE HELICE
2 = CARACTERISTIQUES TECHNIQUES (PAG. 237)
3 = TOLÉRANCE CONSTRUCTIVES
4 = ARTICLES
5 = DIMENSIONES ET DONNÉES
6 = ULTÉRIEURES DONNÉES TECHNIQUE ET CONSEILLE D'USAGE

1B = USINAGES A EXECUTER
2B = GROUPES DE MATERIAUX
3B = INDICATION MATERIAUX A USINER ET PLAGES D'APPLICATION
4B = PARAMÉTRES DE TRAVAIL
5B = NOTE POUR PARAMETRES EVENTUELS D'AUTRES USINAGES
6B = FORMULES ET PARAMÈTRES



1 = ANGOLI COSTRUTTIVI
2 = INSERTI CONSIGLIATI
3 = ELENCO ARTICOLI
4 = MISURE, DATI, INDICAZIONI
5 = ACCESSORI IN DOTAZIONE
6 = ACCESSORI E RICAMBI OPZIONALI A RICHIESTA
7 = GRANDEZZA INSERTO
8 = DATI TECNICI E CONSIGLI D'USO
9 = LAVORAZIONI POSSIBILI
10 = ANGOLO DI PENETR. OBLIQUA

1B = ELENCO INSERTI
2B = INDICAZIONE MATERIALI LAVORABILI E CAMPI D'IMPIEGO
3B = DISPONIBILITÀ GRADI
4B = MISURE E DATI
5B = USO DEL REFRIGERANTE
6B = SCELTA DEL GRADO (QUICK PICK)
7B = GRUPPI MATERIALI
8B = AVANZAMENTO DI BASE fz0
9B = VELOCITÀ DI TAGLIO Vc
10B = FORMULE E PARAMETRI
11B = CORREZIONE AVANZAMENTO fz0
12B = INTERPRETAZIONE VELOCITÀ DI TAGLIO SECONDO LA LAVORAZIONE
13B = INDICAZIONI ULTERIORI

1 = CONSTRUCTIVE ANGLES
2 = RECOMMENDED INSERTS
3 = ITEM
4 = MEASURES,DATA,INDICATIONS
5 = ACCESSORIES EQUIPMENT
6 = OPTIONAL ACCESORIES AND SPARE PARTS ON REQUEST
7 = INSERT SIZE
8 = TECHNICAL DATA AND SUGGESTIONS
9 = POSSIBLE TYPES OF MACHINING
10 = OBLIQUE PENETRATION ANGLE

1B = AVAILABLE INSERTS
2B = RECOMMENDED MACHINING MATERIALS AND FIELDS OF APPLICATION
3B = AVAILABLE GRADES
4B = MEASURES AND DATA
5B = USE OF COOLANT
6B = GRADE CHOICE(QUICK PICK)
7B = MATERIAL GROUPS
8B = BASIC FEED RATE fz0
9B = CUTTING SPEED Vc
10B = FORMULAS AND PARAMETERS
11B = FEED RATE CORRECTION fz0
12B = CUTTING SPEED INTERPRETATION ACCORDING TO MACHINING
13B = FURTHER INDICATIONS

1 = KONSTRUKTIONSWINKEL
2 = EMPFOHLENE WENDESCHNEIDPLATTEN
3 = ARTKEL
4 = ABMESSUNGEN,DATEN;HINWEISE
5 = ZUBEHÖRAUSSTATTUNG
6 = OPTIONALZUBEHÖR UND -ERSATZTEILE AUF ANFRAGE
7 = WENDEPLATTENGRÖSSE
8 = TECHNISCHE DATEN UND TIPPS
9 = MÖGLICHE BEARBEITUNGSARTEN
10 = EINTAUCHWINKEL

1B = LIEFERBARE WENDEPLATTEN
2B = EMPFOHLENE WERKSTOFFE UND EINSATZBEREICHE
3B = LIEFERBARE HM-QUALITÄTEN
4B = ABMESSUNGEN UND DATEN
5B = KÜHLMITTELVERWENDUNG
6B = SORTENAUSWAHL(QUICK PICK)
7B = MATERIALGRUPPEN
8B = GRUNDVORSCHUB fz0
9B = SCHNITTGESCHWINDIGKEIT Vc
10B = FORMELN UND PARAMETER
11B = VORSCHUBKORREKTUR fz0
12B = INTERPRETATION DER SCHNITT GESCHWINDIGKEIT NACH BEARBEI TUNG
13B = WEITERE HINWEISE

1 = ANGLES CONSTRUCTIVES
2 = PLAQUETTES CONSEILLÉES
3 = ARTICLES
4 = DIMENSIONES,DONNÉES,INDICATIONS
5 = ACCESSOIRES EN DOTATION
6 = ACCESSOIRES ET RECHANGE OPTIONNEL SUR DEMANDE
7 = DIMENSION DE LA PLAQUETTE
8 = DONNÉES TECHNIQUES ET CONSEILLES D'USAGE
9 = USINAGES POSSIBLES
10 = ANGLE DE PÉNÉTRATION OBLIQUE

1B = PLAQUETTES DISPONIBLES
2B = INDICATIONS SUR LES MATERIAUX USINABLE ET CHAMPS D'USINAGE
3B = DISONIBILITÉ DE DEGRÉS
4B = DIMENSIONES ET DONNÉES
5B = UTILISATION DU RÉFRIGÉRANTE
6B = CHOIX DU DEGRÉ(QUICK PICK)
7B = GROUPES DE MATERIAUX
8B = DÉPLACEMENT fz0
9B = VITESSE DE COUPE Vc
10B = FORMULES ET PARAMÈTRES
11B = CORRECTION DÉPLACEMENT fz0
12B = INTERPRÉTATION VITESSE DE COUPE SELÓN L'USINAGE
13B = INDICATIONS ULTÉRIEURES

SAU
QUALITY TOOLS ENGINEERING

FRESE INTEGRALI IN METALLO DURO
SOLID CARBIDE MILLING
HM FRAESER
FRAISES EN CARBURE MONOBLOC
FRESAS INTEGRALES EN METAL DURO

			ART.	LUNGHEZZA FRESA MILLING CUTTER LENGTH	SPIGOLO FRESA CORNER SHAPE	ØD	Z	ANGOLO ELICA ANGLE FLUTES	Materiali - Materials Pag. 1119 P	M	K	N	S	H	G	Pag.
MICROFRESE - MICRO-MILLS																
	BLACK		ST2201		90°	0,4-3	2	30°	●	○	●	●				240
			STN2201		90°	0,4-3	2	30°	●	○	●	●				242
	BLACK		ST2205		R	0,4-3	2	30°	●	○	●	○				244
			STN2205		R	0,4-3	2	30°	●	○	●	○				246
FRESE PER ALLUMINIO - MILLING CUTTERS FOR ALUMINIUM																
			SM1200		90°	1-6	1	30°				●				250
			SM1300		90°	2-16	1	30°				●				252
	SILVER		SMW2317		90°	4-20	2	55°				●				254
			SMW2317..N01		90°	3-20	2	55°				●				256
			SM2315..N01		R	8-25	2	30°				●				258
	SILVER		SM2417		R	4-12	2	40°				●				260
			SM2417..01		R	3-12	2	40°				●				262
			SM3315..N01		R	6-16	3	43°-45°				●				264
	SILVER		SM3417		90°	6-25	3	45°				●				266
			SM3417..N01		90°	6-25	3	45°				●				268
	GOLD		SMW3414		90°	8-25	3	40°				●				270
			SMW3414..N01		90°	8-25	3	40°				●				272
HSC	GOLD		SM3510		45°	4-20	3	43°-45°				●				274
HSC			SM3510..N01		45°	4-20	3	43°-45°				●				276

● APPLICAZIONE CONSIGLIATA - RECOMMENDED APPLICATION
EMPFOHLENEREINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

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			ART.	LUNGHEZZA FRESA MILLING CUTTER LENGTH	SPIGOLO FRESA CORNER SHAPE	ØD	Z	ANGOLO ELICA ANGLE FLUTES	Materiali - Materials Pag. 1119 P	M	K	N	S	H	G	Pag.
2 TAGLI - 2 CUTTINGS																
		BLACK	SMW2200		90°	2-20	2	30°	●	●	●				○	280
		BLACK	SMW2300		90°	2-20	2	30°	●	●	●				○	282
		BLACK	SMW2203		R	2,5-20	2	30°	●	●	●				○	284
		BLACK	SM2203		R	2,5-20	2	30°	●	●	●				○	286
HSC		GRAY	SM2424		R	2-12	2	30°	●		●		●	●	○	288
3 TAGLI - 3 CUTTINGS																
		BLACK	SMW3100		90°	2-20	3	30°	●	●	●				○	292
		RED	SMW3231		90°	2-20	3	30°	●	●	●				○	294
		BLACK	SMW3300		90°	2-20	3	30°	●	●	●				○	296
4/6/8 TAGLI - 4/6/8 CUTTINGS																
		BLACK	SMW4300		90°	5,5-20	4	30°	●	●	●				○	300
		BLACK	SM4300		90°	2-20	4	30°	●	●	●				○	302
		BLACK	SMW4400		90°	3-20	4	30°	●	●	●				○	304
		BLACK	SMW4402		45°	2-20	4	45°	●	●	●				○	306
HSC		GRAY	SM4330		45°	4-20	4	52°	●	●	●			●	○	308
		GRAY	SMW4304		90°	3-20	4	25°	●	●	●					310
		GRAY	SMW3304		90°	4-25	3-4 5-6	45°	●	●			●			312
α1 α2 α4 α3		GRAY	SMW4404		90°	6-20	4	45°	●	●	●		●			314
		GRAY	SM4325		R	3-20	4	30°	●	○	○			●	○	316
HSC		GRAY	SM4215		R	2-16	4	30°	●	○	○			●	○	318

● APPLICAZIONE CONSIGLIATA - RECOMMENDED APPLICATION
EMPFOHLENEREINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

			ART.	LUNGHEZZA FRESA MILLING CUTTER LENGTH	SPIGOLO FRESA CORNER SHAPE	ØD	z	ANGOLO ELICA ANGLE FLUTES	Materiali - Materials Pag. 1119 P	M	K	N	S	H	G	Pag.
4/6/8 TAGLI - 4/6/8 CUTTINGS																
		GRAY	SM4525		R	3-20	4	30°	●	○	○			●	○	320
		BLACK	SMW4403		R	3-20	4	30°	●	●	●				○	322
		GRAY	SM6402		45°	4-20	6-8	45°	●	●	●	●	●		○	324
		GRAY	SM6502		45°	4-20	6-8	45°	●	●	●	●	●		○	326
		GRAY	SM6432		90°	4-20	6-8	52°	●					●	○	328
		GRAY	SM6532		90°	6-20	6-8	52°	●					●	○	330
		ORANGE	SM7215..TI		R	6-16	5-9	38°	○	●			●	○		332
ELICA CON ANGOLO VARIABILE - HELIX WITH VARIABLE ANGLE																
HSC		GRAY	SMW3400		45°	3-20	3	45°-48°	●	○	●			○	○	336
		ORANGE	SMW3400..TI		45°	3-20	3	45°-48°	○	●			●	○		338
HSC		GRAY	SM3415		45°	3-20	3	45°-48°	●	○	●			○	○	340
		ORANGE	SM3415..TI		45°	3-20	3	45°-48°	○	●			●	○		342
		GRAY	SM3515		R	4-10	3	35°-38°	●	○	●		○	○	○	344
		ORANGE	SM3515..TI		R	4-10	3	35°-38°	○	●			●	○		346
		GRAY	SM3525		R	4-10	3	35°-38°	●	○	●		○	○	○	348
		ORANGE	SM3525..TI		R	4-10	3	35°-38°	○	●			●	○		350
α1 α2 α4 α3		BLACK	SMW4501		45°	5-20	4	35°-38°	●	○	●		○	○	○	352
α1 α2 α4 α3		ORANGE	SMW4501..TI		45°	5-20	4	35°-38°	○	●			●	○		354
α1 α2 α4 α3		BLACK	SMW4401		45°	3-25	4	35°-38°	●	○	●		○	○	○	356
α1 α2 α4 α3		ORANGE	SMW4401..TI		45°	3-25	4	35°-38°	○	●			●	○		358
α1 α2 α4 α3		BLACK	SM4415		45°	3-25	4	35°-38°	●	○	●		○	○	○	360
α1 α2 α4 α3		ORANGE	SM4415..TI		45°	3-25	4	35°-38°	○	●			●	○		362

● APPLICAZIONE CONSIGLIATA - RECOMMENDED APPLICATION
EMPFOHLENEREINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

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		ART.	LUNGHEZZA FRESA MILLING CUTTER LENGTH	SPIGOLO FRESA CORNER SHAPE	ØD	Z	ANGOLO ELICA ANGLE FLUTES	Materiali - Materials Pag. 1119 P	M	K	N	S	H	G	Pag.
ELICA CON ANGOLO VARIABILE - HELIX WITH VARIABLE ANGLE															
GRAY		SMW4305		R	4-20	4	35°-38°	●	○	●		○	○	○	364
ORANGE		SMW4305..TI		R	4-20	4	35°-38°	○	●			●	○		366
GRAY		SM4315		R	4-20	4	35°-38°	●	○	●		○	○	○	368
ORANGE		SM4315..TI		R	4-20	4	35°-38°	○	●			●	○		370
GRAY		SM4313		R	2,5-16	4	35°-38°	●	○	●			○	○	372
ORANGE		SM4313..TI		R	2,5-16	4	35°-38°	○	●			●	○		374
GRAY		SM4413..LX		R	3-16	4	35°-38°	●	○	●			○	○	376
	NEW	SM5215..TI		R	6-16	5	36°-37°	●	●			●	○		378
	NEW	SMW5405..TI		R	8-16	5	36°-37°	●	●			●	○		380
SEDI CHIAVETTE - KEYSLOTS															
BLACK		SMW3301		90°	1,8-15,7	3	30°	●	●	●				○	384
SVASATORI/SMUSSATORI - COUNTERSINK AND CHAMFER MILLS															
BLACK		SCR0183		60°	4-20	4-6	0°	●	●	●	●			○	388
BLACK		SCR0187		90°	4-20	4-5-6	0°	●	●	●	●			○	390
BLACK		SMR0110		45°	4-16	4	0°	●	●	●	●			○	392
		SS230		90°	3-20	2	30°				●				394
BLACK		SM4701		R	6-10	4	0°	●	●	●	●				396

● APPLICAZIONE CONSIGLIATA - RECOMMENDED APPLICATION
EMPFOHLENEREINSATZ - APPLICATION CONSEILLÉE

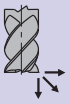
○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

SIMBOLOGIA - SYMBOL - SYMBOLE - SYMBOLES

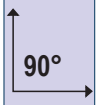
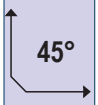
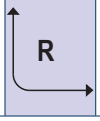
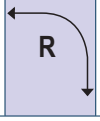
RIVESTIMENTI - COATED - BESCHICHTUNG - RECOUVREMENT

RIVESTIM. COATED **BLACK**	BLACK: L'elevata durezza del rivestimento offre una protezione eccellente contro l'usura abrasiva e l'erosione *BLACK: The high hardness of the coating offers an excellent protection against abrasive wear and erosion*	RIVESTIM. COATED **GRAY**	GRAY: Le notevoli migliorie di resistenza all'usura, così come la resistenza all'ossidazione e la durezza a caldo, rendono questo rivestimento la scelta naturale per le frese *GRAY: A considerably improved resistance to wear, as well as good oxidation stability and hot hardness make this coating ideally suitable for the milling cutters*
RIVESTIM. COATED **GOLD**	GOLD: Rivestimento molto adatto alla lavorazione dell'alluminio e le sue leghe. Permette di utilizzare parametri di taglio più elevati. *GOLD: This coating is particularly suitable for aluminum and relevant alloys It enables the use of higher cutting parameters*	RIVESTIM. COATED **SILVER**	SILVER: Particolarmente indicato per lavorazioni di alluminio, bronzo, ottone e rame. *SILVER: Particularly suitable to machining aluminum, bronze and copper.*
RIVESTIM. COATED **RED**	RED: Lavorazione ad alta velocità di materiali difficilmente lavorabili. *RED: High speed machining of hardly machinable materials.*	RIVESTIM. COATED **ORANGE**	ORANGE: Rivestimento multistrato ottimizzato per la lavorazione di acciai inossidabili, Titanio, Inconel e superleghe. *ORANGE: Optimized multi-layer coating for stainless steel, titanium, inconel and super alloys.*

DIREZIONE DI LAVORAZIONE - WORKING DIRECTION - ARBEITSRICHTUNG - ORENTATION D'EXECUTION

	- N2 Direzioni di utilizzo possibili - 2 Possible usage orientation - 2 Mögliche vorschubrichtung - N2 orientations d'usage possibles		- N3 Direzioni di utilizzo possibili - 3 Possible usage orientation - 3 Mögliche vorschubrichtung - N3 orientations d'usage possibles

SPIGOLO FRESA - CORNER SHAPE - FRÄSERKANTE - ARETE FRAISE

	- 90°		- Angolo di testa 90° - 90° Head angle - Kopfwinkel 90° - Angle en tete 90°		- Angolo di testa 60° - 60° Head angle - Kopfwinkel 60° - Angle en tete 60°		- Spigolo a 45° - 45° Corner shape - Ecke 45° - Arête 45°
	- Sferico - Spherical - Kugelförmig - Sphérique		- Torico - Toric - Torisch - Torique		- Raggiato - Radius - Mit eckenradius - Radiaire		

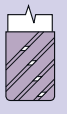
DUREZZA MATERIALE - HARDNESS MATERIAL - MATERIALHÄRTE - DURETE MATERIAU

42 HRC	- 42 HRC	**52 HRC**	- 52 HRC	**58 HRC**	- 58 HRC	**60 HRC**	- 60 HRC
62 HRC	- 62 HRC	**64 HRC**	- 64 HRC	**ALU** ≤5% Si	- Alluminio con Silicio ≤ 5% - Aluminium with silicon ≤ 5% - Aluminium avec silicium ≤ 5% - Aluminium mit Siliziumgehalt ≤ 5%	**ALU** >5% Si	- Alluminio con Silicio > 5% - Aluminium with silicon > 5% - Aluminium avec silicium > 5% - Aluminium mit Siliziumgehalt > 5%

LUNGHEZZA FRESA - MILLING CUTTER LENGHT - FRÄSERLÄNGE - LONGUEUR DE LA FRAISE

	- Corta - Short - Kurz - Courte		- Media - Medium - Mittel - Moyenne		- Lunga - Long - Lang - Longue

SIMBOLI GENERALI - GENERAL SYMBOLS - ALLGEMEINE SYMBOLE - SYMBOLES GÉNÉRAUX

	- Per lavorazioni ad alta velocità - For high speed machining - Für hochgeschwindigkeitsbearbei tungen geeignet - Pour usinage à haute vitesse		- Lavorazioni a secco - Dry machining - Trockenbearbeitung - Usinage a sec		- Lavorazioni con refrigerante - Machining operations with coolant - Bearbeitungen mit Kühlmittel - Usinages avec réfrigérant		- Basse vibrazioni - Low vibrations - Vibrationsarm - Faibles vibrations
	- Divisione irregolare - Irregular helix angles - Unregelmäßige Teilung der Schneiden - Division Irrégulière		- Tagliente con rompitruciolo speciale - Cutting edge with special chipbreaker - Schneide mit speziellem Spanbrecher - Tranchant avec brise-copeau spécial		- Fresatura Trocoidale - Trochoidal Milling - Trochoides Fräsen - Fraisage Trochoidal		

MICROFRESE

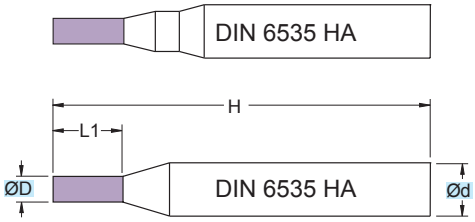
MICRO-MILLS / MIKROFRAESER / MICRO-FRAISES / MICROFRESAS

SAU
QUALITY TOOLS ENGINEERING

ST2201

ØD = 0,4 - 3

Fino a diametro 0,8
Up to diameter 0,8



RIVESTIM.
COATED
BLACK

90°

42
HRC

Microfresa in M.D.I. Micrograno
Gambo Cilindrico HA

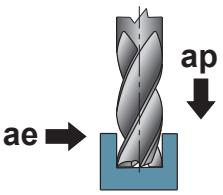
Micrograin HM Micro-mill
Cilindrical Shank HA

TOLLERANZE	D	d
TOLLERANCE RANGE	h10	h6

(mm)

ART.	ØD	Ød	L1	H	z
ST2201.040.N00	0,4	3,0	1,5	38	2
ST2201.050.N00	0,5	3,0	1,5	38	2
ST2201.060.N00	0,6	3,0	2,0	38	2
ST2201.070.N00	0,7	3,0	3,0	38	2
ST2201.080.N00	0,8	3,0	3,0	38	2
ST2201.090.N00	0,9	3,0	3,0	38	2
ST2201.100.N00	1,0	3,0	4,0	38	2
ST2201.110.N00	1,1	3,0	4,0	38	2
ST2201.120.N00	1,2	3,0	4,0	38	2
ST2201.130.N00	1,3	3,0	4,0	38	2
ST2201.140.N00	1,4	3,0	4,0	38	2
ST2201.150.N00	1,5	3,0	5,0	38	2
ST2201.160.N00	1,6	3,0	5,0	38	2
ST2201.180.N00	1,8	3,0	5,0	38	2
ST2201.200.N00	2,0	3,0	6,0	38	2
ST2201.250.N00	2,5	3,0	7,0	38	2
ST2201.300.N00	3,0	3,0	8,0	38	2

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm) ØD	(m/min) Vc	(mm) fz	(mm) ap	(mm) ae
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO E SUE LEGHE ALUMINIUM	RAME E SUE LEGHE COPPER	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE					
			●													0,4÷0,6	65-100	0,003-0,011	0,5xD	1xD
			●													0,6÷0,8	65-100	0,003-0,015	0,5xD	1xD
			●													0,8÷1,0	65-100	0,002-0,017	0,5xD	1xD
			●													1,0÷1,2	65-100	0,005-0,020	0,5xD	1xD
			●													1,2÷1,4	65-100	0,007-0,022	0,5xD	1xD
			●													1,4÷1,6	65-100	0,010-0,025	0,5xD	1xD
			●													1,6÷2,0	65-100	0,012-0,027	0,5xD	1xD
			●													2,0÷3,0	65-100	0,015-0,030	0,5xD	1xD
					○											0,4÷0,6	35-55	0,003-0,011	0,5xD	1xD
					○											0,6÷0,8	35-55	0,003-0,015	0,5xD	1xD
					○											0,8÷1,0	35-55	0,002-0,017	0,5xD	1xD
					○											1,0÷1,2	35-55	0,005-0,020	0,5xD	1xD
					○											1,2÷1,4	35-55	0,007-0,022	0,5xD	1xD
					○											1,4÷1,6	35-55	0,010-0,025	0,5xD	1xD
					○											1,6÷2,0	35-55	0,012-0,027	0,5xD	1xD
					○											2,0÷3,0	35-55	0,015-0,030	0,5xD	1xD
						●										0,4÷0,6	80-120	0,003-0,011	0,5xD	1xD
						●										0,6÷0,8	80-120	0,003-0,015	0,5xD	1xD
						●										0,8÷1,0	80-120	0,002-0,017	0,5xD	1xD
						●										1,0÷1,2	80-120	0,005-0,020	0,5xD	1xD
						●										1,2÷1,4	80-120	0,007-0,022	0,5xD	1xD
						●										1,4÷1,6	80-120	0,010-0,025	0,5xD	1xD
						●										1,6÷2,0	80-120	0,012-0,027	0,5xD	1xD
						●										2,0÷3,0	80-120	0,015-0,030	0,5xD	1xD
									●							0,4÷0,6	160-400	0,003-0,012	0,5xD	1xD
									●							0,6÷0,8	160-400	0,005-0,020	0,5xD	1xD
									●							0,8÷1,0	160-400	0,007-0,022	0,5xD	1xD
									●							1,0÷1,2	160-400	0,010-0,025	0,5xD	1xD
									●							1,2÷1,4	160-400	0,012-0,027	0,5xD	1xD
									●							1,4÷1,6	160-400	0,020-0,035	0,5xD	1xD
									●							1,6÷2,0	160-400	0,022-0,037	0,5xD	1xD
									●							2,0÷3,0	160-400	0,025-0,040	0,5xD	1xD

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

$$n = \frac{Vc \cdot 1000}{ØD \cdot 3{,}14} = \text{giri/min } (min^{-1})$$

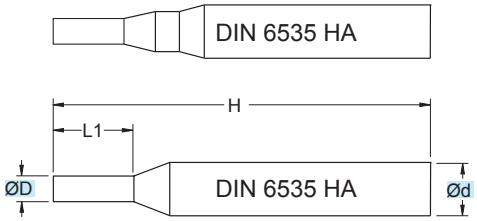
$$fn = fz \cdot z = \text{mm}$$

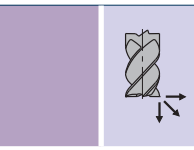
$$Vf = fz \cdot z \cdot n = \text{mm/min}$$

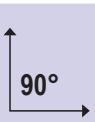
STN2201

ØD = 0,4 - 3

Fino a diametro 0,8
Up to diameter 0,8







42 HRC

Microfresa in M.D.I. Micrograno
Gambo Cilindrico HA

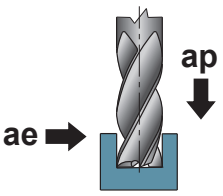
Micrograin HM Micro-mill
Cilindrical Shank HA

TOLLERANZE	D	d
TOLLERANCE RANGE	h10	h6

(mm)

ART.	ØD	Ød	L1	H	z
STN2201.040.N00	0,4	3,0	1,5	38	2
STN2201.050.N00	0,5	3,0	1,5	38	2
STN2201.060.N00	0,6	3,0	2,0	38	2
STN2201.070.N00	0,7	3,0	3,0	38	2
STN2201.080.N00	0,8	3,0	3,0	38	2
STN2201.090.N00	0,9	3,0	3,0	38	2
STN2201.100.N00	1,0	3,0	4,0	38	2
STN2201.110.N00	1,1	3,0	4,0	38	2
STN2201.120.N00	1,2	3,0	4,0	38	2
STN2201.130.N00	1,3	3,0	4,0	38	2
STN2201.140.N00	1,4	3,0	4,0	38	2
STN2201.150.N00	1,5	3,0	5,0	38	2
STN2201.160.N00	1,6	3,0	5,0	38	2
STN2201.180.N00	1,8	3,0	5,0	38	2
STN2201.200.N00	2,0	3,0	6,0	38	2
STN2201.250.N00	2,5	3,0	7,0	38	2
STN2201.300.N00	3,0	3,0	8,0	38	2

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm) ØD	(m/min) Vc	(mm) fz	(mm) ap	(mm) ae
	ACCIAIO NON LEGATO NOT ALLOY STEEL	**ACCIAIO POCO LEGATO** LOW ALLOY STEEL	**ACCIAIO ALTO LEGATO** ALLOY STEEL	**INOX MARTENSITICO** STAINLESS STEEL MART.	**INOX AUST. DUPLEX** STAINLESS STEEL AUST.	**GHISA GRIGIA** GREY CAST IRON	**GHISA SFEROIDALE** SPHEROIDAL GRAPHITE	**GHISA MALLEABILE** MALLEABLE CAST IRON	**ALLUMINIO E SUE LEGHE** ALUMINIUM	**RAME E SUE LEGHE** COPPER	**NON METALLICI** PLASTICS	**LEGHE RESIST. CALORE** HIGH TEMP. ALLOY	**TITANIO E SUE LEGHE** TITANIUM	**ACCIAIO TEMPRATO** HARDENED STEEL	**GRAFITE** GRAPHITE					
			●													0,4÷0,6	50-80	0,003-0,011	0,5xD	1xD
			●													0,6÷0,8	50-80	0,003-0,015	0,5xD	1xD
			●													0,8÷1,0	50-80	0,002-0,017	0,5xD	1xD
			●													1,0÷1,2	50-80	0,005-0,020	0,5xD	1xD
			●													1,2÷1,4	50-80	0,007-0,022	0,5xD	1xD
			●													1,4÷1,6	50-80	0,010-0,025	0,5xD	1xD
			●													1,6÷2,0	50-80	0,012-0,027	0,5xD	1xD
			●													2,0÷3,0	50-80	0,015-0,030	0,5xD	1xD
					○											0,4÷0,6	25-45	0,003-0,011	0,5xD	1xD
					○											0,6÷0,8	25-45	0,003-0,015	0,5xD	1xD
					○											0,8÷1,0	25-45	0,002-0,017	0,5xD	1xD
					○											1,0÷1,2	25-45	0,005-0,020	0,5xD	1xD
					○											1,2÷1,4	25-45	0,007-0,022	0,5xD	1xD
					○											1,4÷1,6	25-45	0,010-0,025	0,5xD	1xD
					○											1,6÷2,0	25-45	0,012-0,027	0,5xD	1xD
					○											2,0÷3,0	25-45	0,015-0,030	0,5xD	1xD
						●										0,4÷0,6	65-95	0,003-0,011	0,5xD	1xD
						●										0,6÷0,8	65-95	0,003-0,015	0,5xD	1xD
						●										0,8÷1,0	65-95	0,002-0,017	0,5xD	1xD
						●										1,0÷1,2	65-95	0,005-0,020	0,5xD	1xD
						●										1,2÷1,4	65-95	0,007-0,022	0,5xD	1xD
						●										1,4÷1,6	65-95	0,010-0,025	0,5xD	1xD
						●										1,6÷2,0	65-95	0,012-0,027	0,5xD	1xD
						●										2,0÷3,0	65-95	0,015-0,030	0,5xD	1xD
									●							0,4÷0,6	130-320	0,003-0,012	0,5xD	1xD
									●							0,6÷0,8	130-320	0,005-0,020	0,5xD	1xD
									●							0,8÷1,0	130-320	0,007-0,022	0,5xD	1xD
									●							1,0÷1,2	130-320	0,010-0,025	0,5xD	1xD
									●							1,2÷1,4	130-320	0,012-0,027	0,5xD	1xD
									●							1,4÷1,6	130-320	0,020-0,035	0,5xD	1xD
									●							1,6÷2,0	130-320	0,022-0,037	0,5xD	1xD
									●							2,0÷3,0	130-320	0,025-0,040	0,5xD	1xD

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

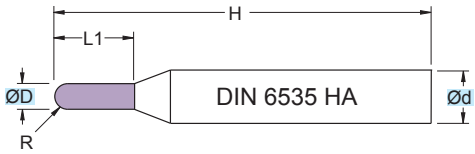
$$n = \frac{Vc \cdot 1000}{ØD \cdot 3{,}14} = \text{giri/min (min}^{-1}\text{)}$$

$$fn = fz \cdot z = \text{mm}$$

$$Vf = fz \cdot z \cdot n = \text{mm/min}$$

ST2205

ØD = 0,4 - 3



RIVESTIM. COATED
BLACK

R

42 HRC

Microfresa in M.D.I. Micrograno
Gambo cilindrico HA

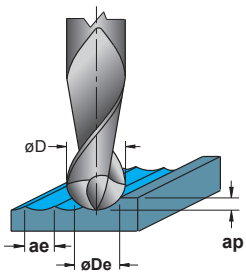
Micrograin HM Micro-mill
Cilindrical Shank HA

TOLLERANZE	D	d
TOLLERANCE RANGE	h10	h6

(mm)

ART.	ØD	Ød	L1	H	R	z
ST2205.040.S020	0,4	3,0	1,5	38	0,20	2
ST2205.050.S025	0,5	3,0	1,5	38	0,25	2
ST2205.060.S030	0,6	3,0	2,0	38	0,30	2
ST2205.070.S035	0,7	3,0	3,0	38	0,35	2
ST2205.080.S040	0,8	3,0	3,0	38	0,40	2
ST2205.090.S045	0,9	3,0	3,0	38	0,45	2
ST2205.100.S050	1,0	3,0	4,0	38	0,50	2
ST2205.110.S055	1,1	3,0	4,0	38	0,55	2
ST2205.120.S060	1,2	3,0	4,0	38	0,60	2
ST2205.130.S065	1,3	3,0	4,0	38	0,65	2
ST2205.140.S070	1,4	3,0	4,0	38	0,70	2
ST2205.150.S075	1,5	3,0	5,0	38	0,75	2
ST2205.160.S080	1,6	3,0	5,0	38	0,80	2
ST2205.180.S090	1,8	3,0	5,0	38	0,90	2
ST2205.200.S100	2,0	3,0	6,0	38	1,00	2
ST2205.250.S125	2,5	3,0	7,0	38	1,25	2
ST2205.300.S150	3,0	3,0	8,0	38	1,50	2

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm) ØDe	(m/min) Vc	(mm) fz	(mm) ap	(mm) ae
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO E SUE LEGHE ALUMINIUM	RAME E SUE LEGHE COPPER	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE					
			●													0,4÷0,6	50-100	0,010-0,025	0,05xD	0,05xD
			●													0,6÷0,8	50-100	0,020-0,035	0,05xD	0,05xD
			●													0,8÷1,0	50-100	0,030-0,045	0,05xD	0,05xD
			●													1,0÷1,2	50-100	0,035-0,050	0,05xD	0,05xD
			●													1,2÷1,4	50-100	0,040-0,055	0,05xD	0,05xD
			●													1,4÷1,6	50-100	0,050-0,065	0,05xD	0,05xD
			●													1,6÷2,0	50-100	0,060-0,075	0,05xD	0,05xD
			●													2,0÷3,0	50-100	0,070-0,085	0,05xD	0,05xD
					○											0,4÷0,6	20-40	0,010-0,025	0,05xD	0,05xD
					○											0,6÷0,8	20-40	0,020-0,035	0,05xD	0,05xD
					○											0,8÷1,0	20-40	0,030-0,045	0,05xD	0,05xD
					○											1,0÷1,2	20-40	0,035-0,050	0,05xD	0,05xD
					○											1,2÷1,4	20-40	0,040-0,055	0,05xD	0,05xD
					○											1,4÷1,6	20-40	0,050-0,065	0,05xD	0,05xD
					○											1,6÷2,0	20-40	0,060-0,075	0,05xD	0,05xD
					○											2,0÷3,0	20-40	0,070-0,085	0,05xD	0,05xD
						●										0,4÷0,6	70-110	0,010-0,025	0,05xD	0,05xD
						●										0,6÷0,8	70-110	0,025-0,040	0,05xD	0,05xD
						●										0,8÷1,0	70-110	0,040-0,055	0,05xD	0,05xD
						●										1,0÷1,2	70-110	0,050-0,065	0,05xD	0,05xD
						●										1,2÷1,4	70-110	0,060-0,075	0,05xD	0,05xD
						●										1,4÷1,6	70-110	0,070-0,085	0,05xD	0,05xD
						●										1,6÷2,0	70-110	0,080-0,095	0,05xD	0,05xD
						●										2,0÷3,0	70-110	0,090-0,105	0,05xD	0,05xD
									○							0,4÷0,6	150-300	0,010-0,025	0,05xD	0,05xD
									○							0,6÷0,8	150-300	0,030-0,045	0,05xD	0,05xD
									○							0,8÷1,0	150-300	0,050-0,065	0,05xD	0,05xD
									○							1,0÷1,2	150-300	0,070-0,085	0,05xD	0,05xD
									○							1,2÷1,4	150-300	0,085-0,100	0,05xD	0,05xD
									○							1,4÷1,6	150-300	0,100-0,115	0,05xD	0,05xD
									○							1,6÷2,0	150-300	0,120-0,135	0,05xD	0,05xD
									○							2,0÷3,0	150-300	0,140-0,155	0,05xD	0,05xD

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

DATI TECNICI LAVORAZIONI PAG. 1072 - 1073
MACHINING TECHNICAL DATA PAGE 1072 - 1073
BEARBEITUNGSSCHNITTDATEN S. 1072 - 1073
DONNEES TECHNIQUES USINAGES PAGES 1072 - 1073

øD = mm DIAMETRO - DIAMETER
øDe = mm DIAMETRO EFFETTIVO - EFFECTIVE DIAMETER
Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

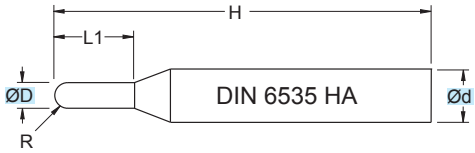
$$n = \frac{Vc \cdot 1000}{ØDe \cdot 3{,}14} = \text{giri/min (min}^{-1}\text{)}$$

$$fn = fz \cdot z = \text{mm}$$

$$Vf = fz \cdot z \cdot n = \text{mm/min}$$

STN2205

ØD = 0,4 - 3



Microfresa in M.D.I. Micrograno
Gambo cilindrico HA

Micrograin HM Micro-mill
Cilindrical Shank HA

TOLLERANZE	D	d
TOLLERANCE RANGE	h10	h6

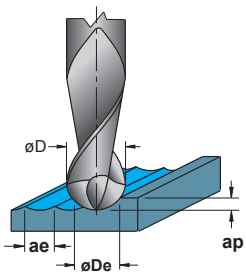
R

42 HRC

(mm)

ART.	ØD	Ød	L1	H	R	z
STN2205.040.S040.01	0,4	3,0	1,5	38	0,20	2
STN2205.050.S050.01	0,5	3,0	1,5	38	0,25	2
STN2205.060.S060.01	0,6	3,0	2,0	38	0,30	2
STN2205.070.S070.01	0,7	3,0	3,0	38	0,35	2
STN2205.080.S080.01	0,8	3,0	3,0	38	0,40	2
STN2205.090.S090.01	0,9	3,0	3,0	38	0,45	2
STN2205.100.S100.01	1,0	3,0	4,0	38	0,50	2
STN2205.110.S110.01	1,1	3,0	4,0	38	0,55	2
STN2205.120.S120.01	1,2	3,0	4,0	38	0,60	2
STN2205.130.S130.01	1,3	3,0	4,0	38	0,65	2
STN2205.140.S140.01	1,4	3,0	4,0	38	0,70	2
STN2205.150.S150.01	1,5	3,0	5,0	38	0,75	2
STN2205.160.S160.01	1,6	3,0	5,0	38	0,80	2
STN2205.180.S180.01	1,8	3,0	5,0	38	0,90	2
STN2205.200.S200.01	2,0	3,0	6,0	38	1,00	2
STN2205.250.S250.01	2,5	3,0	7,0	38	1,25	2
STN2205.300.S300.01	3,0	3,0	8,0	38	1,50	2

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm) ØDe	(m/min) Vc	(mm) fz	(mm) ap	(mm) ae
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO E SUE LEGHE ALUMINIUM	RAME E SUE LEGHE COPPER	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE					
			●													0,4÷0,6	40-80	0,010-0,025	0,05xD	0,05xD
			●													0,6÷0,8	40-80	0,020-0,035	0,05xD	0,05xD
			●													0,8÷1,0	40-80	0,030-0,045	0,05xD	0,05xD
			●													1,0÷1,2	40-80	0,035-0,050	0,05xD	0,05xD
			●													1,2÷1,4	40-80	0,040-0,055	0,05xD	0,05xD
			●													1,4÷1,6	40-80	0,050-0,065	0,05xD	0,05xD
			●													1,6÷2,0	40-80	0,060-0,075	0,05xD	0,05xD
			●													2,0÷3,0	40-80	0,070-0,085	0,05xD	0,05xD
					○											0,4÷0,6	15-35	0,010-0,025	0,05xD	0,05xD
					○											0,6÷0,8	15-35	0,020-0,035	0,05xD	0,05xD
					○											0,8÷1,0	15-35	0,030-0,045	0,05xD	0,05xD
					○											1,0÷1,2	15-35	0,035-0,050	0,05xD	0,05xD
					○											1,2÷1,4	15-35	0,040-0,055	0,05xD	0,05xD
					○											1,4÷1,6	15-35	0,050-0,065	0,05xD	0,05xD
					○											1,6÷2,0	15-35	0,060-0,075	0,05xD	0,05xD
					○											2,0÷3,0	15-35	0,070-0,085	0,05xD	0,05xD
						●										0,4÷0,6	55-90	0,010-0,025	0,05xD	0,05xD
						●										0,6÷0,8	55-90	0,025-0,040	0,05xD	0,05xD
						●										0,8÷1,0	55-90	0,040-0,055	0,05xD	0,05xD
						●										1,0÷1,2	55-90	0,050-0,065	0,05xD	0,05xD
						●										1,2÷1,4	55-90	0,060-0,075	0,05xD	0,05xD
						●										1,4÷1,6	55-90	0,070-0,085	0,05xD	0,05xD
						●										1,6÷2,0	55-90	0,080-0,095	0,05xD	0,05xD
						●										2,0÷3,0	55-90	0,090-0,105	0,05xD	0,05xD
									○							0,4÷0,6	120-250	0,010-0,025	0,05xD	0,05xD
									○							0,6÷0,8	120-250	0,030-0,045	0,05xD	0,05xD
									○							0,8÷1,0	120-250	0,050-0,065	0,05xD	0,05xD
									○							1,0÷1,2	120-250	0,070-0,085	0,05xD	0,05xD
									○							1,2÷1,4	120-250	0,085-0,100	0,05xD	0,05xD
									○							1,4÷1,6	120-250	0,100-0,115	0,05xD	0,05xD
									○							1,6÷2,0	120-250	0,120-0,135	0,05xD	0,05xD
									○							2,0÷3,0	120-250	0,140-0,155	0,05xD	0,05xD

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

DATI TECNICI LAVORAZIONI PAG. 1072 - 1073
MACHINING TECHNICAL DATA PAGE 1072 - 1073
BEARBEITUNGSSCHNITTDATEN S. 1072 - 1073
DONNEES TECHNIQUES USINAGES PAGES 1072 - 1073

øD = mm DIAMETRO - DIAMETER
øDe = mm DIAMETRO EFFETTIVO - EFFECTIVE DIAMETER
Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

$$n = \frac{Vc \cdot 1000}{ØDe \cdot 3,14} = \text{giri/min (min}^{-1}\text{)}$$

$$fn = fz \cdot z = \text{mm}$$

$$Vf = fz \cdot z \cdot n = \text{mm/min}$$

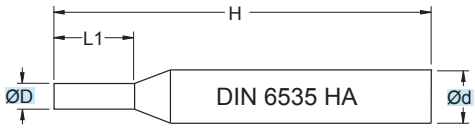
FRESE PER ALLUMINIO

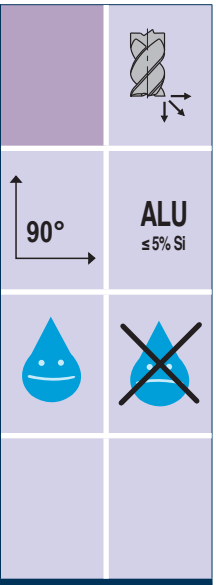
MILLING CUTTERS FOR ALUMINIUM / FRAESER FÜR ALUMINIUM /
FRAISES POUR ALUMINIUM / FRESAS PARA ALUMINIO

SAU
QUALITY TOOLS ENGINEERING

SM1200

ØD = 1 - 6





Fresa in M.D.I. Micrograno
Gambo cilindrico HA

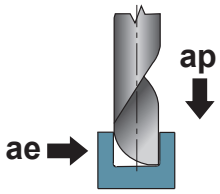
Micrograin HM minimills
Cilindrical Shank HA

TOLLERANZE	D	d
TOLLERANCE RANGE	h10	h6

(mm)

ART.	ØD	Ød	L1	H	z
SM1200.010.N00	1,0	6,0	5	40	1
SM1200.015.N00	1,5	6,0	7	40	1
SM1200.020.N00	2,0	6,0	7	40	1
SM1200.025.N00	2,5	6,0	8	40	1
SM1200.030.N00	3,0	6,0	8	40	1
SM1200.035.N00	3,5	6,0	10	40	1
SM1200.040.N00	4,0	6,0	10	40	1
SM1200.045.N00	4,5	6,0	12	50	1
SM1200.050.N00	5,0	6,0	12	50	1
SM1200.055.N00	5,5	6,0	14	50	1
SM1200.060.N00	6,0	6,0	14	50	1

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm) ØD	(m/min) Vc	(mm) fz	(mm) ap	(mm) ae
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO Si ≤ 12% ALUMINIUM 12 ≤ 12%	ALLUMINIO Si > 12% ALUMINIUM 12 > 12%	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE					
									●							1÷2	250-350	0,003-0,010	0,5xD	1xD
									●							2÷3	250-350	0,005-0,020	0,5xD	1xD
									●							3÷4	250-350	0,015-0,030	0,5xD	1xD
									●							4÷5	250-350	0,020-0,035	0,5xD	1xD
									●							5÷6	250-350	0,025-0,040	0,5xD	1xD
										●						1÷2	130-160	0,003-0,007	0,5xD	1xD
										●						2÷3	130-160	0,003-0,015	0,5xD	1xD
										●						3÷4	130-160	0,008-0,023	0,5xD	1xD
										●						4÷5	130-160	0,013-0,028	0,5xD	1xD
										●						5÷6	130-160	0,018-0,033	0,5xD	1xD
											●					1÷2	80-110	0,010-0,025	0,5xD	1xD
											●					2÷3	80-110	0,015-0,030	0,5xD	1xD
											●					3÷4	80-110	0,020-0,035	0,5xD	1xD
											●					4÷5	80-110	0,030-0,045	0,5xD	1xD
											●					5÷6	80-110	0,040-0,055	0,5xD	1xD

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

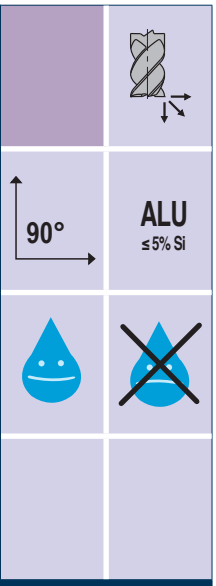
$$n = \frac{Vc \cdot 1000}{ØD \cdot 3{,}14} \text{ = giri/min (min}^{-1}\text{)}$$

$$fn = fz \cdot z \text{ = mm}$$

$$Vf = fz \cdot z \cdot n \text{ = mm/min}$$

SM1300

ØD = 2 - 16



Fresa in M.D.I. Micrograno
Gambo cilindrico HA

Micrograin HM minimills
Cilindrical Shank HA

TOLLERANZE	D	d
TOLLERANCE RANGE	h10	h6

(mm)

ART.	ØD	Ød	L1	H	z
SM1300.020.N00	2,0	3,0	10	38	1
SM1300.025.N00	2,5	3,0	12	38	1
SM1300.030.N00	3,0	3,0	12	38	1
SM1300.040.N00	4,0	4,0	15	40	1
SM1300.050.N00	5,0	5,0	16	50	1
SM1300.061.N00	6,0	6,0	18	50	1
SM1300.062.N00	6,0	6,0	25	60	1
SM1300.081.N00	8,0	8,0	22	63	1
SM1300.082.N00	8,0	8,0	40	80	1
SM1300.100.N00	10,0	10,0	30	72	1
SM1300.120.N00	12,0	12,0	30	73	1
SM1300.140.N00	14,0	14,0	30	75	1
SM1300.160.N00	16,0	16,0	35	82	1

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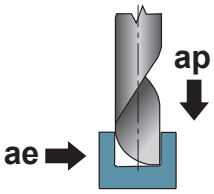
Applicazione - Application	P				M	K			N			S		H	G	(mm) ØD	(m/min) Vc	(mm) fz	(mm) ap	(mm) ae
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO Si ≤ 12% ALUMINIUM 12 ≤ 12%	ALLUMINIO Si > 12% ALUMINIUM 12 > 12%	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE					
									●							2÷4	250-350	0,005-0,020	0,5xD	1xD
									●							4÷6	250-350	0,015-0,030	0,5xD	1xD
									●							6÷8	250-350	0,025-0,040	0,5xD	1xD
									●							8÷10	250-350	0,035-0,050	0,5xD	1xD
									●							10÷12	250-350	0,045-0,060	0,5xD	1xD
									●							12÷14	250-350	0,060-0,075	0,5xD	1xD
									●							14÷16	250-350	0,075-0,090	0,5xD	1xD
										●						2÷4	130-160	0,003-0,015	0,5xD	1xD
										●						4÷6	130-160	0,008-0,023	0,5xD	1xD
										●						6÷8	130-160	0,018-0,033	0,5xD	1xD
										●						8÷10	130-160	0,025-0,040	0,5xD	1xD
										●						10÷12	130-160	0,030-0,045	0,5xD	1xD
										●						12÷14	130-160	0,040-0,055	0,5xD	1xD
										●						14÷16	130-160	0,045-0,060	0,5xD	1xD
											●					2÷4	80-110	0,015-0,030	0,5xD	1xD
											●					4÷6	80-110	0,020-0,035	0,5xD	1xD
											●					6÷8	80-110	0,040-0,055	0,5xD	1xD
											●					8÷10	80-110	0,050-0,065	0,5xD	1xD
											●					10÷12	80-110	0,070-0,085	0,5xD	1xD
											●					12÷14	80-110	0,090-0,105	0,5xD	1xD
											●					14÷16	80-110	0,110-0,125	0,5xD	1xD

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

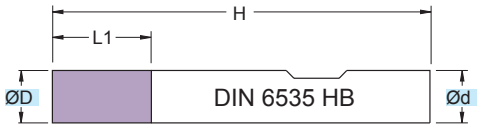
$$n = \frac{Vc \cdot 1000}{ØD \cdot 3{,}14} \text{ = giri/min (min}^{-1}\text{)}$$

$$fn = fz \cdot z \text{ = mm}$$

$$Vf = fz \cdot z \cdot n \text{ = mm/min}$$

SMW2317

ØD = 4 - 20



RIVESTIM. COATED
SILVER

90°

ALU
>5% Si

Fresa in M.D.I. Micrograno
Gambo sec. DIN 6535 HB

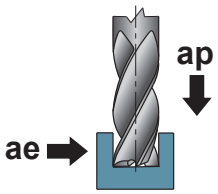
Micrograin HM mills
DIN 6535 HB Shank

TOLLERANZE / TOLLERANCE RANGE	D	d
	h10	h6

(mm)

ART.	ØD	Ød	L1	H	z
SMW2317.040.N00	4	6	11	57	2
SMW2317.050.N00	5	6	13	57	2
SMW2317.060.N00	6	6	13	57	2
SMW2317.080.N00	8	8	19	63	2
SMW2317.100.N00	10	10	22	72	2
SMW2317.120.N00	12	12	26	83	2
SMW2317.140.N00	14	14	26	83	2
SMW2317.160.N00	16	16	32	92	2
SMW2317.180.N00	18	18	32	92	2
SMW2317.200.N00	20	20	38	104	2

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm) ØD	(m/min) Vc	(mm) fz	(mm) ap	(mm) ae
	ACCIAIO NON LEGATO NOT ALLOY STEEL	**ACCIAIO POCO LEGATO** LOW ALLOY STEEL	**ACCIAIO ALTO LEGATO** ALLOY STEEL	**INOX MARTENSITICO** STAINLESS STEEL MART.	**INOX AUST. DUPLEX** STAINLESS STEEL AUST.	**GHISA GRIGIA** GREY CAST IRON	**GHISA SFEROIDALE** SPHEROIDAL GRAPHITE	**GHISA MALLEABILE** MALLEABLE CAST IRON	**ALLUMINIO Si ≤ 12%** ALUMINIUM 12 ≤ 12%	**ALLUMINIO Si > 12%** ALUMINIUM 12 > 12%	**NON METALLICI** PLASTICS	**LEGHE RESIST. CALORE** HIGH TEMP. ALLOY	**TITANIO E SUE LEGHE** TITANIUM	**ACCIAIO TEMPRATO** HARDENED STEEL	**GRAFITE** GRAPHITE					
									●							4÷6	250-350	0,015-0,030	0,5xD	1xD
									●							6÷8	250-350	0,030-0,045	0,5xD	1xD
									●							8÷10	250-350	0,040-0,055	0,5xD	1xD
									●							10÷12	250-350	0,050-0,065	0,5xD	1xD
									●							12÷14	250-350	0,090-0,105	0,5xD	1xD
									●							14÷16	250-350	0,110-0,125	0,5xD	1xD
									●							16÷18	250-350	0,130-0,145	0,5xD	1xD
									●							18÷20	250-350	0,150-0,165	0,5xD	1xD
										●						4÷6	130-160	0,015-0,030	0,5xD	1xD
										●						6÷8	130-160	0,030-0,045	0,5xD	1xD
										●						8÷10	130-160	0,040-0,055	0,5xD	1xD
										●						10÷12	130-160	0,050-0,065	0,5xD	1xD
										●						12÷14	130-160	0,090-0,105	0,5xD	1xD
										●						14÷16	130-160	0,110-0,125	0,5xD	1xD
										●						16÷18	130-160	0,130-0,145	0,5xD	1xD
										●						18÷20	130-160	0,150-0,165	0,5xD	1xD
											●					4÷6	80-110	0,030-0,045	0,5xD	1xD
											●					6÷8	80-110	0,045-0,060	0,5xD	1xD
											●					8÷10	80-110	0,060-0,075	0,5xD	1xD
											●					10÷12	80-110	0,080-0,095	0,5xD	1xD
											●					12÷14	80-110	0,100-0,115	0,5xD	1xD
											●					14÷16	80-110	0,130-0,145	0,5xD	1xD
											●					16÷18	80-110	0,150-0,165	0,5xD	1xD
											●					18÷20	80-110	0,170-0,185	0,5xD	1xD

PER LAVORAZIONI A SPALLAMENTO AUMENTARE I PARAMETRI DEL 20%
FOR SHOULDER MILLING PARAMETERS SHOULD BE INCREASED BY 20%

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

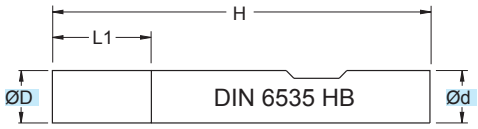
$$n = \frac{Vc \cdot 1000}{ØD \cdot 3{,}14} = \text{giri/min (min}^{-1}\text{)}$$

$$fn = fz \cdot z = \text{mm}$$

$$Vf = fz \cdot z \cdot n = \text{mm/min}$$

SMW2317..N01

ØD = 3 - 20



90°

ALU
≤5% Si

Fresa in M.D.I. Micrograno
Gambo sec. DIN 6535 HB

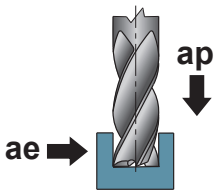
Micrograin HM mills
DIN 6535 HB Shank

TOLLERANZE	D	d
TOLLERANCE RANGE	h10	h6

(mm)

ART.	ØD	Ød	L1	H	z
SMW2317.030.N01	3	6	8	57	2
SMW2317.040.N01	4	6	11	57	2
SMW2317.050.N01	5	6	13	57	2
SMW2317.060.N01	6	6	13	57	2
SMW2317.080.N01	8	8	19	63	2
SMW2317.100.N01	10	10	22	72	2
SMW2317.120.N01	12	12	26	83	2
SMW2317.140.N01	14	14	26	83	2
SMW2317.160.N01	16	16	32	92	2
SMW2317.180.N01	18	18	32	92	2
SMW2317.200.N01	20	20	38	104	2

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm) ØD	(m/min) Vc	(mm) fz	(mm) ap	(mm) ae
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO Si ≤ 12% ALUMINIUM 12 ≤ 12%	ALLUMINIO Si > 12% ALUMINIUM 12 > 12%	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE					
									●							3	250-350	0,005-0,020	0,5xD	1xD
									●							4÷6	250-350	0,015-0,030	0,5xD	1xD
									●							6÷8	250-350	0,030-0,045	0,5xD	1xD
									●							8÷10	250-350	0,040-0,055	0,5xD	1xD
									●							10÷12	250-350	0,050-0,065	0,5xD	1xD
									●							12÷14	250-350	0,090-0,105	0,5xD	1xD
									●							14÷16	250-350	0,110-0,125	0,5xD	1xD
									●							16÷18	250-350	0,130-0,145	0,5xD	1xD
									●							18÷20	250-350	0,150-0,165	0,5xD	1xD
										●						3	130-160	0,005-0,020	0,5xD	1xD
										●						4÷6	130-160	0,015-0,030	0,5xD	1xD
										●						6÷8	130-160	0,030-0,045	0,5xD	1xD
										●						8÷10	130-160	0,040-0,055	0,5xD	1xD
										●						10÷12	130-160	0,050-0,065	0,5xD	1xD
										●						12÷14	130-160	0,090-0,105	0,5xD	1xD
										●						14÷16	130-160	0,110-0,125	0,5xD	1xD
										●						16÷18	130-160	0,130-0,145	0,5xD	1xD
										●						18÷20	130-160	0,150-0,165	0,5xD	1xD
											●					3	80-110	0,015-0,030	0,5xD	1xD
											●					4÷6	80-110	0,030-0,045	0,5xD	1xD
											●					6÷8	80-110	0,045-0,060	0,5xD	1xD
											●					8÷10	80-110	0,060-0,075	0,5xD	1xD
											●					10÷12	80-110	0,080-0,095	0,5xD	1xD
											●					12÷14	80-110	0,100-0,115	0,5xD	1xD
											●					14÷16	80-110	0,130-0,145	0,5xD	1xD
											●					16÷18	80-110	0,150-0,165	0,5xD	1xD
											●					18÷20	80-110	0,170-0,185	0,5xD	1xD

PER LAVORAZIONI A SPALLAMENTO AUMENTARE I PARAMETRI DEL 20%
FOR SHOULDER MILLING PARAMETERS SHOULD BE INCREASED BY 20%

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

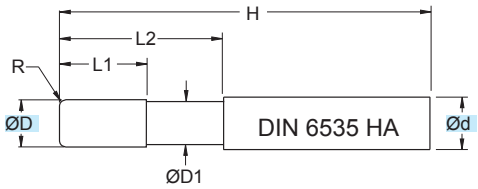
$$n = \frac{Vc \cdot 1000}{ØD \cdot 3{,}14} \text{ = giri/min (min}^{-1}\text{)}$$

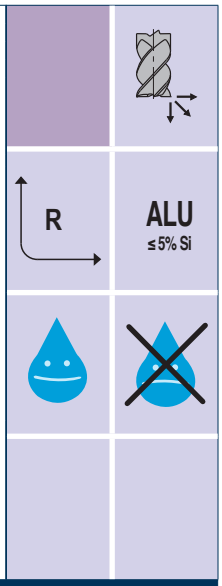
$$fn = fz \cdot z \text{ = mm}$$

$$Vf = fz \cdot z \cdot n \text{ = mm/min}$$

SM2315..N01

ØD = 8 - 25





Fresa in M.D.I. Micrograno
Gambo cilindrico HA

Micrograin HM mills
Cilindrical Shank HA

TOLLERANZE	D	d
TOLLERANCE RANGE	h10	h6

(mm)

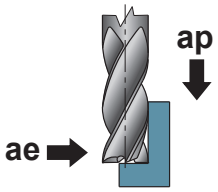
ART.	ØD	Ød	ØD1	L1	L2	H	R	z
SM2315.0801.R050.N01	8	8	7	8	27	64	0,5	2
SM2315.0802.R250.N01	8	8	7	8	27	64	2,5	2
SM2315.0811.R300.N01	8	8	7	8	27	64	3,0	2
SM2315.0803.R400.N01	8	8	7	8	27	64	4,0	2
SM2315.0813.R050.N01	8	8	7	8	32	70	0,5	2
SM2315.0814.R250.N01	8	8	7	8	32	70	2,5	2
SM2315.0815.R300.N01	8	8	7	8	32	70	3,0	2
SM2315.0816.R400.N01	8	8	7	8	32	70	4,0	2
SM2315.0804.R050.N01	8	8	7	8	38	74	0,5	2
SM2315.0805.R250.N01	8	8	7	8	38	74	2,5	2
SM2315.0855.R300.N01	8	8	7	8	38	74	3,0	2
SM2315.0806.R400.N01	8	8	7	8	38	74	4,0	2
SM2315.1001.R050.N01	10	10	9	10	32	70	0,5	2
SM2315.1002.R250.N01	10	10	9	10	32	70	2,5	2
SM2315.1003.R300.N01	10	10	9	10	32	70	3,0	2
SM2315.1004.R400.N01	10	10	9	10	32	70	4,0	2
SM2315.1005.R050.N01	10	10	9	10	43	80	0,5	2
SM2315.1006.R250.N01	10	10	9	10	43	80	2,5	2
SM2315.1007.R300.N01	10	10	9	10	43	80	3,0	2
SM2315.1008.R400.N01	10	10	9	10	43	80	4,0	2
SM2315.1201.R050.N01	12	12	11	12	30	70	0,5	2
SM2315.1202.R250.N01	12	12	11	12	30	70	2,5	2
SM2315.1203.R300.N01	12	12	11	12	30	70	3,0	2
SM2315.1204.R400.N01	12	12	11	12	30	70	4,0	2
SM2315.1205.R050.N01	12	12	11	12	40	80	0,5	2
SM2315.1206.R250.N01	12	12	11	12	40	80	2,5	2
SM2315.1207.R300.N01	12	12	11	12	40	80	3,0	2
SM2315.1208.R400.N01	12	12	11	12	40	80	4,0	2
SM2315.1209.R050.N01	12	12	11	12	55	95	0,5	2
SM2315.1210.R250.N01	12	12	11	12	55	95	2,5	2
SM2315.1211.R300.N01	12	12	11	12	55	95	3,0	2
SM2315.1212.R400.N01	12	12	11	12	55	95	4,0	2
SM2315.1601.R050.N01	16	16	15	16	41	85	0,5	2
SM2315.1602.R250.N01	16	16	15	16	41	85	2,5	2
SM2315.1603.R300.N01	16	16	15	16	41	85	3,0	2
SM2315.1604.R400.N01	16	16	15	16	41	85	4,0	2
SM2315.1605.R050.N01	16	16	15	16	50	94	0,5	2
SM2315.1606.R250.N01	16	16	15	16	50	94	2,5	2
SM2315.1607.R300.N01	16	16	15	16	50	94	3,0	2
SM2315.1608.R400.N01	16	16	15	16	50	94	4,0	2

(mm)

ART.	ØD	Ød	ØD1	L1	L2	H	R	z
SM2315.1609.R050.N01	16	16	15	16	62	106	0,5	2
SM2315.1610.R250.N01	16	16	15	16	62	106	2,5	2
SM2315.1611.R300.N01	16	16	15	16	62	106	3,0	2
SM2315.1612.R400.N01	16	16	15	16	62	106	4,0	2
SM2315.2001.R050.N01	20	20	19	20	45	92	0,5	2
SM2315.2002.R250.N01	20	20	19	20	45	92	2,5	2
SM2315.2003.R300.N01	20	20	19	20	45	92	3,0	2
SM2315.2004.R400.N01	20	20	19	20	45	92	4,0	2
SM2315.2005.R050.N01	20	20	19	20	60	108	0,5	2
SM2315.2006.R250.N01	20	20	19	20	60	108	2,5	2
SM2315.2007.R300.N01	20	20	19	20	60	108	3,0	2
SM2315.2008.R400.N01	20	20	19	20	60	108	4,0	2
SM2315.2009.R050.N01	20	20	19	20	75	123	0,5	2
SM2315.2010.R250.N01	20	20	19	20	75	123	2,5	2
SM2315.2011.R300.N01	20	20	19	20	75	123	3,0	2
SM2315.2012.R400.N01	20	20	19	20	75	123	4,0	2
SM2315.2501.R050.N01	25	25	24	25	55	105	0,5	2
SM2315.2502.R250.N01	25	25	24	25	55	105	2,5	2
SM2315.2503.R300.N01	25	25	24	25	55	105	3,0	2
SM2315.2504.R400.N01	25	25	24	25	55	105	4,0	2
SM2315.2570.R050.N01	25	25	24	25	75	125	0,5	2
SM2315.2592.R250.N01	25	25	24	25	75	125	2,5	2
SM2315.2573.R300.N01	25	25	24	25	75	125	3,0	2
SM2315.2549.R400.N01	25	25	24	25	75	125	4,0	2
SM2315.2548.R050.N01	25	25	24	25	90	140	0,5	2
SM2315.2545.R250.N01	25	25	24	25	90	140	2,5	2
SM2315.2508.R300.N01	25	25	24	25	90	140	3,0	2
SM2315.2538.R400.N01	25	25	24	25	90	140	4,0	2
SM2315.2576.R050.N01	25	25	24	25	110	160	0,5	2
SM2315.2571.R250.N01	25	25	24	25	110	160	2,5	2
SM2315.2559.R300.N01	25	25	24	25	110	160	3,0	2
SM2315.2578.R400.N01	25	25	24	25	110	160	4,0	2
SM2315.2587.R050.N01	25	25	24	25	130	180	0,5	2
SM2315.2593.R250.N01	25	25	24	25	130	180	2,5	2
SM2315.2521.R300.N01	25	25	24	25	130	180	3,0	2
SM2315.2584.R400.N01	25	25	24	25	130	180	4,0	2

PAG. 1053

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm) ØD	(m/min) Vc	(mm) fz	(mm) ap	(mm) ae
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO E SUE LEGHE ALUMINIUM	RAME E SUE LEGHE COPPER	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE					
									●							8	350-480	0,120-0,135	4,8	2,0
									●							10	350-480	0,150-0,165	6,0	2,5
									●							12	350-480	0,165-0,180	7,2	3,0
									●							16	350-480	0,185-0,200	9,6	4,0
									●							20	350-480	0,220-0,235	12,0	5,0
									●							25	350-480	0,250-0,265	15,0	6,0
										●						8	250-350	0,095-0,110	4,8	2,0
										●						10	250-350	0,120-0,135	6,0	2,5
										●						12	250-350	0,130-0,145	7,2	3,0
										●						16	250-350	0,145-0,160	9,6	4,0
										●						20	250-350	0,175-0,190	12,0	5,0
										●						25	250-350	0,205-0,220	15,0	6,0
											●					8	640-760	0,120-0,135	4,8	2,0
											●					10	640-760	0,150-0,165	6,0	2,5
											●					12	640-760	0,165-0,180	7,2	3,0
											●					16	640-760	0,185-0,200	9,6	4,0
											●					20	640-760	0,220-0,235	12,0	5,0
											●					25	640-760	0,250-0,265	15,0	6,0

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED

n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS

fz = mm AVANZAMENTO AL DENTE -TOOTH FEED

fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION

Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

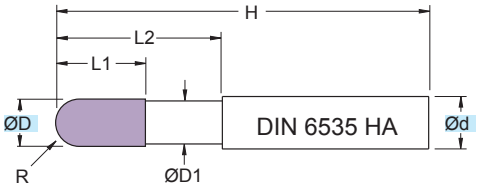
$$n = \frac{Vc \cdot 1000}{ØD \cdot 3{,}14} \text{ = giri/min (min}^{-1}\text{)}$$

$$fn = fz \cdot z \text{ = mm}$$

$$Vf = fz \cdot z \cdot n \text{ = mm/min}$$

SM2417

ØD = 4 - 12



RIVESTIM. COATED
SILVER

R

ALU
>5% Si

Fresa in M.D.I. Micrograno
Gambo cilindrico HA

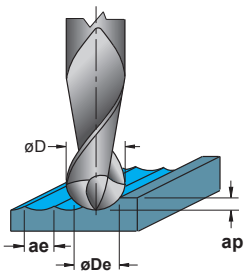
Micrograin HM mills
Cilindrical Shank HA

TOLLERANZE	D	d
TOLLERANCE RANGE	h10	h6

(mm)

ART.	ØD	Ød	ØD1	L1	L2	H	R	z
SM2417.040.S200	4	6	3,7	8	25	70	2,0	2
SM2417.050.S250	5	6	4,6	10	25	70	2,5	2
SM2417.060.S300	6	6	5,5	12	35	80	3,0	2
SM2417.080.S400	8	8	7,4	16	35	80	4,0	2
SM2417.100.S500	10	10	9,2	20	45	90	5,0	2
SM2417.120.S600	12	12	11,0	24	50	100	6,0	2

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm) ØDe	(m/min) Vc	(mm) fz	(mm) ap	(mm) ae
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO Si ≤ 12% ALUMINIUM 12 ≤ 12%	ALLUMINIO Si > 12% ALUMINIUM 12 > 12%	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE					
									●							4	250-350	0,050-0,065	0,20	0,4
									●							5	250-350	0,060-0,075	0,25	0,5
									●							6	250-350	0,070-0,085	0,30	0,6
									●							8	250-350	0,080-0,095	0,40	0,8
									●							10	250-350	0,090-0,105	0,50	1,0
									●							12	250-350	0,110-0,125	0,60	1,2
										●						4	180-250	0,050-0,065	0,20	0,4
										●						5	180-250	0,060-0,075	0,25	0,5
										●						6	180-250	0,070-0,085	0,30	0,6
										●						8	180-250	0,080-0,095	0,40	0,8
										●						10	180-250	0,090-0,105	0,50	1,0
										●						12	180-250	0,110-0,125	0,60	1,2

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

DATI TECNICI LAVORAZIONI PAG. 1072 - 1073
MACHINING TECHNICAL DATA PAGE 1072 - 1073
BEARBEITUNGSSCHNITTDATEN S. 1072 - 1073
DONNEES TECHNIQUES USINAGES PAGES 1072 - 1073

øD = mm DIAMETRO - DIAMETER
øDe = mm DIAMETRO EFFETTIVO - EFFECTIVE DIAMETER
Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

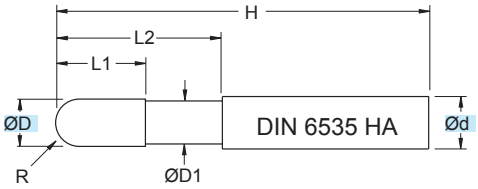
$$n = \frac{Vc \cdot 1000}{ØDe \cdot 3{,}14} \text{ = giri/min (min}^{-1}\text{)}$$

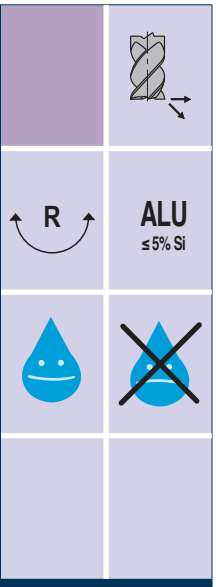
$$fn = fz \cdot z \text{ = mm}$$

$$Vf = fz \cdot z \cdot n \text{ = mm/min}$$

SM2417..01

ØD = 3 - 12





Fresa in M.D.I. Micrograno
Gambo cilindrico HA

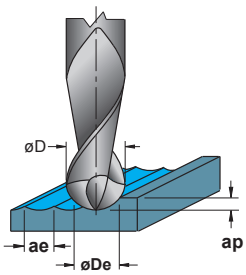
Micrograin HM mills
Cilindrical Shank HA

TOLLERANZE	D	d
TOLLERANCE RANGE	h10	h6

(mm)

ART.	ØD	Ød	ØD1	L1	L2	H	R	z
SM2417.030.S150.01	3	6	2,8	6	25	70	1,5	2
SM2417.040.S200.01	4	6	3,7	8	25	70	2,0	2
SM2417.050.S250.01	5	6	4,6	10	25	70	2,5	2
SM2417.060.S300.01	6	6	5,5	12	35	80	3,0	2
SM2417.080.S400.01	8	8	7,4	16	35	80	4,0	2
SM2417.100.S500.01	10	10	9,2	20	45	90	5,0	2
SM2417.120.S600.01	12	12	11,0	24	50	100	6,0	2

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm) ØDe	(m/min) Vc	(mm) fz	(mm) ap	(mm) ae
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO Si ≤ 12% ALUMINIUM 12 ≤ 12%	ALLUMINIO Si > 12% ALUMINIUM 12 > 12%	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE					
									●							3	250-350	0,040-0,055	0,15	0,3
									●							4	250-350	0,050-0,065	0,20	0,4
									●							5	250-350	0,060-0,075	0,25	0,5
									●							6	250-350	0,070-0,085	0,30	0,6
									●							8	250-350	0,080-0,095	0,40	0,8
									●							10	250-350	0,090-0,105	0,50	1,0
									●							12	250-350	0,110-0,125	0,60	1,2
										●						3	180-250	0,040-0,055	0,15	0,3
										●						4	180-250	0,050-0,065	0,20	0,4
										●						5	180-250	0,060-0,075	0,25	0,5
										●						6	180-250	0,070-0,085	0,30	0,6
										●						8	180-250	0,080-0,095	0,40	0,8
										●						10	180-250	0,090-0,105	0,50	1,0
										●						12	180-250	0,110-0,125	0,60	1,2

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

DATI TECNICI LAVORAZIONI PAG. 1072 - 1073
MACHINING TECHNICAL DATA PAGE 1072 - 1073
BEARBEITUNGSSCHNITTDATEN S. 1072 - 1073
DONNEES TECHNIQUES USINAGES PAGES 1072 - 1073

øD = mm DIAMETRO - DIAMETER
øDe = mm DIAMETRO EFFETTIVO - EFFECTIVE DIAMETER
Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

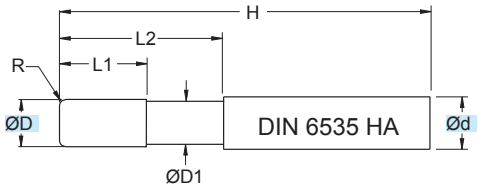
$$n = \frac{Vc \cdot 1000}{ØDe \cdot 3{,}14} \text{ = giri/min (min}^{-1}\text{)}$$

$$fn = fz \cdot z \text{ = mm}$$

$$Vf = fz \cdot z \cdot n \text{ = mm/min}$$

SM3315..N01

ØD = 6 - 16



Fresa in M.D.I. Micrograno
Gambo cilindrico HA

Micrograin HM mills
Cilindrical Shank HA

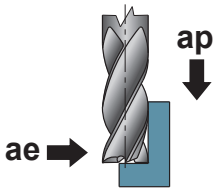
TOLLERANZE / TOLLERANCE RANGE	D	d
	h10	h6

(mm)

ART.	ØD	Ød	ØD1	L1	L2	H	R	z
SM3315.060.R050.N01	6	6	5,5	12	27	63	0,50	3
SM3315.060.R100.N01	6	6	5,5	12	27	63	1,00	3
SM3315.060.R150.N01	6	6	5,5	12	27	63	1,50	3
SM3315.080.R050.N01	8	8	7,4	16	33	70	0,50	3
SM3315.080.R100.N01	8	8	7,4	16	33	70	1,00	3
SM3315.080.R200.N01	8	8	7,4	16	33	70	2,00	3
SM3315.100.R050.N01	10	10	9,2	20	35	75	0,50	3
SM3315.100.R150.N01	10	10	9,2	20	35	75	1,50	3
SM3315.100.R250.N01	10	10	9,2	20	35	75	2,50	3
SM3315.100.R300.N01	10	10	9,2	20	35	75	3,00	3
SM3315.100.R400.N01	10	10	9,2	20	35	75	4,00	3
SM3315.120.R050.N01	12	12	11,0	24	39	84	0,50	3
SM3315.120.R150.N01	12	12	11,0	24	39	84	1,50	3
SM3315.120.R250.N01	12	12	11,0	24	39	84	2,50	3
SM3315.120.R300.N01	12	12	11,0	24	39	84	3,00	3
SM3315.120.R400.N01	12	12	11,0	24	39	84	4,00	3
SM3315.160.R050.N01	16	16	15,0	32	50	100	0,50	3
SM3315.160.R200.N01	16	16	15,0	32	50	100	2,00	3
SM3315.160.R250.N01	16	16	15,0	32	50	100	2,50	3
SM3315.160.R300.N01	16	16	15,0	32	50	100	3,00	3
SM3315.160.R400.N01	16	16	15,0	32	50	100	4,00	3

PAG. 1053

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm) ØD	(m/min) Vc	(mm) fz	(mm) ap	(mm) ae
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO E SUE LEGHE ALUMINIUM	RAME E SUE LEGHE COPPER	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE					
									●							6	350-480	0,085-0,100	3,6	1,5
									●							8	350-480	0,120-0,135	4,8	2,0
									●							10	350-480	0,150-0,165	6,0	2,5
									●							12	350-480	0,165-0,180	7,2	3,0
									●							16	350-480	0,185-0,200	9,6	4,0
										●						6	250-350	0,065-0,080	3,6	1,5
										●						8	250-350	0,095-0,110	4,8	2,0
										●						10	250-350	0,120-0,135	6,0	2,5
										●						12	250-350	0,130-0,145	7,2	3,0
										●						16	250-350	0,145-0,160	9,6	4,0
											●					6	640-760	0,085-0,100	3,6	1,5
											●					8	640-760	0,120-0,135	4,8	2,0
											●					10	640-760	0,150-0,165	6,0	2,5
											●					12	640-760	0,165-0,180	7,2	3,0
											●					16	640-760	0,185-0,200	9,6	4,0

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

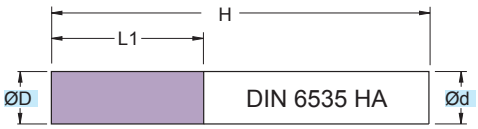
$$n = \frac{Vc \cdot 1000}{ØD \cdot 3{,}14} = \text{giri/min (min}^{-1}\text{)}$$

$$fn = fz \cdot z = \text{mm}$$

$$Vf = fz \cdot z \cdot n = \text{mm/min}$$

SM3417

ØD = 6 - 25



RIVESTIM. COATED
SILVER

90°

ALU
>5% Si

Fresa in M.D.I. Micrograno
Gambo cilindrico HA

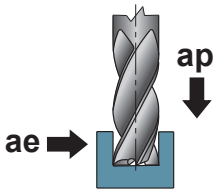
Micrograin HM mills
Cilindrical Shank HA

TOLLERANZE TOLLERANCE RANGE	D h10	d h6

(mm)

ART.	ØD	Ød	L1	H	z
SM3417.060.N00	6	6	16	60	3
SM3417.080.N00	8	8	25	78	3
SM3417.100.N00	10	10	28	78	3
SM3417.120.N00	12	12	32	89	3
SM3417.140.N00	14	14	32	89	3
SM3417.160.N00	16	16	36	96	3
SM3417.200.N00	20	20	45	111	3
SM3417.250.N00	25	25	50	126	3

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm) ØD	(m/min) Vc	(mm) fz	(mm) ap	(mm) ae
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO Si ≤ 12% ALUMINIUM 12 ≤ 12%	ALLUMINIO Si > 12% ALUMINIUM 12 > 12%	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE					
									●							6÷8	250-350	0,030-0,045	0,5xD	1xD
									●							8÷10	250-350	0,040-0,055	0,5xD	1xD
									●							10÷12	250-350	0,050-0,065	0,5xD	1xD
									●							12÷14	250-350	0,090-0,105	0,5xD	1xD
									●							14÷16	250-350	0,110-0,125	0,5xD	1xD
									●							16÷18	250-350	0,130-0,145	0,5xD	1xD
									●							18÷20	250-350	0,150-0,165	0,5xD	1xD
									●							20÷25	250-350	0,170-0,185	0,5xD	1xD
										●						6÷8	130-160	0,030-0,045	0,5xD	1xD
										●						8÷10	130-160	0,040-0,055	0,5xD	1xD
										●						10÷12	130-160	0,050-0,065	0,5xD	1xD
										●						12÷14	130-160	0,090-0,105	0,5xD	1xD
										●						14÷16	130-160	0,110-0,125	0,5xD	1xD
										●						16÷18	130-160	0,130-0,145	0,5xD	1xD
										●						18÷20	130-160	0,150-0,165	0,5xD	1xD
										●						20÷25	130-160	0,170-0,185	0,5xD	1xD
											●					6÷8	80-110	0,045-0,060	0,5xD	1xD
											●					8÷10	80-110	0,060-0,075	0,5xD	1xD
											●					10÷12	80-110	0,080-0,095	0,5xD	1xD
											●					12÷14	80-110	0,100-0,115	0,5xD	1xD
											●					14÷16	80-110	0,130-0,145	0,5xD	1xD
											●					16÷18	80-110	0,150-0,165	0,5xD	1xD
											●					18÷20	80-110	0,170-0,185	0,5xD	1xD
											●					20÷25	80-110	0,190-0,205	0,5xD	1xD

PER LAVORAZIONI A SPALLAMENTO AUMENTARE I PARAMETRI DEL 20%
FOR SHOULDER MILLING PARAMETERS SHOULD BE INCREASED BY 20%

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

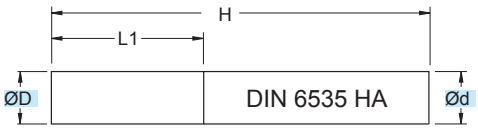
$$n = \frac{Vc \cdot 1000}{ØD \cdot 3{,}14} = \text{giri/min (min}^{-1}\text{)}$$

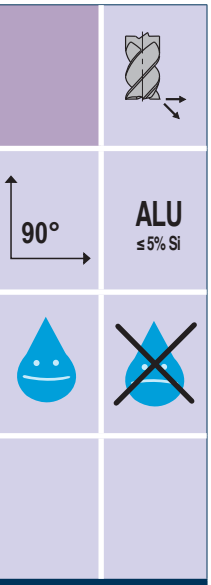
$$fn = fz \cdot z = \text{mm}$$

$$Vf = fz \cdot z \cdot n = \text{mm/min}$$

SM3417..N01

ØD = 6 - 25





Fresa in M.D.I. Micrograno
Gambo cilindrico HA

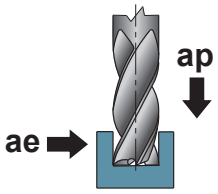
Micrograin HM mills
Cilindrical Shank HA

TOLLERANZE	D	d
TOLLERANCE RANGE	h10	h6

(mm)

ART.	ØD	Ød	L1	H	z
SM3417.060.N01	6	6	16	60	3
SM3417.080.N01	8	8	25	78	3
SM3417.100.N01	10	10	28	78	3
SM3417.120.N01	12	12	32	89	3
SM3417.140.N01	14	14	32	89	3
SM3417.160.N01	16	16	36	96	3
SM3417.200.N01	20	20	45	111	3
SM3417.250.N01	25	25	50	126	3

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm) ØD	(m/min) Vc	(mm) fz	(mm) ap	(mm) ae
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO Si ≤ 12% ALUMINIUM 12 ≤ 12%	ALLUMINIO Si > 12% ALUMINIUM 12 > 12%	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE					
									●							6÷8	250-350	0,030-0,045	0,5xD	1xD
									●							8÷10	250-350	0,040-0,055	0,5xD	1xD
									●							10÷12	250-350	0,050-0,065	0,5xD	1xD
									●							12÷14	250-350	0,090-0,105	0,5xD	1xD
									●							14÷16	250-350	0,110-0,125	0,5xD	1xD
									●							16÷18	250-350	0,130-0,145	0,5xD	1xD
									●							18÷20	250-350	0,150-0,165	0,5xD	1xD
									●							20÷25	250-350	0,170-0,185	0,5xD	1xD
										●						6÷8	130-160	0,030-0,045	0,5xD	1xD
										●						8÷10	130-160	0,040-0,055	0,5xD	1xD
										●						10÷12	130-160	0,050-0,065	0,5xD	1xD
										●						12÷14	130-160	0,090-0,105	0,5xD	1xD
										●						14÷16	130-160	0,110-0,125	0,5xD	1xD
										●						16÷18	130-160	0,130-0,145	0,5xD	1xD
										●						18÷20	130-160	0,150-0,165	0,5xD	1xD
										●						20÷25	130-160	0,170-0,185	0,5xD	1xD
											●					6÷8	80-110	0,045-0,060	0,5xD	1xD
											●					8÷10	80-110	0,060-0,075	0,5xD	1xD
											●					10÷12	80-110	0,080-0,095	0,5xD	1xD
											●					12÷14	80-110	0,100-0,115	0,5xD	1xD
											●					14÷16	80-110	0,130-0,145	0,5xD	1xD
											●					16÷18	80-110	0,150-0,165	0,5xD	1xD
											●					18÷20	80-110	0,170-0,185	0,5xD	1xD
											●					20÷25	80-110	0,190-0,205	0,5xD	1xD

PER LAVORAZIONI A SPALLAMENTO AUMENTARE I PARAMETRI DEL 20%
FOR SHOULDER MILLING PARAMETERS SHOULD BE INCREASED BY 20%

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

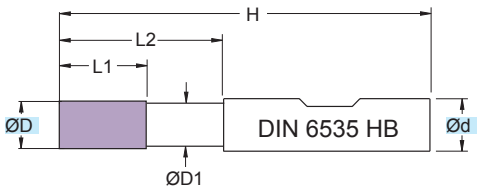
$$n = \frac{Vc \cdot 1000}{ØD \cdot 3{,}14} = \text{giri/min (min}^{-1}\text{)}$$

$$fn = fz \cdot z = \text{mm}$$

$$Vf = fz \cdot z \cdot n = \text{mm/min}$$

SMW3414

ØD = 8 - 25



RIVESTIM. COATED
GOLD

90°

ALU
>5% Si

Fresa in M.D.I. Micrograno
Gambo sec. DIN 6535 HB

Micrograin HM mills
DIN 6535 HB Shank

TOLLERANZE TOLLERANCE RANGE	D h10	d h6

(mm)

ART.	ØD	Ød	ØD1	L1	L2	H	z
SMW3414.080.N00	8	8	7,4	19	35	72	3
SMW3414.100.N00	10	10	9,2	22	43	84	3
SMW3414.120.N00	12	12	11,0	26	51	97	3
SMW3414.160.N00	16	16	15,0	32	59	108	3
SMW3414.200.N00	20	20	19,0	38	71	122	3
SMW3414.250.N00	25	25	24,0	45	87	144	3

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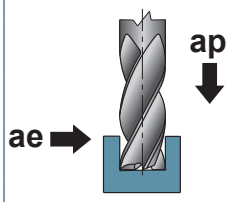
Applicazione - Application	P				M	K			N			S		H	G	(mm) ØD	(m/min) Vc	(mm) fz	(mm) ap	(mm) ae
	ACCIAIO NON LEGATO NOT ALLOY STEEL	**ACCIAIO POCO LEGATO** LOW ALLOY STEEL	**ACCIAIO ALTO LEGATO** ALLOY STEEL	**INOX MARTENSITICO** STAINLESS STEEL MART.	**INOX AUST. DUPLEX** STAINLESS STEEL AUST.	**GHISA GRIGIA** GREY CAST IRON	**GHISA SFEROIDALE** SPHEROIDAL GRAPHITE	**GHISA MALLEABILE** MALLEABLE CAST IRON	**ALLUMINIO E SUE LEGHE** ALUMINIUM	**RAME E SUE LEGHE** COPPER	**NON METALLICI** PLASTICS	**LEGHE RESIST. CALORE** HIGH TEMP. ALLOY	**TITANIO E SUE LEGHE** TITANIUM	**ACCIAIO TEMPRATO** HARDENED STEEL	**GRAFITE** GRAPHITE					
									●							8	450-550	0,070-0,085	6,4	1xD
									●							10	450-550	0,090-0,105	8,0	1xD
									●							12	450-550	0,110-0,125	9,6	1xD
									●							16	450-550	0,150-0,165	12,8	1xD
									●							20	450-550	0,190-0,205	16,0	1xD
									●							25	450-550	0,240-0,255	20,0	1xD
										●						8	240-300	0,070-0,085	6,4	1xD
										●						10	240-300	0,090-0,105	8,0	1xD
										●						12	240-300	0,110-0,125	9,6	1xD
										●						16	240-300	0,150-0,165	12,8	1xD
										●						20	240-300	0,190-0,205	16,0	1xD
										●						25	240-300	0,240-0,255	20,0	1xD
											●					8	650-900	0,070-0,085	6,4	1xD
											●					10	650-900	0,090-0,105	8,0	1xD
											●					12	650-900	0,110-0,125	9,6	1xD
											●					16	650-900	0,150-0,165	12,8	1xD
											●					20	650-900	0,190-0,205	16,0	1xD
											●					25	650-900	0,240-0,255	20,0	1xD

PER LAVORAZIONI A SPALLAMENTO AUMENTARE I PARAMETRI DEL 20%
FOR SHOULDER MILLING PARAMETERS SHOULD BE INCREASED BY 20%

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
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Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

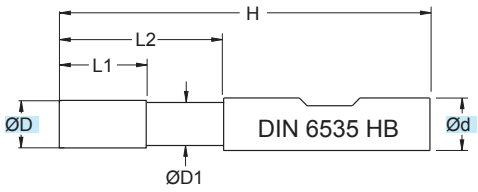
$$n = \frac{Vc \cdot 1000}{ØD \cdot 3{,}14} = \text{giri/min (min}^{-1}\text{)}$$

$$fn = fz \cdot z = \text{mm}$$

$$Vf = fz \cdot z \cdot n = \text{mm/min}$$

SMW3414..N01

ØD = 8 - 25



90°

ALU
≤5% Si

Fresa in M.D.I. Micrograno
Gambo sec. DIN 6535 HB

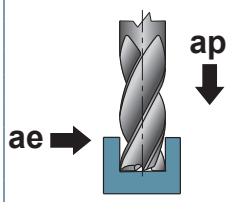
Micrograin HM mills
DIN 6535 HB Shank

TOLLERANZE	D	d
TOLLERANCE RANGE	h10	h6

(mm)

ART.	ØD	Ød	ØD1	L1	L2	H	z
SMW3414.080.N01	8	8	7,4	19	35	72	3
SMW3414.100.N01	10	10	9,2	22	43	84	3
SMW3414.120.N01	12	12	11,0	26	51	97	3
SMW3414.160.N01	16	16	15,0	32	59	108	3
SMW3414.200.N01	20	20	19,0	38	71	122	3
SMW3414.250.N01	25	25	24,0	45	87	144	3

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm) ØD	(m/min) Vc	(mm) fz	(mm) ap	(mm) ae
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO E SUE LEGHE ALUMINIUM	RAME E SUE LEGHE COPPER	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE					
									●							8	450-550	0,070-0,085	6,4	1xD
									●							10	450-550	0,090-0,105	8,0	1xD
									●							12	450-550	0,110-0,125	9,6	1xD
									●							16	450-550	0,150-0,165	12,8	1xD
									●							20	450-550	0,190-0,205	16,0	1xD
									●							25	450-550	0,240-0,255	20,0	1xD
										●						8	240-300	0,070-0,085	6,4	1xD
										●						10	240-300	0,090-0,105	8,0	1xD
										●						12	240-300	0,110-0,125	9,6	1xD
										●						16	240-300	0,150-0,165	12,8	1xD
										●						20	240-300	0,190-0,205	16,0	1xD
										●						25	240-300	0,240-0,255	20,0	1xD
											●					8	650-900	0,070-0,085	6,4	1xD
											●					10	650-900	0,090-0,105	8,0	1xD
											●					12	650-900	0,110-0,125	9,6	1xD
											●					16	650-900	0,150-0,165	12,8	1xD
											●					20	650-900	0,190-0,205	16,0	1xD
											●					25	650-900	0,240-0,255	20,0	1xD

PER LAVORAZIONI A SPALLAMENTO AUMENTARE I PARAMETRI DEL 20%
FOR SHOULDER MILLING PARAMETERS SHOULD BE INCREASED BY 20%

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
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fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

$$n = \frac{Vc \cdot 1000}{ØD \cdot 3{,}14} \text{ = giri/min (min}^{-1}\text{)}$$

$$fn = fz \cdot z \text{ = mm}$$

$$Vf = fz \cdot z \cdot n \text{ = mm/min}$$

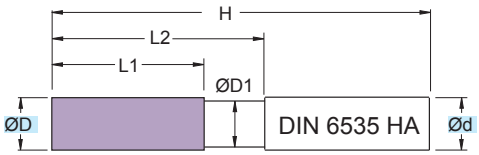
SM3510

ØD = 4 - 20

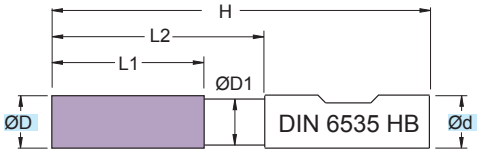
Fresa in M.D.I. Micrograno
Gambo cilindrico HA/HB

Micrograin HM mills
Cilindrical Shank HA/HB

Fino a diametro 12
Up to diameter 12



Oltre diametro 12
Over diameter 12



TOLLERANZE / TOLLERANCE RANGE	D	d
	h6	h6

RIVESTIM. COATED GOLD

45°

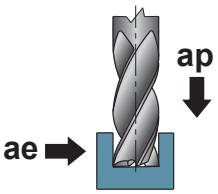
ALU >5% Si

HSC

(mm)

ART.	ØD	Ød	ØD1	L1	L2	H	z	45°
SM3510.040.N00	4	6	3,7	11	18	57	3	0,1
SM3510.050.N00	5	6	4,7	13	18	57	3	0,1
SM3510.060.N00	6	6	5,7	13	18	57	3	0,2
SM3510.080.N00	8	8	7,4	21	25	63	3	0,2
SM3510.100.N00	10	10	9,2	22	30	72	3	0,2
SM3510.120.N00	12	12	11,0	26	36	83	3	0,2
SM3510.160.N00	16	16	15,0	36	42	92	3	0,2
SM3510.180.N00	18	18	17,0	36	42	92	3	0,2
SM3510.200.N00	20	20	19,0	41	52	104	3	0,2

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm) ØD	(m/min) Vc	(mm) fz	(mm) ap	(mm) ae
	ACCIAIO NON LEGATO NOT ALLOY STEEL	**ACCIAIO POCO LEGATO** LOW ALLOY STEEL	**ACCIAIO ALTO LEGATO** ALLOY STEEL	**INOX MARTENSITICO** STAINLESS STEEL MART.	**INOX AUST. DUPLEX** STAINLESS STEEL AUST.	**GHISA GRIGIA** GREY CAST IRON	**GHISA SFEROIDALE** SPHEROIDAL GRAPHITE	**GHISA MALLEABILE** MALLEABLE CAST IRON	**ALLUMINIO Si ≤ 12%** ALUMINIUM 12 ≤ 12%	**ALLUMINIO Si > 12%** ALUMINIUM 12 > 12%	**NON METALLICI** PLASTICS	**LEGHE RESIST. CALORE** HIGH TEMP. ALLOY	**TITANIO E SUE LEGHE** TITANIUM	**ACCIAIO TEMPRATO** HARDENED STEEL	**GRAFITE** GRAPHITE					
									●							4÷6	400-550	0,040-0,055	1xD	1xD
									●							6÷8	400-550	0,050-0,065	1xD	1xD
									●							8÷10	400-550	0,060-0,075	1xD	1xD
									●							10÷12	400-550	0,070-0,085	1xD	1xD
									●							12÷14	400-550	0,080-0,095	1xD	1xD
									●							14÷16	400-550	0,090-0,105	1xD	1xD
									●							16÷18	400-550	0,100-0,115	1xD	1xD
									●							18÷20	400-550	0,110-0,125	1xD	1xD
										●						4÷6	190-270	0,025-0,040	1xD	1xD
										●						6÷8	190-270	0,030-0,045	1xD	1xD
										●						8÷10	190-270	0,040-0,055	1xD	1xD
										●						10÷12	190-270	0,050-0,065	1xD	1xD
										●						12÷14	190-270	0,060-0,075	1xD	1xD
										●						14÷16	190-270	0,110-0,125	1xD	1xD
										●						16÷18	190-270	0,140-0,155	1xD	1xD
										●						18÷20	190-270	0,160-0,175	1xD	1xD

PER LAVORAZIONI A SPALLAMENTO AUMENTARE I PARAMETRI DEL 20%
FOR SHOULDER MILLING PARAMETERS SHOULD BE INCREASED BY 20%

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

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MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
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Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

$$n = \frac{Vc \cdot 1000}{ØD \cdot 3{,}14} = \text{giri/min (min}^{-1}\text{)}$$

$$fn = fz \cdot z = \text{mm}$$

$$Vf = fz \cdot z \cdot n = \text{mm/min}$$

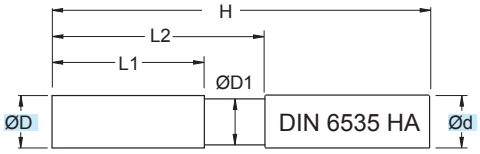
SM3510..N01

ØD = 4 - 20

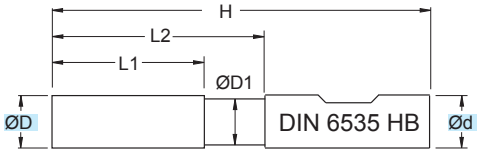
Fresa in M.D.I. Micrograno
Gambo cilindrico HA/HB

Micrograin HM mills
Cilindrical Shank HA/HB

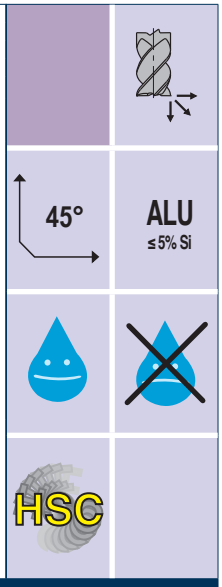
Fino a diametro 12
Up to diameter 12



Oltre diametro 12
Over diameter 12



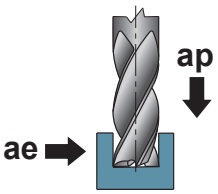
TOLLERANZE	D	d
TOLLERANCE RANGE	h6	h6



(mm)

ART.	ØD	Ød	ØD1	L1	L2	H	z	45°
SM3510.040.N01	4	6	3,7	11	18	57	3	0,1
SM3510.050.N01	5	6	4,7	13	18	57	3	0,1
SM3510.060.N01	6	6	5,7	13	18	57	3	0,2
SM3510.080.N01	8	8	7,4	21	25	63	3	0,2
SM3510.100.N01	10	10	9,2	22	30	72	3	0,2
SM3510.120.N01	12	12	11,0	26	36	83	3	0,2
SM3510.160.N01	16	16	15,0	36	42	92	3	0,2
SM3510.180.N01	18	18	17,0	36	42	92	3	0,2
SM3510.200.N01	20	20	19,0	41	52	104	3	0,2

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm) ØD	(m/min) Vc	(mm) fz	(mm) ap	(mm) ae
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO Si ≤ 12% ALUMINIUM 12 ≤ 12%	ALLUMINIO Si > 12% ALUMINIUM 12 > 12%	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE					
									●							4÷6	400-550	0,040-0,055	1xD	1xD
									●							6÷8	400-550	0,050-0,065	1xD	1xD
									●							8÷10	400-550	0,060-0,075	1xD	1xD
									●							10÷12	400-550	0,070-0,085	1xD	1xD
									●							12÷14	400-550	0,080-0,095	1xD	1xD
									●							14÷16	400-550	0,090-0,105	1xD	1xD
									●							16÷18	400-550	0,100-0,115	1xD	1xD
									●							18÷20	400-550	0,110-0,125	1xD	1xD
										●						4÷6	190-270	0,025-0,040	1xD	1xD
										●						6÷8	190-270	0,030-0,045	1xD	1xD
										●						8÷10	190-270	0,040-0,055	1xD	1xD
										●						10÷12	190-270	0,050-0,065	1xD	1xD
										●						12÷14	190-270	0,060-0,075	1xD	1xD
										●						14÷16	190-270	0,110-0,125	1xD	1xD
										●						16÷18	190-270	0,140-0,155	1xD	1xD
										●						18÷20	190-270	0,160-0,175	1xD	1xD

PER LAVORAZIONI A SPALLAMENTO AUMENTARE I PARAMETRI DEL 20%
FOR SHOULDER MILLING PARAMETERS SHOULD BE INCREASED BY 20%

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

$$n = \frac{Vc \cdot 1000}{ØD \cdot 3{,}14} = \text{giri/min (min}^{-1}\text{)}$$

$$fn = fz \cdot z = \text{mm}$$

$$Vf = fz \cdot z \cdot n = \text{mm/min}$$

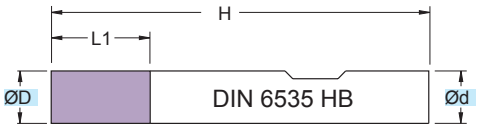
FRESE A 2 TAGLI

MILLING 2 CUTTINGS / ZWEISCHNEIDER / FRAISES A 2 COUPES /
FRESAS DE 2 FILOS

SAU
QUALITY TOOLS ENGINEERING

SMW2200

ØD = 2 - 20



RIVESTIM. COATED
BLACK

90°

42 HRC

Fresa in M.D.I. Micrograno
Gambo sec. DIN 6535 HB

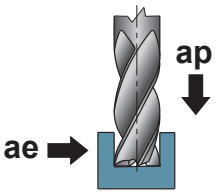
Micrograin HM mills
DIN 6535 HB Shank

TOLLERANZE	D	d
TOLLERANCE RANGE	h10	h6

(mm)

ART.	ØD	Ød	L1	H	z
SMW2200.020.N00	2	3	3	38	2
SMW2200.030.N00	3	3	4	38	2
SMW2200.040.N00	4	6	5	54	2
SMW2200.050.N00	5	6	6	54	2
SMW2200.060.N00	6	6	7	54	2
SMW2200.080.N00	8	8	9	58	2
SMW2200.100.N00	10	10	11	66	2
SMW2200.120.N00	12	12	12	73	2
SMW2200.140.N00	14	14	14	75	2
SMW2200.160.N00	16	16	16	82	2
SMW2200.180.N00	18	18	18	84	2
SMW2200.200.N00	20	20	20	92	2

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm) ØD	(m/min) Vc	(mm) fz	(mm) ap	(mm) ae
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO E SUE LEGHE ALUMINIUM	RAME E SUE LEGHE COPPER	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE					
	●															2	80-110	0,003-0,013	0,5xD	1xD
	●															3	80-110	0,003-0,015	0,5xD	1xD
	●															4	80-110	0,005-0,020	0,5xD	1xD
	●															5	80-110	0,008-0,023	0,5xD	1xD
	●															6	80-110	0,010-0,025	0,5xD	1xD
	●															8	80-110	0,015-0,030	0,5xD	1xD
	●															10	80-110	0,020-0,035	0,5xD	1xD
	●															12	80-110	0,025-0,040	0,5xD	1xD
	●															14	80-110	0,030-0,045	0,5xD	1xD
	●															16	80-110	0,035-0,050	0,5xD	1xD
	●															18	80-110	0,040-0,055	0,5xD	1xD
	●															20	80-110	0,050-0,065	0,5xD	1xD
		●														2	50-80	0,003-0,013	0,5xD	1xD
		●														3	50-80	0,003-0,015	0,5xD	1xD
		●														4	50-80	0,005-0,020	0,5xD	1xD
		●														5	50-80	0,008-0,023	0,5xD	1xD
		●														6	50-80	0,010-0,025	0,5xD	1xD
		●														8	50-80	0,012-0,027	0,5xD	1xD
		●														10	50-80	0,015-0,030	0,5xD	1xD
		●														12	50-80	0,020-0,035	0,5xD	1xD
		●														14	50-80	0,025-0,040	0,5xD	1xD
		●														16	50-80	0,030-0,045	0,5xD	1xD
		●														18	50-80	0,035-0,050	0,5xD	1xD
		●														20	50-80	0,040-0,055	0,5xD	1xD
					●											2	25-50	0,003-0,011	0,5xD	1xD
					●											3	25-50	0,003-0,013	0,5xD	1xD
					●											4	25-50	0,003-0,015	0,5xD	1xD
					●											5	25-50	0,002-0,017	0,5xD	1xD
					●											6	25-50	0,005-0,020	0,5xD	1xD
					●											8	25-50	0,008-0,023	0,5xD	1xD
					●											10	25-50	0,010-0,025	0,5xD	1xD
					●											12	25-50	0,015-0,030	0,5xD	1xD
					●											14	25-50	0,020-0,035	0,5xD	1xD
					●											16	25-50	0,025-0,040	0,5xD	1xD
					●											18	25-50	0,030-0,045	0,5xD	1xD
					●											20	25-50	0,035-0,050	0,5xD	1xD
						●										2	100-130	0,003-0,013	0,5xD	1xD
						●										3	100-130	0,003-0,015	0,5xD	1xD
						●										4	100-130	0,003-0,015	0,5xD	1xD
						●										5	100-130	0,005-0,020	0,5xD	1xD
						●										6	100-130	0,010-0,025	0,5xD	1xD
						●										8	100-130	0,015-0,030	0,5xD	1xD
						●										10	100-130	0,020-0,035	0,5xD	1xD
						●										12	100-130	0,025-0,040	0,5xD	1xD
						●										14	100-130	0,030-0,045	0,5xD	1xD
						●										16	100-130	0,040-0,055	0,5xD	1xD
						●										18	100-130	0,045-0,060	0,5xD	1xD
						●										20	100-130	0,050-0,065	0,5xD	1xD
							●									2	100-130	0,003-0,013	0,5xD	1xD
							●									3	100-130	0,003-0,015	0,5xD	1xD
							●									4	100-130	0,003-0,015	0,5xD	1xD
							●									5	100-130	0,005-0,020	0,5xD	1xD
							●									6	100-130	0,010-0,025	0,5xD	1xD
							●									8	100-130	0,015-0,030	0,5xD	1xD
							●									10	100-130	0,020-0,035	0,5xD	1xD
							●									12	100-130	0,025-0,040	0,5xD	1xD
							●									14	100-130	0,030-0,045	0,5xD	1xD
							●									16	100-130	0,040-0,055	0,5xD	1xD
							●									18	100-130	0,045-0,060	0,5xD	1xD
							●									20	100-130	0,050-0,065	0,5xD	1xD

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED

n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS

fz = mm AVANZAMENTO AL DENTE -TOOTH FEED

fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION

Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

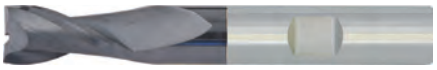
$$n = \frac{Vc \cdot 1000}{ØD \cdot 3{,}14} = \text{giri/min (min}^{-1}\text{)}$$

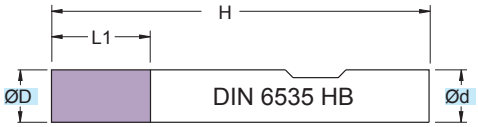
$$fn = fz \cdot z = \text{mm}$$

$$Vf = fz \cdot z \cdot n = \text{mm/min}$$

SMW2300

ØD = 2 - 20





RIVESTIM. COATED
BLACK

90°

42 HRC

Fresa in M.D.I. Micrograno
Gambo sec. DIN 6535 HB

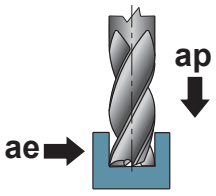
Micrograin HM mills
DIN 6535 HB Shank

TOLLERANZE	D	d
TOLLERANCE RANGE	h10	h6

(mm)

ART.	ØD	Ød	L1	H	z
SMW2300.020.N00	2,0	3	6	38	2
SMW2300.025.N00	2,5	3	6	38	2
SMW2300.030.N00	3,0	3	7	38	2
SMW2300.035.N00	3,5	6	8	57	2
SMW2300.040.N00	4,0	6	8	57	2
SMW2300.045.N00	4,5	6	10	57	2
SMW2300.047.N00	4,7	6	10	57	2
SMW2300.050.N00	5,0	6	10	57	2
SMW2300.055.N00	5,5	6	10	57	2
SMW2300.057.N00	5,7	6	10	57	2
SMW2300.060.N00	6,0	6	10	57	2
SMW2300.070.N00	7,0	8	16	63	2
SMW2300.077.N00	7,7	8	16	63	2
SMW2300.080.N00	8,0	8	16	63	2
SMW2300.097.N00	9,7	10	19	72	2
SMW2300.100.N00	10,0	10	19	72	2
SMW2300.117.N00	11,7	12	22	83	2
SMW2300.120.N00	12,0	12	22	83	2
SMW2300.137.N00	13,7	14	22	83	2
SMW2300.140.N00	14,0	14	22	83	2
SMW2300.157.N00	15,7	16	26	92	2
SMW2300.160.N00	16,0	16	26	92	2
SMW2300.180.N00	18,0	18	26	92	2
SMW2300.200.N00	20,0	20	32	104	2

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm) ØD	(m/min) Vc	(mm) fz	(mm) ap	(mm) ae
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO E SUE LEGHE ALUMINIUM	RAME E SUE LEGHE COPPER	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE					
	●															2÷3	80-110	0,003-0,013	0,5xD	1xD
	●															3÷4	80-110	0,003-0,015	0,5xD	1xD
	●															4÷5	80-110	0,005-0,020	0,5xD	1xD
	●															5÷6	80-110	0,008-0,023	0,5xD	1xD
	●															6÷8	80-110	0,010-0,025	0,5xD	1xD
	●															8÷10	80-110	0,015-0,030	0,5xD	1xD
	●															10÷12	80-110	0,020-0,035	0,5xD	1xD
	●															12÷14	80-110	0,025-0,040	0,5xD	1xD
	●															14÷16	80-110	0,030-0,045	0,5xD	1xD
	●															16÷20	80-110	0,035-0,050	0,5xD	1xD
		●														2÷3	50-80	0,003-0,013	0,5xD	1xD
		●														3÷4	50-80	0,003-0,015	0,5xD	1xD
		●														4÷5	50-80	0,005-0,020	0,5xD	1xD
		●														5÷6	50-80	0,008-0,023	0,5xD	1xD
		●														6÷8	50-80	0,010-0,025	0,5xD	1xD
		●														8÷10	50-80	0,012-0,027	0,5xD	1xD
		●														10÷12	50-80	0,015-0,030	0,5xD	1xD
		●														12÷14	50-80	0,020-0,035	0,5xD	1xD
		●														14÷16	50-80	0,025-0,040	0,5xD	1xD
		●														16÷20	50-80	0,030-0,045	0,5xD	1xD
					●											2÷3	25-50	0,003-0,011	0,5xD	1xD
					●											3÷4	25-50	0,003-0,013	0,5xD	1xD
					●											4÷5	25-50	0,003-0,015	0,5xD	1xD
					●											5÷6	25-50	0,002-0,017	0,5xD	1xD
					●											6÷8	25-50	0,005-0,020	0,5xD	1xD
					●											8÷10	25-50	0,008-0,023	0,5xD	1xD
					●											10÷12	25-50	0,010-0,025	0,5xD	1xD
					●											12÷14	25-50	0,015-0,030	0,5xD	1xD
					●											14÷16	25-50	0,020-0,035	0,5xD	1xD
					●											16÷20	25-50	0,025-0,040	0,5xD	1xD
						●										2÷3	100-130	0,003-0,013	0,5xD	1xD
						●										3÷4	100-130	0,003-0,015	0,5xD	1xD
						●										4÷5	100-130	0,003-0,015	0,5xD	1xD
						●										5÷6	100-130	0,005-0,020	0,5xD	1xD
						●										6÷8	100-130	0,010-0,025	0,5xD	1xD
						●										8÷10	100-130	0,015-0,030	0,5xD	1xD
						●										10÷12	100-130	0,020-0,035	0,5xD	1xD
						●										12÷14	100-130	0,025-0,040	0,5xD	1xD
						●										14÷16	100-130	0,030-0,045	0,5xD	1xD
						●										16÷20	100-130	0,040-0,055	0,5xD	1xD
							●									2÷3	100-130	0,003-0,013	0,5xD	1xD
							●									3÷4	100-130	0,003-0,015	0,5xD	1xD
							●									4÷5	100-130	0,003-0,015	0,5xD	1xD
							●									5÷6	100-130	0,005-0,020	0,5xD	1xD
							●									6÷8	100-130	0,010-0,025	0,5xD	1xD
							●									8÷10	100-130	0,015-0,030	0,5xD	1xD
							●									10÷12	100-130	0,020-0,035	0,5xD	1xD
							●									12÷14	100-130	0,025-0,040	0,5xD	1xD
							●									14÷16	100-130	0,030-0,045	0,5xD	1xD
							●									16÷20	100-130	0,040-0,055	0,5xD	1xD

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED

n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS

fz = mm AVANZAMENTO AL DENTE -TOOTH FEED

fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION

Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

$$n = \frac{Vc \cdot 1000}{ØD \cdot 3{,}14} = \text{giri/min (min}^{-1}\text{)}$$

$$fn = fz \cdot z = \text{mm}$$

$$Vf = fz \cdot z \cdot n = \text{mm/min}$$

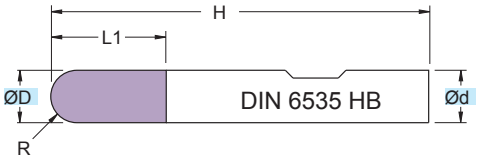
SMW2203

ØD = 2,5 - 20

RIVESTIM. COATED
BLACK

R

42 HRC



Fresa in M.D.I. Micrograno
Gambo sec. DIN 6535 HB

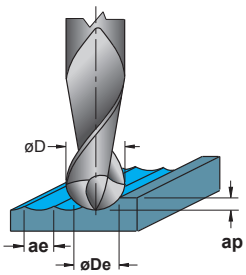
Micrograin HM mills
DIN 6527 Shank HB

TOLLERANZE	D	d
TOLLERANCE RANGE	h10	h6

(mm)

ART.	ØD	Ød	L1	H	R	z
SMW2203.025.S012	2,5	6	4	50	1,25	2
SMW2203.030.S015	3,0	6	5	50	1,5	2
SMW2203.035.S017	3,5	6	5	50	1,75	2
SMW2203.040.S020	4,0	6	6	54	2,0	2
SMW2203.045.S022	4,5	6	6	54	2,25	2
SMW2203.050.S025	5,0	6	7	54	2,5	2
SMW2203.060.S030	6,0	6	9	54	3,0	2
SMW2203.080.S040	8,0	8	12	58	4,0	2
SMW2203.100.S050	10,0	10	14	66	5,0	2
SMW2203.120.S060	12,0	12	14	73	6,0	2
SMW2203.140.S070	14,0	14	16	75	7,0	2
SMW2203.160.S080	16,0	16	18	82	8,0	2
SMW2203.180.S090	18,0	18	20	92	9,0	2
SMW2203.200.S100	20,0	20	22	92	10,0	2

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm) ØDe	(m/min) Vc	(mm) fz	(mm) ap	(mm) ae
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO E SUE LEGHE ALUMINIUM	RAME E SUE LEGHE COPPER	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE					
		●														2,5	140-170	0,020-0,035	0,05xD	0,06xD
		●														3÷4	140-170	0,035-0,050	0,05xD	0,06xD
		●														4÷5	140-170	0,035-0,050	0,05xD	0,06xD
		●														5÷8	140-170	0,035-0,050	0,05xD	0,06xD
		●														8÷12	140-170	0,040-0,055	0,05xD	0,06xD
		●														12÷16	140-170	0,070-0,085	0,05xD	0,06xD
		●														16÷20	140-170	0,080-0,095	0,05xD	0,06xD
			●													2,5	110-140	0,005-0,020	0,05xD	0,06xD
			●													3÷4	110-140	0,020-0,035	0,05xD	0,06xD
			●													4÷5	110-140	0,020-0,035	0,05xD	0,06xD
			●													5÷8	110-140	0,020-0,035	0,05xD	0,06xD
			●													8÷12	110-140	0,030-0,045	0,05xD	0,06xD
			●													12÷16	110-140	0,050-0,065	0,05xD	0,06xD
			●													16÷20	110-140	0,060-0,075	0,05xD	0,06xD
					●											2,5	50-80	0,003-0,015	0,05xD	0,06xD
					●											3÷4	50-80	0,010-0,025	0,05xD	0,06xD
					●											4÷5	50-80	0,010-0,025	0,05xD	0,06xD
					●											5÷8	50-80	0,010-0,025	0,05xD	0,06xD
					●											8÷12	50-80	0,020-0,035	0,05xD	0,06xD
					●											12÷16	50-80	0,040-0,055	0,05xD	0,06xD
					●											16÷20	50-80	0,050-0,065	0,05xD	0,06xD
						●										2,5	100-130	0,025-0,040	0,05xD	0,06xD
						●										3÷4	100-130	0,050-0,065	0,05xD	0,06xD
						●										4÷5	100-130	0,050-0,065	0,05xD	0,06xD
						●										5÷8	100-130	0,050-0,065	0,05xD	0,06xD
						●										8÷12	100-130	0,060-0,075	0,05xD	0,06xD
						●										12÷16	100-130	0,110-0,125	0,05xD	0,06xD
						●										16÷20	100-130	0,130-0,145	0,05xD	0,06xD
							●									2,5	100-130	0,020-0,035	0,05xD	0,06xD
							●									3÷4	100-130	0,035-0,050	0,05xD	0,06xD
							●									4÷5	100-130	0,035-0,050	0,05xD	0,06xD
							●									5÷8	100-130	0,035-0,050	0,05xD	0,06xD
							●									8÷12	100-130	0,040-0,055	0,05xD	0,06xD
							●									12÷16	100-130	0,070-0,085	0,05xD	0,06xD
							●									16÷20	100-130	0,080-0,095	0,05xD	0,06xD

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

DATI TECNICI LAVORAZIONI PAG. 1072 - 1073
MACHINING TECHNICAL DATA PAGE 1072 - 1073
BEARBEITUNGSSCHNITTDATEN S. 1072 - 1073
DONNEES TECHNIQUES USINAGES PAGES 1072 - 1073

øD = mm DIAMETRO - DIAMETER
øDe = mm DIAMETRO EFFETTIVO - EFFECTIVE DIAMETER
Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

$$n = \frac{Vc \cdot 1000}{ØDe \cdot 3,14} = \text{giri/min (min}^{-1}\text{)}$$

$$fn = fz \cdot z = \text{mm}$$

$$Vf = fz \cdot z \cdot n = \text{mm/min}$$

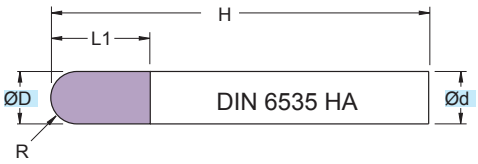
SM2203

ØD = 2 - 12

RIVESTIM. COATED
BLACK

R

42 HRC



Fresa in M.D.I. Micrograno
Gambo sec. DIN 6535 HB

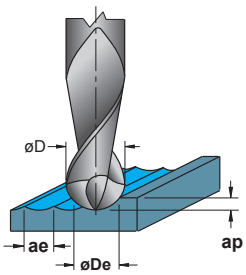
Micrograin HM mills
DIN 6527 Shank HB

TOLLERANZE / TOLLERANCE RANGE	D	d
	h10	h6

(mm)

ART.	ØD	Ød	L1	H	R	z
SM2203.025.S012	2,5	6	4	50	1,25	2
SM2203.030.S015	3,0	6	5	50	1,5	2
SM2203.035.S017	3,5	6	5	50	1,75	2
SM2203.040.S020	4,0	6	6	54	2,0	2
SM2203.045.S022	4,5	6	6	54	2,25	2
SM2203.050.S025	5,0	6	7	54	2,5	2
SM2203.060.S030	6,0	6	9	54	3,0	2
SM2203.080.S040	8,0	8	12	58	4,0	2
SM2203.100.S050	10,0	10	14	66	5,0	2
SM2203.120.S060	12,0	12	14	73	6,0	2
SM2203.140.S070	14,0	14	16	75	7,0	2
SM2203.160.S080	16,0	16	18	82	8,0	2
SM2203.180.S090	18,0	18	20	92	9,0	2
SM2203.200.S100	20,0	20	22	92	10,0	2

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm) ØDe	(m/min) Vc	(mm) fz	(mm) ap	(mm) ae
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO E SUE LEGHE ALUMINIUM	RAME E SUE LEGHE COPPER	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE					
		●														2,5	140-170	0,020-0,035	0,05xD	0,06xD
		●														3÷4	140-170	0,035-0,050	0,05xD	0,06xD
		●														4÷5	140-170	0,035-0,050	0,05xD	0,06xD
		●														5÷8	140-170	0,035-0,050	0,05xD	0,06xD
		●														8÷12	140-170	0,040-0,055	0,05xD	0,06xD
		●														12÷16	140-170	0,070-0,085	0,05xD	0,06xD
		●														16÷20	140-170	0,080-0,095	0,05xD	0,06xD
			●													2,5	110-140	0,005-0,020	0,05xD	0,06xD
			●													3÷4	110-140	0,020-0,035	0,05xD	0,06xD
			●													4÷5	110-140	0,020-0,035	0,05xD	0,06xD
			●													5÷8	110-140	0,020-0,035	0,05xD	0,06xD
			●													8÷12	110-140	0,030-0,045	0,05xD	0,06xD
			●													12÷16	110-140	0,050-0,065	0,05xD	0,06xD
			●													16÷20	110-140	0,060-0,075	0,05xD	0,06xD
					●											2,5	50-80	0,003-0,015	0,05xD	0,06xD
					●											3÷4	50-80	0,010-0,025	0,05xD	0,06xD
					●											4÷5	50-80	0,010-0,025	0,05xD	0,06xD
					●											5÷8	50-80	0,010-0,025	0,05xD	0,06xD
					●											8÷12	50-80	0,020-0,035	0,05xD	0,06xD
					●											12÷16	50-80	0,040-0,055	0,05xD	0,06xD
					●											16÷20	50-80	0,050-0,065	0,05xD	0,06xD
						●										2,5	100-130	0,025-0,040	0,05xD	0,06xD
						●										3÷4	100-130	0,050-0,065	0,05xD	0,06xD
						●										4÷5	100-130	0,050-0,065	0,05xD	0,06xD
						●										5÷8	100-130	0,050-0,065	0,05xD	0,06xD
						●										8÷12	100-130	0,060-0,075	0,05xD	0,06xD
						●										12÷16	100-130	0,110-0,125	0,05xD	0,06xD
						●										16÷20	100-130	0,130-0,145	0,05xD	0,06xD
							●									2,5	100-130	0,020-0,035	0,05xD	0,06xD
							●									3÷4	100-130	0,035-0,050	0,05xD	0,06xD
							●									4÷5	100-130	0,035-0,050	0,05xD	0,06xD
							●									5÷8	100-130	0,035-0,050	0,05xD	0,06xD
							●									8÷12	100-130	0,040-0,055	0,05xD	0,06xD
							●									12÷16	100-130	0,070-0,085	0,05xD	0,06xD
							●									16÷20	100-130	0,080-0,095	0,05xD	0,06xD

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

DATI TECNICI LAVORAZIONI PAG. 1072 - 1073
MACHINING TECHNICAL DATA PAGE 1072 - 1073
BEARBEITUNGSSCHNITTDATEN S. 1072 - 1073
DONNEES TECHNIQUES USINAGES PAGES 1072 - 1073

øD = mm DIAMETRO - DIAMETER
øDe = mm DIAMETRO EFFETTIVO - EFFECTIVE DIAMETER
Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

$$n = \frac{Vc \cdot 1000}{ØDe \cdot 3,14} = \text{giri/min (min}^{-1}\text{)}$$

$$fn = fz \cdot z = \text{mm}$$

$$Vf = fz \cdot z \cdot n = \text{mm/min}$$

SM2424

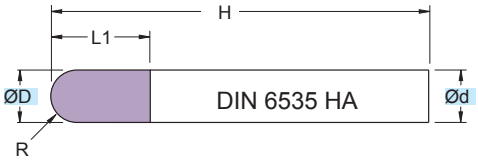
ØD = 2 - 12

RIVESTIM. COATED
GRAY

R

60 HRC

HSC



Fresa in M.D.I. Micrograno
Gambo Cilindrico HA

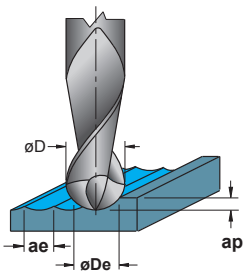
Micrograin HM mills
Cilindrical Shank HA

TOLLERANZE	D	d
TOLLERANCE RANGE	h10	h6

(mm)

ART.	ØD	Ød	L1	H	R	z
SM2424.020.S010	2,0	6,0	5	60	1,0	2
SM2424.030.S015	3,0	6,0	7	60	1,5	2
SM2424.040.S020	4,0	6,0	10	75	2,0	2
SM2424.050.S025	5,0	6,0	12	75	2,5	2
SM2424.060.S030	6,0	6,0	12	100	3,0	2
SM2424.080.S040	8,0	8,0	14	100	4,0	2
SM2424.100.S050	10,0	10,0	18	100	5,0	2
SM2424.120.S060	12,0	12,0	22	100	6,0	2

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm) ØDe	(m/min) Vc	(mm) fz	(mm) ap	(mm) ae
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO E SUE LEGHE ALUMINIUM	RAME E SUE LEGHE COPPER	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE					
	●															2	430-460	0,014-0,029	0,06	0,1
	●															3	430-460	0,022-0,037	0,09	0,15
	●															4	430-460	0,030-0,045	0,12	0,2
	●															6	430-460	0,050-0,065	0,18	0,3
	●															8	430-460	0,070-0,085	0,24	0,4
	●															10	430-460	0,090-0,105	0,3	0,5
	●															12	430-460	0,110-0,125	0,36	0,6
		●														2	250-280	0,008-0,023	0,03	0,08
		●														3	250-280	0,015-0,030	0,045	0,12
		●														4	250-280	0,025-0,040	0,06	0,16
		●														6	250-280	0,040-0,055	0,09	0,24
		●														8	250-280	0,050-0,065	0,12	0,32
		●														10	250-280	0,055-0,070	0,15	0,4
		●														12	250-280	0,060-0,075	0,18	0,48
						●										2	540-575	0,014-0,029	0,06	0,1
						●										3	540-575	0,022-0,037	0,09	0,15
						●										4	540-575	0,030-0,045	0,12	0,2
						●										6	540-575	0,050-0,065	0,18	0,3
						●										8	540-575	0,070-0,085	0,24	0,4
						●										10	540-575	0,090-0,105	0,3	0,5
						●										12	540-575	0,110-0,125	0,36	0,6
							●									2	450-480	0,014-0,029	0,06	0,1
							●									3	450-480	0,022-0,037	0,09	0,15
							●									4	450-480	0,030-0,045	0,12	0,2
							●									6	450-480	0,050-0,065	0,18	0,3
							●									8	450-480	0,070-0,085	0,24	0,4
							●									10	450-480	0,090-0,105	0,3	0,5
							●									12	450-480	0,110-0,125	0,36	0,6
												●				2	30-50	0,008-0,023	0,016	0,04
												●				3	30-50	0,015-0,030	0,024	0,06
												●				4	30-50	0,025-0,040	0,032	0,08
												●				6	30-50	0,040-0,055	0,048	0,12
												●				8	30-50	0,050-0,065	0,064	0,16
												●				10	30-50	0,055-0,070	0,08	0,2
												●				12	30-50	0,060-0,075	0,096	0,24
													●			2	45-65	0,014-0,029	0,06	0,1
													●			3	45-65	0,022-0,037	0,09	0,15
													●			4	45-65	0,030-0,045	0,12	0,2
													●			6	45-65	0,050-0,065	0,18	0,3
													●			8	45-65	0,070-0,085	0,24	0,4
													●			10	45-65	0,090-0,105	0,3	0,5
													●			12	45-65	0,110-0,125	0,36	0,6
														●		2	60-90	0,008-0,023	0,016	0,04
														●		3	60-90	0,015-0,030	0,024	0,06
														●		4	60-90	0,025-0,040	0,032	0,08
														●		6	60-90	0,040-0,055	0,048	0,12
														●		8	60-90	0,050-0,065	0,064	0,16
														●		10	60-90	0,055-0,070	0,08	0,2
														●		12	60-90	0,060-0,075	0,096	0,24

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

DATI TECNICI LAVORAZIONI PAG. 1072 - 1073
MACHINING TECHNICAL DATA PAGE 1072 - 1073
BEARBEITUNGSSCHNITTDATEN S. 1072 - 1073
DONNEES TECHNIQUES USINAGES PAGES 1072 - 1073

øD = mm DIAMETRO - DIAMETER
øDe = mm DIAMETRO EFFETTIVO - EFFECTIVE DIAMETER
Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

$$n = \frac{Vc \cdot 1000}{ØDe \cdot 3{,}14} = \text{giri/min (min}^{-1}\text{)}$$

$$fn = fz \cdot z = \text{mm}$$

$$Vf = fz \cdot z \cdot n = \text{mm/min}$$

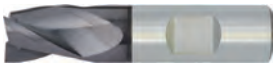
FRESE A 3 TAGLI

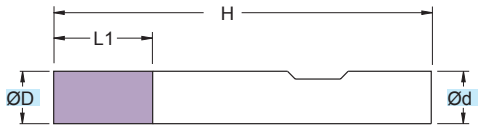
MILLING 3 CUTTINGS / DREISCHNEIDER / FRAISES A 3 COUPES / FRESAS DE 3 FILOS

SAU
QUALITY TOOLS ENGINEERING

SMW3100

ØD = 2 - 20





RIVESTIM. COATED
BLACK

90°

42 HRC

Fresa in M.D.I. Micrograno
Gambo sec. norma di fabbrica

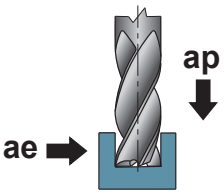
Micrograin HM mills
Shank according to factory standard

TOLLERANZE	D	d
TOLLERANCE RANGE	h10	h6

(mm)

ART.	ØD	Ød	L1	H	z
SMW3100.020.N00	2	6	4	38	3
SMW3100.030.N00	3	6	5	38	3
SMW3100.040.N00	4	6	7	38	3
SMW3100.050.N00	5	6	8	38	3
SMW3100.060.N00	6	6	8	38	3
SMW3100.080.N00	8	8	11	43	3
SMW3100.100.N00	10	10	13	50	3
SMW3100.120.N00	12	12	15	55	3
SMW3100.160.N00	16	16	18	62	3
SMW3100.200.N00	20	20	22	75	3

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm) ØD	(m/min) Vc	(mm) fz	(mm) ap	(mm) ae
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO E SUE LEGHE ALUMINIUM	RAME E SUE LEGHE COPPER	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE					
	●															2	100-130	0,003-0,013	1,0	1xD
	●															3	100-130	0,003-0,015	1,5	1xD
	●															4	100-130	0,005-0,020	2,0	1xD
	●															5	100-130	0,008-0,023	2,5	1xD
	●															6	100-130	0,010-0,025	3,0	1xD
	●															8	100-130	0,015-0,030	4,0	1xD
	●															10	100-130	0,020-0,035	5,0	1xD
	●															12	100-130	0,025-0,040	6,0	1xD
	●															16	100-130	0,030-0,045	8,0	1xD
	●															20	100-130	0,035-0,050	10,0	1xD
		●														2	60-90	0,003-0,013	1,0	1xD
		●														3	60-90	0,003-0,015	1,5	1xD
		●														4	60-90	0,005-0,020	2,0	1xD
		●														5	60-90	0,008-0,023	2,5	1xD
		●														6	60-90	0,010-0,025	3,0	1xD
		●														8	60-90	0,015-0,030	4,0	1xD
		●														10	60-90	0,020-0,035	5,0	1xD
		●														12	60-90	0,025-0,040	6,0	1xD
		●														16	60-90	0,030-0,045	8,0	1xD
		●														20	60-90	0,035-0,050	10,0	1xD
			●													2	40-70	0,003-0,013	1,0	1xD
			●													3	40-70	0,003-0,015	1,5	1xD
			●													4	40-70	0,005-0,020	2,0	1xD
			●													5	40-70	0,008-0,023	2,5	1xD
			●													6	40-70	0,010-0,025	3,0	1xD
			●													8	40-70	0,015-0,030	4,0	1xD
			●													10	40-70	0,020-0,035	5,0	1xD
			●													12	40-70	0,025-0,040	6,0	1xD
			●													16	40-70	0,030-0,045	8,0	1xD
			●													20	40-70	0,035-0,050	10,0	1xD
					●											2	30-60	0,003-0,010	1,0	1xD
					●											3	30-60	0,003-0,013	1,5	1xD
					●											4	30-60	0,003-0,015	2,0	1xD
					●											5	30-60	0,002-0,017	2,5	1xD
					●											6	30-60	0,005-0,020	3,0	1xD
					●											8	30-60	0,008-0,023	4,0	1xD
					●											10	30-60	0,010-0,025	5,0	1xD
					●											12	30-60	0,015-0,030	6,0	1xD
					●											16	30-60	0,020-0,035	8,0	1xD
					●											20	30-60	0,025-0,040	10,0	1xD
						●										2	125-155	0,003-0,013	1,0	1xD
						●										3	125-155	0,003-0,015	1,5	1xD
						●										4	125-155	0,005-0,020	2,0	1xD
						●										5	125-155	0,008-0,023	2,5	1xD
						●										6	125-155	0,010-0,025	3,0	1xD
						●										8	125-155	0,015-0,030	4,0	1xD
						●										10	125-155	0,020-0,035	5,0	1xD
						●										12	125-155	0,025-0,040	6,0	1xD
						●										16	125-155	0,030-0,045	8,0	1xD
						●										20	125-155	0,035-0,050	10,0	1xD
							●									2	100-130	0,003-0,013	1,0	1xD
							●									3	100-130	0,003-0,015	1,5	1xD
							●									4	100-130	0,005-0,020	2,0	1xD
							●									5	100-130	0,008-0,023	2,5	1xD
							●									6	100-130	0,010-0,025	3,0	1xD
							●									8	100-130	0,015-0,030	4,0	1xD
							●									10	100-130	0,020-0,035	5,0	1xD
							●									12	100-130	0,025-0,040	6,0	1xD
							●									16	100-130	0,030-0,045	8,0	1xD
							●									20	100-130	0,035-0,050	10,0	1xD

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED

n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS

fz = mm AVANZAMENTO AL DENTE -TOOTH FEED

fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION

Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

$$n = \frac{Vc \cdot 1000}{ØD \cdot 3{,}14} = \text{giri/min (min}^{-1}\text{)}$$

$$fn = fz \cdot z = \text{mm}$$

$$Vf = fz \cdot z \cdot n = \text{mm/min}$$

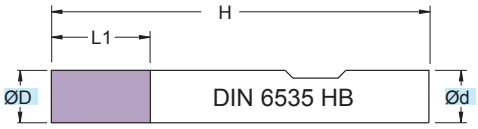
SMW3231

ØD = 2 - 20

RIVESTIM. COATED
RED

90°

58 HRC



Fresa in M.D.I. Micrograno
Gambo sec. DIN 6535 HB

Micrograin HM mills
DIN 6535 HB Shank

TOLLERANZE	D	d
TOLLERANCE RANGE	h10	h6

(mm)

ART.	ØD	Ød	L1	H	z
SMW3231.020.N00	2	6	4	50	3
SMW3231.030.N00	3	6	5	50	3
SMW3231.040.N00	4	6	7	50	3
SMW3231.050.N00	5	6	8	50	3
SMW3231.060.N00	6	6	8	50	3
SMW3231.070.N00	7	8	11	57	3
SMW3231.080.N00	8	8	11	57	3
SMW3231.090.N00	9	10	15	63	3
SMW3231.100.N00	10	10	15	63	3
SMW3231.120.N00	12	12	21	72	3
SMW3231.160.N00	16	16	26	82	3
SMW3231.200.N00	20	20	32	92	3

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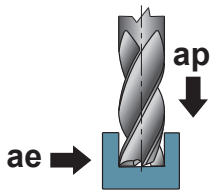
Applicazione - Application	P				M	K			N			S		H	G	(mm) ØD	(m/min) Vc	(mm) fz	(mm) ap	(mm) ae
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO E SUE LEGHE ALUMINIUM	RAME E SUE LEGHE COPPER	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE					
	●															2	120-150	0,003-0,013	0,5xD	1xD
	●															3	120-150	0,003-0,015	0,5xD	1xD
	●															4	120-150	0,005-0,020	0,5xD	1xD
	●															5	120-150	0,008-0,023	0,5xD	1xD
	●															6	120-150	0,010-0,025	0,5xD	1xD
	●															7	120-150	0,012-0,027	0,5xD	1xD
	●															8	120-150	0,015-0,030	0,5xD	1xD
	●															9	120-150	0,018-0,033	0,5xD	1xD
	●															10	120-150	0,020-0,035	0,5xD	1xD
	●															12	120-150	0,025-0,040	0,5xD	1xD
	●															16	120-150	0,030-0,045	0,5xD	1xD
	●															20	120-150	0,035-0,050	0,5xD	1xD
		●														2	80-120	0,003-0,013	0,5xD	1xD
		●														3	80-120	0,003-0,015	0,5xD	1xD
		●														4	80-120	0,005-0,020	0,5xD	1xD
		●														5	80-120	0,008-0,023	0,5xD	1xD
		●														6	80-120	0,010-0,025	0,5xD	1xD
		●														7	80-120	0,012-0,027	0,5xD	1xD
		●														8	80-120	0,015-0,030	0,5xD	1xD
		●														9	80-120	0,018-0,033	0,5xD	1xD
		●														10	80-120	0,020-0,035	0,5xD	1xD
		●														12	80-120	0,025-0,040	0,5xD	1xD
		●														16	80-120	0,030-0,045	0,5xD	1xD
		●														20	80-120	0,035-0,050	0,5xD	1xD
					●											2	30-60	0,003-0,010	0,5xD	1xD
					●											3	30-60	0,003-0,013	0,5xD	1xD
					●											4	30-60	0,003-0,015	0,5xD	1xD
					●											5	30-60	0,002-0,017	0,5xD	1xD
					●											6	30-60	0,005-0,020	0,5xD	1xD
					●											7	30-60	0,006-0,021	0,5xD	1xD
					●											8	30-60	0,008-0,023	0,5xD	1xD
					●											9	30-60	0,009-0,024	0,5xD	1xD
					●											10	30-60	0,010-0,025	0,5xD	1xD
					●											12	30-60	0,015-0,030	0,5xD	1xD
					●											16	30-60	0,020-0,035	0,5xD	1xD
					●											20	30-60	0,025-0,040	0,5xD	1xD
						●										2	120-150	0,003-0,013	0,5xD	1xD
						●										3	120-150	0,003-0,015	0,5xD	1xD
						●										4	120-150	0,003-0,015	0,5xD	1xD
						●										5	120-150	0,005-0,020	0,5xD	1xD
						●										6	120-150	0,010-0,025	0,5xD	1xD
						●										7	120-150	0,012-0,027	0,5xD	1xD
						●										8	120-150	0,015-0,030	0,5xD	1xD
						●										9	120-150	0,017-0,032	0,5xD	1xD
						●										10	120-150	0,020-0,035	0,5xD	1xD
						●										12	120-150	0,025-0,040	0,5xD	1xD
						●										16	120-150	0,030-0,045	0,5xD	1xD
						●										20	120-150	0,035-0,050	0,5xD	1xD
							●									2	100-130	0,003-0,013	0,5xD	1xD
							●									3	100-130	0,003-0,015	0,5xD	1xD
							●									4	100-130	0,003-0,015	0,5xD	1xD
							●									5	100-130	0,005-0,020	0,5xD	1xD
							●									6	100-130	0,010-0,025	0,5xD	1xD
							●									7	100-130	0,012-0,027	0,5xD	1xD
							●									8	100-130	0,015-0,030	0,5xD	1xD
							●									9	100-130	0,017-0,032	0,5xD	1xD
							●									10	100-130	0,020-0,035	0,5xD	1xD
							●									12	100-130	0,025-0,040	0,5xD	1xD
							●									16	100-130	0,030-0,045	0,5xD	1xD
							●									20	100-130	0,035-0,050	0,5xD	1xD

PER LAVORAZIONI A SPALLAMENTO AUMENTARE I PARAMETRI DEL 20%
FOR SHOULDER MILLING PARAMETERS SHOULD BE INCREASED BY 20%

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

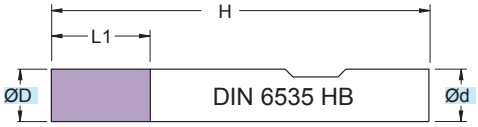
$$n = \frac{Vc \cdot 1000}{ØD \cdot 3{,}14} \text{ = giri/min (min}^{-1}\text{)}$$

$$fn = fz \cdot z \text{ = mm}$$

$$Vf = fz \cdot z \cdot n \text{ = mm/min}$$

SMW3300

ØD = 2 - 20



RIVESTIM. COATED
BLACK

90°

42 HRC

Fresa in M.D.I. Micrograno
Gambo sec. DIN 6535 HB

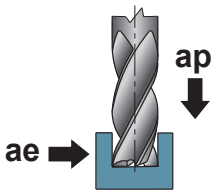
Micrograin HM mills
DIN 6535 HB Shank

TOLLERANZE	D	d
TOLLERANCE RANGE	h10	h6

(mm)

ART.	ØD	Ød	L1	H	z
SMW3300.020.N00	2,00	3	7	38	3
SMW3300.025.N00	2,50	3	7	38	3
SMW3300.030.N00	3,00	3	8	38	3
SMW3300.035.N00	3,50	4	11	50	3
SMW3300.040.N00	4,00	4	11	50	3
SMW3300.045.N00	4,50	5	11	50	3
SMW3300.050.N00	5,00	5	10	50	3
SMW3300.055.N00	5,50	6	10	50	3
SMW3300.060.N00	6,00	6	10	57	3
SMW3300.065.N00	6,50	8	13	63	3
SMW3300.070.N00	7,00	8	13	63	3
SMW3300.075.N00	7,50	8	16	63	3
SMW3300.080.N00	8,00	8	16	63	3
SMW3300.085.N00	8,50	10	16	72	3
SMW3300.090.N00	9,00	10	16	72	3
SMW3300.095.N00	9,50	10	19	72	3
SMW3300.100.N00	10,00	10	19	72	3
SMW3300.110.N00	11,00	12	19	72	3
SMW3300.120.N00	12,00	12	22	83	3
SMW3300.130.N00	13,00	14	22	83	3
SMW3300.140.N00	14,00	14	22	83	3
SMW3300.150.N00	15,00	16	26	83	3
SMW3300.160.N00	16,00	16	26	83	3
SMW3300.170.N00	17,00	18	26	92	3
SMW3300.180.N00	18,00	18	26	92	3
SMW3300.190.N00	19,00	20	32	104	3
SMW3300.200.N00	20,00	20	32	104	3

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm) ØD	(m/min) Vc	(mm) fz	(mm) ap	(mm) ae
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO E SUE LEGHE ALUMINIUM	RAME E SUE LEGHE COPPER	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE					
	●															2÷4	80-110	0,003-0,015	0,05xD	1xD
	●															4÷6	80-110	0,008-0,023	0,05xD	1xD
	●															6÷8	80-110	0,012-0,027	0,05xD	1xD
	●															8÷10	80-110	0,017-0,032	0,05xD	1xD
	●															10÷14	80-110	0,025-0,040	0,05xD	1xD
	●															14÷18	80-110	0,035-0,050	0,05xD	1xD
	●															18÷20	80-110	0,050-0,065	0,05xD	1xD
		●														2÷4	50-80	0,003-0,015	0,05xD	1xD
		●														4÷6	50-80	0,008-0,023	0,05xD	1xD
		●														6÷8	50-80	0,012-0,027	0,05xD	1xD
		●														8÷10	50-80	0,017-0,032	0,05xD	1xD
		●														10÷14	50-80	0,025-0,040	0,05xD	1xD
		●														14÷18	50-80	0,035-0,050	0,05xD	1xD
		●														18÷20	50-80	0,050-0,065	0,05xD	1xD
			●													2÷4	30-60	0,003-0,015	0,05xD	1xD
			●													4÷6	30-60	0,008-0,023	0,05xD	1xD
			●													6÷8	30-60	0,012-0,027	0,05xD	1xD
			●													8÷10	30-60	0,017-0,032	0,05xD	1xD
			●													10÷14	30-60	0,025-0,040	0,05xD	1xD
			●													14÷18	30-60	0,035-0,050	0,05xD	1xD
			●													18÷20	30-60	0,050-0,065	0,05xD	1xD
					●											2÷4	30-50	0,003-0,013	0,05xD	1xD
					●											4÷6	30-50	0,002-0,017	0,05xD	1xD
					●											6÷8	30-50	0,006-0,021	0,05xD	1xD
					●											8÷10	30-50	0,009-0,024	0,05xD	1xD
					●											10÷14	30-50	0,015-0,030	0,05xD	1xD
					●											14÷18	30-50	0,025-0,040	0,05xD	1xD
					●											18÷20	30-50	0,040-0,055	0,05xD	1xD
						●										2÷4	125-155	0,003-0,015	0,05xD	1xD
						●										4÷6	125-155	0,008-0,023	0,05xD	1xD
						●										6÷8	125-155	0,012-0,027	0,05xD	1xD
						●										8÷10	125-155	0,017-0,032	0,05xD	1xD
						●										10÷14	125-155	0,025-0,040	0,05xD	1xD
						●										14÷18	125-155	0,035-0,050	0,05xD	1xD
						●										18÷20	125-155	0,050-0,065	0,05xD	1xD
							●									2÷4	100-130	0,003-0,015	0,05xD	1xD
							●									4÷6	100-130	0,008-0,023	0,05xD	1xD
							●									6÷8	100-130	0,012-0,027	0,05xD	1xD
							●									8÷10	100-130	0,017-0,032	0,05xD	1xD
							●									10÷14	100-130	0,025-0,040	0,05xD	1xD
							●									14÷18	100-130	0,035-0,050	0,05xD	1xD
							●									18÷20	100-130	0,050-0,065	0,05xD	1xD

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED

n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS

fz = mm AVANZAMENTO AL DENTE -TOOTH FEED

fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION

Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

$$n = \frac{Vc \cdot 1000}{ØD \cdot 3{,}14} = \text{giri/min (min}^{-1}\text{)}$$

$$fn = fz \cdot z = \text{mm}$$

$$Vf = fz \cdot z \cdot n = \text{mm/min}$$

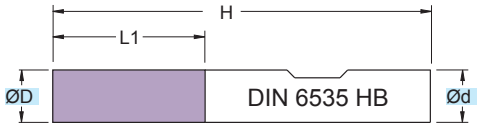
FRESE A 4 TAGLI

MILLING 4 CUTTINGS / VIERSCHNEIDER / FRAISES A 4 COUPES / FRESAS DE 4 FILOS

SAU
QUALITY TOOLS ENGINEERING

SMW4300

ØD = 5,5 - 20



RIVESTIM. COATED
BLACK

90°

42 HRC

Fresa in M.D.I. Micrograno
Gambo sec. DIN 6535 HB

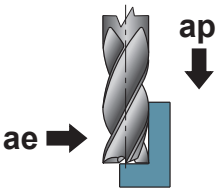
Micrograin HM mills
DIN 6535 HB Shank

TOLLERANZE	D	d
TOLLERANCE RANGE	h10	h6

(mm)

ART.	ØD	Ød	L1	H	z
SMW4300.055.N00	5,5	6	10	57	4
SMW4300.060.N00	6,0	6	10	57	4
SMW4300.070.N00	7,0	8	13	63	4
SMW4300.080.N00	8,0	8	16	63	4
SMW4300.090.N00	9,0	10	16	72	4
SMW4300.100.N00	10,0	10	19	72	4
SMW4300.110.N00	11,0	12	19	72	4
SMW4300.120.N00	12,0	12	22	83	4
SMW4300.140.N00	14,0	14	22	83	4
SMW4300.160.N00	16,0	16	26	83	4
SMW4300.180.N00	18,0	18	26	92	4
SMW4300.200.N00	20,0	20	32	104	4

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm) ØD	(m/min) Vc	(mm) fz	(mm) ap	(mm) ae
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO E SUE LEGHE ALUMINIUM	RAME E SUE LEGHE COPPER	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE					
		●														2÷3	60-90	0,003-0,015	4,5	0,3
		●														3÷4	60-90	0,003-0,017	6,0	0,4
		●														4÷5	60-90	0,005-0,020	7,5	0,5
		●														5÷6	60-90	0,010-0,025	9,0	0,6
		●														6÷8	60-90	0,015-0,030	12,0	0,8
		●														8÷10	60-90	0,020-0,035	15,0	1,0
		●														10÷12	60-90	0,030-0,045	18,0	1,2
		●														12÷16	60-90	0,040-0,055	24,0	1,6
		●														16÷20	60-90	0,050-0,065	30,0	2,0
			●													2÷3	40-70	0,003-0,015	4,5	0,3
			●													3÷4	40-70	0,003-0,017	6,0	0,4
			●													4÷5	40-70	0,005-0,020	7,5	0,5
			●													5÷6	40-70	0,010-0,025	9,0	0,6
			●													6÷8	40-70	0,015-0,030	12,0	0,8
			●													8÷10	40-70	0,020-0,035	15,0	1,0
			●													10÷12	40-70	0,030-0,045	18,0	1,2
			●													12÷16	40-70	0,040-0,055	24,0	1,6
			●													16÷20	40-70	0,050-0,065	30,0	2,0
					●											2÷3	25-55	0,003-0,013	4,5	0,3
					●											3÷4	25-55	0,003-0,015	6,0	0,4
					●											4÷5	25-55	0,003-0,015	7,5	0,5
					●											5÷6	25-55	0,005-0,020	9,0	0,6
					●											6÷8	25-55	0,010-0,025	12,0	0,8
					●											8÷10	25-55	0,015-0,030	15,0	1,0
					●											10÷12	25-55	0,020-0,035	18,0	1,2
					●											12÷16	25-55	0,030-0,045	24,0	1,6
					●											16÷20	25-55	0,040-0,055	30,0	2,0
							●									2÷3	100-130	0,003-0,013	4,5	0,3
							●									3÷4	100-130	0,003-0,015	6,0	0,4
							●									4÷5	100-130	0,003-0,015	7,5	0,5
							●									5÷6	100-130	0,005-0,020	9,0	0,6
							●									6÷8	100-130	0,010-0,025	12,0	0,8
							●									8÷10	100-130	0,015-0,030	15,0	1,0
							●									10÷12	100-130	0,020-0,035	18,0	1,2
							●									12÷16	100-130	0,030-0,045	24,0	1,6
							●									16÷20	100-130	0,040-0,055	30,0	2,0

PER LAVORAZIONI IN CAVA DIMINUIRE I PARAMETRI DEL 20%
FOR SLOT CUTTING PARAMETERS SHOULD BE REDUCED BY 20%

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

$$n = \frac{Vc \cdot 1000}{ØD \cdot 3{,}14} \text{ = giri/min (min}^{-1}\text{)}$$

$$fn = fz \cdot z \text{ = mm}$$

$$Vf = fz \cdot z \cdot n \text{ = mm/min}$$

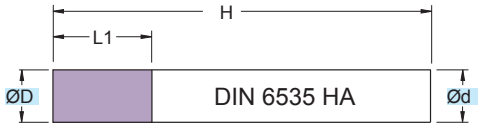
SM4300

ØD = 2 - 20

RIVESTIM. COATED
BLACK

90°

42 HRC



Fresa in M.D.I. Micrograno
Gambo cilindrico HA

Micrograin HM mills
Cilindrical Shank HA

TOLLERANZE	D	d
TOLLERANCE RANGE	h10	h6

ART.	(mm) ØD	Ød	L1	H	z
SM4300.020.N00	2,0	3	7	38	4
SM4300.025.N00	2,5	3	7	38	4
SM4300.030.N00	3,0	3	8	38	4
SM4300.035.N00	3,5	4	11	50	4
SM4300.040.N00	4,0	4	11	50	4
SM4300.045.N00	4,5	5	11	50	4
SM4300.050.N00	5,0	5	10	50	4
SM4300.055.N00	5,5	6	10	57	4
SM4300.060.N00	6,0	6	10	57	4
SM4300.070.N00	7,0	8	13	63	4
SM4300.080.N00	8,0	8	16	63	4
SM4300.090.N00	9,0	10	16	72	4
SM4300.100.N00	10,0	10	19	72	4
SM4300.110.N00	11,0	12	19	72	4
SM4300.120.N00	12,0	12	22	83	4
SM4300.140.N00	14,0	14	22	83	4
SM4300.160.N00	16,0	16	26	83	4
SM4300.180.N00	18,0	18	26	92	4
SM4300.200.N00	20,0	20	32	104	4

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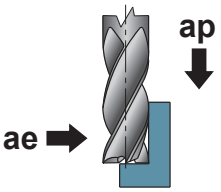
Applicazione - Application	P				M	K			N			S		H	G	(mm) ØD	(m/min) Vc	(mm) fz	(mm) ap	(mm) ae
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO E SUE LEGHE ALUMINIUM	RAME E SUE LEGHE COPPER	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE					
		●														2÷3	60-90	0,003-0,015	4,5	0,3
		●														3÷4	60-90	0,003-0,017	6,0	0,4
		●														4÷5	60-90	0,005-0,020	7,5	0,5
		●														5÷6	60-90	0,010-0,025	9,0	0,6
		●														6÷8	60-90	0,015-0,030	12,0	0,8
		●														8÷10	60-90	0,020-0,035	15,0	1,0
		●														10÷12	60-90	0,030-0,045	18,0	1,2
		●														12÷16	60-90	0,040-0,055	24,0	1,6
		●														16÷20	60-90	0,050-0,065	30,0	2,0
			●													2÷3	40-70	0,003-0,015	4,5	0,3
			●													3÷4	40-70	0,003-0,017	6,0	0,4
			●													4÷5	40-70	0,005-0,020	7,5	0,5
			●													5÷6	40-70	0,010-0,025	9,0	0,6
			●													6÷8	40-70	0,015-0,030	12,0	0,8
			●													8÷10	40-70	0,020-0,035	15,0	1,0
			●													10÷12	40-70	0,030-0,045	18,0	1,2
			●													12÷16	40-70	0,040-0,055	24,0	1,6
			●													16÷20	40-70	0,050-0,065	30,0	2,0
					●											2÷3	25-55	0,003-0,013	4,5	0,3
					●											3÷4	25-55	0,003-0,015	6,0	0,4
					●											4÷5	25-55	0,003-0,015	7,5	0,5
					●											5÷6	25-55	0,005-0,020	9,0	0,6
					●											6÷8	25-55	0,010-0,025	12,0	0,8
					●											8÷10	25-55	0,015-0,030	15,0	1,0
					●											10÷12	25-55	0,020-0,035	18,0	1,2
					●											12÷16	25-55	0,030-0,045	24,0	1,6
					●											16÷20	25-55	0,040-0,055	30,0	2,0
							●									2÷3	100-130	0,003-0,013	4,5	0,3
							●									3÷4	100-130	0,003-0,015	6,0	0,4
							●									4÷5	100-130	0,003-0,015	7,5	0,5
							●									5÷6	100-130	0,005-0,020	9,0	0,6
							●									6÷8	100-130	0,010-0,025	12,0	0,8
							●									8÷10	100-130	0,015-0,030	15,0	1,0
							●									10÷12	100-130	0,020-0,035	18,0	1,2
							●									12÷16	100-130	0,030-0,045	24,0	1,6
							●									16÷20	100-130	0,040-0,055	30,0	2,0

PER LAVORAZIONI IN CAVA DIMINUIRE I PARAMETRI DEL 20%
FOR SLOT CUTTING PARAMETERS SHOULD BE REDUCED BY 20%

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
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$$n = \frac{Vc \cdot 1000}{ØD \cdot 3{,}14} \text{ = giri/min (min}^{-1}\text{)}$$

$$fn = fz \cdot z \text{ = mm}$$

$$Vf = fz \cdot z \cdot n \text{ = mm/min}$$

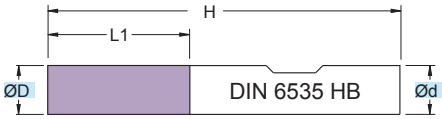
SMW4400

ØD = 3 - 20

RIVESTIM. COATED
BLACK

90°

42 HRC



Fresa in M.D.I. Micrograno
Gambo sec. DIN 6535 HB

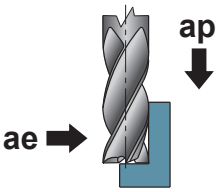
Micrograin HM mills
DIN 6535 HB Shank

TOLLERANZE	D	d
TOLLERANCE RANGE	h10	h6

(mm)

ART.	ØD	Ød	L1	H	z
SMW4400.030.N00	3	6	20	60	4
SMW4400.040.N00	4	6	25	75	4
SMW4400.050.N00	5	6	25	75	4
SMW4400.060.N00	6	6	30	75	4
SMW4400.080.N00	8	8	45	100	4
SMW4400.100.N00	10	10	45	100	4
SMW4400.120.N00	12	12	45	100	4
SMW4400.120.NL02	12	12	65	150	4
SMW4400.140.N00	14	14	45	100	4
SMW4400.160.N00	16	16	45	100	4
SMW4400.160.NL02	16	16	65	150	4
SMW4400.180.N00	18	18	45	100	4
SMW4400.200.N00	20	20	45	104	4
SMW4400.200.NL02	20	20	65	150	4

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm) ØD	(m/min) Vc	(mm) fz	(mm) ap	(mm) ae
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO E SUE LEGHE ALUMINIUM	RAME E SUE LEGHE COPPER	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE					
		●														3÷4	60-90	0,003-0,017	6,0	0,4
		●														4÷5	60-90	0,005-0,020	7,5	0,5
		●														5÷6	60-90	0,010-0,025	9,0	0,6
		●														6÷8	60-90	0,015-0,030	12,0	0,8
		●														8÷10	60-90	0,020-0,035	15,0	1,0
		●														10÷12	60-90	0,030-0,045	18,0	1,2
		●														12÷16	60-90	0,040-0,055	24,0	1,6
		●														16÷20	60-90	0,050-0,065	30,0	2,0
			●													3÷4	35-65	0,003-0,017	6,0	0,4
			●													4÷5	35-65	0,005-0,020	7,5	0,5
			●													5÷6	35-65	0,010-0,025	9,0	0,6
			●													6÷8	35-65	0,015-0,030	12,0	0,8
			●													8÷10	35-65	0,020-0,035	15,0	1,0
			●													10÷12	35-65	0,030-0,045	18,0	1,2
			●													12÷16	35-65	0,040-0,055	24,0	1,6
			●													16÷20	35-65	0,050-0,065	30,0	2,0
					●											3÷4	25-55	0,003-0,015	6,0	0,4
					●											4÷5	25-55	0,003-0,015	7,5	0,5
					●											5÷6	25-55	0,005-0,020	9,0	0,6
					●											6÷8	25-55	0,010-0,025	12,0	0,8
					●											8÷10	25-55	0,015-0,030	15,0	1,0
					●											10÷12	25-55	0,020-0,035	18,0	1,2
					●											12÷16	25-55	0,030-0,045	24,0	1,6
					●											16÷20	25-55	0,040-0,055	30,0	2,0
							●									3÷4	100-130	0,003-0,015	6,0	0,4
							●									4÷5	100-130	0,003-0,015	7,5	0,5
							●									5÷6	100-130	0,005-0,020	9,0	0,6
							●									6÷8	100-130	0,010-0,025	12,0	0,8
							●									8÷10	100-130	0,015-0,030	15,0	1,0
							●									10÷12	100-130	0,020-0,035	18,0	1,2
							●									12÷16	100-130	0,030-0,045	24,0	1,6
							●									16÷20	100-130	0,040-0,055	30,0	2,0

PER LAVORAZIONI IN CAVA DIMINUIRE I PARAMETRI DEL 20%
FOR SLOT CUTTING PARAMETERS SHOULD BE REDUCED BY 20%

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
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Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
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Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

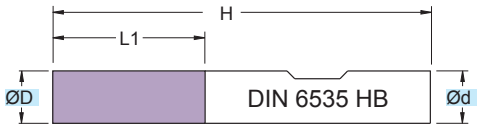
$$n = \frac{Vc \cdot 1000}{ØD \cdot 3{,}14} \text{ = giri/min (min}^{-1}\text{)}$$

$$fn = fz \cdot z \text{ = mm}$$

$$Vf = fz \cdot z \cdot n \text{ = mm/min}$$

SMW4402

ØD = 2 - 20



RIVESTIM. COATED
BLACK

45°

42 HRC

Fresa in M.D.I. Micrograno
Gambo sec. DIN 6535 HB

Micrograin HM mills
DIN 6535 HB Shank

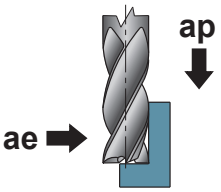
TOLLERANZE	D	d
TOLLERANCE RANGE	h10	h6

(mm)

ART.	ØD	Ød	L1	H	45°	z
SMW4402.020.N00	2	6	8	57	0,05	4
SMW4402.030.N00	3	6	14	57	0,05	4
SMW4402.040.N00	4	6	18	57	0,10	4
SMW4402.050.N00	5	6	20	57	0,10	4
SMW4402.060.N00	6	6	22	57	0,10	4
SMW4402.080.N00	8	8	30	63	0,15	4
SMW4402.100.N00	10	10	33	72	0,15	4
SMW4402.120.N00	12	12	34	83	0,20	4
SMW4402.160.N00	16	16	38	92	0,20	4
SMW4402.200.N00	20	20	47	104	0,30	4

PAG. 1053

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm) ØD	(m/min) Vc	(mm) fz	(mm) ap	(mm) ae
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO E SUE LEGHE ALUMINIUM	RAME E SUE LEGHE COPPER	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE					
		●														2	60-90	0,003-0,015	1,5xD	0,2xD
		●														3	60-90	0,003-0,015	1,5xD	0,2xD
		●														4	60-90	0,003-0,015	1,5xD	0,2xD
		●														5	60-90	0,003-0,015	1,5xD	0,2xD
		●														6	60-90	0,003-0,015	1,5xD	0,2xD
		●														8	60-90	0,010-0,025	1,5xD	0,2xD
		●														10	60-90	0,010-0,025	1,5xD	0,2xD
		●														12	60-90	0,020-0,035	1,5xD	0,2xD
		●														16	60-90	0,030-0,045	1,5xD	0,2xD
		●														20	60-90	0,030-0,045	1,5xD	0,2xD
			●													2	40-70	0,003-0,015	1,5xD	0,2xD
			●													3	40-70	0,003-0,015	1,5xD	0,2xD
			●													4	40-70	0,003-0,015	1,5xD	0,2xD
			●													5	40-70	0,003-0,015	1,5xD	0,2xD
			●													6	40-70	0,003-0,015	1,5xD	0,2xD
			●													8	40-70	0,010-0,025	1,5xD	0,2xD
			●													10	40-70	0,010-0,025	1,5xD	0,2xD
			●													12	40-70	0,020-0,035	1,5xD	0,2xD
			●													16	40-70	0,030-0,045	1,5xD	0,2xD
			●													20	40-70	0,030-0,045	1,5xD	0,2xD
					●											2	25-55	0,003-0,015	1,5xD	0,2xD
					●											3	25-55	0,003-0,015	1,5xD	0,2xD
					●											4	25-55	0,003-0,015	1,5xD	0,2xD
					●											5	25-55	0,003-0,015	1,5xD	0,2xD
					●											6	25-55	0,003-0,015	1,5xD	0,2xD
					●											8	25-55	0,010-0,025	1,5xD	0,2xD
					●											10	25-55	0,010-0,025	1,5xD	0,2xD
					●											12	25-55	0,020-0,035	1,5xD	0,2xD
					●											16	25-55	0,030-0,045	1,5xD	0,2xD
					●											20	25-55	0,030-0,045	1,5xD	0,2xD
							●									2	80-110	0,003-0,015	1,5xD	0,2xD
							●									3	80-110	0,003-0,015	1,5xD	0,2xD
							●									4	80-110	0,010-0,025	1,5xD	0,2xD
							●									5	80-110	0,010-0,025	1,5xD	0,2xD
							●									6	80-110	0,010-0,025	1,5xD	0,2xD
							●									8	80-110	0,030-0,045	1,5xD	0,2xD
							●									10	80-110	0,030-0,045	1,5xD	0,2xD
							●									12	80-110	0,030-0,045	1,5xD	0,2xD
							●									16	80-110	0,040-0,055	1,5xD	0,2xD
							●									20	80-110	0,040-0,055	1,5xD	0,2xD

PER LAVORAZIONI IN CAVA DIMINUIRE I PARAMETRI DEL 20%
FOR SLOT CUTTING PARAMETERS SHOULD BE REDUCED BY 20%

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

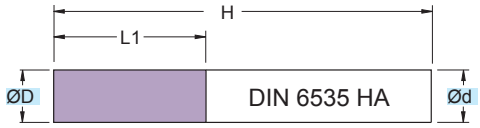
$$n = \frac{Vc \cdot 1000}{ØD \cdot 3{,}14} \text{ = giri/min (min}^{-1}\text{)}$$

$$fn = fz \cdot z \text{ = mm}$$

$$Vf = fz \cdot z \cdot n \text{ = mm/min}$$

SM4330

ØD = 4 - 20



RIVESTIM. COATED
GRAY

45°

52 HRC

HSC

Fresa in M.D.I. Micrograno
Gambo cilindrico HA

Micrograin HM mills
Cilindrical Shank HA

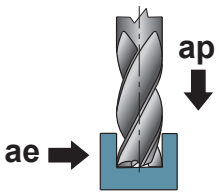
TOLLERANZE	D	d
TOLLERANCE RANGE	h10	h6

(mm)

ART.	ØD	Ød	L1	H	45°	z
SM4330.040.N00	4	6	11	57	0,10	4
SM4330.050.N00	5	6	13	57	0,10	4
SM4330.060.N00	6	6	13	57	0,10	4
SM4330.080.N00	8	8	19	63	0,15	4
SM4330.100.N00	10	10	22	72	0,15	4
SM4330.120.N00	12	12	26	83	0,20	4
SM4330.140.N00	14	14	26	83	0,20	4
SM4330.160.N00	16	16	32	92	0,20	4
SM4330.180.N00	18	18	32	92	0,30	4
SM4330.200.N00	20	20	38	104	0,30	4

PAG. 1053

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm) ØD	(m/min) Vc	(mm) fz	(mm) ap	(mm) ae
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO E SUE LEGHE ALUMINIUM	RAME E SUE LEGHE COPPER	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE					
			●													4	160-190	0,030-0,045	0,5xD	1xD
			●													5	160-190	0,035-0,050	0,5xD	1xD
			●													6	160-190	0,040-0,055	0,5xD	1xD
			●													8	160-190	0,050-0,065	0,5xD	1xD
			●													10	160-190	0,060-0,075	0,5xD	1xD
			●													12	160-190	0,070-0,085	0,5xD	1xD
			●													14	160-190	0,080-0,095	0,5xD	1xD
			●													16	160-190	0,090-0,105	0,5xD	1xD
			●													18	160-190	0,090-0,105	0,5xD	1xD
			●													20	160-190	0,090-0,105	0,5xD	1xD
					●											4	100-130	0,015-0,030	0,5xD	1xD
					●											5	100-130	0,020-0,035	0,5xD	1xD
					●											6	100-130	0,025-0,040	0,5xD	1xD
					●											8	100-130	0,030-0,045	0,5xD	1xD
					●											10	100-130	0,030-0,045	0,5xD	1xD
					●											12	100-130	0,040-0,055	0,5xD	1xD
					●											14	100-130	0,050-0,065	0,5xD	1xD
					●											16	100-130	0,060-0,075	0,5xD	1xD
					●											18	100-130	0,060-0,075	0,5xD	1xD
					●											20	100-130	0,060-0,075	0,5xD	1xD
						●										4	180-210	0,035-0,050	0,5xD	1xD
						●										5	180-210	0,040-0,055	0,5xD	1xD
						●										6	180-210	0,045-0,060	0,5xD	1xD
						●										8	180-210	0,060-0,075	0,5xD	1xD
						●										10	180-210	0,070-0,085	0,5xD	1xD
						●										12	180-210	0,090-0,105	0,5xD	1xD
						●										14	180-210	0,100-0,115	0,5xD	1xD
						●										16	180-210	0,110-0,125	0,5xD	1xD
						●										18	180-210	0,110-0,125	0,5xD	1xD
						●										20	180-210	0,110-0,125	0,5xD	1xD
							●									4	160-190	0,035-0,050	0,5xD	1xD
							●									5	160-190	0,040-0,055	0,5xD	1xD
							●									6	160-190	0,045-0,060	0,5xD	1xD
							●									8	160-190	0,060-0,075	0,5xD	1xD
							●									10	160-190	0,070-0,085	0,5xD	1xD
							●									12	160-190	0,090-0,105	0,5xD	1xD
							●									14	160-190	0,100-0,115	0,5xD	1xD
							●									16	160-190	0,110-0,125	0,5xD	1xD
							●									18	160-190	0,110-0,125	0,5xD	1xD
							●									20	160-190	0,110-0,125	0,5xD	1xD
														●		4	20-40	0,003-0,011	0,5xD	1xD
														●		5	20-40	0,003-0,012	0,5xD	1xD
														●		6	20-40	0,003-0,013	0,5xD	1xD
														●		8	20-40	0,003-0,015	0,5xD	1xD
														●		10	20-40	0,005-0,020	0,5xD	1xD
														●		12	20-40	0,010-0,025	0,5xD	1xD
														●		14	20-40	0,015-0,030	0,5xD	1xD
														●		16	20-40	0,020-0,035	0,5xD	1xD
														●		18	20-40	0,025-0,040	0,5xD	1xD
														●		20	20-40	0,030-0,045	0,5xD	1xD

PER LAVORAZIONI A SPALLAMENTO AUMENTARE I PARAMETRI DEL 20%
FOR SHOULDER MILLING PARAMETERS SHOULD BE INCREASED BY 20%

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

$$n = \frac{Vc \cdot 1000}{ØD \cdot 3{,}14} \text{ = giri/min (min}^{-1}\text{)}$$

$$fn = fz \cdot z \text{ = mm}$$

$$Vf = fz \cdot z \cdot n \text{ = mm/min}$$

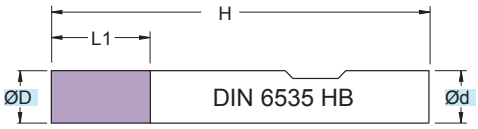
SMW4304

ØD = 3 - 20

RIVESTIM. COATED
GRAY

90°

42 HRC



Fresa in M.D.I. Micrograno
Gambo sec. DIN 6535 HB

Micrograin HM mills
DIN 6535 HB Shank

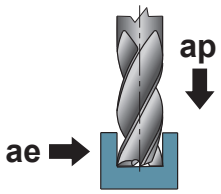
TOLLERANZE / TOLLERANCE RANGE	D	d
	h10	h6

(mm)

ART.	ØD	Ød	L1	H	z
SMW4304.030.N00	3	6	6	57	4
SMW4304.040.N00	4	6	8	57	4
SMW4304.050.N00	5	6	10	57	4
SMW4304.060.N00	6	6	13	57	4
SMW4304.080.N00	8	8	16	63	4
SMW4304.100.N00	10	10	22	72	4
SMW4304.120.N00	12	12	26	83	4
SMW4304.160.N00	16	16	32	92	4
SMW4304.200.N00	20	20	38	104	4

PAG. 1053

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm) ØD	(m/min) Vc	(mm) fz	(mm) ap	(mm) ae
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO E SUE LEGHE ALUMINIUM	RAME E SUE LEGHE COPPER	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE					
	●															3	100-130	0,003-0,015	1xD	1xD
	●															4	100-130	0,005-0,020	1xD	1xD
	●															5	100-130	0,010-0,025	1xD	1xD
	●															6	100-130	0,020-0,035	1xD	1xD
	●															8	100-130	0,030-0,045	1xD	1xD
	●															10	100-130	0,035-0,050	1xD	1xD
	●															12	100-130	0,040-0,055	1xD	1xD
	●															16	100-130	0,050-0,065	1xD	1xD
	●															20	100-130	0,060-0,075	1xD	1xD
			●													3	50-80	0,003-0,015	1xD	1xD
			●													4	50-80	0,005-0,020	1xD	1xD
			●													5	50-80	0,010-0,025	1xD	1xD
			●													6	50-80	0,015-0,030	1xD	1xD
			●													8	50-80	0,020-0,035	1xD	1xD
			●													10	50-80	0,025-0,040	1xD	1xD
			●													12	50-80	0,030-0,045	1xD	1xD
			●													16	50-80	0,040-0,055	1xD	1xD
			●													20	50-80	0,050-0,065	1xD	1xD
					●											3	30-60	0,003-0,013	1xD	1xD
					●											4	30-60	0,003-0,015	1xD	1xD
					●											5	30-60	0,005-0,020	1xD	1xD
					●											6	30-60	0,005-0,020	1xD	1xD
					●											8	30-60	0,010-0,025	1xD	1xD
					●											10	30-60	0,015-0,030	1xD	1xD
					●											12	30-60	0,020-0,035	1xD	1xD
					●											16	30-60	0,030-0,045	1xD	1xD
					●											20	30-60	0,040-0,055	1xD	1xD
						●										3	125-155	0,005-0,020	1xD	1xD
						●										4	125-155	0,015-0,030	1xD	1xD
						●										5	125-155	0,025-0,040	1xD	1xD
						●										6	125-155	0,035-0,050	1xD	1xD
						●										8	125-155	0,050-0,065	1xD	1xD
						●										10	125-155	0,055-0,070	1xD	1xD
						●										12	125-155	0,060-0,075	1xD	1xD
						●										16	125-155	0,080-0,095	1xD	1xD
						●										20	125-155	0,110-0,125	1xD	1xD
							●									3	100-130	0,005-0,020	1xD	1xD
							●									4	100-130	0,015-0,030	1xD	1xD
							●									5	100-130	0,025-0,040	1xD	1xD
							●									6	100-130	0,035-0,050	1xD	1xD
							●									8	100-130	0,050-0,065	1xD	1xD
							●									10	100-130	0,055-0,070	1xD	1xD
							●									12	100-130	0,060-0,075	1xD	1xD
							●									16	100-130	0,080-0,095	1xD	1xD
							●									20	100-130	0,110-0,125	1xD	1xD

PER LAVORAZIONI A SPALLAMENTO AUMENTARE I PARAMETRI DEL 20%
FOR SHOULDER MILLING PARAMETERS SHOULD BE INCREASED BY 20%

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

$$n = \frac{Vc \cdot 1000}{ØD \cdot 3{,}14} \text{ = giri/min (min}^{-1}\text{)}$$

$$fn = fz \cdot z \text{ = mm}$$

$$Vf = fz \cdot z \cdot n \text{ = mm/min}$$

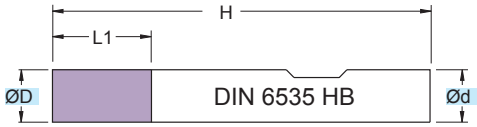
SMW3304

ØD = 4 - 25

RIVESTIM. COATED
GRAY

90°

42 HRC



Fresa in M.D.I. Micrograno
Gambo sec. DIN 6535 HB

Micrograin HM mills
DIN 6535 HB Shank

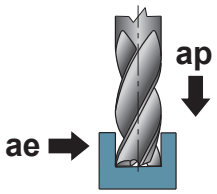
TOLLERANZE	D	d
TOLLERANCE RANGE	h10	h6

(mm)

ART.	ØD	Ød	L1	H	z
SMW3304.040.N00	4	6	11	57	3
SMW3304.050.N00	5	6	13	57	4
SMW3304.060.N00	6	6	16	57	4
SMW3304.070.N00	7	8	16	63	4
SMW3304.080.N00	8	8	16	63	4
SMW3304.090.N00	9	10	19	72	4
SMW3304.100.N00	10	10	22	72	4
SMW3304.120.N00	12	12	26	83	4
SMW3304.140.N00	14	14	26	83	5
SMW3304.160.N00	16	16	32	92	5
SMW3304.200.N00	20	20	38	104	6
SMW3304.250.N00	25	25	45	121	6

PAG. 1053

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm) ØD	(m/min) Vc	(mm) fz	(mm) ap	(mm) ae
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO E SUE LEGHE ALUMINIUM	RAME E SUE LEGHE COPPER	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE					
		●														4	150-180	0,010-0,025	1xD	0,5xD
		●														5	150-180	0,015-0,030	1xD	0,5xD
		●														6	150-180	0,020-0,035	1xD	0,5xD
		●														7	150-180	0,025-0,040	1xD	0,5xD
		●														8	150-180	0,030-0,045	1xD	0,5xD
		●														9	150-180	0,040-0,055	1xD	0,5xD
		●														10	150-180	0,050-0,065	1xD	0,5xD
		●														12	150-180	0,070-0,085	1xD	0,5xD
		●														14	150-180	0,090-0,105	1xD	0,5xD
		●														16	150-180	0,110-0,125	1xD	0,5xD
		●														20	150-180	0,130-0,145	1xD	0,5xD
		●														25	150-180	0,150-0,165	1xD	0,5xD
					●											4	130-160	0,010-0,025	1xD	0,5xD
					●											5	130-160	0,015-0,030	1xD	0,5xD
					●											6	130-160	0,020-0,035	1xD	0,5xD
					●											7	130-160	0,025-0,040	1xD	0,5xD
					●											8	130-160	0,030-0,045	1xD	0,5xD
					●											9	130-160	0,040-0,055	1xD	0,5xD
					●											10	130-160	0,050-0,065	1xD	0,5xD
					●											12	130-160	0,070-0,085	1xD	0,5xD
					●											14	130-160	0,090-0,105	1xD	0,5xD
					●											16	130-160	0,110-0,125	1xD	0,5xD
					●											20	130-160	0,130-0,145	1xD	0,5xD
					●											25	130-160	0,150-0,165	1xD	0,5xD
												●				4	30-60	0,040-0,055	1xD	0,5xD
												●				5	30-60	0,040-0,055	1xD	0,5xD
												●				6	30-60	0,050-0,065	1xD	0,5xD
												●				7	30-60	0,050-0,065	1xD	0,5xD
												●				8	30-60	0,050-0,065	1xD	0,5xD
												●				9	30-60	0,060-0,075	1xD	0,5xD
												●				10	30-60	0,070-0,085	1xD	0,5xD
												●				12	30-60	0,090-0,105	1xD	0,5xD
												●				14	30-60	0,110-0,125	1xD	0,5xD
												●				16	30-60	0,140-0,155	1xD	0,5xD
												●				20	30-60	0,190-0,205	1xD	0,5xD
												●				25	30-60	0,190-0,205	1xD	0,5xD
													●			4	60-90	0,040-0,055	1xD	0,5xD
													●			5	60-90	0,040-0,055	1xD	0,5xD
													●			6	60-90	0,050-0,065	1xD	0,5xD
													●			7	60-90	0,050-0,065	1xD	0,5xD
													●			8	60-90	0,050-0,065	1xD	0,5xD
													●			9	60-90	0,060-0,075	1xD	0,5xD
													●			10	60-90	0,070-0,085	1xD	0,5xD
													●			12	60-90	0,090-0,105	1xD	0,5xD
													●			14	60-90	0,110-0,125	1xD	0,5xD
													●			16	60-90	0,140-0,155	1xD	0,5xD
													●			20	60-90	0,190-0,205	1xD	0,5xD
													●			25	60-90	0,190-0,205	1xD	0,5xD

PER LAVORAZIONI A SPALLAMENTO AUMENTARE I PARAMETRI DEL 20%
FOR SHOULDER MILLING PARAMETERS SHOULD BE INCREASED BY 20%

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

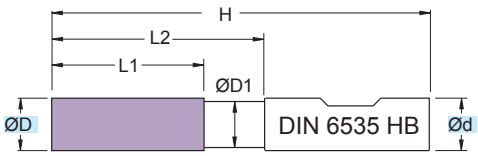
$$n = \frac{Vc \cdot 1000}{ØD \cdot 3{,}14} \text{ = giri/min (min}^{-1}\text{)}$$

$$fn = fz \cdot z \text{ = mm}$$

$$Vf = fz \cdot z \cdot n \text{ = mm/min}$$

SMW4404

ØD = 6 - 20



RIVESTIM. COATED
GRAY

90°

42 HRC

Fresa in M.D.I. Micrograno
Gambo sec. DIN 6535 HB

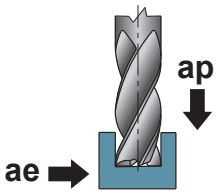
Micrograin HM mills
DIN 6535 HB Shank

TOLLERANZE / TOLLERANCE RANGE	D	d
	h10	h6

(mm)

ART.	ØD	Ød	ØD1	L1	L2	H	z
SMW4404.060.N00	6	6	5,8	13	20	57	4
SMW4404.080.N00	8	8	7,7	19	28	63	4
SMW4404.100.N00	10	10	9,5	22	33	72	4
SMW4404.120.N00	12	12	11,5	26	40	83	4
SMW4404.140.N00	14	14	13,5	26	40	83	4
SMW4404.160.N00	16	16	15,5	32	45	92	4
SMW4404.180.N00	18	18	17,5	32	45	92	4
SMW4404.200.N00	20	20	19,5	38	50	104	4

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm) ØD	(m/min) Vc	(mm) fz	(mm) ap	(mm) ae
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO E SUE LEGHE ALUMINIUM	RAME E SUE LEGHE COPPER	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE					
	●															6	140-170	0,020-0,035	1xD	1xD
	●															8	140-170	0,030-0,045	1xD	1xD
	●															10	140-170	0,040-0,055	1xD	1xD
	●															12	140-170	0,050-0,065	1xD	1xD
	●															14	140-170	0,060-0,075	1xD	1xD
	●															16	140-170	0,070-0,085	1xD	1xD
	●															18	140-170	0,080-0,095	1xD	1xD
	●															20	140-170	0,090-0,105	1xD	1xD
		●														6	120-150	0,014-0,029	1xD	1xD
		●														8	120-150	0,022-0,037	1xD	1xD
		●														10	120-150	0,030-0,045	1xD	1xD
		●														12	120-150	0,038-0,053	1xD	1xD
		●														14	120-150	0,046-0,061	1xD	1xD
		●														16	120-150	0,054-0,069	1xD	1xD
		●														18	120-150	0,062-0,077	1xD	1xD
		●														20	120-150	0,070-0,085	1xD	1xD
			●													6	100-130	0,014-0,029	1xD	1xD
			●													8	100-130	0,022-0,037	1xD	1xD
			●													10	100-130	0,030-0,045	1xD	1xD
			●													12	100-130	0,038-0,053	1xD	1xD
			●													14	100-130	0,046-0,061	1xD	1xD
			●													16	100-130	0,054-0,069	1xD	1xD
			●													18	100-130	0,062-0,077	1xD	1xD
			●													20	100-130	0,070-0,085	1xD	1xD
					●											6	40-70	0,005-0,020	0,75xD	1xD
					●											8	40-70	0,010-0,025	0,75xD	1xD
					●											10	40-70	0,010-0,025	0,75xD	1xD
					●											12	40-70	0,015-0,030	0,75xD	1xD
					●											14	40-70	0,020-0,035	0,75xD	1xD
					●											16	40-70	0,025-0,040	0,75xD	1xD
					●											18	40-70	0,030-0,045	0,75xD	1xD
					●											20	40-70	0,035-0,050	0,75xD	1xD
						●										6	160-220	0,032-0,047	1xD	1xD
						●										8	160-220	0,046-0,061	1xD	1xD
						●										10	160-220	0,060-0,075	1xD	1xD
						●										12	160-220	0,074-0,089	1xD	1xD
						●										14	160-220	0,088-0,103	1xD	1xD
						●										16	160-220	0,102-0,117	1xD	1xD
						●										18	160-220	0,116-0,131	1xD	1xD
						●										20	160-220	0,130-0,145	1xD	1xD
							●									6	130-160	0,020-0,035	1xD	1xD
							●									8	130-160	0,030-0,045	1xD	1xD
							●									10	130-160	0,040-0,055	1xD	1xD
							●									12	130-160	0,050-0,065	1xD	1xD
							●									14	130-160	0,060-0,075	1xD	1xD
							●									16	130-160	0,070-0,085	1xD	1xD
							●									18	130-160	0,080-0,095	1xD	1xD
							●									20	130-160	0,090-0,105	1xD	1xD
												●				6	20-50	0,005-0,020	0,75xD	1xD
												●				8	20-50	0,010-0,025	0,75xD	1xD
												●				10	20-50	0,010-0,025	0,75xD	1xD
												●				12	20-50	0,015-0,030	0,75xD	1xD
												●				14	20-50	0,020-0,035	0,75xD	1xD
												●				16	20-50	0,025-0,040	0,75xD	1xD
												●				18	20-50	0,030-0,045	0,75xD	1xD
												●				20	20-50	0,035-0,050	0,75xD	1xD
													●			6	40-70	0,005-0,020	0,75xD	1xD
													●			8	40-70	0,010-0,025	0,75xD	1xD
													●			10	40-70	0,010-0,025	0,75xD	1xD
													●			12	40-70	0,015-0,030	0,75xD	1xD
													●			14	40-70	0,020-0,035	0,75xD	1xD
													●			16	40-70	0,025-0,040	0,75xD	1xD
													●			18	40-70	0,030-0,045	0,75xD	1xD
													●			20	40-70	0,035-0,050	0,75xD	1xD

PER LAVORAZIONI A SPALLAMENTO AUMENTARE I PARAMETRI DEL 20%
FOR SHOULDER MILLING PARAMETERS SHOULD BE INCREASED BY 20%

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED

n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS

fz = mm AVANZAMENTO AL DENTE -TOOTH FEED

fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION

Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

$$n = \frac{Vc \cdot 1000}{ØD \cdot 3{,}14} = \text{giri/min } (min^{-1})$$

$$fn = fz \cdot z = \text{mm}$$

$$Vf = fz \cdot z \cdot n = \text{mm/min}$$

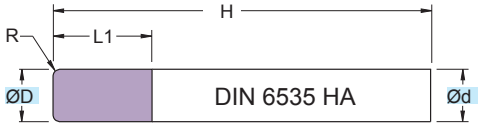
SM4325

ØD = 3 - 20

RIVESTIM. COATED
GRAY

R

62 HRC



Fresa in M.D.I. Micrograno
Gambo cilindrico HA

Micrograin HM mills
Cilindrical Shank HA

TOLLERANZE	D	d
TOLLERANCE RANGE	h10	h6

(mm)

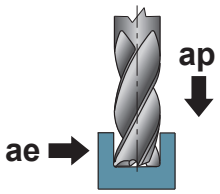
ART.	ØD	Ød	L1	H	R	z
SM4325.030.R030	3	3	6	50	0,3	4
SM4325.030.R050	3	3	6	50	0,5	4
SM4325.040.R030	4	4	8	60	0,3	4
SM4325.040.R050	4	4	8	60	0,5	4
SM4325.040.R100	4	4	8	60	1,0	4
SM4325.040.R150	4	4	8	60	1,5	4
SM4325.050.R030	5	5	10	60	0,3	4
SM4325.050.R050	5	5	10	60	0,5	4
SM4325.050.R100	5	5	10	60	1,0	4
SM4325.050.R150	5	5	10	60	1,5	4
SM4325.050.R200	5	5	10	60	2,0	4
SM4325.060.R030	6	6	12	70	0,3	4
SM4325.060.R050	6	6	12	70	0,5	4
SM4325.060.R100	6	6	12	70	1,0	4
SM4325.060.R150	6	6	12	70	1,5	4
SM4325.060.R200	6	6	12	70	2,0	4
SM4325.060.R250	6	6	12	70	2,5	4
SM4325.080.R030	8	8	16	70	0,3	4
SM4325.080.R050	8	8	16	70	0,5	4
SM4325.080.R100	8	8	16	70	1,0	4
SM4325.080.R150	8	8	16	70	1,5	4
SM4325.080.R200	8	8	16	70	2,0	4
SM4325.080.R250	8	8	16	70	2,5	4
SM4325.080.R300	8	8	16	70	3,0	4
SM4325.100.R030	10	10	20	70	0,3	4
SM4325.100.R050	10	10	20	70	0,5	4

(mm)

ART.	ØD	Ød	L1	H	R	z
SM4325.100.R100	10	10	20	70	1,0	4
SM4325.100.R150	10	10	20	70	1,5	4
SM4325.100.R200	10	10	20	70	2,0	4
SM4325.100.R250	10	10	20	70	2,5	4
SM4325.100.R300	10	10	20	70	3,0	4
SM4325.120.R030	12	12	24	80	0,3	4
SM4325.120.R050	12	12	24	80	0,5	4
SM4325.120.R100	12	12	24	80	1,0	4
SM4325.120.R150	12	12	24	80	1,5	4
SM4325.120.R200	12	12	24	80	2,0	4
SM4325.120.R250	12	12	24	80	2,5	4
SM4325.120.R300	12	12	24	80	3,0	4
SM4325.140.R050	14	14	28	90	0,5	4
SM4325.140.R100	14	14	28	90	1,0	4
SM4325.140.R150	14	14	28	90	1,5	4
SM4325.140.R200	14	14	28	90	2,0	4
SM4325.140.R250	14	14	28	90	2,5	4
SM4325.140.R300	14	14	28	90	3,0	4
SM4325.160.R100	16	16	32	90	1,0	4
SM4325.160.R200	16	16	32	90	2,0	4
SM4325.160.R300	16	16	32	90	3,0	4
SM4325.200.R100	20	20	40	120	1,0	4
SM4325.200.R200	20	20	40	120	2,0	4
SM4325.200.R300	20	20	40	120	3,0	4

PAG. 1053

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm) ØD	(m/min) Vc	(mm) fz	(mm) ap	(mm) ae
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO E SUE LEGHE ALUMINIUM	RAME E SUE LEGHE COPPER	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE					
			●													3	130-160	0,020-0,035	1xD	1xD
			●													4	130-160	0,020-0,035	1xD	1xD
			●													5	130-160	0,020-0,035	1xD	1xD
			●													6	130-160	0,030-0,045	1xD	1xD
			●													8	130-160	0,040-0,055	1xD	1xD
			●													10	130-160	0,050-0,065	1xD	1xD
			●													12	130-160	0,060-0,075	1xD	1xD
			●													14	130-160	0,070-0,085	1xD	1xD
			●													16	130-160	0,080-0,095	1xD	1xD
			●													20	130-160	0,100-0,115	1xD	1xD
					○											3	50-80	0,020-0,035	1xD	1xD
					○											4	50-80	0,020-0,035	1xD	1xD
					○											5	50-80	0,020-0,035	1xD	1xD
					○											6	50-80	0,030-0,045	1xD	1xD
					○											8	50-80	0,040-0,055	1xD	1xD
					○											10	50-80	0,050-0,065	1xD	1xD
					○											12	50-80	0,060-0,075	1xD	1xD
					○											14	50-80	0,070-0,085	1xD	1xD
					○											16	50-80	0,080-0,095	1xD	1xD
					○											20	50-80	0,100-0,115	1xD	1xD
							○									3	120-150	0,030-0,045	1xD	1xD
							○									4	120-150	0,030-0,045	1xD	1xD
							○									5	120-150	0,040-0,055	1xD	1xD
							○									6	120-150	0,050-0,065	1xD	1xD
							○									8	120-150	0,060-0,075	1xD	1xD
							○									10	120-150	0,070-0,085	1xD	1xD
							○									12	120-150	0,080-0,095	1xD	1xD
							○									14	120-150	0,090-0,105	1xD	1xD
							○									16	120-150	0,090-0,105	1xD	1xD
							○									20	120-150	0,110-0,125	1xD	1xD
														●		3	160-190	0,010-0,025	0,025xD	0,025xD
														●		4	160-190	0,010-0,025	0,025xD	0,025xD
														●		5	160-190	0,020-0,035	0,025xD	0,025xD
														●		6	160-190	0,020-0,035	0,025xD	0,025xD
														●		8	160-190	0,030-0,045	0,025xD	0,025xD
														●		10	160-190	0,040-0,055	0,025xD	0,025xD
														●		12	160-190	0,050-0,065	0,025xD	0,025xD
														●		14	160-190	0,060-0,075	0,025xD	0,025xD
														●		16	160-190	0,070-0,085	0,025xD	0,025xD
														●		20	160-190	0,080-0,095	0,025xD	0,025xD

PER LAVORAZIONI A SPALLAMENTO AUMENTARE I PARAMETRI DEL 20%
FOR SHOULDER MILLING PARAMETERS SHOULD BE INCREASED BY 20%

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

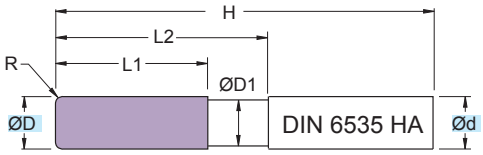
$$n = \frac{Vc \cdot 1000}{ØD \cdot 3{,}14} \text{ = giri/min (min}^{-1}\text{)}$$

$$fn = fz \cdot z \text{ = mm}$$

$$Vf = fz \cdot z \cdot n \text{ = mm/min}$$

SM4215

ØD = 2 - 16



RIVESTIM. COATED
GRAY

R

52 HRC

HSC

Fresa in M.D.I. Micrograno
Gambo cilindrico HA

Micrograin HM mills
cilindrical Shank HA

TOLLERANZE	D	d
TOLLERANCE RANGE	h10	h6

(mm)

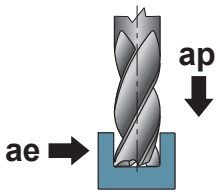
ART.	ØD	Ød	ØD1	L1	L2	H	R	z
SM4215.020.R010	2	6	1,8	4	21	57	0,1	4
SM4215.020.R020	2	6	1,8	4	21	57	0,2	4
SM4215.020.R030	2	6	1,8	4	21	57	0,3	4
SM4215.020.R040	2	6	1,8	4	21	57	0,4	4
SM4215.040.R010	4	6	3,6	6	21	57	0,1	4
SM4215.040.R020	4	6	3,6	6	21	57	0,2	4
SM4215.040.R030	4	6	3,6	6	21	57	0,3	4
SM4215.040.R040	4	6	3,6	6	21	57	0,4	4
SM4215.040.R050	4	6	3,6	6	21	57	0,5	4
SM4215.040.R060	4	6	3,6	6	21	57	0,6	4
SM4215.040.R070	4	6	3,6	6	21	57	0,7	4
SM4215.040.R080	4	6	3,6	6	21	57	0,8	4
SM4215.040.R090	4	6	3,6	6	21	57	0,9	4
SM4215.040.R100	4	6	3,6	6	21	57	1,0	4
SM4215.040.R110	4	6	3,6	6	21	57	1,1	4
SM4215.040.R120	4	6	3,6	6	21	57	1,2	4
SM4215.040.R130	4	6	3,6	6	21	57	1,3	4
SM4215.040.R140	4	6	3,6	6	21	57	1,4	4
SM4215.040.R150	4	6	3,6	6	21	57	1,5	4
SM4215.060.R010	6	6	5,5	7	21	57	0,1	4
SM4215.060.R020	6	6	5,5	7	21	57	0,2	4
SM4215.060.R030	6	6	5,5	7	21	57	0,3	4
SM4215.060.R040	6	6	5,5	7	21	57	0,4	4
SM4215.060.R050	6	6	5,5	7	21	57	0,5	4
SM4215.060.R060	6	6	5,5	7	21	57	0,6	4
SM4215.060.R070	6	6	5,5	7	21	57	0,7	4
SM4215.060.R080	6	6	5,5	7	21	57	0,8	4
SM4215.060.R090	6	6	5,5	7	21	57	0,9	4
SM4215.060.R100	6	6	5,5	7	21	57	1,0	4
SM4215.060.R110	6	6	5,5	7	21	57	1,1	4
SM4215.060.R120	6	6	5,5	7	21	57	1,2	4

(mm)

ART.	ØD	Ød	ØD1	L1	L2	H	R	z
SM4215.060.R130	6	6	5,5	7	21	57	1,3	4
SM4215.060.R140	6	6	5,5	7	21	57	1,4	4
SM4215.060.R150	6	6	5,5	7	21	57	1,5	4
SM4215.060.R160	6	6	5,5	7	21	57	1,6	4
SM4215.060.R170	6	6	5,5	7	21	57	1,7	4
SM4215.060.R180	6	6	5,5	7	21	57	1,8	4
SM4215.060.R190	6	6	5,5	7	21	57	1,9	4
SM4215.060.R200	6	6	5,5	7	21	57	2,0	4
SM4215.060.R210	6	6	5,5	7	21	57	2,1	4
SM4215.060.R220	6	6	5,5	7	21	57	2,2	4
SM4215.060.R230	6	6	5,5	7	21	57	2,3	4
SM4215.060.R240	6	6	5,5	7	21	57	2,4	4
SM4215.060.R250	6	6	5,5	7	21	57	2,5	4
SM4215.080.R050	8	8	7,4	9	27	63	0,5	4
SM4215.080.R100	8	8	7,4	9	27	63	1,0	4
SM4215.080.R150	8	8	7,4	9	27	63	1,5	4
SM4215.080.R200	8	8	7,4	9	27	63	2,0	4
SM4215.100.R050	10	10	9,2	11	32	72	0,5	4
SM4215.100.R100	10	10	9,2	11	32	72	1,0	4
SM4215.100.R150	10	10	9,2	11	32	72	1,5	4
SM4215.100.R200	10	10	9,2	11	32	72	2,0	4
SM4215.120.R050	12	12	11,0	12	38	83	0,5	4
SM4215.120.R100	12	12	11,0	12	38	83	1,0	4
SM4215.120.R150	12	12	11,0	12	38	83	1,5	4
SM4215.120.R200	12	12	11,0	12	38	83	2,0	4
SM4215.160.R050	16	16	15,0	16	44	92	0,5	4
SM4215.160.R100	16	16	15,0	16	44	92	1,0	4
SM4215.160.R150	16	16	15,0	16	44	92	1,5	4
SM4215.160.R200	16	16	15,0	16	44	92	2,0	4

PAG. 1053

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm) ØD	(m/min) Vc	(mm) fz	(mm) ap	(mm) ae
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO E SUE LEGHE ALUMINIUM	RAME E SUE LEGHE COPPER	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE					
			●													2	130-160	0,020-0,035	1xD	1xD
			●													4	130-160	0,020-0,035	1xD	1xD
			●													6	130-160	0,030-0,045	1xD	1xD
			●													8	130-160	0,040-0,055	1xD	1xD
			●													10	130-160	0,050-0,065	1xD	1xD
			●													12	130-160	0,060-0,075	1xD	1xD
			●													16	130-160	0,080-0,095	1xD	1xD
					○											2	50-80	0,020-0,035	1xD	1xD
					○											4	50-80	0,020-0,035	1xD	1xD
					○											6	50-80	0,030-0,045	1xD	1xD
					○											8	50-80	0,040-0,055	1xD	1xD
					○											10	50-80	0,050-0,065	1xD	1xD
					○											12	50-80	0,060-0,075	1xD	1xD
					○											16	50-80	0,080-0,095	1xD	1xD
							○									2	120-150	0,030-0,045	1xD	1xD
							○									4	120-150	0,030-0,045	1xD	1xD
							○									6	120-150	0,050-0,065	1xD	1xD
							○									8	120-150	0,060-0,075	1xD	1xD
							○									10	120-150	0,070-0,085	1xD	1xD
							○									12	120-150	0,080-0,095	1xD	1xD
							○									16	120-150	0,090-0,105	1xD	1xD
														●		2	160-190	0,010-0,025	0,025xD	0,025xD
														●		4	160-190	0,010-0,025	0,025xD	0,025xD
														●		6	160-190	0,020-0,035	0,025xD	0,025xD
														●		8	160-190	0,030-0,045	0,025xD	0,025xD
														●		10	160-190	0,040-0,055	0,025xD	0,025xD
														●		12	160-190	0,050-0,065	0,025xD	0,025xD
														●		16	160-190	0,070-0,085	0,025xD	0,025xD

PER LAVORAZIONI A SPALLAMENTO AUMENTARE I PARAMETRI DEL 20%
FOR SHOULDER MILLING PARAMETERS SHOULD BE INCREASED BY 20%

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED

n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS

fz = mm AVANZAMENTO AL DENTE -TOOTH FEED

fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION

Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

$$n = \frac{Vc \cdot 1000}{ØD \cdot 3{,}14} \text{ = giri/min (min}^{-1}\text{)}$$

$$fn = fz \cdot z \text{ = mm}$$

$$Vf = fz \cdot z \cdot n \text{ = mm/min}$$

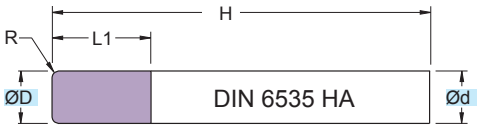
SM4525

ØD = 3 - 20

RIVESTIM. COATED
GRAY

R

62 HRC



Fresa in M.D.I. Micrograno
Gambo cilindrico HA

Micrograin HM mills
Cilindrical Shank HA

TOLLERANZE	D	d
TOLLERANCE RANGE	h10	h6

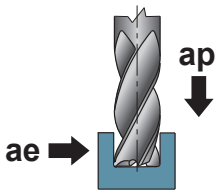
(mm)

ART.	ØD	Ød	L1	H	R	z
SM4525.030.R030	3	3	6	70	0,3	4
SM4525.030.R050	3	3	6	70	0,5	4
SM4525.040.R030	4	4	8	80	0,3	4
SM4525.040.R050	4	4	8	80	0,5	4
SM4525.040.R100	4	4	8	80	1,0	4
SM4525.040.R150	4	4	8	80	1,5	4
SM4525.050.R030	5	5	10	100	0,3	4
SM4525.050.R050	5	5	10	100	0,5	4
SM4525.050.R100	5	5	10	100	1,0	4
SM4525.050.R150	5	5	10	100	1,5	4
SM4525.050.R200	5	5	10	100	2,0	4
SM4525.060.R030	6	6	12	100	0,3	4
SM4525.060.R050	6	6	12	100	0,5	4
SM4525.060.R100	6	6	12	100	1,0	4
SM4525.060.R150	6	6	12	100	1,5	4
SM4525.060.R200	6	6	12	100	2,0	4
SM4525.060.R250	6	6	12	100	2,5	4
SM4525.080.R030	8	8	16	100	0,3	4
SM4525.080.R050	8	8	16	100	0,5	4
SM4525.080.R100	8	8	16	100	1,0	4
SM4525.080.R150	8	8	16	100	1,5	4
SM4525.080.R200	8	8	16	100	2,0	4
SM4525.080.R250	8	8	16	100	2,5	4
SM4525.080.R300	8	8	16	100	3,0	4
SM4525.100.R030	10	10	20	120	0,3	4

(mm)

ART.	ØD	Ød	L1	H	R	z
SM4525.100.R050	10	10	20	120	0,5	4
SM4525.100.R100	10	10	20	120	1,0	4
SM4525.100.R150	10	10	20	120	1,5	4
SM4525.100.R200	10	10	20	120	2,0	4
SM4525.100.R250	10	10	20	120	2,5	4
SM4525.100.R300	10	10	20	120	3,0	4
SM4525.120.R030	12	12	24	120	0,3	4
SM4525.120.R050	12	12	24	120	0,5	4
SM4525.120.R100	12	12	24	120	1,0	4
SM4525.120.R150	12	12	24	120	1,5	4
SM4525.120.R200	12	12	24	120	2,0	4
SM4525.120.R250	12	12	24	120	2,5	4
SM4525.120.R300	12	12	24	120	3,0	4
SM4525.140.R050	14	14	28	120	0,5	4
SM4525.140.R100	14	14	28	120	1,0	4
SM4525.140.R150	14	14	28	120	1,5	4
SM4525.140.R200	14	14	28	120	2,0	4
SM4525.140.R250	14	14	28	120	2,5	4
SM4525.140.R300	14	14	28	120	3,0	4
SM4525.160.R100	16	16	32	120	1,0	4
SM4525.160.R200	16	16	32	120	2,0	4
SM4525.160.R300	16	16	32	120	3,0	4
SM4525.200.R100	20	20	40	160	1,0	4
SM4525.200.R200	20	20	40	160	2,0	4
SM4525.200.R300	20	20	40	160	3,0	4

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm) ØD	(m/min) Vc	(mm) fz	(mm) ap	(mm) ae
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO E SUE LEGHE ALUMINIUM	RAME E SUE LEGHE COPPER	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE					
			●													3	130-160	0,020-0,035	1xD	1xD
			●													4	130-160	0,020-0,035	1xD	1xD
			●													5	130-160	0,020-0,035	1xD	1xD
			●													6	130-160	0,030-0,045	1xD	1xD
			●													8	130-160	0,040-0,055	1xD	1xD
			●													10	130-160	0,050-0,065	1xD	1xD
			●													12	130-160	0,060-0,075	1xD	1xD
			●													14	130-160	0,070-0,085	1xD	1xD
			●													16	130-160	0,080-0,095	1xD	1xD
			●													20	130-160	0,100-0,115	1xD	1xD
					○											3	50-80	0,020-0,035	1xD	1xD
					○											4	50-80	0,020-0,035	1xD	1xD
					○											5	50-80	0,020-0,035	1xD	1xD
					○											6	50-80	0,030-0,045	1xD	1xD
					○											8	50-80	0,040-0,055	1xD	1xD
					○											10	50-80	0,050-0,065	1xD	1xD
					○											12	50-80	0,060-0,075	1xD	1xD
					○											14	50-80	0,070-0,085	1xD	1xD
					○											16	50-80	0,080-0,095	1xD	1xD
					○											20	50-80	0,100-0,115	1xD	1xD
							○									3	120-150	0,030-0,045	1xD	1xD
							○									4	120-150	0,030-0,045	1xD	1xD
							○									5	120-150	0,040-0,055	1xD	1xD
							○									6	120-150	0,050-0,065	1xD	1xD
							○									8	120-150	0,060-0,075	1xD	1xD
							○									10	120-150	0,070-0,085	1xD	1xD
							○									12	120-150	0,080-0,095	1xD	1xD
							○									14	120-150	0,090-0,105	1xD	1xD
							○									16	120-150	0,090-0,105	1xD	1xD
							○									20	120-150	0,110-0,125	1xD	1xD
														●		3	160-190	0,010-0,025	0,025xD	0,025xD
														●		4	160-190	0,010-0,025	0,025xD	0,025xD
														●		5	160-190	0,020-0,035	0,025xD	0,025xD
														●		6	160-190	0,020-0,035	0,025xD	0,025xD
														●		8	160-190	0,030-0,045	0,025xD	0,025xD
														●		10	160-190	0,040-0,055	0,025xD	0,025xD
														●		12	160-190	0,050-0,065	0,025xD	0,025xD
														●		14	160-190	0,060-0,075	0,025xD	0,025xD
														●		16	160-190	0,070-0,085	0,025xD	0,025xD
														●		20	160-190	0,080-0,095	0,025xD	0,025xD

PER LAVORAZIONI A SPALLAMENTO AUMENTARE I PARAMETRI DEL 20%
FOR SHOULDER MILLING PARAMETERS SHOULD BE INCREASED BY 20%

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

$$n = \frac{Vc \cdot 1000}{ØD \cdot 3{,}14} \text{ = giri/min (min}^{-1}\text{)}$$

$$fn = fz \cdot z \text{ = mm}$$

$$Vf = fz \cdot z \cdot n \text{ = mm/min}$$

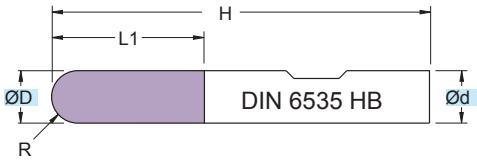
SMW4403

ØD = 3 - 20

RIVESTIM. COATED
BLACK

R

42 HRC



Fresa in M.D.I. Micrograno
Gambo sec. DIN 6535 HB

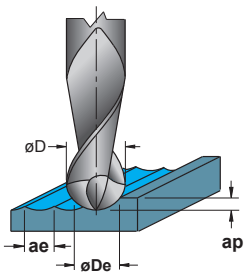
Micrograin HM mills
DIN 6535 HB Shank

TOLLERANZE	D	d
TOLLERANCE RANGE	h10	h6

(mm)

ART.	ØD	Ød	L1	H	R	z
SMW4403.030.S015	3	3	7	38	1,5	4
SMW4403.040.S020	4	4	14	50	2,0	4
SMW4403.050.S025	5	6	16	50	2,5	4
SMW4403.060.S030	6	6	19	60	3,0	4
SMW4403.080.S040	8	8	20	60	4,0	4
SMW4403.100.S050	10	10	21	70	5,0	4
SMW4403.120.S060	12	12	25	75	6,0	4
SMW4403.160.S080	16	16	32	88	8,0	4
SMW4403.200.S100	20	20	38	104	10,0	4

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm) ØDe	(m/min) Vc	(mm) fz	(mm) ap	(mm) ae
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO E SUE LEGHE ALUMINIUM	RAME E SUE LEGHE COPPER	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE					
		●														3	80-110	0,020-0,035	0,05xD	0,06xD
		●														4	80-110	0,035-0,050	0,05xD	0,06xD
		●														5	80-110	0,035-0,050	0,05xD	0,06xD
		●														6	80-110	0,035-0,050	0,05xD	0,06xD
		●														8	80-110	0,040-0,055	0,05xD	0,06xD
		●														10	80-110	0,040-0,055	0,05xD	0,06xD
		●														12	80-110	0,060-0,075	0,05xD	0,06xD
		●														16	80-110	0,070-0,085	0,05xD	0,06xD
		●														20	80-110	0,080-0,095	0,05xD	0,06xD
			●													3	55-85	0,005-0,020	0,05xD	0,06xD
			●													4	55-85	0,020-0,035	0,05xD	0,06xD
			●													5	55-85	0,020-0,035	0,05xD	0,06xD
			●													6	55-85	0,020-0,035	0,05xD	0,06xD
			●													8	55-85	0,030-0,045	0,05xD	0,06xD
			●													10	55-85	0,030-0,045	0,05xD	0,06xD
			●													12	55-85	0,040-0,055	0,05xD	0,06xD
			●													16	55-85	0,050-0,065	0,05xD	0,06xD
			●													20	55-85	0,060-0,075	0,05xD	0,06xD
					●											3	30-60	0,003-0,015	0,05xD	0,06xD
					●											4	30-60	0,010-0,025	0,05xD	0,06xD
					●											5	30-60	0,010-0,025	0,05xD	0,06xD
					●											6	30-60	0,010-0,025	0,05xD	0,06xD
					●											8	30-60	0,020-0,035	0,05xD	0,06xD
					●											10	30-60	0,020-0,035	0,05xD	0,06xD
					●											12	30-60	0,030-0,045	0,05xD	0,06xD
					●											16	30-60	0,040-0,055	0,05xD	0,06xD
					●											20	30-60	0,050-0,065	0,05xD	0,06xD
						●										3	100-130	0,025-0,040	0,05xD	0,06xD
						●										4	100-130	0,050-0,065	0,05xD	0,06xD
						●										5	100-130	0,050-0,065	0,05xD	0,06xD
						●										6	100-130	0,050-0,065	0,05xD	0,06xD
						●										8	100-130	0,060-0,075	0,05xD	0,06xD
						●										10	100-130	0,060-0,075	0,05xD	0,06xD
						●										12	100-130	0,080-0,095	0,05xD	0,06xD
						●										16	100-130	0,110-0,125	0,05xD	0,06xD
						●										20	100-130	0,130-0,145	0,05xD	0,06xD
							●									3	100-130	0,020-0,035	0,05xD	0,06xD
							●									4	100-130	0,035-0,050	0,05xD	0,06xD
							●									5	100-130	0,035-0,050	0,05xD	0,06xD
							●									6	100-130	0,035-0,050	0,05xD	0,06xD
							●									8	100-130	0,040-0,055	0,05xD	0,06xD
							●									10	100-130	0,040-0,055	0,05xD	0,06xD
							●									12	100-130	0,060-0,075	0,05xD	0,06xD
							●									16	100-130	0,070-0,085	0,05xD	0,06xD
							●									20	100-130	0,080-0,095	0,05xD	0,06xD

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

DATI TECNICI LAVORAZIONI PAG. 1072 - 1073
MACHINING TECHNICAL DATA PAGE 1072 - 1073
BEARBEITUNGSSCHNITTDATEN S. 1072 - 1073
DONNEES TECHNIQUES USINAGES PAGES 1072 - 1073

øD = mm DIAMETRO - DIAMETER
øDe = mm DIAMETRO EFFETTIVO - EFFECTIVE DIAMETER
Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

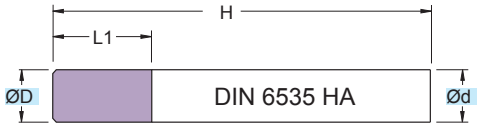
$$n = \frac{Vc \cdot 1000}{ØDe \cdot 3,14} = \text{giri/min (min}^{-1}\text{)}$$

$$fn = fz \cdot z = \text{mm}$$

$$Vf = fz \cdot z \cdot n = \text{mm/min}$$

SM6402

ØD = 4 - 20



RIVESTIM. COATED
GRAY

45°

42 HRC

Fresa in M.D.I. Micrograno
Gambo sec. DIN 6535 HA

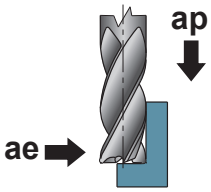
Micrograin HM mills
DIN 6535 HA Shank

TOLLERANZE	D	d
TOLLERANCE RANGE	h10	h6

(mm)

ART.	ØD	Ød	L1	H	45°	z
SM6402.040.N00	4	6	11	57	0,1	6
SM6402.050.N00	5	6	13	57	0,1	6
SM6402.060.N00	6	6	13	57	0,1	6
SM6402.080.N00	8	8	19	63	0,1	6
SM6402.100.N00	10	10	22	72	0,1	6
SM6402.120.N00	12	12	26	83	0,1	6
SM6402.160.N00	16	16	32	92	0,1	6
SM6402.200.N00	20	20	38	104	0,1	8

PAG. 1053



MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm) ØD	(m/min) Vc	(mm) fz	(mm) ap	(mm) ae
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO E SUE LEGHE ALUMINIUM	RAME E SUE LEGHE COPPER	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE					
	●															6	140-170	0,010-0,025	9	0,3
	●															8	140-170	0,015-0,030	12	0,4
	●															10	140-170	0,020-0,035	15	0,5
	●															12	140-170	0,035-0,050	18	0,6
	●															16	140-170	0,040-0,055	24	0,8
	●															20	140-170	0,050-0,065	30	1,0
		●														6	70-100	0,005-0,020	9	0,3
		●														8	70-100	0,010-0,025	12	0,4
		●														10	70-100	0,015-0,030	15	0,5
		●														12	70-100	0,025-0,040	18	0,6
		●														16	70-100	0,035-0,050	24	0,8
		●														20	70-100	0,040-0,055	30	1,0
			●													6	60-90	0,005-0,020	9	0,3
			●													8	60-90	0,010-0,025	12	0,4
			●													10	60-90	0,015-0,030	15	0,5
			●													12	60-90	0,025-0,040	18	0,6
			●													16	60-90	0,035-0,050	24	0,8
			●													20	60-90	0,040-0,055	30	1,0
					●											6	20-50	0,005-0,020	9	0,1
					●											8	20-50	0,010-0,025	12	0,1
					●											10	20-50	0,015-0,030	15	0,1
					●											12	20-50	0,020-0,035	18	0,1
					●											16	20-50	0,030-0,045	24	0,1
					●											20	20-50	0,040-0,055	30	0,1
						●										6	135-165	0,005-0,020	9	0,3
						●										8	135-165	0,010-0,025	12	0,4
						●										10	135-165	0,015-0,030	15	0,5
						●										12	135-165	0,025-0,040	18	0,6
						●										16	135-165	0,035-0,050	24	0,8
						●										20	135-165	0,040-0,055	30	1,0
							●									6	110-140	0,005-0,020	9	0,3
							●									8	110-140	0,010-0,025	12	0,4
							●									10	110-140	0,015-0,030	15	0,5
							●									12	110-140	0,025-0,040	18	0,6
							●									16	110-140	0,035-0,050	24	0,8
							●									20	110-140	0,040-0,055	30	1,0
										●						6	80-110	0,005-0,020	9	0,1
										●						8	80-110	0,010-0,025	12	0,1
										●						10	80-110	0,020-0,035	15	0,1
										●						12	80-110	0,030-0,045	18	0,1
										●						16	80-110	0,040-0,055	24	0,1
										●						20	80-110	0,050-0,065	30	0,1
												●				6	15-40	0,005-0,020	9	0,1
												●				8	15-40	0,010-0,025	12	0,1
												●				10	15-40	0,015-0,030	15	0,1
												●				12	15-40	0,020-0,035	18	0,1
												●				16	15-40	0,030-0,045	24	0,1
												●				20	15-40	0,040-0,055	30	0,1
													●			6	40-60	0,005-0,020	9	0,1
													●			8	40-60	0,010-0,025	12	0,1
													●			10	40-60	0,015-0,030	15	0,1
													●			12	40-60	0,020-0,035	18	0,1
													●			16	40-60	0,030-0,045	24	0,1
													●			20	40-60	0,040-0,055	30	0,1

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

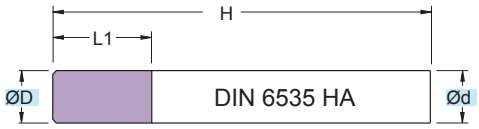
$$n = \frac{Vc \cdot 1000}{ØD \cdot 3{,}14} \text{ = giri/min (min}^{-1}\text{)}$$

$$fn = fz \cdot z \text{ = mm}$$

$$Vf = fz \cdot z \cdot n \text{ = mm/min}$$

SM6502

ØD = 4 - 20



RIVESTIM. COATED
GRAY

45°

42 HRC

Fresa in M.D.I. Micrograno
Gambo sec. DIN 6535 HA

Micrograin HM mills
DIN 6535 HA Shank

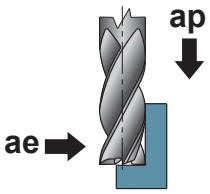
TOLLERANZE	D	d
TOLLERANCE RANGE	h10	h6

(mm)

ART.	ØD	Ød	L1	H	45°	z
SM6502.040.N00	4	6	16	62	0,1	6
SM6502.050.N00	5	6	18	62	0,1	6
SM6502.060.N00	6	6	18	62	0,1	6
SM6502.080.N00	8	8	24	68	0,1	6
SM6502.100.N00	10	10	30	80	0,1	6
SM6502.120.N00	12	12	36	93	0,1	6
SM6502.160.N00	16	16	48	108	0,1	6
SM6502.200.N00	20	20	60	126	0,1	8

PAG. 1053

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm) ØD	(m/min) Vc	(mm) fz	(mm) ap	(mm) ae
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO E SUE LEGHE ALUMINIUM	RAME E SUE LEGHE COPPER	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE					
	●															6	100-130	0,005-0,020	15	0,18
	●															8	100-130	0,010-0,025	20	0,24
	●															10	100-130	0,015-0,030	25	0,30
	●															12	100-130	0,020-0,035	30	0,36
	●															16	100-130	0,030-0,045	40	0,48
	●															20	100-130	0,035-0,050	50	0,60
		●														6	50-80	0,003-0,015	15	0,18
		●														8	50-80	0,005-0,020	20	0,24
		●														10	50-80	0,010-0,025	25	0,30
		●														12	50-80	0,020-0,035	30	0,36
		●														16	50-80	0,025-0,040	40	0,48
		●														20	50-80	0,030-0,045	50	0,60
			●													6	40-70	0,003-0,015	15	0,18
			●													8	40-70	0,005-0,020	20	0,24
			●													10	40-70	0,010-0,025	25	0,30
			●													12	40-70	0,020-0,035	30	0,36
			●													16	40-70	0,025-0,040	40	0,48
			●													20	40-70	0,030-0,045	50	0,60
					●											6	20-40	0,003-0,015	15	0,1
					●											8	20-40	0,005-0,020	20	0,1
					●											10	20-40	0,010-0,025	25	0,1
					●											12	20-40	0,020-0,035	30	0,1
					●											16	20-40	0,025-0,040	40	0,1
					●											20	20-40	0,030-0,045	50	0,1
						●										6	140-170	0,003-0,015	15	0,18
						●										8	140-170	0,005-0,020	20	0,24
						●										10	140-170	0,010-0,025	25	0,30
						●										12	140-170	0,020-0,035	30	0,36
						●										16	140-170	0,025-0,040	40	0,48
						●										20	140-170	0,030-0,045	50	0,60
							●									6	120-150	0,003-0,015	15	0,18
							●									8	120-151	0,005-0,020	20	0,24
							●									10	120-152	0,010-0,025	25	0,30
							●									12	120-153	0,020-0,035	30	0,36
							●									16	120-154	0,025-0,040	40	0,48
							●									20	120-155	0,030-0,045	50	0,60
										●						6	110-140	0,003-0,015	15	0,1
										●						8	110-140	0,005-0,020	20	0,1
										●						10	110-140	0,010-0,025	25	0,1
										●						12	110-140	0,020-0,035	30	0,1
										●						16	110-140	0,025-0,040	40	0,1
										●						20	110-140	0,030-0,045	50	0,1
												●				6	15-30	0,003-0,015	15	0,1
												●				8	15-30	0,005-0,020	20	0,1
												●				10	15-30	0,010-0,025	25	0,1
												●				12	15-30	0,020-0,035	30	0,1
												●				16	15-30	0,025-0,040	40	0,1
												●				20	15-30	0,030-0,045	50	0,1
													●			6	35-50	0,003-0,015	15	0,1
													●			8	35-50	0,005-0,020	20	0,1
													●			10	35-50	0,010-0,025	25	0,1
													●			12	35-50	0,020-0,035	30	0,1
													●			16	35-50	0,025-0,040	40	0,1
													●			20	35-50	0,030-0,045	50	0,1

ap

ae

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED

n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS

fz = mm AVANZAMENTO AL DENTE -TOOTH FEED

fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION

Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

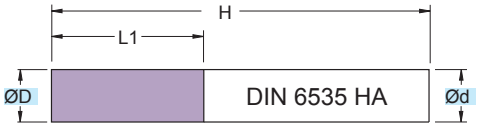
$$n = \frac{Vc \cdot 1000}{ØD \cdot 3{,}14} = \text{giri/min (min}^{-1}\text{)}$$

$$fn = fz \cdot z = \text{mm}$$

$$Vf = fz \cdot z \cdot n = \text{mm/min}$$

SM6432

ØD = 6 - 20



RIVESTIM. COATED
GRAY

90°

64 HRC

Fresa in M.D.I. Micrograno
Gambo cilindrico HA

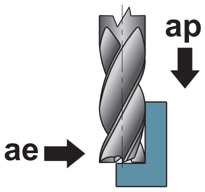
Micrograin HM mills
Cilindrical Shank HA

TOLLERANZE	D	d
TOLLERANCE RANGE	h10	h6

(mm)

ART.	ØD	Ød	L1	H	z
SM6432.040.N00	4	6	11	57	6
SM6432.050.N00	5	6	13	57	6
SM6432.060.N00	6	6	13	57	6
SM6432.080.N00	8	8	19	63	6
SM6432.100.N00	10	10	22	72	6
SM6432.120.N00	12	12	26	83	6
SM6432.140.N00	14	14	26	83	6
SM6432.160.N00	16	16	32	92	8
SM6432.180.N00	18	18	32	92	8
SM6432.200.N00	20	20	38	104	8

PAG. 1053



Applicazione - Application	MATERIALI - MATERIALS Pag. 1119 P: ACCIAIO NON LEGATO NOT ALLOY STEEL	P: ACCIAIO POCO LEGATO LOW ALLOY STEEL	P: ACCIAIO ALTO LEGATO ALLOY STEEL	P: INOX MARTENSITICO STAINLESS STEEL MART.	M: INOX AUST. DUPLEX STAINLESS STEEL AUST.	K: GHISA GRIGIA GREY CAST IRON	K: GHISA SFEROIDALE SPHEROIDAL GRAPHITE	K: GHISA MALLEABILE MALLEABLE CAST IRON	N: ALLUMINIO E SUE LEGHE ALUMINIUM	N: RAME E SUE LEGHE COPPER	N: NON METALLICI PLASTICS	S: LEGHE RESIST. CALORE HIGH TEMP. ALLOY	S: TITANIO E SUE LEGHE TITANIUM	H: ACCIAIO TEMPRATO HARDENED STEEL	G: GRAFITE GRAPHITE	(mm) ØD	(m/min) Vc	(mm) fz	(mm) ap	(mm) ae
		●														6	75-105	0,020-0,035	9	0,1
		●														8	75-105	0,030-0,045	12	0,1
		●														10	75-105	0,035-0,050	15	0,1
		●														12	75-105	0,050-0,065	18	0,1
		●														14	75-105	0,050-0,065	21	0,1
		●														16	75-105	0,060-0,075	24	0,1
		●														18	75-105	0,070-0,085	27	0,1
		●														20	75-105	0,090-0,105	30	0,1
														●		6	25-55	0,005-0,020	9	0,1
														●		8	25-55	0,010-0,025	12	0,1
														●		10	25-55	0,020-0,035	15	0,1
														●		12	25-55	0,025-0,040	18	0,1
														●		14	25-55	0,030-0,045	21	0,1
														●		16	25-55	0,035-0,050	24	0,1
														●		18	25-55	0,040-0,055	27	0,1
														●		20	25-55	0,045-0,060	30	0,1

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED

n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS

fz = mm AVANZAMENTO AL DENTE -TOOTH FEED

fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION

Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

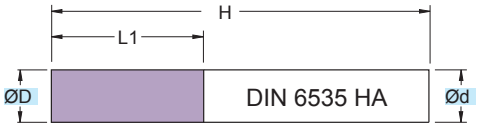
$$n = \frac{Vc \cdot 1000}{ØD \cdot 3,14} = \text{giri/min } (min^{-1})$$

$$fn = fz \cdot z = mm$$

$$Vf = fz \cdot z \cdot n = mm/min$$

SM6532

ØD = 6 - 20



RIVESTIM. COATED
GRAY

90°

64 HRC

Fresa in M.D.I. Micrograno
Gambo cilindrico HA

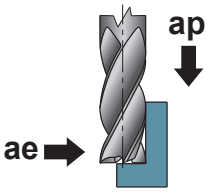
Micrograin HM mills
Cilindrical Shank HA

TOLLERANZE	D	d
TOLLERANCE RANGE	h10	h6

(mm)

ART.	ØD	Ød	L1	H	z
SM6532.060.N00	6	6	18	62	6
SM6532.080.N00	8	8	24	68	6
SM6532.100.N00	10	10	30	80	6
SM6532.120.N00	12	12	36	93	6
SM6532.140.N00	14	14	42	99	6
SM6532.160.N00	16	16	48	108	8
SM6532.180.N00	18	18	54	114	8
SM6532.200.N00	20	20	60	126	8

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm) ØD	(m/min) Vc	(mm) fz	(mm) ap	(mm) ae
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO E SUE LEGHE ALUMINIUM	RAME E SUE LEGHE COPPER	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE					
		●														6	45-75	0,015-0,030	15	0,1
		●														8	45-75	0,025-0,040	20	0,1
		●														10	45-75	0,030-0,045	25	0,1
		●														12	45-75	0,035-0,050	30	0,1
		●														14	45-75	0,045-0,060	35	0,1
		●														16	45-75	0,050-0,065	40	0,1
		●														18	45-75	0,060-0,075	45	0,1
		●														20	45-75	0,070-0,085	50	0,1
														●		6	20-40	0,010-0,025	15	0,1
														●		8	20-40	0,015-0,030	20	0,1
														●		10	20-40	0,025-0,040	25	0,1
														●		12	20-40	0,030-0,045	30	0,1
														●		14	20-40	0,040-0,055	35	0,1
														●		16	20-40	0,045-0,060	40	0,1
														●		18	20-40	0,050-0,065	45	0,1
														●		20	20-40	0,060-0,075	50	0,1

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

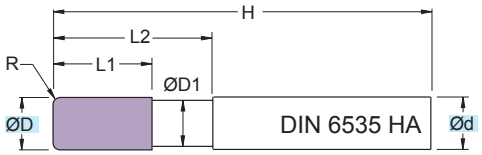
$$n = \frac{Vc \cdot 1000}{ØD \cdot 3{,}14} \text{ = giri/min (min}^{-1}\text{)}$$

$$fn = fz \cdot z \text{ = mm}$$

$$Vf = fz \cdot z \cdot n \text{ = mm/min}$$

SM7215..TI

ØD = 6 - 16



RIVESTIM. COATED
ORANGE

R

52 HRC

Fresa in M.D.I. Micrograno
Gambo sec. DIN 6535 HA

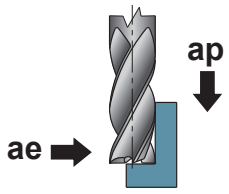
Micrograin HM mills
DIN 6535 HA Shank

TOLLERANZE / TOLLERANCE RANGE	D	d
	h10	h6

(mm)

ART.	ØD	Ød	ØD1	L1	L2	H	R	z
SM7215.060.R050.TI	6	6	5,8	13	20	58	0,50	5
SM7215.060.R100.TI	6	6	5,8	13	20	58	1,00	5
SM7215.080.R050.TI	8	8	7,7	19	28	64	0,50	5
SM7215.080.R100.TI	8	8	7,7	19	28	64	1,00	5
SM7215.080.R150.TI	8	8	7,7	19	28	64	1,50	5
SM7215.080.R200.TI	8	8	7,7	19	28	64	2,00	5
SM7215.100.R050.TI	10	10	9,5	22	33	73	0,50	7
SM7215.100.R100.TI	10	10	9,5	22	33	73	1,00	7
SM7215.100.R150.TI	10	10	9,5	22	33	73	1,50	7
SM7215.100.R200.TI	10	10	9,5	22	33	73	2,00	7
SM7215.100.R300.TI	10	10	9,5	22	33	73	3,00	7
SM7215.120.R050.TI	12	12	11,5	26	38	84	0,50	9
SM7215.120.R100.TI	12	12	11,5	26	38	84	1,00	9
SM7215.120.R150.TI	12	12	11,5	26	38	84	1,50	9
SM7215.120.R200.TI	12	12	11,5	26	38	84	2,00	9
SM7215.120.R300.TI	12	12	11,5	26	38	84	3,00	9
SM7215.160.R100.TI	16	16	15,5	32	45	93	1,00	9
SM7215.160.R150.TI	16	16	15,5	32	45	93	1,50	9
SM7215.160.R200.TI	16	16	15,5	32	45	93	2,00	9
SM7215.160.R300.TI	16	16	15,5	32	45	93	3,00	9
SM7215.160.R400.TI	16	16	15,5	32	45	93	4,00	9

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm) ØD	(m/min) Vc	(mm) fz	(mm) ap	(mm) ae
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO E SUE LEGHE ALUMINIUM	RAME E SUE LEGHE COPPER	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE					
	○															6÷8	110-140	0,025-0,040	1xD	0,25xD
	○															8÷10	110-140	0,030-0,045	1xD	0,25xD
	○															10÷12	110-140	0,040-0,055	1xD	0,25xD
	○															12÷16	110-140	0,055-0,070	1xD	0,25xD
		○														6÷8	105-135	0,025-0,040	1xD	0,15xD
		○														8÷10	105-135	0,030-0,045	1xD	0,15xD
		○														10÷12	105-135	0,040-0,055	1xD	0,15xD
		○														12÷16	105-135	0,055-0,070	1xD	0,15xD
			○													6÷8	100-130	0,025-0,040	1xD	0,15xD
			○													8÷10	100-130	0,030-0,045	1xD	0,15xD
			○													10÷12	100-130	0,040-0,055	1xD	0,15xD
			○													12÷16	100-130	0,055-0,070	1xD	0,15xD
					●											6÷8	100-110	0,025-0,045	1xD	0,15xD
					●											8÷10	100-110	0,030-0,055	1xD	0,15xD
					●											10÷12	100-110	0,040-0,075	1xD	0,15xD
					●											12÷16	100-110	0,050-0,085	1xD	0,15xD
												●				6÷8	30-50	0,015-0,025	1xD	0,15xD
												●				8÷10	30-50	0,020-0,035	1xD	0,15xD
												●				10÷12	30-50	0,025-0,040	1xD	0,15xD
												●				12÷16	30-50	0,030-0,050	1xD	0,15xD
													●			6÷8	55-80	0,030-0,045	1xD	0,15xD
													●			8÷10	55-80	0,035-0,060	1xD	0,15xD
													●			10÷12	55-80	0,045-0,070	1xD	0,15xD
													●			12÷16	55-80	0,050-0,090	1xD	0,15xD
														○		6÷8	20-40	0,003-0,015	0,25xD	0,15xD
														○		8÷10	20-40	0,002-0,017	0,25xD	0,15xD
														○		10÷12	20-40	0,005-0,020	0,25xD	0,15xD
														○		12÷16	20-40	0,010-0,025	0,25xD	0,15xD

ap

ae

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED

n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS

fz = mm AVANZAMENTO AL DENTE -TOOTH FEED

fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION

Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

$$n = \frac{Vc \cdot 1000}{ØD \cdot 3{,}14} \text{ = giri/min } (min^{-1})$$

$$fn = fz \cdot z \text{ = mm}$$

$$Vf = fz \cdot z \cdot n \text{ = mm/min}$$

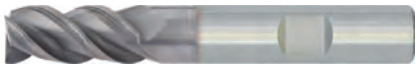
ELICA CON ANGOLO VARIABILE

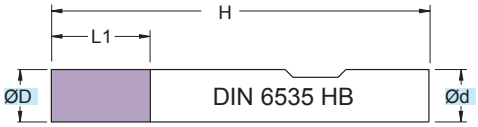
HELIX WITH VARIABLE ANGLE / SPIRALE MIT VARIABLEM WINKEL /
HÉLICE À ANGLE VARIABLE /HÉLICE CON ÀNGULO VARIABLE

SAU
QUALITY TOOLS ENGINEERING

SMW3400

ØD = 3 - 20





RIVESTIM. COATED
GRAY

45°

52 HRC

HSC

Fresa in M.D.I. Micrograno
Gambo cilindrico HB

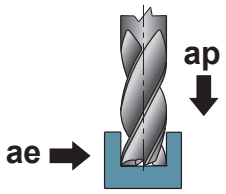
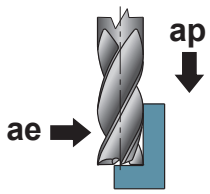
Micrograin HM mills
Cilindrical Shank HB

TOLLERANZE / TOLLERANCE RANGE	D	d
	h10	h6

(mm)

ART.	ØD	Ød	L1	H	45°	z
SMW3400.030.N00	3	6	8	57	0,05	3
SMW3400.040.N00	4	6	11	57	0,10	3
SMW3400.050.N00	5	6	13	57	0,10	3
SMW3400.060.N00	6	6	13	57	0,10	3
SMW3400.070.N00	7	8	16	63	0,15	3
SMW3400.080.N00	8	8	19	63	0,15	3
SMW3400.090.N00	9	10	19	72	0,15	3
SMW3400.100.N00	10	10	22	72	0,15	3
SMW3400.120.N00	12	12	26	83	0,20	3
SMW3400.160.N00	16	16	32	92	0,20	3
SMW3400.200.N00	20	20	38	104	0,30	3

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm) ØD	(m/min) Vc	(mm) fz	(mm) ap	(mm) ae
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO E SUE LEGHE ALUMINIUM	RAME E SUE LEGHE COPPER	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE					
			●													3	160-190	0,015-0,035	0,5xD	1xD
			●													4	160-190	0,025-0,045	0,5xD	1xD
			●													5	160-190	0,030-0,050	0,5xD	1xD
			●													6	160-190	0,035-0,055	0,5xD	1xD
			●													7	160-190	0,040-0,060	0,5xD	1xD
			●													8	160-190	0,045-0,065	0,5xD	1xD
			●													9	160-190	0,050-0,070	0,5xD	1xD
			●													10	160-190	0,055-0,075	0,5xD	1xD
			●													12	160-190	0,065-0,085	0,5xD	1xD
			●													16	160-190	0,085-0,110	0,5xD	1xD
			●													20	160-190	0,085-0,110	0,5xD	1xD
					○											3	50-80	0,015-0,025	0,5xD	1xD
					○											4	50-80	0,020-0,030	0,5xD	1xD
					○											5	50-80	0,025-0,035	0,5xD	1xD
					○											6	50-80	0,025-0,040	0,5xD	1xD
					○											7	50-80	0,025-0,040	0,5xD	1xD
					○											8	50-80	0,025-0,045	0,5xD	1xD
					○											9	50-80	0,025-0,045	0,5xD	1xD
					○											10	50-80	0,025-0,045	0,5xD	1xD
					○											12	50-80	0,035-0,055	0,5xD	1xD
					○											16	50-80	0,055-0,075	0,5xD	1xD
					○											20	50-80	0,055-0,075	0,5xD	1xD
						●										3	180-210	0,110-0,035	0,5xD	1xD
						●										4	180-210	0,030-0,050	0,5xD	1xD
						●										5	180-210	0,035-0,055	0,5xD	1xD
						●										6	180-210	0,040-0,060	0,5xD	1xD
						●										7	180-210	0,045-0,065	0,5xD	1xD
						●										8	180-210	0,055-0,075	0,5xD	1xD
						●										9	180-210	0,060-0,080	0,5xD	1xD
						●										10	180-210	0,065-0,085	0,5xD	1xD
						●										12	180-210	0,085-0,110	0,5xD	1xD
						●										16	180-210	0,110-0,130	0,5xD	1xD
						●										20	180-210	0,110-0,130	0,5xD	1xD
							●									3	160-190	0,015-0,035	0,5xD	1xD
							●									4	160-190	0,030-0,050	0,5xD	1xD
							●									5	160-190	0,035-0,055	0,5xD	1xD
							●									6	160-190	0,040-0,060	0,5xD	1xD
							●									7	160-190	0,045-0,065	0,5xD	1xD
							●									8	160-190	0,055-0,075	0,5xD	1xD
							●									9	160-190	0,060-0,080	0,5xD	1xD
							●									10	160-190	0,065-0,085	0,5xD	1xD
							●									12	160-190	0,085-0,110	0,5xD	1xD
							●									16	160-190	0,110-0,130	0,5xD	1xD
							●									20	160-190	0,110-0,130	0,5xD	1xD
														○		3	20-40	0,005-0,009	1xD	0,25xD
														○		4	20-40	0,005-0,011	1xD	0,25xD
														○		5	20-40	0,005-0,012	1xD	0,25xD
														○		6	20-40	0,005-0,013	1xD	0,25xD
														○		7	20-40	0,005-0,014	1xD	0,25xD
														○		8	20-40	0,006-0,015	1xD	0,25xD
														○		9	20-40	0,080-0,017	1xD	0,25xD
														○		10	20-40	0,010-0,020	1xD	0,25xD
														○		12	20-40	0,012-0,025	1xD	0,25xD
														○		16	20-40	0,015-0,035	1xD	0,25xD
														○		20	20-40	0,020-0,040	1xD	0,25xD

PER LAVORAZIONI A SPALLAMENTO AUMENTARE I PARAMETRI DEL 20%
FOR SHOULDER MILLING PARAMETERS SHOULD BE INCREASED BY 20%

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

$$n = \frac{Vc \cdot 1000}{ØD \cdot 3{,}14} = \text{giri/min (min}^{-1}\text{)}$$

$$fn = fz \cdot z = \text{mm}$$

$$Vf = fz \cdot z \cdot n = \text{mm/min}$$

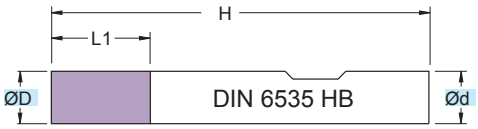
SMW3400..TI

ØD = 3 - 20

RIVESTIM. COATED
ORANGE

45°

52 HRC



Fresa in M.D.I. Micrograno
Gambo cilindrico HB

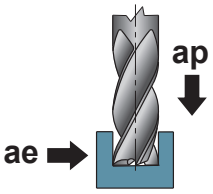
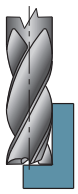
Micrograin HM mills
Cilindrical Shank HB

TOLLERANZE	D	d
TOLLERANCE RANGE	h10	h6

(mm)

ART.	ØD	Ød	L1	H	45°	z
SMW3400.030.N00.TI	3	6	8	57	0,05	3
SMW3400.040.N00.TI	4	6	11	57	0,10	3
SMW3400.050.N00.TI	5	6	13	57	0,10	3
SMW3400.060.N00.TI	6	6	13	57	0,10	3
SMW3400.070.N00.TI	7	8	16	63	0,15	3
SMW3400.080.N00.TI	8	8	19	63	0,15	3
SMW3400.090.N00.TI	9	10	19	72	0,15	3
SMW3400.100.N00.TI	10	10	22	72	0,15	3
SMW3400.120.N00.TI	12	12	26	83	0,20	3
SMW3400.160.N00.TI	16	16	32	92	0,20	3
SMW3400.200.N00.TI	20	20	38	104	0,30	3

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm) ØD	(m/min) Vc	(mm) fz	(mm) ap	(mm) ae
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO E SUE LEGHE ALUMINIUM	RAME E SUE LEGHE COPPER	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE					
			○													3	100-130	0,015-0,035	0,5xD	1xD
			○													4	100-130	0,025-0,045	0,5xD	1xD
			○													5	100-130	0,030-0,050	0,5xD	1xD
			○													6	100-130	0,035-0,055	0,5xD	1xD
			○													7	100-130	0,040-0,060	0,5xD	1xD
			○													8	100-130	0,045-0,065	0,5xD	1xD
			○													9	100-130	0,050-0,070	0,5xD	1xD
			○													10	100-130	0,055-0,075	0,5xD	1xD
			○													12	100-130	0,065-0,085	0,5xD	1xD
			○													16	100-130	0,085-0,110	0,5xD	1xD
			○													20	100-130	0,085-0,110	0,5xD	1xD
					●											3	80-110	0,015-0,025	0,5xD	1xD
					●											4	80-110	0,020-0,030	0,5xD	1xD
					●											5	80-110	0,025-0,035	0,5xD	1xD
					●											6	80-110	0,025-0,040	0,5xD	1xD
					●											7	80-110	0,025-0,040	0,5xD	1xD
					●											8	80-110	0,025-0,045	0,5xD	1xD
					●											9	80-110	0,025-0,045	0,5xD	1xD
					●											10	80-110	0,025-0,045	0,5xD	1xD
					●											12	80-110	0,035-0,055	0,5xD	1xD
					●											16	80-110	0,055-0,075	0,5xD	1xD
					●											20	80-110	0,055-0,075	0,5xD	1xD
												●				3	30-50	0,005-0,015	0,5xD	1xD
												●				4	30-50	0,005-0,015	0,5xD	1xD
												●				5	30-50	0,005-0,015	0,5xD	1xD
												●				6	30-50	0,008-0,025	0,5xD	1xD
												●				7	30-50	0,008-0,025	0,5xD	1xD
												●				8	30-50	0,010-0,030	0,5xD	1xD
												●				9	30-50	0,010-0,030	0,5xD	1xD
												●				10	30-50	0,015-0,035	0,5xD	1xD
												●				12	30-50	0,020-0,040	0,5xD	1xD
												●				16	30-50	0,030-0,050	0,5xD	1xD
												●				20	30-50	0,035-0,055	0,5xD	1xD
													●			3	30-75	0,005-0,015	0,5xD	1xD
													●			4	30-75	0,005-0,015	0,5xD	1xD
													●			5	30-75	0,005-0,020	0,5xD	1xD
													●			6	30-75	0,008-0,025	0,5xD	1xD
													●			7	30-75	0,008-0,025	0,5xD	1xD
													●			8	30-75	0,010-0,030	0,5xD	1xD
													●			9	30-75	0,010-0,030	0,5xD	1xD
													●			10	30-75	0,015-0,035	0,5xD	1xD
													●			12	30-75	0,020-0,040	0,5xD	1xD
													●			16	30-75	0,030-0,050	0,5xD	1xD
													●			20	30-75	0,035-0,055	0,5xD	1xD
														○		3	20-35	0,005-0,009	1xD	0,25xD
														○		4	20-35	0,005-0,011	1xD	0,25xD
														○		5	20-35	0,005-0,012	1xD	0,25xD
														○		6	20-35	0,005-0,013	1xD	0,25xD
														○		7	20-35	0,005-0,014	1xD	0,25xD
														○		8	20-35	0,006-0,015	1xD	0,25xD
														○		9	20-35	0,080-0,017	1xD	0,25xD
														○		10	20-35	0,010-0,020	1xD	0,25xD
														○		12	20-35	0,012-0,025	1xD	0,25xD
														○		16	20-35	0,015-0,035	1xD	0,25xD
														○		20	20-35	0,020-0,040	1xD	0,25xD

PER LAVORAZIONI A SPALLAMENTO AUMENTARE I PARAMETRI DEL 20%
FOR SHOULDER MILLING PARAMETERS SHOULD BE INCREASED BY 20%

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

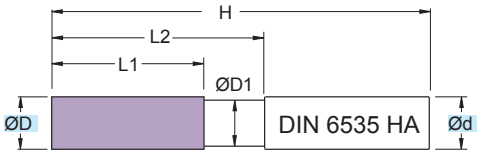
$$n = \frac{Vc \cdot 1000}{ØD \cdot 3{,}14} = \text{giri/min } (min^{-1})$$

$$fn = fz \cdot z = \text{mm}$$

$$Vf = fz \cdot z \cdot n = \text{mm/min}$$

SM3415

ØD = 3 - 20



RIVESTIM. COATED
GRAY

45°

52 HRC

HSC

Fresa in M.D.I. Micrograno
Gambo cilindrico HA

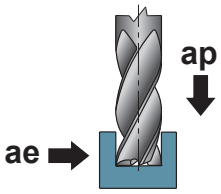
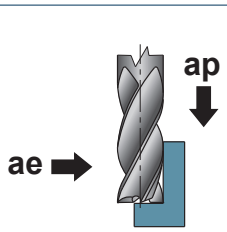
Micrograin HM mills
Cilindrical Shank HA

TOLLERANZE	D	d
TOLLERANCE RANGE	h10	h6

(mm)

ART.	ØD	Ød	ØD1	L1	L2	H	45°	z
SM3415.030.G00	3	6	2,8	8	14	57	0,05	3
SM3415.040.G00	4	6	3,8	11	18	57	0,10	3
SM3415.050.G00	5	6	4,8	13	20	57	0,10	3
SM3415.060.G00	6	6	5,8	13	20	57	0,10	3
SM3415.070.G00	7	8	6,8	16	24	63	0,15	3
SM3415.080.G00	8	8	7,7	19	28	63	0,15	3
SM3415.090.G00	9	10	8,7	19	28	72	0,15	3
SM3415.100.G00	10	10	9,5	22	33	72	0,15	3
SM3415.120.G00	12	12	11,5	26	40	83	0,20	3
SM3415.160.G00	16	16	15,5	32	45	92	0,20	3
SM3415.200.G00	20	20	19,5	38	50	104	0,30	3

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm) ØD	(m/min) Vc	(mm) fz	(mm) ap	(mm) ae
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO E SUE LEGHE ALUMINIUM	RAME E SUE LEGHE COPPER	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE					
			●													3	160-190	0,015-0,035	0,5xD	1xD
			●													4	160-190	0,025-0,045	0,5xD	1xD
			●													5	160-190	0,030-0,050	0,5xD	1xD
			●													6	160-190	0,035-0,055	0,5xD	1xD
			●													7	160-190	0,040-0,060	0,5xD	1xD
			●													8	160-190	0,045-0,065	0,5xD	1xD
			●													9	160-190	0,050-0,070	0,5xD	1xD
			●													10	160-190	0,055-0,075	0,5xD	1xD
			●													12	160-190	0,065-0,085	0,5xD	1xD
			●													16	160-190	0,085-0,110	0,5xD	1xD
			●													20	160-190	0,085-0,110	0,5xD	1xD
					○											3	50-80	0,015-0,025	0,5xD	1xD
					○											4	50-80	0,020-0,030	0,5xD	1xD
					○											5	50-80	0,025-0,035	0,5xD	1xD
					○											6	50-80	0,025-0,040	0,5xD	1xD
					○											7	50-80	0,025-0,040	0,5xD	1xD
					○											8	50-80	0,025-0,045	0,5xD	1xD
					○											9	50-80	0,025-0,045	0,5xD	1xD
					○											10	50-80	0,025-0,045	0,5xD	1xD
					○											12	50-80	0,035-0,055	0,5xD	1xD
					○											16	50-80	0,055-0,075	0,5xD	1xD
					○											20	50-80	0,055-0,075	0,5xD	1xD
						●										3	180-210	0,110-0,035	0,5xD	1xD
						●										4	180-210	0,030-0,050	0,5xD	1xD
						●										5	180-210	0,035-0,055	0,5xD	1xD
						●										6	180-210	0,040-0,060	0,5xD	1xD
						●										7	180-210	0,045-0,065	0,5xD	1xD
						●										8	180-210	0,055-0,075	0,5xD	1xD
						●										9	180-210	0,060-0,080	0,5xD	1xD
						●										10	180-210	0,065-0,085	0,5xD	1xD
						●										12	180-210	0,085-0,110	0,5xD	1xD
						●										16	180-210	0,110-0,130	0,5xD	1xD
						●										20	180-210	0,110-0,130	0,5xD	1xD
							●									3	160-190	0,015-0,035	0,5xD	1xD
							●									4	160-190	0,030-0,050	0,5xD	1xD
							●									5	160-190	0,035-0,055	0,5xD	1xD
							●									6	160-190	0,040-0,060	0,5xD	1xD
							●									7	160-190	0,045-0,065	0,5xD	1xD
							●									8	160-190	0,055-0,075	0,5xD	1xD
							●									9	160-190	0,060-0,080	0,5xD	1xD
							●									10	160-190	0,065-0,085	0,5xD	1xD
							●									12	160-190	0,085-0,110	0,5xD	1xD
							●									16	160-190	0,110-0,130	0,5xD	1xD
							●									20	160-190	0,110-0,130	0,5xD	1xD
														○		3	20-40	0,005-0,009	1xD	0,25xD
														○		4	20-40	0,005-0,011	1xD	0,25xD
														○		5	20-40	0,005-0,012	1xD	0,25xD
														○		6	20-40	0,005-0,013	1xD	0,25xD
														○		7	20-40	0,005-0,014	1xD	0,25xD
														○		8	20-40	0,006-0,015	1xD	0,25xD
														○		9	20-40	0,080-0,017	1xD	0,25xD
														○		10	20-40	0,010-0,020	1xD	0,25xD
														○		12	20-40	0,012-0,025	1xD	0,25xD
														○		16	20-40	0,015-0,035	1xD	0,25xD
														○		20	20-40	0,020-0,040	1xD	0,25xD

PER LAVORAZIONI A SPALLAMENTO AUMENTARE I PARAMETRI DEL 20%
FOR SHOULDER MILLING PARAMETERS SHOULD BE INCREASED BY 20%

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

$$n = \frac{Vc \cdot 1000}{ØD \cdot 3{,}14} \text{ = giri/min (min}^{-1}\text{)}$$

$$fn = fz \cdot z \text{ = mm}$$

$$Vf = fz \cdot z \cdot n \text{ = mm/min}$$

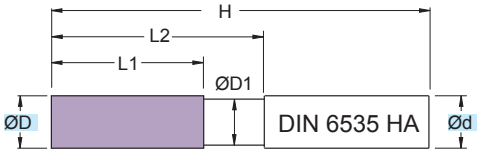
SM3415..TI

ØD = 3 - 20

RIVESTIM. COATED
ORANGE

45°

52 HRC



Fresa in M.D.I. Micrograno
Gambo cilindrico HA

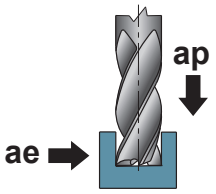
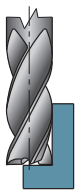
Micrograin HM mills
Cilindrical Shank HA

TOLLERANZE	D	d
TOLLERANCE RANGE	h10	h6

(mm)

ART.	ØD	Ød	ØD1	L1	L2	H	45°	z
SM3415.030.G00.TI	3	6	2,8	8	14	57	0,05	3
SM3415.040.G00.TI	4	6	3,8	11	18	57	0,10	3
SM3415.050.G00.TI	5	6	4,8	13	20	57	0,10	3
SM3415.060.G00.TI	6	6	5,8	13	20	57	0,10	3
SM3415.070.G00.TI	7	8	6,8	16	24	63	0,15	3
SM3415.080.G00.TI	8	8	7,7	19	28	63	0,15	3
SM3415.090.G00.TI	9	10	8,7	19	28	72	0,15	3
SM3415.100.G00.TI	10	10	9,5	22	33	72	0,15	3
SM3415.120.G00.TI	12	12	11,5	26	40	83	0,20	3
SM3415.160.G00.TI	16	16	15,5	32	45	92	0,20	3
SM3415.200.G00.TI	20	20	19,5	38	50	104	0,30	3

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm) ØD	(m/min) Vc	(mm) fz	(mm) ap	(mm) ae
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO E SUE LEGHE ALUMINIUM	RAME E SUE LEGHE COPPER	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE					
			○													3	100-130	0,015-0,035	0,5xD	1xD
			○													4	100-130	0,025-0,045	0,5xD	1xD
			○													5	100-130	0,030-0,050	0,5xD	1xD
			○													6	100-130	0,035-0,055	0,5xD	1xD
			○													7	100-130	0,040-0,060	0,5xD	1xD
			○													8	100-130	0,045-0,065	0,5xD	1xD
			○													9	100-130	0,050-0,070	0,5xD	1xD
			○													10	100-130	0,055-0,075	0,5xD	1xD
			○													12	100-130	0,065-0,085	0,5xD	1xD
			○													16	100-130	0,085-0,110	0,5xD	1xD
			○													20	100-130	0,085-0,110	0,5xD	1xD
					●											3	80-110	0,015-0,025	0,5xD	1xD
					●											4	80-110	0,020-0,030	0,5xD	1xD
					●											5	80-110	0,025-0,035	0,5xD	1xD
					●											6	80-110	0,025-0,040	0,5xD	1xD
					●											7	80-110	0,025-0,040	0,5xD	1xD
					●											8	80-110	0,025-0,045	0,5xD	1xD
					●											9	80-110	0,025-0,045	0,5xD	1xD
					●											10	80-110	0,025-0,045	0,5xD	1xD
					●											12	80-110	0,035-0,055	0,5xD	1xD
					●											16	80-110	0,055-0,075	0,5xD	1xD
					●											20	80-110	0,055-0,075	0,5xD	1xD
												●				3	30-50	0,005-0,015	0,5xD	1xD
												●				4	30-50	0,005-0,015	0,5xD	1xD
												●				5	30-50	0,005-0,015	0,5xD	1xD
												●				6	30-50	0,008-0,025	0,5xD	1xD
												●				7	30-50	0,008-0,025	0,5xD	1xD
												●				8	30-50	0,010-0,030	0,5xD	1xD
												●				9	30-50	0,010-0,030	0,5xD	1xD
												●				10	30-50	0,015-0,035	0,5xD	1xD
												●				12	30-50	0,020-0,040	0,5xD	1xD
												●				16	30-50	0,030-0,050	0,5xD	1xD
												●				20	30-50	0,035-0,055	0,5xD	1xD
													●			3	30-75	0,005-0,015	0,5xD	1xD
													●			4	30-75	0,005-0,015	0,5xD	1xD
													●			5	30-75	0,005-0,020	0,5xD	1xD
													●			6	30-75	0,008-0,025	0,5xD	1xD
													●			7	30-75	0,008-0,025	0,5xD	1xD
													●			8	30-75	0,010-0,030	0,5xD	1xD
													●			9	30-75	0,010-0,030	0,5xD	1xD
													●			10	30-75	0,015-0,035	0,5xD	1xD
													●			12	30-75	0,020-0,040	0,5xD	1xD
													●			16	30-75	0,030-0,050	0,5xD	1xD
													●			20	30-75	0,035-0,055	0,5xD	1xD
														○		3	20-35	0,005-0,009	1xD	0,25xD
														○		4	20-35	0,005-0,011	1xD	0,25xD
														○		5	20-35	0,005-0,012	1xD	0,25xD
														○		6	20-35	0,005-0,013	1xD	0,25xD
														○		7	20-35	0,005-0,014	1xD	0,25xD
														○		8	20-35	0,006-0,015	1xD	0,25xD
														○		9	20-35	0,080-0,017	1xD	0,25xD
														○		10	20-35	0,010-0,020	1xD	0,25xD
														○		12	20-35	0,012-0,025	1xD	0,25xD
														○		16	20-35	0,015-0,035	1xD	0,25xD
														○		20	20-35	0,020-0,040	1xD	0,25xD

PER LAVORAZIONI A SPALLAMENTO AUMENTARE I PARAMETRI DEL 20%
FOR SHOULDER MILLING PARAMETERS SHOULD BE INCREASED BY 20%

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

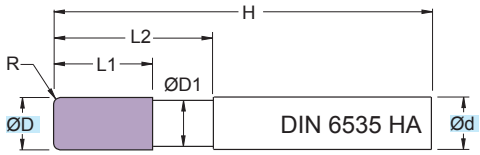
$$n = \frac{Vc \cdot 1000}{ØD \cdot 3{,}14} = \text{giri/min } (min^{-1})$$

$$fn = fz \cdot z = \text{mm}$$

$$Vf = fz \cdot z \cdot n = \text{mm/min}$$

SM3515

ØD = 4 - 10



RIVESTIM. COATED
GRAY

R

52 HRC

Fresa in M.D.I. Micrograno
Gambo cilindrico HA

Micrograin HM mills
Cilindrical Shank HA

TOLLERANZE	D	d
TOLLERANCE RANGE	h10	h6

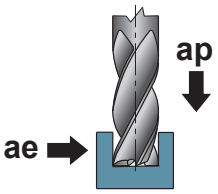
(mm)

ART.	ØD	Ød	ØD1	L1	L2	H	R	z
SM3515.040.R025	4	4	3,8	11	18	57	0,25	3
SM3515.040.R050	4	4	3,8	11	18	57	0,50	3
SM3515.040.R075	4	4	3,8	11	18	57	0,75	3
SM3515.040.R100	4	4	3,8	11	18	57	1,00	3
SM3515.040.R125	4	4	3,8	11	18	57	1,25	3
SM3515.040.R150	4	4	3,8	11	18	57	1,50	3
SM3515.050.R025	5	5	4,8	13	20	57	0,25	3
SM3515.050.R050	5	5	4,8	13	20	57	0,50	3
SM3515.050.R075	5	5	4,8	13	20	57	0,75	3
SM3515.050.R100	5	5	4,8	13	20	57	1,00	3
SM3515.050.R125	5	5	4,8	13	20	57	1,25	3
SM3515.050.R150	5	5	4,8	13	20	57	1,50	3
SM3515.050.R175	5	5	4,8	13	20	57	1,75	3
SM3515.050.R200	5	5	4,8	13	20	57	2,00	3
SM3515.060.R025	6	6	5,8	13	20	57	0,25	3
SM3515.060.R050	6	6	5,8	13	20	57	0,50	3
SM3515.060.R075	6	6	5,8	13	20	57	0,75	3
SM3515.060.R100	6	6	5,8	13	20	57	1,00	3
SM3515.060.R125	6	6	5,8	13	20	57	1,25	3
SM3515.060.R150	6	6	5,8	13	20	57	1,50	3
SM3515.060.R175	6	6	5,8	13	20	57	1,75	3
SM3515.060.R200	6	6	5,8	13	20	57	2,00	3
SM3515.060.R250	6	6	5,8	13	20	57	2,50	3
SM3515.080.R025	8	8	7,7	19	28	63	0,25	3
SM3515.080.R050	8	8	7,7	19	28	63	0,50	3
SM3515.080.R075	8	8	7,7	19	28	63	0,75	3
SM3515.080.R100	8	8	7,7	19	28	63	1,00	3
SM3515.080.R125	8	8	7,7	19	28	63	1,25	3
SM3515.080.R150	8	8	7,7	19	28	63	1,50	3
SM3515.080.R175	8	8	7,7	19	28	63	1,75	3
SM3515.080.R200	8	8	7,7	19	28	63	2,00	3
SM3515.080.R250	8	8	7,7	19	28	63	2,50	3
SM3515.100.R025	10	10	9,5	22	33	72	0,25	3
SM3515.100.R050	10	10	9,5	22	33	72	0,50	3
SM3515.100.R075	10	10	9,5	22	33	72	0,75	3
SM3515.100.R100	10	10	9,5	22	33	72	1,00	3
SM3515.100.R125	10	10	9,5	22	33	72	1,25	3
SM3515.100.R150	10	10	9,5	22	33	72	1,50	3
SM3515.100.R175	10	10	9,5	22	33	72	1,75	3

(mm)

ART.	ØD	Ød	ØD1	L1	L2	H	R	z
SM3515.100.R200	10	10	9,5	22	33	72	2,00	3
SM3515.100.R250	10	10	9,5	22	33	72	2,50	3
SM3515.100.R300	10	10	9,5	22	33	72	3,00	3

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm) ØD	(m/min) Vc	(mm) fz	(mm) ap	(mm) ae
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO E SUE LEGHE ALUMINIUM	RAME E SUE LEGHE COPPER	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE					
	●															4	140-170	0,005-0,020	1xD	1xD
	●															5	140-170	0,010-0,025	1xD	1xD
	●															6	140-170	0,015-0,030	1xD	1xD
	●															8	140-170	0,025-0,040	1xD	1xD
	●															10	140-170	0,025-0,040	1xD	1xD
		●														4	100-130	0,005-0,020	1xD	1xD
		●														5	100-131	0,010-0,025	1xD	1xD
		●														6	100-132	0,015-0,030	1xD	1xD
		●														8	100-133	0,025-0,040	1xD	1xD
		●														10	100-134	0,025-0,040	1xD	1xD
			●													4	80-110	0,005-0,020	1xD	1xD
			●													5	80-110	0,010-0,025	1xD	1xD
			●													6	80-110	0,015-0,030	1xD	1xD
			●													8	80-110	0,025-0,040	1xD	1xD
			●													10	80-110	0,025-0,040	1xD	1xD
					○											4	40-70	0,005-0,020	1xD	1xD
					○											5	40-70	0,005-0,020	1xD	1xD
					○											6	40-70	0,010-0,025	1xD	1xD
					○											8	40-70	0,010-0,025	1xD	1xD
					○											10	40-70	0,010-0,025	1xD	1xD
						●										4	140-170	0,005-0,020	1xD	1xD
						●										5	140-170	0,010-0,025	1xD	1xD
						●										6	140-170	0,015-0,030	1xD	1xD
						●										8	140-170	0,025-0,040	1xD	1xD
						●										10	140-170	0,025-0,040	1xD	1xD
							●									4	140-170	0,005-0,020	1xD	1xD
							●									5	140-170	0,010-0,025	1xD	1xD
							●									6	140-170	0,015-0,030	1xD	1xD
							●									8	140-170	0,025-0,040	1xD	1xD
							●									10	140-170	0,025-0,040	1xD	1xD
												○				4	20-30	0,005-0,020	1xD	1xD
												○				5	20-30	0,005-0,020	1xD	1xD
												○				6	20-30	0,010-0,025	1xD	1xD
												○				8	20-30	0,010-0,025	1xD	1xD
												○				10	20-30	0,010-0,025	1xD	1xD
													○			4	25-40	0,005-0,020	1xD	1xD
													○			5	25-40	0,005-0,020	1xD	1xD
													○			6	25-40	0,010-0,025	1xD	1xD
													○			8	25-40	0,010-0,025	1xD	1xD
													○			10	25-40	0,010-0,025	1xD	1xD
														○		4	20-40	0,005-0,020	0,25xD	1xD
														○		5	20-40	0,005-0,020	0,25xD	1xD
														○		6	20-40	0,010-0,025	0,25xD	1xD
														○		8	20-40	0,010-0,025	0,25xD	1xD
														○		10	20-40	0,010-0,025	0,25xD	1xD

PER LAVORAZIONI A SPALLAMENTO AUMENTARE I PARAMETRI DEL 20%
FOR SHOULDER MILLING PARAMETERS SHOULD BE INCREASED BY 20%

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED

n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS

fz = mm AVANZAMENTO AL DENTE -TOOTH FEED

fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION

Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

$$n = \frac{Vc \cdot 1000}{ØD \cdot 3{,}14} = \text{giri/min (min}^{-1}\text{)}$$

$$fn = fz \cdot z = \text{mm}$$

$$Vf = fz \cdot z \cdot n = \text{mm/min}$$

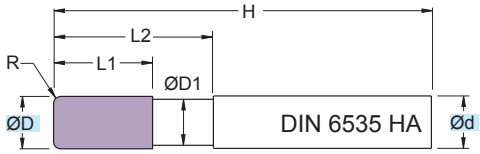
SM3515..TI

ØD = 4 - 10

RIVESTIM. COATED
ORANGE

R

52 HRC



Fresa in M.D.I. Micrograno
Gambo cilindrico HA

Micrograin HM mills
Cilindrical Shank HA

TOLLERANZE / TOLLERANCE RANGE	D	d
	h10	h6

(mm)

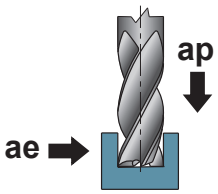
ART.	ØD	Ød	ØD1	L1	L2	H	R	z
SM3515.040.R025.TI	4	4	3,8	11	18	57	0,25	3
SM3515.040.R050.TI	4	4	3,8	11	18	57	0,50	3
SM3515.040.R075.TI	4	4	3,8	11	18	57	0,75	3
SM3515.040.R100.TI	4	4	3,8	11	18	57	1,00	3
SM3515.040.R125.TI	4	4	3,8	11	18	57	1,25	3
SM3515.040.R150.TI	4	4	3,8	11	18	57	1,50	3
SM3515.050.R025.TI	5	5	4,8	13	20	57	0,25	3
SM3515.050.R050.TI	5	5	4,8	13	20	57	0,50	3
SM3515.050.R075.TI	5	5	4,8	13	20	57	0,75	3
SM3515.050.R100.TI	5	5	4,8	13	20	57	1,00	3
SM3515.050.R125.TI	5	5	4,8	13	20	57	1,25	3
SM3515.050.R150.TI	5	5	4,8	13	20	57	1,50	3
SM3515.050.R175.TI	5	5	4,8	13	20	57	1,75	3
SM3515.050.R200.TI	5	5	4,8	13	20	57	2,00	3
SM3515.060.R025.TI	6	6	5,8	13	20	57	0,25	3
SM3515.060.R050.TI	6	6	5,8	13	20	57	0,50	3
SM3515.060.R075.TI	6	6	5,8	13	20	57	0,75	3
SM3515.060.R100.TI	6	6	5,8	13	20	57	1,00	3
SM3515.060.R125.TI	6	6	5,8	13	20	57	1,25	3
SM3515.060.R150.TI	6	6	5,8	13	20	57	1,50	3
SM3515.060.R175.TI	6	6	5,8	13	20	57	1,75	3
SM3515.060.R200.TI	6	6	5,8	13	20	57	2,00	3
SM3515.060.R250.TI	6	6	5,8	13	20	57	2,50	3
SM3515.080.R025.TI	8	8	7,7	19	28	63	0,25	3
SM3515.080.R050.TI	8	8	7,7	19	28	63	0,50	3
SM3515.080.R075.TI	8	8	7,7	19	28	63	0,75	3
SM3515.080.R100.TI	8	8	7,7	19	28	63	1,00	3
SM3515.080.R125.TI	8	8	7,7	19	28	63	1,25	3
SM3515.080.R150.TI	8	8	7,7	19	28	63	1,50	3
SM3515.080.R175.TI	8	8	7,7	19	28	63	1,75	3
SM3515.080.R200.TI	8	8	7,7	19	28	63	2,00	3
SM3515.080.R250.TI	8	8	7,7	19	28	63	2,50	3
SM3515.100.R025.TI	10	10	9,5	22	33	72	0,25	3
SM3515.100.R050.TI	10	10	9,5	22	33	72	0,50	3
SM3515.100.R075.TI	10	10	9,5	22	33	72	0,75	3
SM3515.100.R100.TI	10	10	9,5	22	33	72	1,00	3
SM3515.100.R125.TI	10	10	9,5	22	33	72	1,25	3
SM3515.100.R150.TI	10	10	9,5	22	33	72	1,50	3
SM3515.100.R175.TI	10	10	9,5	22	33	72	1,75	3

(mm)

ART.	ØD	Ød	ØD1	L1	L2	H	R	z
SM3515.100.R200.TI	10	10	9,5	22	33	72	2,00	3
SM3515.100.R250.TI	10	10	9,5	22	33	72	2,50	3
SM3515.100.R300.TI	10	10	9,5	22	33	72	3,00	3

PAG. 1053

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm) ØD	(m/min) Vc	(mm) fz	(mm) ap	(mm) ae
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO E SUE LEGHE ALUMINIUM	RAME E SUE LEGHE COPPER	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE					
	○															4	110-140	0,030-0,045	1xD	1xD
	○															5	110-140	0,035-0,050	1xD	1xD
	○															6	110-140	0,040-0,055	1xD	1xD
	○															8	110-140	0,050-0,065	1xD	1xD
	○															10	110-140	0,060-0,075	1xD	1xD
		○														4	100-135	0,030-0,045	1xD	1xD
		○														5	100-135	0,035-0,050	1xD	1xD
		○														6	100-135	0,040-0,055	1xD	1xD
		○														8	100-135	0,050-0,065	1xD	1xD
		○														10	100-135	0,060-0,075	1xD	1xD
			○													4	100-130	0,030-0,045	1xD	1xD
			○													5	100-130	0,035-0,050	1xD	1xD
			○													6	100-130	0,040-0,055	1xD	1xD
			○													8	100-130	0,050-0,065	1xD	1xD
			○													10	100-130	0,060-0,075	1xD	1xD
					●											4	80-110	0,015-0,030	1xD	1xD
					●											5	80-110	0,020-0,035	1xD	1xD
					●											6	80-110	0,025-0,040	1xD	1xD
					●											8	80-110	0,030-0,045	1xD	1xD
					●											10	80-110	0,030-0,045	1xD	1xD
												●				4	30-50	0,005-0,015	1xD	1xD
												●				5	30-50	0,005-0,015	1xD	1xD
												●				6	30-50	0,010-0,025	1xD	1xD
												●				8	30-50	0,015-0,030	1xD	1xD
												●				10	30-50	0,020-0,035	1xD	1xD
													●			4	30-75	0,005-0,015	1xD	1xD
													●			5	30-75	0,008-0,020	1xD	1xD
													●			6	30-75	0,010-0,025	1xD	1xD
													●			8	30-75	0,015-0,030	1xD	1xD
													●			10	30-75	0,020-0,035	1xD	1xD
														○		4	20-35	0,005-0,011	0,25xD	1xD
														○		5	20-35	0,005-0,012	0,25xD	1xD
														○		6	20-35	0,006-0,013	0,25xD	1xD
														○		8	20-35	0,006-0,015	0,25xD	1xD
														○		10	20-35	0,010-0,020	0,25xD	1xD

PER LAVORAZIONI A SPALLAMENTO AUMENTARE I PARAMETRI DEL 20%
FOR SHOULDER MILLING PARAMETERS SHOULD BE INCREASED BY 20%

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

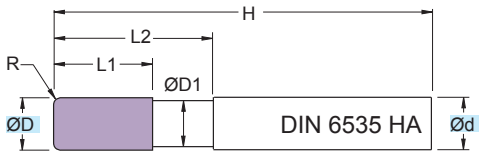
$$n = \frac{Vc \cdot 1000}{ØD \cdot 3{,}14} \text{ = giri/min (min}^{-1}\text{)}$$

$$fn = fz \cdot z \text{ = mm}$$

$$Vf = fz \cdot z \cdot n \text{ = mm/min}$$

SM3525

ØD = 4 - 10



RIVESTIM. COATED
GRAY

R

52 HRC

Fresa in M.D.I. Micrograno
Gambo cilindrico HA

Micrograin HM mills
Cilindrical Shank HA

TOLLERANZE / TOLLERANCE RANGE	D	d
	h10	h6

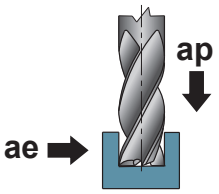
(mm)

ART.	ØD	Ød	ØD1	L1	L2	H	R	z
SM3525.040.R025	4	4	3,8	19	26	72	0,25	3
SM3525.040.R050	4	4	3,8	19	26	72	0,50	3
SM3525.040.R075	4	4	3,8	19	26	72	0,75	3
SM3525.040.R100	4	4	3,8	19	26	72	1,00	3
SM3525.040.R125	4	4	3,8	19	26	72	1,25	3
SM3525.040.R150	4	4	3,8	19	26	72	1,50	3
SM3525.050.R025	5	5	4,8	22	29	72	0,25	3
SM3525.050.R050	5	5	4,8	22	29	72	0,50	3
SM3525.050.R075	5	5	4,8	22	29	72	0,75	3
SM3525.050.R100	5	5	4,8	22	29	72	1,00	3
SM3525.050.R125	5	5	4,8	22	29	72	1,25	3
SM3525.050.R150	5	5	4,8	22	29	72	1,50	3
SM3525.050.R175	5	5	4,8	22	29	72	1,75	3
SM3525.050.R200	5	5	4,8	22	29	72	2,00	3
SM3525.060.R025	6	6	5,8	22	29	72	0,25	3
SM3525.060.R050	6	6	5,8	22	29	72	0,50	3
SM3525.060.R075	6	6	5,8	22	29	72	0,75	3
SM3525.060.R100	6	6	5,8	22	29	72	1,00	3
SM3525.060.R125	6	6	5,8	22	29	72	1,25	3
SM3525.060.R150	6	6	5,8	22	29	72	1,50	3
SM3525.060.R175	6	6	5,8	22	29	72	1,75	3
SM3525.060.R200	6	6	5,8	22	29	72	2,00	3
SM3525.060.R250	6	6	5,8	22	29	72	2,50	3
SM3525.080.R025	8	8	7,7	26	35	83	0,25	3
SM3525.080.R050	8	8	7,7	26	35	83	0,50	3
SM3525.080.R075	8	8	7,7	26	35	83	0,75	3
SM3525.080.R100	8	8	7,7	26	35	83	1,00	3
SM3525.080.R125	8	8	7,7	26	35	83	1,25	3
SM3525.080.R150	8	8	7,7	26	35	83	1,50	3
SM3525.080.R175	8	8	7,7	26	35	83	1,75	3
SM3525.080.R200	8	8	7,7	26	35	83	2,00	3
SM3525.080.R250	8	8	7,7	26	35	83	2,50	3
SM3525.100.R025	10	10	9,5	32	43	100	0,25	3
SM3525.100.R050	10	10	9,5	32	43	100	0,50	3
SM3525.100.R075	10	10	9,5	32	43	100	0,75	3
SM3525.100.R100	10	10	9,5	32	43	100	1,00	3
SM3525.100.R125	10	10	9,5	32	43	100	1,25	3
SM3525.100.R150	10	10	9,5	32	43	100	1,50	3
SM3525.100.R175	10	10	9,5	32	43	100	1,75	3

(mm)

ART.	ØD	Ød	ØD1	L1	L2	H	R	z
SM3525.100.R200	10	10	9,5	32	43	100	2,00	3
SM3525.100.R250	10	10	9,5	32	43	100	2,50	3
SM3525.100.R300	10	10	9,5	32	43	100	3,00	3

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm) ØD	(m/min) Vc	(mm) fz	(mm) ap	(mm) ae
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO E SUE LEGHE ALUMINIUM	RAME E SUE LEGHE COPPER	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE					
	●															4	140-170	0,005-0,020	1xD	1xD
	●															5	140-170	0,010-0,025	1xD	1xD
	●															6	140-170	0,015-0,030	1xD	1xD
	●															8	140-170	0,025-0,040	1xD	1xD
	●															10	140-170	0,025-0,040	1xD	1xD
		●														4	100-130	0,005-0,020	1xD	1xD
		●														5	100-131	0,010-0,025	1xD	1xD
		●														6	100-132	0,015-0,030	1xD	1xD
		●														8	100-133	0,025-0,040	1xD	1xD
		●														10	100-134	0,025-0,040	1xD	1xD
			●													4	80-110	0,005-0,020	1xD	1xD
			●													5	80-110	0,010-0,025	1xD	1xD
			●													6	80-110	0,015-0,030	1xD	1xD
			●													8	80-110	0,025-0,040	1xD	1xD
			●													10	80-110	0,025-0,040	1xD	1xD
					○											4	40-70	0,005-0,020	1xD	1xD
					○											5	40-70	0,005-0,020	1xD	1xD
					○											6	40-70	0,010-0,025	1xD	1xD
					○											8	40-70	0,010-0,025	1xD	1xD
					○											10	40-70	0,010-0,025	1xD	1xD
						●										4	140-170	0,005-0,020	1xD	1xD
						●										5	140-170	0,010-0,025	1xD	1xD
						●										6	140-170	0,015-0,030	1xD	1xD
						●										8	140-170	0,025-0,040	1xD	1xD
						●										10	140-170	0,025-0,040	1xD	1xD
							●									4	140-170	0,005-0,020	1xD	1xD
							●									5	140-170	0,010-0,025	1xD	1xD
							●									6	140-170	0,015-0,030	1xD	1xD
							●									8	140-170	0,025-0,040	1xD	1xD
							●									10	140-170	0,025-0,040	1xD	1xD
												○				4	20-30	0,005-0,020	1xD	1xD
												○				5	20-30	0,005-0,020	1xD	1xD
												○				6	20-30	0,010-0,025	1xD	1xD
												○				8	20-30	0,010-0,025	1xD	1xD
												○				10	20-30	0,010-0,025	1xD	1xD
													○			4	25-40	0,005-0,020	1xD	1xD
													○			5	25-40	0,005-0,020	1xD	1xD
													○			6	25-40	0,010-0,025	1xD	1xD
													○			8	25-40	0,010-0,025	1xD	1xD
													○			10	25-40	0,010-0,025	1xD	1xD
														○		4	20-40	0,005-0,020	0,25xD	1xD
														○		5	20-40	0,005-0,020	0,25xD	1xD
														○		6	20-40	0,010-0,025	0,25xD	1xD
														○		8	20-40	0,010-0,025	0,25xD	1xD
														○		10	20-40	0,010-0,025	0,25xD	1xD

PER LAVORAZIONI A SPALLAMENTO AUMENTARE I PARAMETRI DEL 20%
FOR SHOULDER MILLING PARAMETERS SHOULD BE INCREASED BY 20%

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED

n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS

fz = mm AVANZAMENTO AL DENTE -TOOTH FEED

fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION

Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

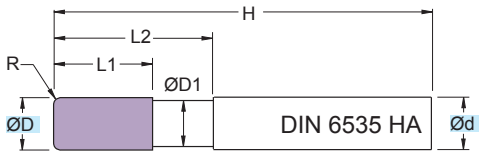
$$n = \frac{Vc \cdot 1000}{ØD \cdot 3{,}14} = \text{giri/min (min}^{-1}\text{)}$$

$$fn = fz \cdot z = \text{mm}$$

$$Vf = fz \cdot z \cdot n = \text{mm/min}$$

SM3525..TI

ØD = 4 - 10



RIVESTIM. COATED
ORANGE

R

52 HRC

Fresa in M.D.I. Micrograno
Gambo cilindrico HA

Micrograin HM mills
Cilindrical Shank HA

TOLLERANZE	D	d
TOLLERANCE RANGE	h10	h6

(mm)

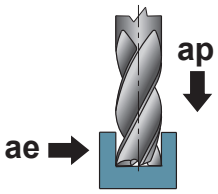
ART.	ØD	Ød	ØD1	L1	L2	H	R	z
SM3525.040.R025.TI	4	4	3,8	19	26	72	0,25	3
SM3525.040.R050.TI	4	4	3,8	19	26	72	0,50	3
SM3525.040.R075.TI	4	4	3,8	19	26	72	0,75	3
SM3525.040.R100.TI	4	4	3,8	19	26	72	1,00	3
SM3525.040.R125.TI	4	4	3,8	19	26	72	1,25	3
SM3525.040.R150.TI	4	4	3,8	19	26	72	1,50	3
SM3525.050.R025.TI	5	5	4,8	22	29	72	0,25	3
SM3525.050.R050.TI	5	5	4,8	22	29	72	0,50	3
SM3525.050.R075.TI	5	5	4,8	22	29	72	0,75	3
SM3525.050.R100.TI	5	5	4,8	22	29	72	1,00	3
SM3525.050.R125.TI	5	5	4,8	22	29	72	1,25	3
SM3525.050.R150.TI	5	5	4,8	22	29	72	1,50	3
SM3525.050.R175.TI	5	5	4,8	22	29	72	1,75	3
SM3525.050.R200.TI	5	5	4,8	22	29	72	2,00	3
SM3525.060.R025.TI	6	6	5,8	22	29	72	0,25	3
SM3525.060.R050.TI	6	6	5,8	22	29	72	0,50	3
SM3525.060.R075.TI	6	6	5,8	22	29	72	0,75	3
SM3525.060.R100.TI	6	6	5,8	22	29	72	1,00	3
SM3525.060.R125.TI	6	6	5,8	22	29	72	1,25	3
SM3525.060.R150.TI	6	6	5,8	22	29	72	1,50	3
SM3525.060.R175.TI	6	6	5,8	22	29	72	1,75	3
SM3525.060.R200.TI	6	6	5,8	22	29	72	2,00	3
SM3525.060.R250.TI	6	6	5,8	22	29	72	2,50	3
SM3525.080.R025.TI	8	8	7,7	26	35	83	0,25	3
SM3525.080.R050.TI	8	8	7,7	26	35	83	0,50	3
SM3525.080.R075.TI	8	8	7,7	26	35	83	0,75	3
SM3525.080.R100.TI	8	8	7,7	26	35	83	1,00	3
SM3525.080.R125.TI	8	8	7,7	26	35	83	1,25	3
SM3525.080.R150.TI	8	8	7,7	26	35	83	1,50	3
SM3525.080.R175.TI	8	8	7,7	26	35	83	1,75	3
SM3525.080.R200.TI	8	8	7,7	26	35	83	2,00	3
SM3525.080.R250.TI	8	8	7,7	26	35	83	2,50	3
SM3525.100.R025.TI	10	10	9,5	32	43	100	0,25	3
SM3525.100.R050.TI	10	10	9,5	32	43	100	0,50	3
SM3525.100.R075.TI	10	10	9,5	32	43	100	0,75	3
SM3525.100.R100.TI	10	10	9,5	32	43	100	1,00	3
SM3525.100.R125.TI	10	10	9,5	32	43	100	1,25	3
SM3525.100.R150.TI	10	10	9,5	32	43	100	1,50	3
SM3525.100.R175.TI	10	10	9,5	32	43	100	1,75	3

(mm)

ART.	ØD	Ød	ØD1	L1	L2	H	R	z
SM3525.100.R200.TI	10	10	9,5	32	43	100	2,00	3
SM3525.100.R250.TI	10	10	9,5	32	43	100	2,50	3
SM3525.100.R300.TI	10	10	9,5	32	43	100	3,00	3

PAG. 1053

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm) ØD	(m/min) Vc	(mm) fz	(mm) ap	(mm) ae
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO E SUE LEGHE ALUMINIUM	RAME E SUE LEGHE COPPER	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE					
	○															4	110-140	0,030-0,045	1xD	1xD
	○															5	110-140	0,035-0,050	1xD	1xD
	○															6	110-140	0,040-0,055	1xD	1xD
	○															8	110-140	0,050-0,065	1xD	1xD
	○															10	110-140	0,060-0,075	1xD	1xD
		○														4	100-135	0,030-0,045	1xD	1xD
		○														5	100-135	0,035-0,050	1xD	1xD
		○														6	100-135	0,040-0,055	1xD	1xD
		○														8	100-135	0,050-0,065	1xD	1xD
		○														10	100-135	0,060-0,075	1xD	1xD
			○													4	100-130	0,030-0,045	1xD	1xD
			○													5	100-130	0,035-0,050	1xD	1xD
			○													6	100-130	0,040-0,055	1xD	1xD
			○													8	100-130	0,050-0,065	1xD	1xD
			○													10	100-130	0,060-0,075	1xD	1xD
					●											4	80-110	0,015-0,030	1xD	1xD
					●											5	80-110	0,020-0,035	1xD	1xD
					●											6	80-110	0,025-0,040	1xD	1xD
					●											8	80-110	0,030-0,045	1xD	1xD
					●											10	80-110	0,030-0,045	1xD	1xD
												●				4	30-50	0,005-0,015	1xD	1xD
												●				5	30-50	0,005-0,015	1xD	1xD
												●				6	30-50	0,010-0,025	1xD	1xD
												●				8	30-50	0,015-0,030	1xD	1xD
												●				10	30-50	0,020-0,035	1xD	1xD
													●			4	30-75	0,005-0,015	1xD	1xD
													●			5	30-75	0,008-0,020	1xD	1xD
													●			6	30-75	0,010-0,025	1xD	1xD
													●			8	30-75	0,015-0,030	1xD	1xD
													●			10	30-75	0,020-0,035	1xD	1xD
														○		4	20-35	0,005-0,011	0,25xD	1xD
														○		5	20-35	0,005-0,012	0,25xD	1xD
														○		6	20-35	0,006-0,013	0,25xD	1xD
														○		8	20-35	0,006-0,015	0,25xD	1xD
														○		10	20-35	0,010-0,020	0,25xD	1xD

PER LAVORAZIONI A SPALLAMENTO AUMENTARE I PARAMETRI DEL 20%
FOR SHOULDER MILLING PARAMETERS SHOULD BE INCREASED BY 20%

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

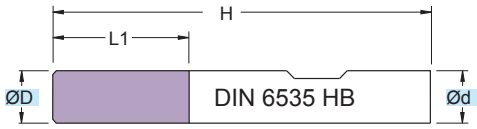
$$n = \frac{Vc \cdot 1000}{ØD \cdot 3{,}14} = \text{giri/min (min}^{-1}\text{)}$$

$$fn = fz \cdot z = \text{mm}$$

$$Vf = fz \cdot z \cdot n = \text{mm/min}$$

SMW4501

ØD = 5 - 20



RIVESTIM. COATED
BLACK

45°

52 HRC

Fresa in M.D.I. Micrograno
Gambo sec. DIN 6535 HB

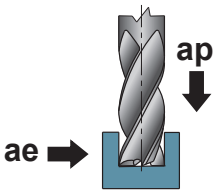
Micrograin HM mills
DIN 6535 HB Shank

TOLLERANZE	D	d
TOLLERANCE RANGE	h10	h6

(mm)

ART.	ØD	Ød	L1	H	45°	z
SMW4501.050.N00	5	6	21	63	0,18	4
SMW4501.060.N00	6	6	22	63	0,20	4
SMW4501.080.N00	8	8	28	80	0,20	4
SMW4501.100.N00	10	10	33	100	0,30	4
SMW4501.120.N00	12	12	42	100	0,30	4
SMW4501.140.N00	14	14	48	100	0,30	4
SMW4501.160.N00	16	16	53	150	0,40	4
SMW4501.200.N00	20	20	68	150	0,50	4

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm) ØD	(m/min) Vc	(mm) fz	(mm) ap	(mm) ae
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO E SUE LEGHE ALUMINIUM	RAME E SUE LEGHE COPPER	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE					
	●															5÷6	140-170	0,015-0,030	1xD	1xD
	●															6÷8	140-170	0,025-0,040	1xD	1xD
	●															8÷12	140-170	0,030-0,045	1xD	1xD
	●															12÷16	140-170	0,040-0,055	1xD	1xD
	●															16÷20	140-170	0,055-0,070	1xD	1xD
		●														5÷6	100-130	0,015-0,030	1xD	1xD
		●														6÷8	100-131	0,025-0,040	1xD	1xD
		●														8÷12	100-132	0,030-0,045	1xD	1xD
		●														12÷16	100-133	0,040-0,055	1xD	1xD
		●														16÷20	100-134	0,055-0,070	1xD	1xD
			●													5÷6	80-110	0,015-0,030	1xD	1xD
			●													6÷8	80-110	0,025-0,040	1xD	1xD
			●													8÷12	80-110	0,030-0,045	1xD	1xD
			●													12÷16	80-110	0,040-0,055	1xD	1xD
			●													16÷20	80-110	0,055-0,070	1xD	1xD
					○											5÷6	40-70	0,005-0,020	1xD	1xD
					○											6÷8	40-70	0,010-0,025	1xD	1xD
					○											8÷12	40-70	0,020-0,035	1xD	1xD
					○											12÷16	40-70	0,025-0,040	1xD	1xD
					○											16÷20	40-70	0,035-0,050	1xD	1xD
						●										5÷6	140-170	0,025-0,035	1xD	1xD
						●										6÷8	140-170	0,040-0,050	1xD	1xD
						●										8÷12	140-170	0,045-0,060	1xD	1xD
						●										12÷16	140-170	0,060-0,075	1xD	1xD
						●										16÷20	140-170	0,080-0,095	1xD	1xD
							●									5÷6	140-170	0,005-0,035	1xD	1xD
							●									6÷8	140-170	0,008-0,050	1xD	1xD
							●									8÷12	140-170	0,045-0,060	1xD	1xD
							●									12÷16	140-170	0,060-0,075	1xD	1xD
							●									16÷20	140-170	0,080-0,095	1xD	1xD
												○				5÷6	20-30	0,005-0,020	1xD	1xD
												○				6÷8	20-30	0,005-0,025	1xD	1xD
												○				8÷12	20-30	0,006-0,030	1xD	1xD
												○				12÷16	20-30	0,006-0,035	1xD	1xD
												○				16÷20	20-30	0,010-0,045	1xD	1xD
													○			5÷6	25-40	0,017-0,032	1xD	1xD
													○			6÷8	25-40	0,021-0,036	1xD	1xD
													○			8÷12	25-40	0,028-0,043	1xD	1xD
													○			12÷16	25-40	0,035-0,050	1xD	1xD
													○			16÷20	25-40	0,045-0,060	1xD	1xD
														○		5÷6	20-40	0,005-0,013	0,25xD	1xD
														○		6÷8	20-40	0,005-0,015	0,25xD	1xD
														○		8÷12	20-40	0,005-0,017	0,25xD	1xD
														○		12÷16	20-40	0,005-0,020	0,25xD	1xD
														○		16÷20	20-40	0,005-0,020	0,25xD	1xD

PER LAVORAZIONI A SPALLAMENTO AUMENTARE I PARAMETRI DEL 20%
FOR SHOULDER MILLING PARAMETERS SHOULD BE INCREASED BY 20%

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED

n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS

fz = mm AVANZAMENTO AL DENTE -TOOTH FEED

fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION

Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

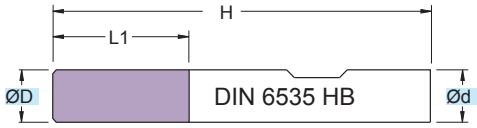
$$n = \frac{Vc \cdot 1000}{ØD \cdot 3{,}14} = \text{giri/min (min}^{-1}\text{)}$$

$$fn = fz \cdot z = \text{mm}$$

$$Vf = fz \cdot z \cdot n = \text{mm/min}$$

SMW4501..TI

ØD = 5 - 20



RIVESTIM. COATED
ORANGE

45°

52 HRC

Fresa in M.D.I. Micrograno
Gambo sec. DIN 6535 HB

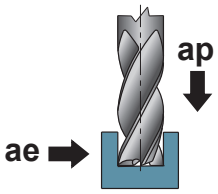
Micrograin HM mills
DIN 6535 HB Shank

TOLLERANZE	D	d
TOLLERANCE RANGE	h10	h6

(mm)

ART.	ØD	Ød	L1	H	45°	z
SMW4501.050.N00.TI	5	6	21	63	0,18	4
SMW4501.060.N00.TI	6	6	22	63	0,20	4
SMW4501.080.N00.TI	8	8	28	80	0,20	4
SMW4501.100.N00.TI	10	10	33	100	0,30	4
SMW4501.120.N00.TI	12	12	42	100	0,30	4
SMW4501.140.N00.TI	14	14	48	100	0,30	4
SMW4501.160.N00.TI	16	16	53	150	0,40	4
SMW4501.200.N00.TI	20	20	68	150	0,50	4

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm) ØD	(m/min) Vc	(mm) fz	(mm) ap	(mm) ae
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO E SUE LEGHE ALUMINIUM	RAME E SUE LEGHE COPPER	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE					
	○															5÷6	110-140	0,015-0,030	1xD	1xD
	○															6÷8	110-140	0,025-0,040	1xD	1xD
	○															8÷12	110-140	0,030-0,045	1xD	1xD
	○															12÷16	110-140	0,040-0,055	1xD	1xD
	○															16÷20	110-140	0,055-0,070	1xD	1xD
		○														5÷6	100-135	0,015-0,030	1xD	1xD
		○														6÷8	100-135	0,025-0,040	1xD	1xD
		○														8÷12	100-135	0,030-0,045	1xD	1xD
		○														12÷16	100-135	0,040-0,055	1xD	1xD
		○														16÷20	100-135	0,055-0,070	1xD	1xD
			○													5÷6	100-130	0,015-0,030	1xD	1xD
			○													6÷8	100-130	0,025-0,040	1xD	1xD
			○													8÷12	100-130	0,030-0,045	1xD	1xD
			○													12÷16	100-130	0,040-0,055	1xD	1xD
			○													16÷20	100-130	0,055-0,070	1xD	1xD
					●											5÷6	80-110	0,026-0,041	1xD	1xD
					●											6÷8	80-110	0,030-0,045	1xD	1xD
					●											8÷12	80-110	0,040-0,055	1xD	1xD
					●											12÷16	80-110	0,060-0,075	1xD	1xD
					●											16÷20	80-110	0,070-0,085	1xD	1xD
												●				5÷6	30-50	0,010-0,020	1xD	1xD
												●				6÷8	30-50	0,015-0,025	1xD	1xD
												●				8÷12	30-50	0,020-0,035	1xD	1xD
												●				12÷16	30-50	0,025-0,040	1xD	1xD
												●				16÷20	30-50	0,030-0,045	1xD	1xD
													●			5÷6	30-75	0,005-0,022	1xD	1xD
													●			6÷8	30-75	0,008-0,028	1xD	1xD
													●			8÷12	30-75	0,020-0,035	1xD	1xD
													●			12÷16	30-75	0,027-0,042	1xD	1xD
													●			16÷20	30-75	0,037-0,052	1xD	1xD
														○		5÷6	20-35	0,005-0,013	0,25xD	1xD
														○		6÷8	20-35	0,005-0,015	0,25xD	1xD
														○		8÷12	20-35	0,006-0,017	0,25xD	1xD
														○		12÷16	20-35	0,006-0,020	0,25xD	1xD
														○		16÷20	20-35	0,010-0,020	0,25xD	1xD

PER LAVORAZIONI A SPALLAMENTO AUMENTARE I PARAMETRI DEL 20%
FOR SHOULDER MILLING PARAMETERS SHOULD BE INCREASED BY 20%

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

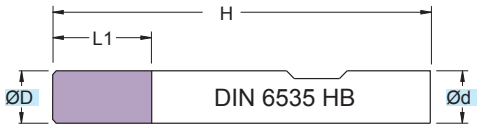
$$n = \frac{Vc \cdot 1000}{ØD \cdot 3{,}14} \text{ = giri/min (min}^{-1}\text{)}$$

$$fn = fz \cdot z \text{ = mm}$$

$$Vf = fz \cdot z \cdot n \text{ = mm/min}$$

SMW4401

ØD = 3 - 25



RIVESTIM. COATED
BLACK

45°

52 HRC

Fresa in M.D.I. Micrograno
Gambo sec. DIN 6535 HB

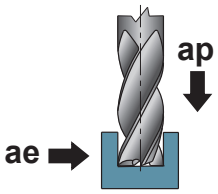
Micrograin HM mills
DIN 6535 HB Shank

TOLLERANZE	D	d
TOLLERANCE RANGE	h10	h6

(mm)

ART.	ØD	Ød	L1	H	45°	z
SMW4401.030.G00	3	6	8	57	0,10	4
SMW4401.040.G00	4	6	11	57	0,13	4
SMW4401.050.G00	5	6	13	57	0,18	4
SMW4401.060.G00	6	6	13	57	0,20	4
SMW4401.070.G00	7	8	19	63	0,20	4
SMW4401.080.G00	8	8	19	63	0,20	4
SMW4401.090.G00	9	10	22	72	0,30	4
SMW4401.100.G00	10	10	22	72	0,30	4
SMW4401.110.G00	11	12	26	83	0,30	4
SMW4401.120.G00	12	12	26	83	0,30	4
SMW4401.130.G00	13	14	26	83	0,30	4
SMW4401.140.G00	14	14	26	83	0,30	4
SMW4401.160.G00	16	16	32	92	0,40	4
SMW4401.180.G00	18	18	32	92	0,40	4
SMW4401.200.G00	20	20	38	104	0,50	4
SMW4401.250.G00	25	25	38	104	0,50	4

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm) ØD	(m/min) Vc	(mm) fz	(mm) ap	(mm) ae
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO E SUE LEGHE ALUMINIUM	RAME E SUE LEGHE COPPER	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE					
	●															3÷6	140-170	0,015-0,030	1xD	1xD
	●															6÷9	140-170	0,025-0,040	1xD	1xD
	●															9÷12	140-170	0,030-0,045	1xD	1xD
	●															12÷16	140-170	0,040-0,055	1xD	1xD
	●															16÷25	140-170	0,055-0,070	1xD	1xD
		●														3÷6	100-130	0,015-0,030	1xD	1xD
		●														6÷9	100-130	0,025-0,040	1xD	1xD
		●														9÷12	100-130	0,030-0,045	1xD	1xD
		●														12÷16	100-130	0,040-0,055	1xD	1xD
		●														16÷25	100-130	0,055-0,070	1xD	1xD
			●													3÷6	80-110	0,015-0,030	1xD	1xD
			●													6÷9	80-110	0,025-0,040	1xD	1xD
			●													9÷12	80-110	0,030-0,045	1xD	1xD
			●													12÷16	80-110	0,040-0,055	1xD	1xD
			●													16÷25	80-110	0,055-0,070	1xD	1xD
					○											3÷6	40-70	0,005-0,020	1xD	1xD
					○											6÷9	40-70	0,010-0,025	1xD	1xD
					○											9÷12	40-70	0,020-0,035	1xD	1xD
					○											12÷16	40-70	0,025-0,040	1xD	1xD
					○											16÷25	40-70	0,035-0,050	1xD	1xD
						●										3÷6	140-170	0,025-0,035	1xD	1xD
						●										6÷9	140-170	0,040-0,050	1xD	1xD
						●										9÷12	140-170	0,045-0,060	1xD	1xD
						●										12÷16	140-170	0,060-0,075	1xD	1xD
						●										16÷25	140-170	0,080-0,095	1xD	1xD
							●									3÷6	140-170	0,005-0,035	1xD	1xD
							●									6÷9	140-170	0,008-0,050	1xD	1xD
							●									9÷12	140-170	0,045-0,060	1xD	1xD
							●									12÷16	140-170	0,060-0,075	1xD	1xD
							●									16÷25	140-170	0,080-0,095	1xD	1xD
												○				3÷6	20-30	0,005-0,020	1xD	1xD
												○				6÷9	20-30	0,005-0,025	1xD	1xD
												○				9÷12	20-30	0,006-0,030	1xD	1xD
												○				12÷16	20-30	0,006-0,035	1xD	1xD
												○				16÷25	20-30	0,010-0,045	1xD	1xD
													○			3÷6	25-40	0,017-0,032	1xD	1xD
													○			6÷9	25-40	0,021-0,036	1xD	1xD
													○			9÷12	25-40	0,028-0,043	1xD	1xD
													○			12÷16	25-40	0,035-0,050	1xD	1xD
													○			16÷25	25-40	0,045-0,060	1xD	1xD
														○		3÷6	20-40	0,005-0,013	0,25xD	1xD
														○		6÷9	20-40	0,005-0,015	0,25xD	1xD
														○		9÷12	20-40	0,005-0,017	0,25xD	1xD
														○		12÷16	20-40	0,005-0,020	0,25xD	1xD
														○		16÷25	20-40	0,005-0,020	0,25xD	1xD

PER LAVORAZIONI A SPALLAMENTO AUMENTARE I PARAMETRI DEL 20%
FOR SHOULDER MILLING PARAMETERS SHOULD BE INCREASED BY 20%

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED

n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS

fz = mm AVANZAMENTO AL DENTE -TOOTH FEED

fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION

Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

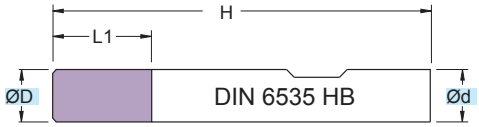
$$n = \frac{Vc \cdot 1000}{ØD \cdot 3{,}14} = \text{giri/min (min}^{-1}\text{)}$$

$$fn = fz \cdot z = \text{mm}$$

$$Vf = fz \cdot z \cdot n = \text{mm/min}$$

SMW4401..TI

ØD = 3 - 25



RIVESTIM. COATED
ORANGE

45°

52 HRC

Fresa in M.D.I. Micrograno
Gambo sec. DIN 6535 HB

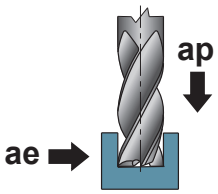
Micrograin HM mills
DIN 6535 HB Shank

TOLLERANZE / TOLLERANCE RANGE	D	d
	h10	h6

(mm)

ART.	ØD	Ød	L1	H	45°	z
SMW4401.030.G00.TI	3	6	8	57	0,10	4
SMW4401.040.G00.TI	4	6	11	57	0,13	4
SMW4401.050.G00.TI	5	6	13	57	0,18	4
SMW4401.060.G00.TI	6	6	13	57	0,20	4
SMW4401.070.G00.TI	7	8	19	63	0,20	4
SMW4401.080.G00.TI	8	8	19	63	0,20	4
SMW4401.090.G00.TI	9	10	22	72	0,30	4
SMW4401.100.G00.TI	10	10	22	72	0,30	4
SMW4401.110.G00.TI	11	12	26	83	0,30	4
SMW4401.120.G00.TI	12	12	26	83	0,30	4
SMW4401.130.G00.TI	13	14	26	83	0,30	4
SMW4401.140.G00.TI	14	14	26	83	0,30	4
SMW4401.160.G00.TI	16	16	32	92	0,40	4
SMW4401.180.G00.TI	18	18	32	92	0,40	4
SMW4401.200.G00.TI	20	20	38	104	0,50	4
SMW4401.250.G00.TI	25	25	38	104	0,50	4

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm) ØD	(m/min) Vc	(mm) fz	(mm) ap	(mm) ae
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO E SUE LEGHE ALUMINIUM	RAME E SUE LEGHE COPPER	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE					
	○															3÷6	110-140	0,015-0,030	1xD	1xD
	○															6÷9	110-140	0,025-0,040	1xD	1xD
	○															9÷12	110-140	0,030-0,045	1xD	1xD
	○															12÷16	110-140	0,040-0,055	1xD	1xD
	○															16÷25	110-140	0,055-0,070	1xD	1xD
		○														3÷6	100-135	0,015-0,030	1xD	1xD
		○														6÷9	100-135	0,025-0,040	1xD	1xD
		○														9÷12	100-135	0,030-0,045	1xD	1xD
		○														12÷16	100-135	0,040-0,055	1xD	1xD
		○														16÷25	100-135	0,055-0,070	1xD	1xD
			○													3÷6	100-130	0,015-0,030	1xD	1xD
			○													6÷9	100-130	0,025-0,040	1xD	1xD
			○													9÷12	100-130	0,030-0,045	1xD	1xD
			○													12÷16	100-130	0,040-0,055	1xD	1xD
			○													16÷25	100-130	0,055-0,070	1xD	1xD
					●											3÷6	80-110	0,026-0,041	1xD	1xD
					●											6÷9	80-110	0,030-0,045	1xD	1xD
					●											9÷12	80-110	0,040-0,055	1xD	1xD
					●											12÷16	80-110	0,060-0,075	1xD	1xD
					●											16÷25	80-110	0,070-0,085	1xD	1xD
												●				3÷6	30-50	0,010-0,020	1xD	1xD
												●				6÷9	30-50	0,015-0,025	1xD	1xD
												●				9÷12	30-50	0,020-0,035	1xD	1xD
												●				12÷16	30-50	0,025-0,040	1xD	1xD
												●				16÷25	30-50	0,030-0,045	1xD	1xD
													●			3÷6	30-75	0,005-0,020	1xD	1xD
													●			6÷9	30-75	0,008-0,028	1xD	1xD
													●			9÷12	30-75	0,017-0,032	1xD	1xD
													●			12÷16	30-75	0,030-0,045	1xD	1xD
													●			16÷25	30-75	0,040-0,055	1xD	1xD
														○		3÷6	20-35	0,005-0,013	0,25xD	1xD
														○		6÷9	20-35	0,005-0,015	0,25xD	1xD
														○		9÷12	20-35	0,005-0,017	0,25xD	1xD
														○		12÷16	20-35	0,005-0,020	0,25xD	1xD
														○		16÷25	20-35	0,005-0,020	0,25xD	1xD

PER LAVORAZIONI A SPALLAMENTO AUMENTARE I PARAMETRI DEL 20%
FOR SHOULDER MILLING PARAMETERS SHOULD BE INCREASED BY 20%

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

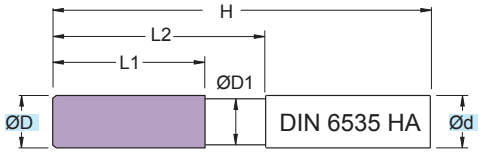
$$n = \frac{Vc \cdot 1000}{ØD \cdot 3{,}14} \text{ = giri/min (min}^{-1}\text{)}$$

$$fn = fz \cdot z \text{ = mm}$$

$$Vf = fz \cdot z \cdot n \text{ = mm/min}$$

SM4415

ØD = 3 - 25



RIVESTIM. COATED
BLACK

45°

52 HRC

Fresa in M.D.I. Micrograno
Gambo sec. DIN 6535 HA

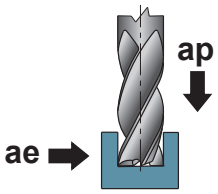
Micrograin HM mills
DIN 6535 HA Shank

TOLLERANZE / TOLLERANCE RANGE	D	d
	h10	h6

(mm)

ART.	ØD	Ød	ØD1	L1	L2	H	45°	z
SM4415.030.G00	3	6	2,8	8	14	57	0,10	4
SM4415.040.G00	4	6	3,8	11	18	57	0,13	4
SM4415.050.G00	5	6	4,8	13	20	57	0,18	4
SM4415.060.G00	6	6	5,8	13	20	57	0,20	4
SM4415.070.G00	7	8	6,7	19	28	63	0,20	4
SM4415.080.G00	8	8	7,7	19	28	63	0,20	4
SM4415.090.G00	9	10	8,7	22	33	72	0,30	4
SM4415.100.G00	10	10	9,5	22	33	72	0,30	4
SM4415.110.G00	11	12	10,5	26	40	83	0,30	4
SM4415.120.G00	12	12	11,5	26	40	83	0,30	4
SM4415.130.G00	13	14	12,5	26	40	83	0,30	4
SM4415.140.G00	14	14	13,5	26	40	83	0,30	4
SM4415.160.G00	16	16	15,5	32	45	92	0,40	4
SM4415.180.G00	18	18	17,5	32	45	92	0,40	4
SM4415.200.G00	20	20	19,5	38	50	104	0,50	4
SM4415.250.G00	25	25	24,5	38	50	104	0,50	4

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm) ØD	(m/min) Vc	(mm) fz	(mm) ap	(mm) ae
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO E SUE LEGHE ALUMINIUM	RAME E SUE LEGHE COPPER	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE					
	●															3÷6	140-170	0,015-0,030	1xD	1xD
	●															6÷9	140-170	0,025-0,040	1xD	1xD
	●															9÷12	140-170	0,030-0,045	1xD	1xD
	●															12÷16	140-170	0,040-0,055	1xD	1xD
	●															16÷25	140-170	0,055-0,070	1xD	1xD
		●														3÷6	100-130	0,015-0,030	1xD	1xD
		●														6÷9	100-130	0,025-0,040	1xD	1xD
		●														9÷12	100-130	0,030-0,045	1xD	1xD
		●														12÷16	100-130	0,040-0,055	1xD	1xD
		●														16÷25	100-130	0,055-0,070	1xD	1xD
			●													3÷6	80-110	0,015-0,030	1xD	1xD
			●													6÷9	80-110	0,025-0,040	1xD	1xD
			●													9÷12	80-110	0,030-0,045	1xD	1xD
			●													12÷16	80-110	0,040-0,055	1xD	1xD
			●													16÷25	80-110	0,055-0,070	1xD	1xD
					○											3÷6	40-70	0,005-0,020	1xD	1xD
					○											6÷9	40-70	0,010-0,025	1xD	1xD
					○											9÷12	40-70	0,020-0,035	1xD	1xD
					○											12÷16	40-70	0,025-0,040	1xD	1xD
					○											16÷25	40-70	0,035-0,050	1xD	1xD
						●										3÷6	140-170	0,025-0,035	1xD	1xD
						●										6÷9	140-170	0,040-0,050	1xD	1xD
						●										9÷12	140-170	0,045-0,060	1xD	1xD
						●										12÷16	140-170	0,060-0,075	1xD	1xD
						●										16÷25	140-170	0,080-0,095	1xD	1xD
							●									3÷6	140-170	0,005-0,035	1xD	1xD
							●									6÷9	140-170	0,008-0,050	1xD	1xD
							●									9÷12	140-170	0,045-0,060	1xD	1xD
							●									12÷16	140-170	0,060-0,075	1xD	1xD
							●									16÷25	140-170	0,080-0,095	1xD	1xD
												○				3÷6	20-30	0,005-0,020	1xD	1xD
												○				6÷9	20-30	0,005-0,025	1xD	1xD
												○				9÷12	20-30	0,006-0,030	1xD	1xD
												○				12÷16	20-30	0,006-0,035	1xD	1xD
												○				16÷25	20-30	0,010-0,045	1xD	1xD
													○			3÷6	25-40	0,017-0,032	1xD	1xD
													○			6÷9	25-40	0,021-0,036	1xD	1xD
													○			9÷12	25-40	0,028-0,043	1xD	1xD
													○			12÷16	25-40	0,035-0,050	1xD	1xD
													○			16÷25	25-40	0,045-0,060	1xD	1xD
														○		3÷6	20-40	0,005-0,013	0,25xD	1xD
														○		6÷9	20-40	0,005-0,015	0,25xD	1xD
														○		9÷12	20-40	0,005-0,017	0,25xD	1xD
														○		12÷16	20-40	0,005-0,020	0,25xD	1xD
														○		16÷25	20-40	0,005-0,020	0,25xD	1xD

PER LAVORAZIONI A SPALLAMENTO AUMENTARE I PARAMETRI DEL 20%
FOR SHOULDER MILLING PARAMETERS SHOULD BE INCREASED BY 20%

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED

n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS

fz = mm AVANZAMENTO AL DENTE -TOOTH FEED

fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION

Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

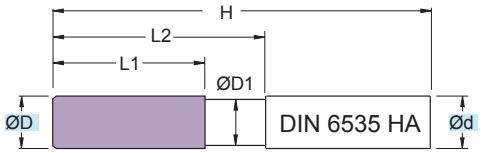
$$n = \frac{Vc \cdot 1000}{ØD \cdot 3{,}14} = \text{giri/min (min}^{-1}\text{)}$$

$$fn = fz \cdot z = \text{mm}$$

$$Vf = fz \cdot z \cdot n = \text{mm/min}$$

SM4415..TI

ØD = 3 - 25



RIVESTIM. COATED
ORANGE

45°

52 HRC

Fresa in M.D.I. Micrograno
Gambo sec. DIN 6535 HA

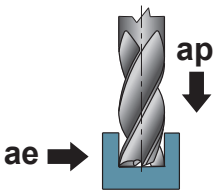
Micrograin HM mills
DIN 6535 HA Shank

TOLLERANZE / TOLLERANCE RANGE	D	d
	h10	h6

(mm)

ART.	ØD	Ød	ØD1	L1	L2	H	45°	z
SM4415.030.G00.TI	3	6	2,8	8	14	57	0,10	4
SM4415.040.G00.TI	4	6	3,8	11	18	57	0,13	4
SM4415.050.G00.TI	5	6	4,8	13	20	57	0,18	4
SM4415.060.G00.TI	6	6	5,8	13	20	57	0,20	4
SM4415.070.G00.TI	7	8	6,7	19	28	63	0,20	4
SM4415.080.G00.TI	8	8	7,7	19	28	63	0,20	4
SM4415.090.G00.TI	9	10	8,7	22	33	72	0,30	4
SM4415.100.G00.TI	10	10	9,5	22	33	72	0,30	4
SM4415.110.G00.TI	11	12	10,5	26	40	83	0,30	4
SM4415.120.G00.TI	12	12	11,5	26	40	83	0,30	4
SM4415.130.G00.TI	13	14	12,5	26	40	83	0,30	4
SM4415.140.G00.TI	14	14	13,5	26	40	83	0,30	4
SM4415.160.G00.TI	16	16	15,5	32	45	92	0,40	4
SM4415.180.G00.TI	18	18	17,5	32	45	92	0,40	4
SM4415.200.G00.TI	20	20	19,5	38	50	104	0,50	4
SM4415.250.G00.TI	25	25	24,5	38	50	104	0,50	4

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm) ØD	(m/min) Vc	(mm) fz	(mm) ap	(mm) ae
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO E SUE LEGHE ALUMINIUM	RAME E SUE LEGHE COPPER	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE					
	○															3÷6	110-140	0,015-0,030	1xD	1xD
	○															6÷9	110-140	0,025-0,040	1xD	1xD
	○															9÷12	110-140	0,030-0,045	1xD	1xD
	○															12÷16	110-140	0,040-0,055	1xD	1xD
	○															16÷25	110-140	0,055-0,070	1xD	1xD
		○														3÷6	100-135	0,015-0,030	1xD	1xD
		○														6÷9	100-135	0,025-0,040	1xD	1xD
		○														9÷12	100-135	0,030-0,045	1xD	1xD
		○														12÷16	100-135	0,040-0,055	1xD	1xD
		○														16÷25	100-135	0,055-0,070	1xD	1xD
			○													3÷6	100-130	0,015-0,030	1xD	1xD
			○													6÷9	100-130	0,025-0,040	1xD	1xD
			○													9÷12	100-130	0,030-0,045	1xD	1xD
			○													12÷16	100-130	0,040-0,055	1xD	1xD
			○													16÷25	100-130	0,055-0,070	1xD	1xD
					●											3÷6	80-110	0,026-0,041	1xD	1xD
					●											6÷9	80-110	0,030-0,045	1xD	1xD
					●											9÷12	80-110	0,040-0,055	1xD	1xD
					●											12÷16	80-110	0,060-0,075	1xD	1xD
					●											16÷25	80-110	0,070-0,085	1xD	1xD
												●				3÷6	30-50	0,010-0,020	1xD	1xD
												●				6÷9	30-50	0,015-0,025	1xD	1xD
												●				9÷12	30-50	0,020-0,035	1xD	1xD
												●				12÷16	30-50	0,025-0,040	1xD	1xD
												●				16÷25	30-50	0,030-0,045	1xD	1xD
													●			3÷6	30-75	0,005-0,020	1xD	1xD
													●			6÷9	30-75	0,008-0,028	1xD	1xD
													●			9÷12	30-75	0,017-0,032	1xD	1xD
													●			12÷16	30-75	0,030-0,045	1xD	1xD
													●			16÷25	30-75	0,040-0,055	1xD	1xD
														○		3÷6	20-35	0,005-0,013	0,25xD	1xD
														○		6÷9	20-35	0,005-0,015	0,25xD	1xD
														○		9÷12	20-35	0,005-0,017	0,25xD	1xD
														○		12÷16	20-35	0,005-0,020	0,25xD	1xD
														○		16÷25	20-35	0,005-0,020	0,25xD	1xD

PER LAVORAZIONI A SPALLAMENTO AUMENTARE I PARAMETRI DEL 20%
FOR SHOULDER MILLING PARAMETERS SHOULD BE INCREASED BY 20%

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

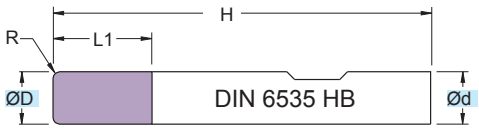
$$n = \frac{Vc \cdot 1000}{ØD \cdot 3{,}14} \text{ = giri/min (min}^{-1}\text{)}$$

$$fn = fz \cdot z \text{ = mm}$$

$$Vf = fz \cdot z \cdot n \text{ = mm/min}$$

SMW4305

ØD = 4 - 20



RIVESTIM. COATED
GRAY

R

52 HRC

Fresa in M.D.I. Micrograno
Gambo sec. DIN 6535 HB

Micrograin HM mills
DIN 6535 HB Shank

TOLLERANZE	D	d
TOLLERANCE RANGE	h10	h6

(mm)

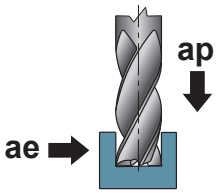
ART.	ØD	Ød	L1	H	R	z
SMW4305.040.R025	4	6	11	57	0,25	4
SMW4305.041.R050	4	6	11	57	0,50	4
SMW4305.042.R100	4	6	11	57	1,00	4
SMW4305.050.R050	5	6	13	57	0,50	4
SMW4305.051.R100	5	6	13	57	1,00	4
SMW4305.052.R150	5	6	13	57	1,50	4
SMW4305.060.R050	6	6	13	57	0,50	4
SMW4305.061.R100	6	6	13	57	1,00	4
SMW4305.062.R150	6	6	13	57	1,50	4
SMW4305.063.R200	6	6	13	57	2,00	4
SMW4305.080.R050	8	8	19	63	0,50	4
SMW4305.081.R100	8	8	19	63	1,00	4
SMW4305.082.R150	8	8	19	63	1,50	4
SMW4305.083.R200	8	8	19	63	2,00	4
SMW4305.100.R050	10	10	22	72	0,50	4
SMW4305.101.R100	10	10	22	72	1,00	4
SMW4305.102.R150	10	10	22	72	1,50	4
SMW4305.103.R200	10	10	22	72	2,00	4
SMW4305.120.R050	12	12	26	83	0,50	4
SMW4305.121.R100	12	12	26	83	1,00	4
SMW4305.122.R150	12	12	26	83	1,50	4
SMW4305.123.R200	12	12	26	83	2,00	4
SMW4305.140.R100	14	14	26	83	1,00	4
SMW4305.141.R200	14	14	26	83	2,00	4
SMW4305.160.R100	16	16	32	92	1,00	4
SMW4305.161.R150	16	16	32	92	1,50	4

(mm)

ART.	ØD	Ød	L1	H	R	z
SMW4305.162.R200	16	16	32	92	2,00	4
SMW4305.163.R250	16	16	32	92	2,50	4
SMW4305.180.R150	18	18	32	92	1,50	4
SMW4305.181.R250	18	18	32	92	2,50	4
SMW4305.200.R100	20	20	38	104	1,00	4
SMW4305.201.R150	20	20	38	104	1,50	4
SMW4305.202.R200	20	20	38	104	2,00	4
SMW4305.203.R250	20	20	38	104	2,50	4
SMW4305.204.R300	20	20	38	104	3,00	4
SMW4305.205.R400	20	20	38	104	4,00	4
SMW4305.206.R500	20	20	38	104	5,00	4

PAG. 1053

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm) ØD	(m/min) Vc	(mm) fz	(mm) ap	(mm) ae
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO E SUE LEGHE ALUMINIUM	RAME E SUE LEGHE COPPER	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE					
	●															4÷6	140-170	0,015-0,030	1xD	1xD
	●															6÷10	140-170	0,025-0,040	1xD	1xD
	●															10÷14	140-170	0,030-0,045	1xD	1xD
	●															14÷18	140-170	0,040-0,055	1xD	1xD
	●															18÷20	140-170	0,055-0,070	1xD	1xD
		●														4÷6	100-130	0,015-0,030	1xD	1xD
		●														6÷10	100-131	0,025-0,040	1xD	1xD
		●														10÷14	100-132	0,030-0,045	1xD	1xD
		●														14÷18	100-133	0,040-0,055	1xD	1xD
		●														18÷20	100-134	0,055-0,070	1xD	1xD
			●													4÷6	80-110	0,015-0,030	1xD	1xD
			●													6÷10	80-110	0,025-0,040	1xD	1xD
			●													10÷14	80-110	0,030-0,045	1xD	1xD
			●													14÷18	80-110	0,040-0,055	1xD	1xD
			●													18÷20	80-110	0,055-0,070	1xD	1xD
					○											4÷6	40-70	0,005-0,020	1xD	1xD
					○											6÷10	40-70	0,010-0,025	1xD	1xD
					○											10÷14	40-70	0,020-0,035	1xD	1xD
					○											14÷18	40-70	0,025-0,040	1xD	1xD
					○											18÷20	40-70	0,035-0,050	1xD	1xD
						●										4÷6	140-170	0,025-0,035	1xD	1xD
						●										6÷10	140-170	0,040-0,050	1xD	1xD
						●										10÷14	140-170	0,045-0,060	1xD	1xD
						●										14÷18	140-170	0,060-0,075	1xD	1xD
						●										18÷20	140-170	0,080-0,095	1xD	1xD
							●									4÷6	140-170	0,005-0,035	1xD	1xD
							●									6÷10	140-170	0,008-0,050	1xD	1xD
							●									10÷14	140-170	0,045-0,060	1xD	1xD
							●									14÷18	140-170	0,060-0,075	1xD	1xD
							●									18÷20	140-170	0,080-0,095	1xD	1xD
												○				4÷6	20-30	0,005-0,020	1xD	1xD
												○				6÷10	20-30	0,005-0,025	1xD	1xD
												○				10÷14	20-30	0,006-0,030	1xD	1xD
												○				14÷18	20-30	0,006-0,035	1xD	1xD
												○				18÷20	20-30	0,010-0,045	1xD	1xD
													○			4÷6	25-40	0,017-0,032	1xD	1xD
													○			6÷10	25-40	0,021-0,036	1xD	1xD
													○			10÷14	25-40	0,028-0,043	1xD	1xD
													○			14÷18	25-40	0,035-0,050	1xD	1xD
													○			18÷20	25-40	0,045-0,060	1xD	1xD
														○		4÷6	20-40	0,005-0,013	0,25xD	1xD
														○		6÷10	20-40	0,005-0,015	0,25xD	1xD
														○		10÷14	20-40	0,005-0,017	0,25xD	1xD
														○		14÷18	20-40	0,005-0,020	0,25xD	1xD
														○		18÷20	20-40	0,005-0,020	0,25xD	1xD

PER LAVORAZIONI A SPALLAMENTO AUMENTARE I PARAMETRI DEL 20%
FOR SHOULDER MILLING PARAMETERS SHOULD BE INCREASED BY 20%

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED

n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS

fz = mm AVANZAMENTO AL DENTE -TOOTH FEED

fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION

Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

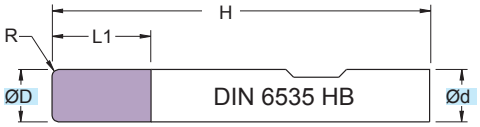
$$n = \frac{Vc \cdot 1000}{ØD \cdot 3{,}14} = \text{giri/min (min}^{-1}\text{)}$$

$$fn = fz \cdot z = \text{mm}$$

$$Vf = fz \cdot z \cdot n = \text{mm/min}$$

SMW4305..TI

ØD = 4 - 20



RIVESTIM. COATED
ORANGE

R

52 HRC

Fresa in M.D.I. Micrograno
Gambo sec. DIN 6535 HB

Micrograin HM mills
DIN 6535 HB Shank

TOLLERANZE / TOLLERANCE RANGE	D	d
	h10	h6

(mm)

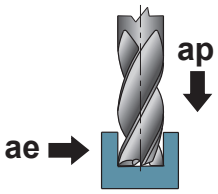
ART.	ØD	Ød	L1	H	R	z
SMW4305.040.R025.TI	4	6	11	57	0,25	4
SMW4305.041.R050.TI	4	6	11	57	0,50	4
SMW4305.042.R100.TI	4	6	11	57	1,00	4
SMW4305.050.R050.TI	5	6	13	57	0,50	4
SMW4305.051.R100.TI	5	6	13	57	1,00	4
SMW4305.052.R150.TI	5	6	13	57	1,50	4
SMW4305.060.R050.TI	6	6	13	57	0,50	4
SMW4305.061.R100.TI	6	6	13	57	1,00	4
SMW4305.062.R150.TI	6	6	13	57	1,50	4
SMW4305.063.R200.TI	6	6	13	57	2,00	4
SMW4305.080.R050.TI	8	8	19	63	0,50	4
SMW4305.081.R100.TI	8	8	19	63	1,00	4
SMW4305.082.R150.TI	8	8	19	63	1,50	4
SMW4305.083.R200.TI	8	8	19	63	2,00	4
SMW4305.100.R050.TI	10	10	22	72	0,50	4
SMW4305.101.R100.TI	10	10	22	72	1,00	4
SMW4305.102.R150.TI	10	10	22	72	1,50	4
SMW4305.103.R200.TI	10	10	22	72	2,00	4
SMW4305.120.R050.TI	12	12	26	83	0,50	4
SMW4305.121.R100.TI	12	12	26	83	1,00	4
SMW4305.122.R150.TI	12	12	26	83	1,50	4
SMW4305.123.R200.TI	12	12	26	83	2,00	4
SMW4305.140.R100.TI	14	14	26	83	1,00	4
SMW4305.141.R200.TI	14	14	26	83	2,00	4
SMW4305.160.R100.TI	16	16	32	92	1,00	4
SMW4305.161.R150.TI	16	16	32	92	1,50	4

(mm)

ART.	ØD	Ød	L1	H	R	z
SMW4305.162.R200.TI	16	16	32	92	2,00	4
SMW4305.163.R250.TI	16	16	32	92	2,50	4
SMW4305.180.R150.TI	18	18	32	92	1,50	4
SMW4305.181.R250.TI	18	18	32	92	2,50	4
SMW4305.200.R100.TI	20	20	38	104	1,00	4
SMW4305.201.R150.TI	20	20	38	104	1,50	4
SMW4305.202.R200.TI	20	20	38	104	2,00	4
SMW4305.203.R250.TI	20	20	38	104	2,50	4
SMW4305.204.R300.TI	20	20	38	104	3,00	4
SMW4305.205.R400.TI	20	20	38	104	4,00	4
SMW4305.206.R500.TI	20	20	38	104	5,00	4

PAG. 1053

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm) ØD	(m/min) Vc	(mm) fz	(mm) ap	(mm) ae
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO E SUE LEGHE ALUMINIUM	RAME E SUE LEGHE COPPER	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE					
	○															4÷6	110-140	0,015-0,030	1xD	1xD
	○															6÷10	110-140	0,025-0,040	1xD	1xD
	○															10÷14	110-140	0,030-0,045	1xD	1xD
	○															14÷18	110-140	0,040-0,055	1xD	1xD
	○															18÷20	110-140	0,055-0,070	1xD	1xD
		○														4÷6	100-135	0,015-0,030	1xD	1xD
		○														6÷10	100-135	0,025-0,040	1xD	1xD
		○														10÷14	100-135	0,030-0,045	1xD	1xD
		○														14÷18	100-135	0,040-0,055	1xD	1xD
		○														18÷20	100-135	0,055-0,070	1xD	1xD
			○													4÷6	100-130	0,015-0,030	1xD	1xD
			○													6÷10	100-130	0,025-0,040	1xD	1xD
			○													10÷14	100-130	0,030-0,045	1xD	1xD
			○													14÷18	100-130	0,040-0,055	1xD	1xD
			○													18÷20	100-130	0,055-0,070	1xD	1xD
					●											4÷6	80-110	0,026-0,041	1xD	1xD
					●											6÷10	80-110	0,030-0,045	1xD	1xD
					●											10÷14	80-110	0,040-0,055	1xD	1xD
					●											14÷18	80-110	0,060-0,075	1xD	1xD
					●											18÷20	80-110	0,070-0,085	1xD	1xD
												●				4÷6	30-50	0,010-0,020	1xD	1xD
												●				6÷10	30-50	0,015-0,025	1xD	1xD
												●				10÷14	30-50	0,020-0,035	1xD	1xD
												●				14÷18	30-50	0,025-0,040	1xD	1xD
												●				18÷20	30-50	0,030-0,045	1xD	1xD
													●			4÷6	30-75	0,005-0,020	1xD	1xD
													●			6÷10	30-75	0,008-0,030	1xD	1xD
													●			10÷14	30-75	0,023-0,038	1xD	1xD
													●			14÷18	30-75	0,033-0,048	1xD	1xD
													●			18÷20	30-75	0,037-0,052	1xD	1xD
														○		4÷6	20-35	0,005-0,013	0,25xD	1xD
														○		6÷10	20-35	0,005-0,015	0,25xD	1xD
														○		10÷14	20-35	0,005-0,017	0,25xD	1xD
														○		14÷18	20-35	0,005-0,020	0,25xD	1xD
														○		18÷20	20-35	0,005-0,020	0,25xD	1xD

PER LAVORAZIONI A SPALLAMENTO AUMENTARE I PARAMETRI DEL 20%
FOR SHOULDER MILLING PARAMETERS SHOULD BE INCREASED BY 20%

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

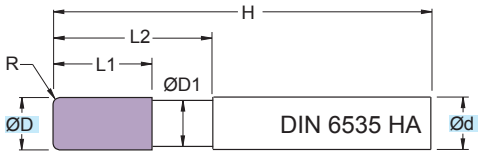
$$n = \frac{Vc \cdot 1000}{ØD \cdot 3{,}14} = \text{giri/min (min}^{-1}\text{)}$$

$$fn = fz \cdot z = \text{mm}$$

$$Vf = fz \cdot z \cdot n = \text{mm/min}$$

SM4315

ØD = 4 - 20



RIVESTIM. COATED
GRAY

R

52 HRC

α1 α2 α4 α3

Fresa in M.D.I. Micrograno
Gambo sec. DIN 6535 HA

Micrograin HM mills
DIN 6535 HA Shank

TOLLERANZE	D	d
TOLLERANCE RANGE	h10	h6

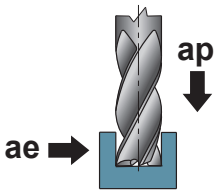
(mm)

ART.	ØD	Ød	ØD1	L1	L2	H	R	z
SM4315.040.R025	4	6	3,8	11	18	57	0,25	4
SM4315.041.R050	4	6	3,8	11	18	57	0,50	4
SM4315.042.R100	4	6	3,8	11	18	57	1,00	4
SM4315.050.R050	5	6	4,8	13	20	57	0,50	4
SM4315.051.R100	5	6	4,8	13	20	57	1,00	4
SM4315.052.R150	5	6	4,8	13	20	57	1,50	4
SM4315.060.R050	6	6	5,8	13	20	57	0,50	4
SM4315.061.R100	6	6	5,8	13	20	57	1,00	4
SM4315.062.R150	6	6	5,8	13	20	57	1,50	4
SM4315.063.R200	6	6	5,8	13	20	57	2,00	4
SM4315.080.R050	8	8	7,7	19	28	63	0,50	4
SM4315.081.R100	8	8	7,7	19	28	63	1,00	4
SM4315.082.R150	8	8	7,7	19	28	63	1,50	4
SM4315.083.R200	8	8	7,7	19	28	63	2,00	4
SM4315.100.R050	10	10	9,5	22	33	72	0,50	4
SM4315.101.R100	10	10	9,5	22	33	72	1,00	4
SM4315.102.R150	10	10	9,5	22	33	72	1,50	4
SM4315.103.R200	10	10	9,5	22	33	72	2,00	4
SM4315.120.R050	12	12	11,5	26	40	83	0,50	4
SM4315.121.R100	12	12	11,5	26	40	83	1,00	4
SM4315.122.R150	12	12	11,5	26	40	83	1,50	4
SM4315.123.R200	12	12	11,5	26	40	83	2,00	4
SM4315.140.R100	14	14	13,5	26	40	83	1,00	4
SM4315.141.R200	14	14	13,5	26	40	83	2,00	4
SM4315.160.R100	16	16	15,5	32	45	92	1,00	4
SM4315.161.R150	16	16	15,5	32	45	92	1,50	4

(mm)

ART.	ØD	Ød	ØD1	L1	L2	H	R	z
SM4315.162.R200	16	16	15,5	32	45	92	2,00	4
SM4315.163.R250	16	16	15,5	32	45	92	2,50	4
SM4315.180.R150	18	18	17,5	32	45	92	1,50	4
SM4315.181.R250	18	18	17,5	32	45	92	2,50	4
SM4315.200.R100	20	20	19,5	38	50	104	1,00	4
SM4315.201.R150	20	20	19,5	38	50	104	1,50	4
SM4315.202.R200	20	20	19,5	38	50	104	2,00	4
SM4315.203.R250	20	20	19,5	38	50	104	2,50	4
SM4315.204.R300	20	20	19,5	38	50	104	3,00	4
SM4315.205.R400	20	20	19,5	38	50	104	4,00	4
SM4315.206.R500	20	20	19,5	38	50	104	5,00	4

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm) ØD	(m/min) Vc	(mm) fz	(mm) ap	(mm) ae
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO E SUE LEGHE ALUMINIUM	RAME E SUE LEGHE COPPER	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE					
	●															4÷6	140-170	0,015-0,030	1xD	1xD
	●															6÷10	140-170	0,025-0,040	1xD	1xD
	●															10÷14	140-170	0,030-0,045	1xD	1xD
	●															14÷18	140-170	0,040-0,055	1xD	1xD
	●															18÷20	140-170	0,055-0,070	1xD	1xD
		●														4÷6	100-130	0,015-0,030	1xD	1xD
		●														6÷10	100-131	0,025-0,040	1xD	1xD
		●														10÷14	100-132	0,030-0,045	1xD	1xD
		●														14÷18	100-133	0,040-0,055	1xD	1xD
		●														18÷20	100-134	0,055-0,070	1xD	1xD
			●													4÷6	80-110	0,015-0,030	1xD	1xD
			●													6÷10	80-110	0,025-0,040	1xD	1xD
			●													10÷14	80-110	0,030-0,045	1xD	1xD
			●													14÷18	80-110	0,040-0,055	1xD	1xD
			●													18÷20	80-110	0,055-0,070	1xD	1xD
					○											4÷6	40-70	0,005-0,020	1xD	1xD
					○											6÷10	40-70	0,010-0,025	1xD	1xD
					○											10÷14	40-70	0,020-0,035	1xD	1xD
					○											14÷18	40-70	0,025-0,040	1xD	1xD
					○											18÷20	40-70	0,035-0,050	1xD	1xD
						●										4÷6	140-170	0,025-0,035	1xD	1xD
						●										6÷10	140-170	0,040-0,050	1xD	1xD
						●										10÷14	140-170	0,045-0,060	1xD	1xD
						●										14÷18	140-170	0,060-0,075	1xD	1xD
						●										18÷20	140-170	0,080-0,095	1xD	1xD
							●									4÷6	140-170	0,005-0,035	1xD	1xD
							●									6÷10	140-170	0,008-0,050	1xD	1xD
							●									10÷14	140-170	0,045-0,060	1xD	1xD
							●									14÷18	140-170	0,060-0,075	1xD	1xD
							●									18÷20	140-170	0,080-0,095	1xD	1xD
												○				4÷6	20-30	0,005-0,020	1xD	1xD
												○				6÷10	20-30	0,005-0,025	1xD	1xD
												○				10÷14	20-30	0,006-0,030	1xD	1xD
												○				14÷18	20-30	0,006-0,035	1xD	1xD
												○				18÷20	20-30	0,010-0,045	1xD	1xD
													○			4÷6	25-40	0,017-0,032	1xD	1xD
													○			6÷10	25-40	0,021-0,036	1xD	1xD
													○			10÷14	25-40	0,028-0,043	1xD	1xD
													○			14÷18	25-40	0,035-0,050	1xD	1xD
													○			18÷20	25-40	0,045-0,060	1xD	1xD
														○		4÷6	20-40	0,005-0,013	0,25xD	1xD
														○		6÷10	20-40	0,005-0,015	0,25xD	1xD
														○		10÷14	20-40	0,005-0,017	0,25xD	1xD
														○		14÷18	20-40	0,005-0,020	0,25xD	1xD
														○		18÷20	20-40	0,005-0,020	0,25xD	1xD

PER LAVORAZIONI A SPALLAMENTO AUMENTARE I PARAMETRI DEL 20%
FOR SHOULDER MILLING PARAMETERS SHOULD BE INCREASED BY 20%

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED

n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS

fz = mm AVANZAMENTO AL DENTE -TOOTH FEED

fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION

Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

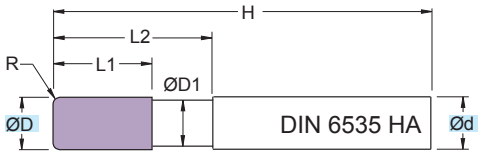
$$n = \frac{Vc \cdot 1000}{ØD \cdot 3{,}14} = \text{giri/min (min}^{-1}\text{)}$$

$$fn = fz \cdot z = \text{mm}$$

$$Vf = fz \cdot z \cdot n = \text{mm/min}$$

SM4315..TI

ØD = 4 - 20



RIVESTIM. COATED
ORANGE

R

52 HRC

Fresa in M.D.I. Micrograno
Gambo sec. DIN 6535 HA

Micrograin HM mills
DIN 6535 HA Shank

TOLLERANZE / TOLLERANCE RANGE	D	d
	h10	h6

(mm)

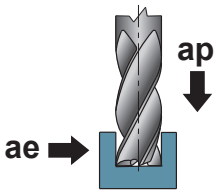
ART.	ØD	Ød	ØD1	L1	L2	H	R	z
SM4315.040.R025.TI	4	6	3,8	11	18	57	0,25	4
SM4315.041.R050.TI	4	6	3,8	11	18	57	0,50	4
SM4315.042.R100.TI	4	6	3,8	11	18	57	1,00	4
SM4315.050.R050.TI	5	6	4,8	13	20	57	0,50	4
SM4315.051.R100.TI	5	6	4,8	13	20	57	1,00	4
SM4315.052.R150.TI	5	6	4,8	13	20	57	1,50	4
SM4315.060.R050.TI	6	6	5,8	13	20	57	0,50	4
SM4315.061.R100.TI	6	6	5,8	13	20	57	1,00	4
SM4315.062.R150.TI	6	6	5,8	13	20	57	1,50	4
SM4315.063.R200.TI	6	6	5,8	13	20	57	2,00	4
SM4315.080.R050.TI	8	8	7,7	19	28	63	0,50	4
SM4315.081.R100.TI	8	8	7,7	19	28	63	1,00	4
SM4315.082.R150.TI	8	8	7,7	19	28	63	1,50	4
SM4315.083.R200.TI	8	8	7,7	19	28	63	2,00	4
SM4315.100.R050.TI	10	10	9,5	22	33	72	0,50	4
SM4315.101.R100.TI	10	10	9,5	22	33	72	1,00	4
SM4315.102.R150.TI	10	10	9,5	22	33	72	1,50	4
SM4315.103.R200.TI	10	10	9,5	22	33	72	2,00	4
SM4315.120.R050.TI	12	12	11,5	26	40	83	0,50	4
SM4315.121.R100.TI	12	12	11,5	26	40	83	1,00	4
SM4315.122.R150.TI	12	12	11,5	26	40	83	1,50	4
SM4315.123.R200.TI	12	12	11,5	26	40	83	2,00	4
SM4315.140.R100.TI	14	14	13,5	26	40	83	1,00	4
SM4315.141.R200.TI	14	14	13,5	26	40	83	2,00	4
SM4315.160.R100.TI	16	16	15,5	32	45	92	1,00	4
SM4315.161.R150.TI	16	16	15,5	32	45	92	1,50	4

(mm)

ART.	ØD	Ød	ØD1	L1	L2	H	R	z
SM4315.162.R200.TI	16	16	15,5	32	45	92	2,00	4
SM4315.163.R250.TI	16	16	15,5	32	45	92	2,50	4
SM4315.180.R150.TI	18	18	17,5	32	45	92	1,50	4
SM4315.181.R250.TI	18	18	17,5	32	45	92	2,50	4
SM4315.200.R100.TI	20	20	19,5	38	50	104	1,00	4
SM4315.201.R150.TI	20	20	19,5	38	50	104	1,50	4
SM4315.202.R200.TI	20	20	19,5	38	50	104	2,00	4
SM4315.203.R250.TI	20	20	19,5	38	50	104	2,50	4
SM4315.204.R300.TI	20	20	19,5	38	50	104	3,00	4
SM4315.205.R400.TI	20	20	19,5	38	50	104	4,00	4
SM4315.206.R500.TI	20	20	19,5	38	50	104	5,00	4

PAG. 1053

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm) ØD	(m/min) Vc	(mm) fz	(mm) ap	(mm) ae
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO E SUE LEGHE ALUMINIUM	RAME E SUE LEGHE COPPER	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE					
	○															4÷6	110-140	0,015-0,030	1xD	1xD
	○															6÷10	110-140	0,025-0,040	1xD	1xD
	○															10÷14	110-140	0,030-0,045	1xD	1xD
	○															14÷18	110-140	0,040-0,055	1xD	1xD
	○															18÷20	110-140	0,055-0,070	1xD	1xD
		○														4÷6	100-135	0,015-0,030	1xD	1xD
		○														6÷10	100-135	0,025-0,040	1xD	1xD
		○														10÷14	100-135	0,030-0,045	1xD	1xD
		○														14÷18	100-135	0,040-0,055	1xD	1xD
		○														18÷20	100-135	0,055-0,070	1xD	1xD
			○													4÷6	100-130	0,015-0,030	1xD	1xD
			○													6÷10	100-130	0,025-0,040	1xD	1xD
			○													10÷14	100-130	0,030-0,045	1xD	1xD
			○													14÷18	100-130	0,040-0,055	1xD	1xD
			○													18÷20	100-130	0,055-0,070	1xD	1xD
					●											4÷6	80-110	0,026-0,041	1xD	1xD
					●											6÷10	80-110	0,030-0,045	1xD	1xD
					●											10÷14	80-110	0,040-0,055	1xD	1xD
					●											14÷18	80-110	0,060-0,075	1xD	1xD
					●											18÷20	80-110	0,070-0,085	1xD	1xD
												●				4÷6	30-50	0,010-0,020	1xD	1xD
												●				6÷10	30-50	0,015-0,025	1xD	1xD
												●				10÷14	30-50	0,020-0,035	1xD	1xD
												●				14÷18	30-50	0,025-0,040	1xD	1xD
												●				18÷20	30-50	0,030-0,045	1xD	1xD
													●			4÷6	30-75	0,005-0,020	1xD	1xD
													●			6÷10	30-75	0,008-0,030	1xD	1xD
													●			10÷14	30-75	0,023-0,038	1xD	1xD
													●			14÷18	30-75	0,033-0,048	1xD	1xD
													●			18÷20	30-75	0,037-0,052	1xD	1xD
														○		4÷6	20-35	0,005-0,013	0,25xD	1xD
														○		6÷10	20-35	0,005-0,015	0,25xD	1xD
														○		10÷14	20-35	0,005-0,017	0,25xD	1xD
														○		14÷18	20-35	0,005-0,020	0,25xD	1xD
														○		18÷20	20-35	0,005-0,020	0,25xD	1xD

PER LAVORAZIONI A SPALLAMENTO AUMENTARE I PARAMETRI DEL 20%
FOR SHOULDER MILLING PARAMETERS SHOULD BE INCREASED BY 20%

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

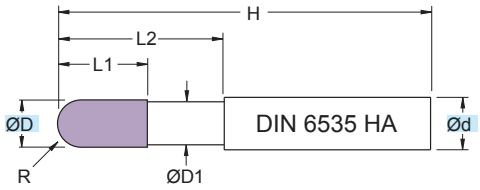
$$n = \frac{Vc \cdot 1000}{ØD \cdot 3{,}14} = \text{giri/min (min}^{-1}\text{)}$$

$$fn = fz \cdot z = \text{mm}$$

$$Vf = fz \cdot z \cdot n = \text{mm/min}$$

SM4313

ØD = 2,5 - 16



RIVESTIM. COATED
GRAY

R

60 HRC

α1 α2 α4 α3

Fresa in M.D.I. Micrograno
Gambo cilindrico HA

Micrograin HM mills
Cilindrical Shank HA

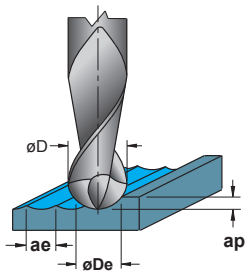
TOLLERANZE / TOLLERANCE RANGE	D	d
	h10	h6

(mm)

ART.	ØD	Ød	ØD1	L1	L2	H	R	z
SM4313.025.S125	2,5	3	2,3	4,0	16	50	1,25	4
SM4313.030.S150	3,0	6	2,8	5,0	16	57	1,50	4
SM4313.035.S175	3,5	6	3,3	6,0	18	57	1,75	4
SM4313.040.S200	4,0	6	3,8	6,0	18	57	2,00	4
SM4313.045.S225	4,5	6	4,3	7,0	18	57	2,25	4
SM4313.050.S250	5,0	6	4,8	7,5	20	57	2,50	4
SM4313.060.S300	6,0	6	5,7	9,0	22	57	3,00	4
SM4313.070.S350	7,0	8	6,7	10,5	24	63	3,50	4
SM4313.080.S400	8,0	8	7,7	12,0	25	63	4,00	4
SM4313.090.S450	9,0	10	8,7	13,5	26	72	4,50	4
SM4313.100.S500	10,0	10	9,7	15,0	28	72	5,00	4
SM4313.120.S600	12,0	12	11,6	18,0	30	83	6,00	4
SM4313.130.S650	13,0	14	12,6	20,0	32	83	6,50	4
SM4313.140.S700	14,0	14	13,6	20,0	32	83	7,00	4
SM4313.150.S750	15,0	16	14,6	22,5	34	92	7,50	4
SM4313.160.S800	16,0	16	15,6	24,0	36	92	8,00	4

PAG. 1053

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm) ØDe	(m/min) Vc	(mm) fz	(mm) ap	(mm) ae
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO E SUE LEGHE ALUMINIUM	RAME E SUE LEGHE COPPER	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE					
	●															2,5	160-190	0,020-0,035	0,1xDe	0,6xDe
	●															3÷4	160-190	0,035-0,050	0,1xDe	0,6xDe
	●															4÷5	160-190	0,035-0,050	0,1xDe	0,6xDe
	●															5÷7	160-190	0,035-0,050	0,1xDe	0,6xDe
	●															7÷9	160-190	0,040-0,055	0,1xDe	0,6xDe
	●															9÷12	160-190	0,070-0,085	0,1xDe	0,6xDe
	●															12÷14	160-190	0,080-0,095	0,1xDe	0,6xDe
	●															14÷16	160-190	0,085-0,115	0,1xDe	0,6xDe
		●														2,5	140-170	0,020-0,035	0,1xDe	0,6xDe
		●														3÷4	140-170	0,035-0,050	0,1xDe	0,6xDe
		●														4÷5	140-170	0,035-0,050	0,1xDe	0,6xDe
		●														5÷7	140-170	0,035-0,050	0,1xDe	0,6xDe
		●														7÷9	140-170	0,040-0,055	0,1xDe	0,6xDe
		●														9÷12	140-170	0,070-0,085	0,1xDe	0,6xDe
		●														12÷14	140-170	0,080-0,095	0,1xDe	0,6xDe
		●														14÷16	140-170	0,085-0,115	0,1xDe	0,6xDe
			●													2,5	110-140	0,020-0,035	0,1xDe	0,6xDe
			●													3÷4	110-140	0,035-0,050	0,1xDe	0,6xDe
			●													4÷5	110-140	0,035-0,050	0,1xDe	0,6xDe
			●													5÷7	110-140	0,035-0,050	0,1xDe	0,6xDe
			●													7÷9	110-140	0,040-0,055	0,1xDe	0,6xDe
			●													9÷12	110-140	0,070-0,085	0,1xDe	0,6xDe
			●													12÷14	110-140	0,080-0,095	0,1xDe	0,6xDe
			●													14÷16	110-140	0,085-0,115	0,1xDe	0,6xDe
					○											2,5	40-70	0,003-0,015	0,1xDe	0,6xDe
					○											3÷4	40-70	0,010-0,025	0,1xDe	0,6xDe
					○											4÷5	40-70	0,010-0,025	0,1xDe	0,6xDe
					○											5÷7	40-70	0,010-0,025	0,1xDe	0,6xDe
					○											7÷9	40-70	0,020-0,035	0,1xDe	0,6xDe
					○											9÷12	40-70	0,040-0,055	0,1xDe	0,6xDe
					○											12÷14	40-70	0,050-0,065	0,1xDe	0,6xDe
					○											14÷16	40-70	0,055-0,075	0,1xDe	0,6xDe
						●										2,5	140-170	0,025-0,040	0,1xDe	0,6xDe
						●										3÷4	140-170	0,050-0,065	0,1xDe	0,6xDe
						●										4÷5	140-170	0,050-0,065	0,1xDe	0,6xDe
						●										5÷7	140-170	0,050-0,065	0,1xDe	0,6xDe
						●										7÷9	140-170	0,060-0,075	0,1xDe	0,6xDe
						●										9÷12	140-170	0,110-0,125	0,1xDe	0,6xDe
						●										12÷14	140-170	0,130-0,145	0,1xDe	0,6xDe
						●										14÷16	140-170	0,135-0,155	0,1xDe	0,6xDe
							●									2,5	140-170	0,020-0,035	0,1xDe	0,6xDe
							●									3÷4	140-170	0,035-0,050	0,1xDe	0,6xDe
							●									4÷5	140-170	0,035-0,050	0,1xDe	0,6xDe
							●									5÷7	140-170	0,035-0,050	0,1xDe	0,6xDe
							●									7÷9	140-170	0,040-0,055	0,1xDe	0,6xDe
							●									9÷12	140-170	0,070-0,085	0,1xDe	0,6xDe
							●									12÷14	140-170	0,080-0,095	0,1xDe	0,6xDe
							●									14÷16	140-170	0,085-0,100	0,1xDe	0,6xDe
														○		2,5	90-120	0,003-0,015	0,1xDe	0,6xDe
														○		3÷4	90-120	0,010-0,025	0,1xDe	0,6xDe
														○		4÷5	90-120	0,010-0,025	0,1xDe	0,6xDe
														○		5÷7	90-120	0,010-0,025	0,1xDe	0,6xDe
														○		7÷9	90-120	0,020-0,035	0,1xDe	0,6xDe
														○		9÷12	90-120	0,040-0,055	0,1xDe	0,6xDe
														○		12÷14	90-120	0,050-0,065	0,1xDe	0,6xDe
														○		14÷16	90-120	0,055-0,075	0,1xDe	0,6xDe

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

øD = mm DIAMETRO - DIAMETER
øDe = mm DIAMETRO EFFETTIVO - EFFECTIVE DIAMETER
Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

DATI TECNICI LAVORAZIONI PAG. 1072 - 1073
MACHINING TECHNICAL DATA PAGE 1072 - 1073
BEARBEITUNGSSCHNITTDATEN S. 1072 - 1073
DONNEES TECHNIQUES USINAGES PAGES 1072 - 1073

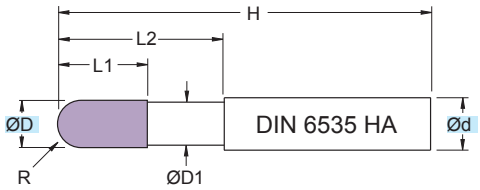
$$n = \frac{Vc \cdot 1000}{ØDe \cdot 3,14} \text{ = giri/min (min}^{-1}\text{)}$$

$$fn = fz \cdot z \text{ = mm}$$

$$Vf = fz \cdot z \cdot n \text{ = mm/min}$$

SM4313..TI

ØD = 2,5 - 16



RIVESTIM. COATED
ORANGE

R

52 HRC

Fresa in M.D.I. Micrograno
Gambo cilindrico HA

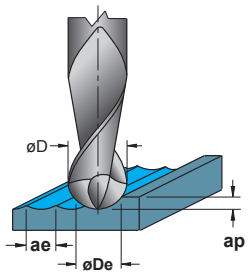
Micrograin HM mills
Cilindrical Shank HA

TOLLERANZE	D	d
TOLLERANCE RANGE	h10	h6

(mm)

ART.	ØD	Ød	ØD1	L1	L2	H	R	z
SM4313.025.S125.TI	2,5	3	2,3	4,0	16	50	1,25	4
SM4313.030.S150.TI	3,0	6	2,8	5,0	16	57	1,50	4
SM4313.035.S175.TI	3,5	6	3,3	6,0	18	57	1,75	4
SM4313.040.S200.TI	4,0	6	3,8	6,0	18	57	2,00	4
SM4313.045.S225.TI	4,5	6	4,3	7,0	18	57	2,25	4
SM4313.050.S250.TI	5,0	6	4,8	7,5	20	57	2,50	4
SM4313.060.S300.TI	6,0	6	5,7	9,0	22	57	3,00	4
SM4313.070.S350.TI	7,0	8	6,7	10,5	24	63	3,50	4
SM4313.080.S400.TI	8,0	8	7,7	12,0	25	63	4,00	4
SM4313.090.S450.TI	9,0	10	8,7	13,5	26	72	4,50	4
SM4313.100.S500.TI	10,0	10	9,7	15,0	28	72	5,00	4
SM4313.120.S600.TI	12,0	12	11,6	18,0	30	83	6,00	4
SM4313.130.S650.TI	13,0	14	12,6	20,0	32	83	6,50	4
SM4313.140.S700.TI	14,0	14	13,6	20,0	32	83	7,00	4
SM4313.150.S750.TI	15,0	16	14,6	22,5	34	92	7,50	4
SM4313.160.S800.TI	16,0	16	15,6	24,0	36	92	8,00	4

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm) ØDe	(m/min) Vc	(mm) fz	(mm) ap	(mm) ae
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO E SUE LEGHE ALUMINIUM	RAME E SUE LEGHE COPPER	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE					
	○															2,5	110-140	0,020-0,035	0,1xDe	0,6xDe
	○															3÷4	110-140	0,035-0,050	0,1xDe	0,6xDe
	○															4÷5	110-140	0,035-0,050	0,1xDe	0,6xDe
	○															5÷7	110-140	0,035-0,050	0,1xDe	0,6xDe
	○															7÷9	110-140	0,040-0,055	0,1xDe	0,6xDe
	○															9÷12	110-140	0,070-0,085	0,1xDe	0,6xDe
	○															12÷14	110-140	0,080-0,095	0,1xDe	0,6xDe
	○															14÷16	110-140	0,085-0,115	0,1xDe	0,6xDe
				○												2,5	120-150	0,015-0,030	0,1xDe	0,6xDe
				○												3÷4	120-150	0,025-0,040	0,1xDe	0,6xDe
				○												4÷5	120-150	0,030-0,045	0,1xDe	0,6xDe
				○												5÷7	120-150	0,040-0,055	0,1xDe	0,6xDe
				○												7÷9	120-150	0,055-0,070	0,1xDe	0,6xDe
				○												9÷12	120-150	0,065-0,080	0,1xDe	0,6xDe
				○												12÷14	120-150	0,075-0,090	0,1xDe	0,6xDe
				○												14÷16	120-150	0,085-0,110	0,1xDe	0,6xDe
					●											2,5	90-140	0,030-0,045	0,1xDe	0,6xDe
					●											3÷4	90-140	0,030-0,045	0,1xDe	0,6xDe
					●											4÷5	90-140	0,040-0,055	0,1xDe	0,6xDe
					●											5÷7	90-140	0,050-0,065	0,1xDe	0,6xDe
					●											7÷9	90-140	0,060-0,075	0,1xDe	0,6xDe
					●											9÷12	90-140	0,070-0,085	0,1xDe	0,6xDe
					●											12÷14	90-140	0,080-0,095	0,1xDe	0,6xDe
					●											14÷16	90-140	0,090-0,105	0,1xDe	0,6xDe
												●				2,5	35-80	0,010-0,025	0,08xDe	0,3xDe
												●				3÷4	35-80	0,010-0,025	0,08xDe	0,3xDe
												●				4÷5	35-80	0,020-0,035	0,08xDe	0,3xDe
												●				5÷7	35-80	0,020-0,035	0,08xDe	0,3xDe
												●				7÷9	35-80	0,030-0,045	0,08xDe	0,3xDe
												●				9÷12	35-80	0,040-0,055	0,08xDe	0,3xDe
												●				12÷14	35-80	0,050-0,065	0,08xDe	0,3xDe
												●				14÷16	35-80	0,060-0,080	0,08xDe	0,3xDe
													●			2,5	90-120	0,010-0,028	0,08xDe	0,3xDe
													●			3÷4	90-120	0,015-0,030	0,08xDe	0,3xDe
													●			4÷5	90-120	0,020-0,035	0,08xDe	0,3xDe
													●			5÷7	90-120	0,027-0,042	0,08xDe	0,3xDe
													●			7÷9	90-120	0,035-0,050	0,08xDe	0,3xDe
													●			9÷12	90-120	0,045-0,060	0,08xDe	0,3xDe
													●			12÷14	90-120	0,055-0,070	0,08xDe	0,3xDe
													●			14÷16	90-120	0,070-0,085	0,08xDe	0,3xDe
														○		2,5	30-50	0,005-0,013	0,05xDe	0,15xDe
														○		3÷4	30-50	0,005-0,015	0,05xDe	0,1xDe
														○		4÷5	30-50	0,006-0,017	0,05xDe	0,1xDe
														○		5÷7	30-50	0,006-0,020	0,05xDe	0,1xDe
														○		7÷9	30-50	0,010-0,020	0,05xDe	0,1xDe
														○		9÷12	30-50	0,014-0,023	0,05xDe	0,1xDe
														○		12÷14	30-50	0,016-0,028	0,05xDe	0,1xDe
														○		14÷16	30-50	0,020-0,032	0,05xDe	0,1xDe

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

DATI TECNICI LAVORAZIONI PAG. 1072 - 1073
MACHINING TECHNICAL DATA PAGE 1072 - 1073
BEARBEITUNGSSCHNITTDATEN S. 1072 - 1073
DONNEES TECHNIQUES USINAGES PAGES 1072 - 1073

øD = mm DIAMETRO - DIAMETER
øDe = mm DIAMETRO EFFETTIVO - EFFECTIVE DIAMETER
Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

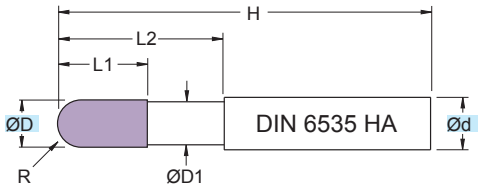
$$n = \frac{Vc \cdot 1000}{ØDe \cdot 3{,}14} = \text{giri/min (min}^{-1}\text{)}$$

$$fn = fz \cdot z = \text{mm}$$

$$Vf = fz \cdot z \cdot n = \text{mm/min}$$

SM4413..LX

ØD = 3 - 16



RIVESTIM. COATED
GRAY

R

60 HRC

α1 α2 α4 α3

Fresa in M.D.I. Micrograno
Gambo cilindrico HA

Micrograin HM mills
Cilindrical Shank HA

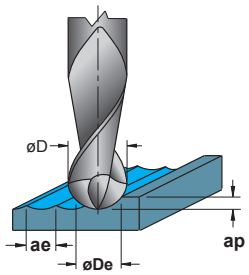
TOLLERANZE / TOLLERANCE RANGE	D	d
	h10	h6

(mm)

ART.	ØD	Ød	ØD1	L1	L2	H	R	z
SM4413.030.S150.LX	3	6	2,8	5,0	17	75	1,5	4
SM4413.040.S200.LX	4	6	3,8	6,0	22	75	2,0	4
SM4413.050.S250.LX	5	6	4,8	7,5	27	75	2,5	4
SM4413.060.S300.LX	6	6	5,7	9,0	32	100	3,0	4
SM4413.080.S400.LX	8	8	7,7	12,0	42	100	4,0	4
SM4413.100.S500.LX	10	10	9,7	15,0	52	127	5,0	4
SM4413.120.S600.LX	12	12	11,6	18,0	62	152	6,0	4
SM4413.160.S800.LX	16	16	15,6	24,0	82	152	8,0	4

PAG. 1053

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm) ØDe	(m/min) Vc	(mm) fz	(mm) ap	(mm) ae
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO E SUE LEGHE ALUMINIUM	RAME E SUE LEGHE COPPER	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE					
	●															3	160-190	0,020-0,035	0,08xDe	0,5xDe
	●															4	160-190	0,035-0,050	0,08xDe	0,5xDe
	●															5	160-190	0,035-0,050	0,08xDe	0,5xDe
	●															6	160-190	0,035-0,050	0,08xDe	0,5xDe
	●															8	160-190	0,040-0,055	0,08xDe	0,5xDe
	●															10	160-190	0,070-0,085	0,08xDe	0,5xDe
	●															12	160-190	0,080-0,095	0,08xDe	0,5xDe
	●															16	160-190	0,085-0,115	0,08xDe	0,5xDe
		●														3	140-170	0,020-0,035	0,08xDe	0,5xDe
		●														4	140-170	0,035-0,050	0,08xDe	0,5xDe
		●														5	140-170	0,035-0,050	0,08xDe	0,5xDe
		●														6	140-170	0,035-0,050	0,08xDe	0,5xDe
		●														8	140-170	0,040-0,055	0,08xDe	0,5xDe
		●														10	140-170	0,070-0,085	0,08xDe	0,5xDe
		●														12	140-170	0,080-0,095	0,08xDe	0,5xDe
		●														16	140-170	0,085-0,115	0,08xDe	0,5xDe
			●													3	110-140	0,020-0,035	0,08xDe	0,5xDe
			●													4	110-140	0,035-0,050	0,08xDe	0,5xDe
			●													5	110-140	0,035-0,050	0,08xDe	0,5xDe
			●													6	110-140	0,035-0,050	0,08xDe	0,5xDe
			●													8	110-140	0,040-0,055	0,08xDe	0,5xDe
			●													10	110-140	0,070-0,085	0,08xDe	0,5xDe
			●													12	110-140	0,080-0,095	0,08xDe	0,5xDe
			●													16	110-140	0,085-0,115	0,08xDe	0,5xDe
					○											3	40-70	0,003-0,015	0,08xDe	0,5xDe
					○											4	40-70	0,010-0,025	0,08xDe	0,5xDe
					○											5	40-70	0,010-0,025	0,08xDe	0,5xDe
					○											6	40-70	0,010-0,025	0,08xDe	0,5xDe
					○											8	40-70	0,020-0,035	0,08xDe	0,5xDe
					○											10	40-70	0,040-0,055	0,08xDe	0,5xDe
					○											12	40-70	0,050-0,065	0,08xDe	0,5xDe
					○											16	40-70	0,055-0,075	0,08xDe	0,5xDe
						●										3	140-170	0,025-0,040	0,08xDe	0,5xDe
						●										4	140-170	0,050-0,065	0,08xDe	0,5xDe
						●										5	140-170	0,050-0,065	0,08xDe	0,5xDe
						●										6	140-170	0,050-0,065	0,08xDe	0,5xDe
						●										8	140-170	0,060-0,075	0,08xDe	0,5xDe
						●										10	140-170	0,110-0,125	0,08xDe	0,5xDe
						●										12	140-170	0,130-0,145	0,08xDe	0,5xDe
						●										16	140-170	0,135-0,155	0,08xDe	0,5xDe
							●									3	140-170	0,020-0,035	0,08xDe	0,5xDe
							●									4	140-170	0,035-0,050	0,08xDe	0,5xDe
							●									5	140-170	0,035-0,050	0,08xDe	0,5xDe
							●									6	140-170	0,035-0,050	0,08xDe	0,5xDe
							●									8	140-170	0,040-0,055	0,08xDe	0,5xDe
							●									10	140-170	0,070-0,085	0,08xDe	0,5xDe
							●									12	140-170	0,080-0,095	0,08xDe	0,5xDe
							●									16	140-170	0,085-0,100	0,08xDe	0,5xDe
														○		3	90-120	0,003-0,015	0,08xDe	0,5xDe
														○		4	90-120	0,010-0,025	0,08xDe	0,5xDe
														○		5	90-120	0,010-0,025	0,08xDe	0,5xDe
														○		6	90-120	0,010-0,025	0,08xDe	0,5xDe
														○		8	90-120	0,020-0,035	0,08xDe	0,5xDe
														○		10	90-120	0,040-0,055	0,08xDe	0,5xDe
														○		12	90-120	0,050-0,065	0,08xDe	0,5xDe
														○		16	90-120	0,055-0,075	0,08xDe	0,5xDe

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

øD = mm DIAMETRO - DIAMETER
øDe = mm DIAMETRO EFFETTIVO - EFFECTIVE DIAMETER
Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

DATI TECNICI LAVORAZIONI PAG. 1072 - 1073
MACHINING TECHNICAL DATA PAGE 1072 - 1073
BEARBEITUNGSSCHNITTDATEN S. 1072 - 1073
DONNEES TECHNIQUES USINAGES PAGES 1072 - 1073

$$n = \frac{Vc \cdot 1000}{ØDe \cdot 3{,}14} = \text{giri/min (min}^{-1}\text{)}$$

$$fn = fz \cdot z = \text{mm}$$

$$Vf = fz \cdot z \cdot n = \text{mm/min}$$

SM5215..TI

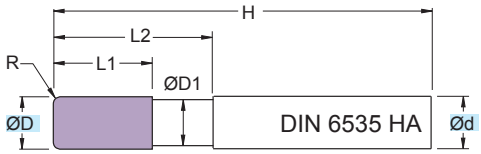
ØD = 6 - 16

NEW

RIVESTIM. COATED
ORANGE

R

52 HRC



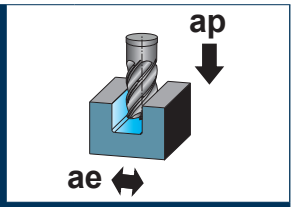
Fresa in M.D.I. Micrograno
Gambo sec. DIN 6535 HA

Micrograin HM mills
DIN 6535 HA Shank

TOLLERANZE / TOLLERANCE RANGE	D	d
	h10	h6

(mm)

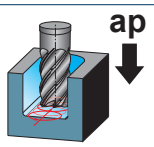
ART.	ØD	Ød	ØD1	L1	L2	H	R	z
SM5215.060.SR050.TI	6	6	5,7	13	20	58	0,50	5
SM5215.060.SR100.TI	6	6	5,7	13	20	58	1,00	5
SM5215.080.SR050.TI	8	8	7,7	19	28	64	0,50	5
SM5215.080.SR100.TI	8	8	7,7	19	28	64	1,00	5
SM5215.080.SR200.TI	8	8	7,7	19	28	64	2,00	5
SM5215.100.SR050.TI	10	10	9,7	22	33	73	0,50	5
SM5215.100.SR100.TI	10	10	9,7	22	33	73	1,00	5
SM5215.100.SR200.TI	10	10	9,7	22	33	73	2,00	5
SM5215.120.SR050.TI	12	12	11,6	26	38	84	0,50	5
SM5215.120.SR100.TI	12	12	11,6	26	38	84	1,00	5
SM5215.120.SR150.TI	12	12	11,6	26	38	84	1,50	5
SM5215.120.SR200.TI	12	12	11,6	26	38	84	2,00	5
SM5215.120.SR300.TI	12	12	11,6	26	38	84	3,00	5
SM5215.160.SR100.TI	16	16	15,6	32	45	93	1,00	5
SM5215.160.SR150.TI	16	16	15,6	32	45	93	1,50	5
SM5215.160.SR200.TI	16	16	15,6	32	45	93	2,00	5
SM5215.160.SR300.TI	16	16	15,6	32	45	93	3,00	5
SM5215.160.SR400.TI	16	16	15,6	32	45	93	4,00	5



(mm) ØD	(m/min) Vc	(mm) fz	(mm) ap	(mm) ae	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX AUST. DUPLEX STAINLESS STEEL AUST.	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL
					P			M	S		H
6÷8	120-140	0,015-0,030	1xD	1xD	●						
8÷10	120-140	0,020-0,040	1xD	1xD	●						
10÷12	120-140	0,030-0,050	1xD	1xD	●						
12÷16	120-140	0,040-0,060	1xD	1xD	●						
6÷8	110-130	0,015-0,030	1xD	1xD		●					
8÷10	110-130	0,020-0,040	1xD	1xD		●					
10÷12	110-130	0,030-0,050	1xD	1xD		●					
12÷16	110-130	0,040-0,060	1xD	1xD		●					
6÷8	115-125	0,010-0,025	1xD	1xD			●				
8÷10	115-125	0,020-0,035	1xD	1xD			●				
10÷12	115-125	0,030-0,045	1xD	1xD			●				
12÷16	115-125	0,040-0,055	1xD	1xD			●				
6÷8	80-120	0,015-0,040	1xD	1xD				●			
8÷10	80-120	0,035-0,050	1xD	1xD				●			
10÷12	80-120	0,045-0,060	1xD	1xD				●			
12÷16	80-120	0,055-0,070	1xD	1xD				●			
6÷8	25-55	0,010-0,020	1xD	1xD					●		
8÷10	25-55	0,015-0,030	1xD	1xD					●		
10÷12	25-55	0,025-0,035	1xD	1xD					●		
12÷16	25-55	0,030-0,045	1xD	1xD					●		
6÷8	40-70	0,015-0,035	1xD	1xD						●	
8÷10	40-70	0,030-0,045	1xD	1xD						●	
10÷12	40-70	0,035-0,050	1xD	1xD						●	
12÷16	40-70	0,040-0,060	1xD	1xD						●	
6÷8	15-35	0,005-0,010	0,20xD	1xD							○
8÷10	15-35	0,007-0,012	0,20xD	1xD							○
10÷12	15-35	0,009-0,015	0,20xD	1xD							○
12÷16	15-35	0,010-0,020	0,20xD	1xD							○

MATERIALI - MATERIALS

Trocoidale
Trochoidal

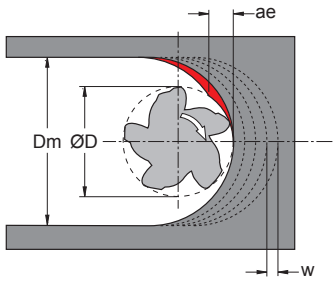


(mm) ØD	(m/min) Vc	(mm) fz	(mm) hm	(m/min) Vc	(mm) fz	(mm) hm	(m/min) Vc	(mm) fz	(mm) hm
	ap = 2xD (mm)								
	ae = 0,1xD (mm)			ae = 0,15xD (mm)			ae = 0,2xD (mm)		
6÷8	160-260	0,100-0,150	0,03-0,05	160-260	0,080-0,120	0,03-0,04	160-260	0,060-0,090	0,03-0,04
8÷10	160-260	0,130-0,180	0,04-0,06	160-260	0,110-0,150	0,04-0,06	160-260	0,070-0,110	0,03-0,05
10÷12	160-260	0,160-0,210	0,05-0,07	160-260	0,140-0,180	0,05-0,07	160-260	0,080-0,130	0,04-0,06
12÷16	160-260	0,190-0,240	0,06-0,08	160-260	0,170-0,210	0,06-0,08	160-260	0,090-0,150	0,04-0,07
6÷8	150-240	0,100-0,150	0,03-0,05	150-240	0,080-0,120	0,03-0,04	150-240	0,060-0,090	0,03-0,04
8÷10	150-240	0,130-0,180	0,04-0,06	150-240	0,110-0,150	0,04-0,06	150-240	0,070-0,110	0,03-0,05
10÷12	150-240	0,160-0,210	0,05-0,07	150-240	0,140-0,180	0,05-0,07	150-240	0,080-0,130	0,04-0,06
12÷16	150-240	0,190-0,240	0,06-0,08	150-240	0,170-0,210	0,06-0,08	150-240	0,090-0,150	0,04-0,07
6÷8	150-220	0,100-0,150	0,03-0,05	150-220	0,080-0,120	0,03-0,04	150-220	0,060-0,090	0,03-0,04
8÷10	150-220	0,130-0,180	0,04-0,06	150-220	0,110-0,150	0,04-0,06	150-220	0,070-0,110	0,03-0,05
10÷12	150-220	0,160-0,210	0,05-0,07	150-220	0,140-0,180	0,05-0,07	150-220	0,080-0,130	0,04-0,06
12÷16	150-220	0,190-0,240	0,06-0,08	150-220	0,170-0,210	0,06-0,08	150-220	0,090-0,150	0,04-0,07
6÷8	130-200	0,080-0,130	0,03-0,04	130-200	0,070-0,110	0,03-0,04	130-200	0,050-0,080	0,02-0,04
8÷10	130-200	0,110-0,160	0,03-0,05	130-200	0,100-0,140	0,04-0,05	130-200	0,060-0,100	0,03-0,05
10÷12	130-200	0,140-0,190	0,04-0,06	130-200	0,130-0,170	0,05-0,06	130-200	0,070-0,120	0,03-0,06
12÷16	130-200	0,170-0,210	0,05-0,07	130-200	0,160-0,200	0,06-0,08	130-200	0,080-0,140	0,04-0,07
	ae = 0,05xD (mm)			ae = 0,10xD (mm)			ae = 0,15xD (mm)		
6÷8	80-130	0,060-0,110	0,02-0,03	70-120	0,050-0,100	0,02-0,03	60-110	0,040-0,090	0,02-0,03
8÷10	80-130	0,090-0,140	0,02-0,03	70-120	0,080-0,130	0,03-0,04	60-110	0,070-0,120	0,03-0,04
10÷12	80-130	0,150-0,200	0,03-0,04	70-120	0,140-0,190	0,04-0,06	60-110	0,130-0,180	0,05-0,07
12÷16	80-130	0,180-0,240	0,04-0,05	70-120	0,170-0,230	0,05-0,07	60-110	0,160-0,220	0,06-0,08
6÷8	90-160	0,070-0,120	0,02-0,03	90-160	0,060-0,110	0,02-0,03	80-160	0,050-0,100	0,02-0,04
8÷10	90-160	0,100-0,150	0,02-0,03	90-160	0,090-0,140	0,03-0,04	80-160	0,080-0,130	0,03-0,05
10÷12	90-160	0,160-0,210	0,03-0,04	90-160	0,150-0,200	0,05-0,06	80-160	0,140-0,190	0,05-0,07
12÷16	90-160	0,190-0,250	0,04-0,05	90-160	0,180-0,240	0,06-0,07	80-160	0,170-0,230	0,06-0,08

PER LAVORAZIONI A SPALLAMENTO AUMENTARE I PARAMETRI DEL 20%
FOR SHOULDER MILLING PARAMETERS SHOULD BE INCREASED BY 20%

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE



Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED

n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS

fz = mm AVANZAMENTO AL DENTE -TOOTH FEED

fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION

Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

hm = mm SPESSORE MEDIO DEL TRUCIOLO - CHIP'S AVERAGE THICKNESS

Dm = mm LARGHEZZA CAVA - SLOT WIDTH

ØD = mm DIAMETRO FRESA - MILLING CUTTER DIAMETER

w = mm INCREMENTO DI PASSATA RADIALE - RADIAL STEP OVER

ae = mm TAGLIO RADIALE, VALORE MASSIMO - RADIAL CUT MAX.

$$n = \frac{Vc \cdot 1000}{ØD \cdot 3,14} \text{ = giri/min (min}^{-1}\text{)}$$

$$fn = fz \cdot z \text{ = mm}$$

$$Vf = fz \cdot z \cdot n \text{ = mm/min}$$

$$ØD = \text{Max } 60\% \text{ Dm = mm}$$

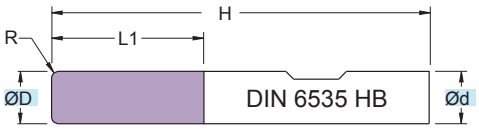
$$w = \text{Max } 10\% \text{ ØD = mm}$$

$$ae = \frac{Dm^2 - (Dm-2 \cdot w)^2}{4 \cdot (Dm - ØD)} \text{ = mm}$$

SMW5405..TI

ØD = 8 - 16

NEW



RIVESTIM. COATED
ORANGE

R

52 HRC

α1 α2 α4 α3

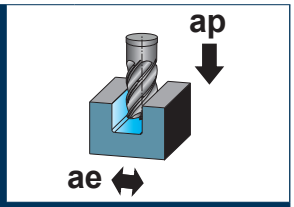
Fresa in M.D.I. Micrograno
Gambo sec. DIN 6535 HA

Micrograin HM mills
DIN 6535 HA Shank

TOLLERANZE	D	d
TOLLERANCE RANGE	h10	h6

(mm)

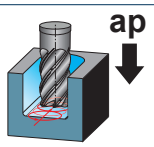
ART.	ØD	Ød	L1	H	R	z
SMW5405.080.SR030.TI	8	8	33	71	0,30	5
SMW5405.080.SR050.TI	8	8	33	71	0,50	5
SMW5405.100.SR030.TI	10	10	41	83	0,30	5
SMW5405.100.SR050.TI	10	10	41	83	0,50	5
SMW5405.100.SR100.TI	10	10	41	83	1,00	5
SMW5405.120.SR030.TI	12	12	49	96	0,30	5
SMW5405.120.SR050.TI	12	12	49	96	0,50	5
SMW5405.120.SR100.TI	12	12	49	96	1,00	5
SMW5405.140.SR030.TI	14	14	57	103	0,30	5
SMW5405.140.SR050.TI	14	14	57	103	0,50	5
SMW5405.140.SR100.TI	14	14	57	103	1,00	5
SMW5405.160.SR030.TI	16	16	65	120	0,30	5
SMW5405.160.SR050.TI	16	16	65	120	0,50	5
SMW5405.160.SR100.TI	16	16	65	120	1,00	5



(mm) ØD	(m/min) Vc	(mm) fz	(mm) ap	(mm) ae	P ACCIAIO NON LEGATO NOT ALLOY STEEL	P ACCIAIO POCO LEGATO LOW ALLOY STEEL	P ACCIAIO ALTO LEGATO ALLOY STEEL	M INOX AUST. DUPLEX STAINLESS STEEL AUST.	S LEGHE RESIST. CALORE HIGH TEMP. ALLOY	S TITANIO E SUE LEGHE TITANIUM	H ACCIAIO TEMPRATO HARDENED STEEL
8÷10	140-230	0,060-0,100	4xD	0,10xD	●						
10÷12	140-230	0,070-0,120	4xD	0,10xD	●						
12÷16	140-230	0,080-0,130	4xD	0,10xD	●						
8÷10	130-220	0,060-0,100	4xD	0,10xD		●					
10÷12	130-220	0,070-0,120	4xD	0,10xD		●					
12÷16	130-220	0,080-0,130	4xD	0,10xD		●					
8÷10	130-200	0,060-0,100	4xD	0,10xD			●				
10÷12	130-200	0,080-0,130	4xD	0,10xD			●				
12÷16	130-200	0,090-0,150	4xD	0,10xD			●				
8÷10	120-180	0,050-0,090	4xD	0,10xD				●			
10÷12	120-180	0,060-0,110	4xD	0,10xD				●			
12÷16	120-180	0,070-0,130	4xD	0,10xD				●			
8÷10	60-110	0,060-0,110	4xD	0,10xD					●		
10÷12	60-110	0,120-0,160	4xD	0,10xD					●		
12÷16	60-110	0,140-0,200	4xD	0,10xD					●		
8÷10	80-160	0,070-0,120	4xD	0,10xD						●	
10÷12	80-160	0,130-0,170	4xD	0,10xD						●	
12÷16	80-160	0,150-0,210	4xD	0,10xD						●	
8÷10	15-35	0,007-0,012	4xD	0,05xD							○
10÷12	15-35	0,009-0,015	4xD	0,05xD							○
12÷16	15-35	0,010-0,020	4xD	0,05xD							○

MATERIALI - MATERIALS

Trocoidale
Trochoidal



ap = 4xD (mm)

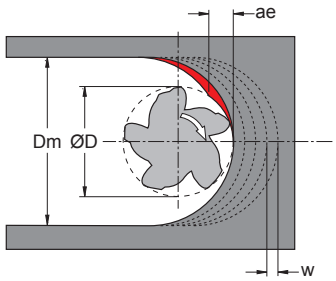
(mm) ØD	ae = 0,05xD (mm) (m/min) Vc	(mm) fz	(mm) hm	ae = 0,075xD (mm) (m/min) Vc	(mm) fz	(mm) hm	ae = 0,10xD (mm) (m/min) Vc	(mm) fz	(mm) hm
8÷10	140-230	0,130-0,180	0,03-0,05	140-230	0,100-0,135	0,03-0,05	140-230	0,060-0,100	0,03-0,04
10÷12	140-230	0,140-0,190	0,04-0,06	140-230	0,130-0,160	0,04-0,06	140-230	0,070-0,120	0,03-0,05
12÷16	140-230	0,170-0,220	0,05-0,07	140-230	0,150-0,190	0,05-0,07	140-230	0,080-0,130	0,03-0,06
8÷10	130-220	0,120-0,160	0,03-0,05	130-220	0,100-0,130	0,03-0,05	130-220	0,060-0,100	0,03-0,04
10÷12	130-220	0,140-0,190	0,04-0,06	130-220	0,130-0,160	0,04-0,06	130-220	0,070-0,120	0,03-0,05
12÷16	130-220	0,170-0,220	0,05-0,07	130-220	0,150-0,190	0,05-0,07	130-220	0,080-0,130	0,03-0,06
8÷10	130-200	0,120-0,160	0,03-0,05	130-200	0,100-0,130	0,03-0,05	130-200	0,060-0,100	0,03-0,05
10÷12	130-200	0,140-0,190	0,04-0,06	130-200	0,130-0,160	0,04-0,06	130-200	0,080-0,130	0,03-0,05
12÷16	130-200	0,170-0,220	0,05-0,07	130-200	0,150-0,190	0,05-0,07	130-200	0,090-0,150	0,03-0,06
8÷10	120-180	0,100-0,140	0,03-0,05	120-180	0,090-0,130	0,03-0,05	120-180	0,050-0,090	0,03-0,04
10÷12	120-180	0,130-0,170	0,04-0,06	120-180	0,120-0,150	0,04-0,06	120-180	0,060-0,110	0,03-0,05
12÷16	120-180	0,150-0,190	0,05-0,07	120-180	0,140-0,180	0,05-0,07	120-180	0,070-0,130	0,04-0,06

(mm) ØD	ae = 0,05xD (mm) (m/min) Vc	(mm) fz	(mm) hm	ae = 0,075xD (mm) (m/min) Vc	(mm) fz	(mm) hm	ae = 0,10xD (mm) (m/min) Vc	(mm) fz	(mm) hm
8÷10	70-120	0,080-0,130	0,02-0,03	60-110	0,070-0,120	0,02-0,03	60-110	0,060-0,110	0,03-0,04
10÷12	70-120	0,130-0,180	0,03-0,04	60-110	0,130-0,170	0,03-0,04	60-110	0,120-0,160	0,05-0,06
12÷16	70-120	0,160-0,220	0,04-0,05	60-110	0,150-0,200	0,04-0,05	60-110	0,140-0,200	0,05-0,07
8÷10	80-150	0,090-0,140	0,03-0,04	80-150	0,080-0,130	0,03-0,04	80-160	0,070-0,120	0,03-0,04
10÷12	80-150	0,140-0,190	0,03-0,04	80-150	0,140-0,180	0,03-0,04	80-160	0,130-0,170	0,05-0,06
12÷16	80-150	0,170-0,230	0,04-0,05	80-150	0,160-0,210	0,04-0,05	80-160	0,150-0,210	0,05-0,07

PER LAVORAZIONI A SPALLAMENTO AUMENTARE I PARAMETRI DEL 20%
FOR SHOULDER MILLING PARAMETERS SHOULD BE INCREASED BY 20%

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE



Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED

n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS

fz = mm AVANZAMENTO AL DENTE -TOOTH FEED

fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION

Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

hm = mm SPESSORE MEDIO DEL TRUCIOLO - CHIP'S AVERAGE THICKNESS

Dm = mm LARGHEZZA CAVA - SLOT WIDTH

ØD = mm DIAMETRO FRESA - MILLING CUTTER DIAMETER

w = mm INCREMENTO DI PASSATA RADIALE - RADIAL STEP OVER

ae = mm TAGLIO RADIALE, VALORE MASSIMO - RADIAL CUT MAX.

$$n = \frac{Vc \cdot 1000}{ØD \cdot 3,14} \text{ = giri/min (min}^{-1}\text{)}$$

$$fn = fz \cdot z \text{ = mm}$$

$$Vf = fz \cdot z \cdot n \text{ = mm/min}$$

$$ØD = \text{Max } 60\% \text{ Dm = mm}$$

$$w = \text{Max } 10\% \text{ ØD = mm}$$

$$ae = \frac{Dm^2 - (Dm-2 \cdot w)^2}{4 \cdot (Dm - ØD)} \text{ = mm}$$

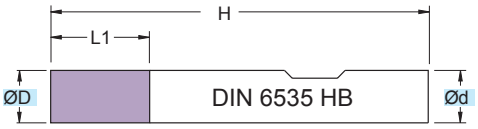
SEDI
CHIAVETTE

KEYSLOTS / PASSFEDERNUTEN / LOGEMENT CLES /
RANURAS PARA CHAVETAS

SAU
QUALITY TOOLS ENGINEERING

SMW3301

ØD = 1,80-15,70



RIVESTIM. COATED
BLACK

90°

42 HRC

Fresa in M.D.I. Micrograno
Gambo cilindrico HB

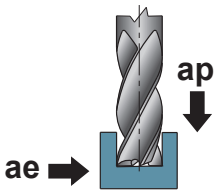
Micrograin HM mills
Cilindrical Shank HB

TOLLERANZE	D	d
TOLLERANCE RANGE	h10	h6

(mm)

ART.	ØD	Ød	L1	H	z
SMW3301.018.N00	1,80	6	3	50	3
SMW3301.028.N00	2,80	6	4	50	3
SMW3301.038.N00	3,80	6	5	50	3
SMW3301.048.N00	4,80	6	6	50	3
SMW3301.057.N00	5,75	6	7	50	3
SMW3301.077.N00	7,75	8	10	63	3
SMW3301.097.N00	9,70	10	11	72	3
SMW3301.117.N00	11,70	12	14	83	3
SMW3301.137.N00	13,70	14	14	83	3
SMW3301.157.N00	15,70	16	16	92	3

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm) ØD	(m/min) Vc	(mm) fz	(mm) ap	(mm) ae
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO E SUE LEGHE ALUMINIUM	RAME E SUE LEGHE COPPER	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE					
		●														1,80	70-100	0,010-0,025	0,5xD	1xD
		●														2,80	70-100	0,020-0,035	0,5xD	1xD
		●														3,80	70-100	0,030-0,045	0,5xD	1xD
		●														4,80	70-100	0,035-0,050	0,5xD	1xD
		●														5,75	70-100	0,040-0,055	0,5xD	1xD
		●														7,75	70-100	0,050-0,065	0,5xD	1xD
		●														9,70	70-100	0,060-0,075	0,5xD	1xD
		●														11,70	70-100	0,070-0,085	0,5xD	1xD
		●														13,70	70-100	0,080-0,095	0,5xD	1xD
		●														15,70	70-100	0,090-0,105	0,5xD	1xD
			●													1,80	55-85	0,010-0,025	0,5xD	1xD
			●													2,80	55-85	0,020-0,035	0,5xD	1xD
			●													3,80	55-85	0,030-0,045	0,5xD	1xD
			●													4,80	55-85	0,035-0,050	0,5xD	1xD
			●													5,75	55-85	0,040-0,055	0,5xD	1xD
			●													7,75	55-85	0,050-0,065	0,5xD	1xD
			●													9,70	55-85	0,060-0,075	0,5xD	1xD
			●													11,70	55-85	0,070-0,085	0,5xD	1xD
			●													13,70	55-85	0,080-0,095	0,5xD	1xD
			●													15,70	55-85	0,090-0,105	0,5xD	1xD
					●											1,80	40-70	0,010-0,025	0,5xD	1xD
					●											2,80	40-70	0,020-0,035	0,5xD	1xD
					●											3,80	40-70	0,030-0,045	0,5xD	1xD
					●											4,80	40-70	0,035-0,050	0,5xD	1xD
					●											5,75	40-70	0,040-0,055	0,5xD	1xD
					●											7,75	40-70	0,050-0,065	0,5xD	1xD
					●											9,70	40-70	0,060-0,075	0,5xD	1xD
					●											11,70	40-70	0,070-0,085	0,5xD	1xD
					●											13,70	40-70	0,080-0,095	0,5xD	1xD
					●											15,70	40-70	0,090-0,105	0,5xD	1xD
						●										1,80	90-130	0,010-0,025	0,5xD	1xD
						●										2,80	90-130	0,020-0,035	0,5xD	1xD
						●										3,80	90-130	0,030-0,045	0,5xD	1xD
						●										4,80	90-130	0,035-0,050	0,5xD	1xD
						●										5,75	90-130	0,040-0,055	0,5xD	1xD
						●										7,75	90-130	0,050-0,065	0,5xD	1xD
						●										9,70	90-130	0,060-0,075	0,5xD	1xD
						●										11,70	90-130	0,070-0,085	0,5xD	1xD
						●										13,70	90-130	0,080-0,095	0,5xD	1xD
																15,70	90-130	0,090-0,105	0,5xD	1xD
							●									1,80	70-100	0,010-0,025	0,5xD	1xD
							●									2,80	70-100	0,020-0,035	0,5xD	1xD
							●									3,80	70-100	0,030-0,045	0,5xD	1xD
							●									4,80	70-100	0,035-0,050	0,5xD	1xD
							●									5,75	70-100	0,040-0,055	0,5xD	1xD
							●									7,75	70-100	0,050-0,065	0,5xD	1xD
							●									9,70	70-100	0,060-0,075	0,5xD	1xD
							●									11,70	70-100	0,070-0,085	0,5xD	1xD
							●									13,70	70-100	0,080-0,095	0,5xD	1xD
							●									15,70	70-100	0,090-0,105	0,5xD	1xD

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

$$n = \frac{Vc \cdot 1000}{ØD \cdot 3{,}14} = \text{giri/min (min}^{-1}\text{)}$$

$$fn = fz \cdot z = \text{mm}$$

$$Vf = fz \cdot z \cdot n = \text{mm/min}$$

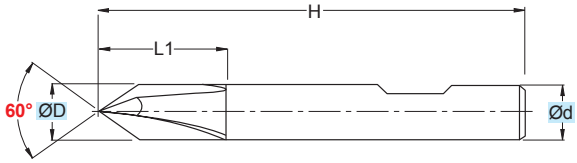
SVASATORI
SMUSSATORI

COUNTERSINK AND CHAMFER MILLS / KEGELSENKER-KANTENFRÄSER /
FRAISES CONIQUES A NOYER-CHANFREINEURS / AVELLANADORES-BISELADORAS

SAU
QUALITY TOOLS ENGINEERING

SCR0183

ØD = 4 - 20



RIVESTIM. COATED
BLACK

60°

42 HRC

Fresa in M.D.I. Micrograno
Gambo sec. DIN 6535 HB

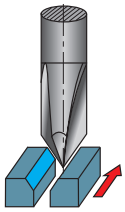
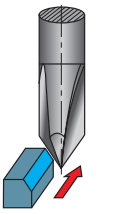
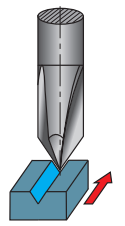
Micrograin HM mills
DIN 6535 HB Shank

TOLLERANZE	D	d
TOLLERANCE RANGE		h6

(mm)

ART.	ØD	Ød	H	L1	Z
SCR0183040	4	4	54	4	4
SCR0183060	6	6	57	6	5
SCR0183080	8	8	63	8	5
SCR0183100	10	10	72	10	6
SCR0183120	12	12	83	12	6
SCR0183160	16	16	92	16	6
SCR0183200	20	20	104	20	6

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm) ØD	(m/min) Vc	(mm) fz	(mm) ap	(mm) ae
	ACCIAIO NON LEGATO NOT ALLOY STEEL	**ACCIAIO POCO LEGATO** LOW ALLOY STEEL	**ACCIAIO ALTO LEGATO** ALLOY STEEL	**INOX MARTENSITICO** STAINLESS STEEL MART.	**INOX AUST. DUPLEX** STAINLESS STEEL AUST.	**GHISA GRIGIA** GREY CAST IRON	**GHISA SFEROIDALE** SPHEROIDAL GRAPHITE	**GHISA MALLEABILE** MALLEABLE CAST IRON	**ALLUMINIO E SUE LEGHE** ALUMINIUM	**RAME E SUE LEGHE** COPPER	**NON METALLICI** PLASTICS	**LEGHE RESIST. CALORE** HIGH TEMP. ALLOY	**TITANIO E SUE LEGHE** TITANIUM	**ACCIAIO TEMPRATO** HARDENED STEEL	**GRAFITE** GRAPHITE					
			●													4	60-90	0,030-0,045	–	–
			●													6	60-90	0,030-0,045	–	–
			●													8	60-90	0,030-0,045	–	–
			●													10	60-90	0,030-0,045	–	–
			●													12	60-90	0,030-0,045	–	–
			●													16	60-90	0,030-0,045	–	–
			●													20	60-90	0,030-0,045	–	–
					●											4	30-60	0,020-0,035	–	–
					●											6	30-60	0,020-0,035	–	–
					●											8	30-60	0,020-0,035	–	–
					●											10	30-60	0,020-0,035	–	–
					●											12	30-60	0,020-0,035	–	–
					●											16	30-60	0,020-0,035	–	–
					●											20	30-60	0,020-0,035	–	–
							●									4	100-130	0,060-0,075	–	–
							●									6	100-130	0,060-0,075	–	–
							●									8	100-130	0,060-0,075	–	–
							●									10	100-130	0,060-0,075	–	–
							●									12	100-130	0,060-0,075	–	–
							●									16	100-130	0,060-0,075	–	–
							●									20	100-130	0,060-0,075	–	–
									●							4	270-320	0,060-0,075	–	–
									●							6	270-320	0,060-0,075	–	–
									●							8	270-320	0,060-0,075	–	–
									●							10	270-320	0,060-0,075	–	–
									●							12	270-320	0,060-0,075	–	–
									●							16	270-320	0,060-0,075	–	–
									●							20	270-320	0,060-0,075	–	–

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED

n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS

fz = mm AVANZAMENTO AL DENTE -TOOTH FEED

fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION

Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

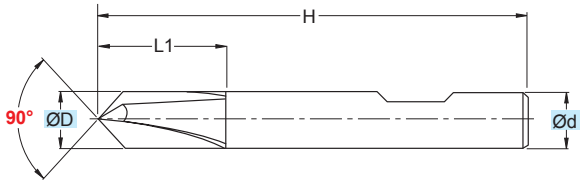
$$n = \frac{Vc \cdot 1000}{ØD \cdot 3{,}14} = \text{giri/min (min}^{-1}\text{)}$$

$$fn = fz \cdot z = \text{mm}$$

$$Vf = fz \cdot z \cdot n = \text{mm/min}$$

SCR0187

ØD = 4 - 20



RIVESTIM. COATED
BLACK

90°

42 HRC

Fresa in M.D.I. Micrograno
Gambo sec. DIN 6535 HB

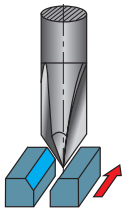
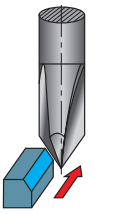
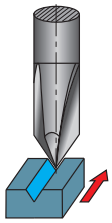
Micrograin HM mills
DIN 6535 HB Shank

TOLLERANZE	D	d
TOLLERANCE RANGE		h6

(mm)

ART.	ØD	Ød	H	L1	Z
SCR0187040	4	4	54	4	4
SCR0187060	6	6	57	6	5
SCR0187080	8	8	63	8	5
SCR0187100	10	10	72	10	6
SCR0187120	12	12	83	12	6
SCR0187160	16	16	92	16	6
SCR0187200	20	20	104	20	6

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm) ØD	(m/min) Vc	(mm) fz	(mm) ap	(mm) ae
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO E SUE LEGHE ALUMINIUM	RAME E SUE LEGHE COPPER	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE					
			●													4	60-90	0,030-0,045	–	–
			●													6	60-90	0,030-0,045	–	–
			●													8	60-90	0,030-0,045	–	–
			●													10	60-90	0,030-0,045	–	–
			●													12	60-90	0,030-0,045	–	–
			●													16	60-90	0,030-0,045	–	–
			●													20	60-90	0,030-0,045	–	–
					●											4	30-60	0,020-0,035	–	–
					●											6	30-60	0,020-0,035	–	–
					●											8	30-60	0,020-0,035	–	–
					●											10	30-60	0,020-0,035	–	–
					●											12	30-60	0,020-0,035	–	–
					●											16	30-60	0,020-0,035	–	–
					●											20	30-60	0,020-0,035	–	–
							●									4	100-130	0,060-0,075	–	–
							●									6	100-130	0,060-0,075	–	–
							●									8	100-130	0,060-0,075	–	–
							●									10	100-130	0,060-0,075	–	–
							●									12	100-130	0,060-0,075	–	–
							●									16	100-130	0,060-0,075	–	–
							●									20	100-130	0,060-0,075	–	–
									●							4	270-320	0,060-0,075	–	–
									●							6	270-320	0,060-0,075	–	–
									●							8	270-320	0,060-0,075	–	–
									●							10	270-320	0,060-0,075	–	–
									●							12	270-320	0,060-0,075	–	–
									●							16	270-320	0,060-0,075	–	–
									●							20	270-320	0,060-0,075	–	–

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

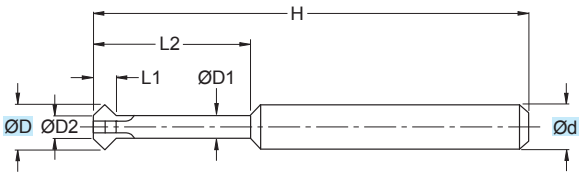
$$n = \frac{Vc \cdot 1000}{ØD \cdot 3{,}14} = \text{giri/min (min}^{-1}\text{)}$$

$$fn = fz \cdot z = \text{mm}$$

$$Vf = fz \cdot z \cdot n = \text{mm/min}$$

SMR0110

ØD = 4 - 16



RIVESTIM. COATED
BLACK

45°

42 HRC

Fresa in M.D.I. Micrograno
Gambo sec. DIN 6535 HB

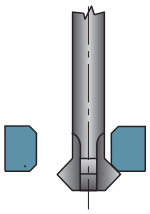
Micrograin HM mills
DIN 6535 HB Shank

TOLLERANZE	D	d
TOLLERANCE RANGE	h12	h6

(mm)

ART.	ØD	Ød	ØD1	ØD2	H	L1	L2	Z
SMR0110040	4	4	2	0,5	100	2,75	15	4
SMR0110060	6	6	4	0,5	100	3,75	18	4
SMR0110080	8	8	5	0,5	100	5,25	24	4
SMR0110100	10	10	6	0,5	100	6,75	30	4
SMR0110120	12	12	7	1	100	8,00	36	4
SMR0110160	16	16	10	1	100	10,5	48	4

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm) ØD	(m/min) Vc	(mm) fz	(mm) ap	(mm) ae
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO E SUE LEGHE ALUMINIUM	RAME E SUE LEGHE COPPER	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE					
			●													4	60-90	0,030-0,045	–	–
			●													6	60-90	0,030-0,045	–	–
			●													8	60-90	0,030-0,045	–	–
			●													10	60-90	0,030-0,045	–	–
			●													12	60-90	0,030-0,045	–	–
			●													16	60-90	0,030-0,045	–	–
					●											4	30-60	0,020-0,035	–	–
					●											6	30-60	0,020-0,035	–	–
					●											8	30-60	0,020-0,035	–	–
					●											10	30-60	0,020-0,035	–	–
					●											12	30-60	0,020-0,035	–	–
					●											16	30-60	0,020-0,035	–	–
							●									4	100-130	0,060-0,075	–	–
							●									6	100-130	0,060-0,075	–	–
							●									8	100-130	0,060-0,075	–	–
							●									10	100-130	0,060-0,075	–	–
							●									12	100-130	0,060-0,075	–	–
							●									16	100-130	0,060-0,075	–	–
									●							4	270-320	0,060-0,075	–	–
									●							6	270-320	0,060-0,075	–	–
									●							8	270-320	0,060-0,075	–	–
									●							10	270-320	0,060-0,075	–	–
									●							12	270-320	0,060-0,075	–	–
									●							16	270-320	0,060-0,075	–	–

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

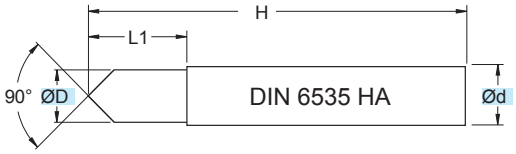
$$n = \frac{Vc \cdot 1000}{ØD \cdot 3{,}14} \text{ = giri/min (min}^{-1}\text{)}$$

$$fn = fz \cdot z \text{ = mm}$$

$$Vf = fz \cdot z \cdot n \text{ = mm/min}$$

SS230

ØD = 3 - 20



90°

ALU
≤5% Si

Fresa in M.D.I. Micrograno
Gambo cilindrico HA

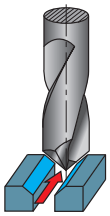
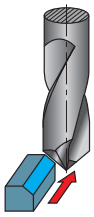
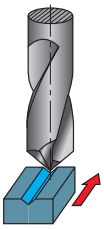
Micrograin HM minimills
Cilindrical Shank HA

TOLLERANZE	D	d
TOLLERANCE RANGE	h10	h6

(mm)

ART.	ØD	Ød	L1	H	z
SS230.030	3	4	6	50	2
SS230.040	4	5	8	50	2
SS230.050	5	6	10	50	2
SS230.060	6	8	12	60	2
SS230.080	8	10	16	70	2
SS230.100	10	12	18	70	2
SS230.120	12	12	20	70	2
SS230.160	16	16	26	80	2
SS230.200	20	20	32	100	2

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm) ØD	(m/min) Vc	(mm) fz	(mm) ap	(mm) ae
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO Si ≤ 12% ALUMINIUM 12 ≤ 12%	ALLUMINIO Si > 12% ALUMINIUM 12 > 12%	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE					
									●							3	350-470	0,020-0,035	–	–
									●							4	350-470	0,030-0,045	–	–
									●							5	350-470	0,040-0,055	–	–
									●							6	350-470	0,050-0,065	–	–
									●							8	350-470	0,070-0,085	–	–
									●							10	350-470	0,090-0,105	–	–
									●							12	350-470	0,110-0,125	–	–
									●							16	350-470	0,170-0,185	–	–
									●							20	350-470	0,190-0,205	–	–
										●						3	170-250	0,010-0,025	–	–
										●						4	170-250	0,020-0,035	–	–
										●						5	170-250	0,030-0,045	–	–
										●						6	170-250	0,040-0,055	–	–
										●						8	170-250	0,050-0,065	–	–
										●						10	170-250	0,070-0,085	–	–
										●						12	170-250	0,090-0,105	–	–
										●						16	170-250	0,150-0,165	–	–
										●						20	170-250	0,170-0,185	–	–
																				

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

$$n = \frac{Vc \cdot 1000}{ØD \cdot 3{,}14} = \text{giri/min } (min^{-1})$$

$$fn = fz \cdot z = \text{mm}$$

$$Vf = fz \cdot z \cdot n = \text{mm/min}$$

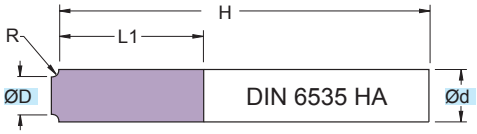
SM4701

ØD = 6 - 10

RIVESTIM. COATED
BLACK

R

42 HRC



Fresa in M.D.I. Micrograno
Gambo cilindrico HA

Micrograin HM mills
Cilindrical Shank HA

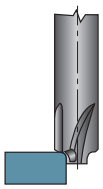
TOLLERANZE	D	d
TOLLERANCE RANGE	h10	h6

(mm)

ART.	ØD	Ød	L1	H	R	z
SM4701.080.R050	7	8	0,5	70	0,5	4
SM4701.080.R100	6	8	1,0	70	1,0	4
SM4701.100.R150	7	10	1,5	75	1,5	4
SM4701.100.R200	6	10	2,0	75	2,0	4
SM4701.120.R250	7	12	2,5	75	2,5	4
SM4701.120.R300	6	12	3,0	75	3,0	4
SM4701.160.R350	9	16	3,5	80	3,5	4
SM4701.160.R400	8	16	4,0	80	4,0	4
SM4701.160.R450	7	16	4,5	80	4,5	4
SM4701.200.R500	10	20	5,0	80	5,0	4
SM4701.200.R600	8	20	6,0	80	6,0	4

PAG. 1053

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm) Ød	(m/min) Vc	(mm) fz	(mm) ap	(mm) ae
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO E SUE LEGHE ALUMINIUM	RAME E SUE LEGHE COPPER	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE					
			●													8	50-80	0,040-0,055	–	–
			●													10	50-80	0,040-0,055	–	–
			●													12	50-80	0,040-0,055	–	–
			●													16	50-80	0,040-0,055	–	–
			●													20	50-80	0,040-0,055	–	–
					●											8	20-50	0,040-0,055	–	–
					●											10	20-50	0,040-0,055	–	–
					●											12	20-50	0,040-0,055	–	–
					●											16	20-50	0,040-0,055	–	–
					●											20	20-50	0,040-0,055	–	–
							●									8	70-100	0,040-0,055	–	–
							●									10	70-100	0,040-0,055	–	–
							●									12	70-100	0,040-0,055	–	–
							●									16	70-100	0,040-0,055	–	–
							●									20	70-100	0,040-0,055	–	–
									●							8	100-130	0,040-0,055	–	–
									●							10	100-130	0,040-0,055	–	–
									●							12	100-130	0,040-0,055	–	–
									●							16	100-130	0,040-0,055	–	–
									●							20	100-130	0,040-0,055	–	–

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

$$n = \frac{Vc \cdot 1000}{ØD \cdot 3{,}14} = \text{giri/min (min}^{-1}\text{)}$$

$$fn = fz \cdot z = \text{mm}$$

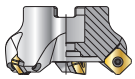
$$Vf = fz \cdot z \cdot n = \text{mm/min}$$

SAU
QUALITY TOOLS ENGINEERING

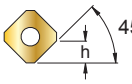
FRESE PER SPIANATURA E SMUSSI
FACE AND CHAMFERING MILLING CUTTERS
FRÄSER ZUM PLANEN UND FASEN
FRAISES À SURFACER ET ARRONDIR
FRESAS PARA PLANEAR Y BISELES

S438 — Pag. 400

ØD = 50 - 250



S 438 .. 13 S 438W .. 13
S438WF .. 13 S438G .. 13

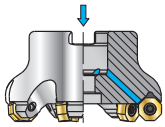


SE..13T3 **h = 6**

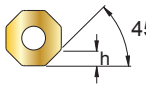
S4502-8W — Pag. 404

NEW

ØD = 50 - 125



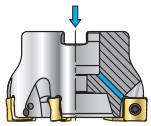
S 4502-8W .. 05



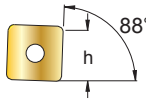
ONMU 0506.. **h = 3**

S8801-8W — Pag. 406

ØD = 50 - 250



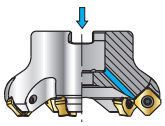
S 8801-8 .. 12
S 8801-8W .. 12



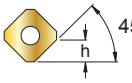
SN..1206 **h = 11,5**

S4501 — Pag. 402

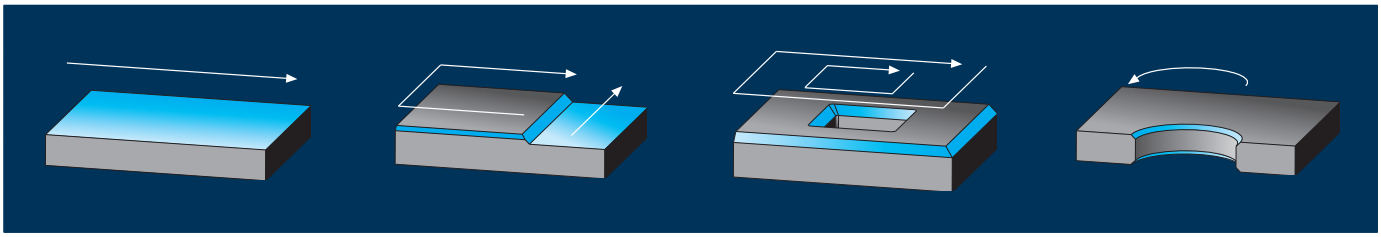
ØD = 50 - 250



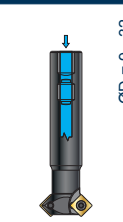
S 4501-8W .. 12



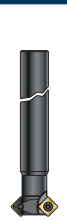
SN..1206 **h = 6**



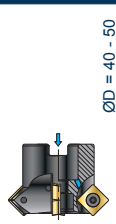
S676 Pag. 408 — S678 Pag. 408 — S614 Pag. 413 — S614.9 Pag. 413



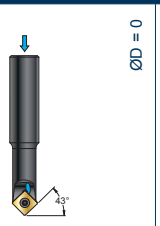
S 676W..



S 676XLZ ..

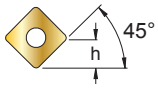


S 678W .. 12

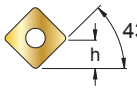


S 614.45W-0-12

S 614.9.45W-0-12



SP..0603 h = 4,0
SP..09T3 h = 5,8
SP..1204 h = 8,0



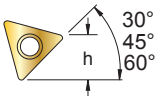
SC..1204 h = 7,8

S616 Pag. 409

S 616.30 ..

S 616.45 ..
S 6165XLZ.4 ..

S 616.60 ..
S 616XLZ.60 ..

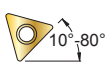


TC..1102 h = 6,9/9,0
TC..16T3 h = 7,3/13,0
TC..2204 h = 13,8

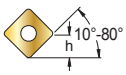
S618.3 Pag. 410 — S618.4 Pag. 411

S 618 ..11.3 S 618 ..16.3

S 618 ..12.4



TC..1102
TC..16T3

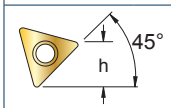


SC..1204

S613 Pag. 412 — S613.9 Pag. 412

S 613.45W-0-16

S 613.9.45W-0-16

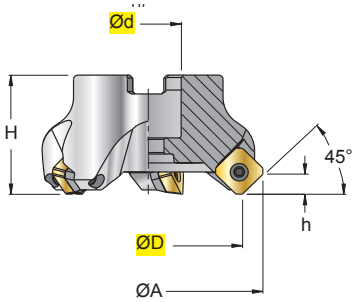


TC..16T3 h = 10

S 438 .. 13
S 438W .. 13
S 438WF .. 13
S 438G .. 13

Ø 50-250

γ_p +20°/+22,5°
γ_f -15°/-10°
γ_o +4°/+10°



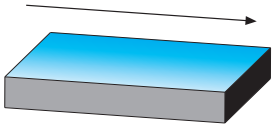
ALTI AVANZAMENTI
HIGH FEED

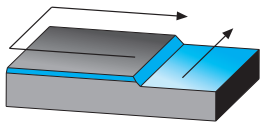
SEEX 13T3.. .M12	
SEHT 13T3.. .F44P	 NEW
SEKT 13T3.. .F53	 NEW
SEKT 13T3.. .F58	 NEW
SEKW 13T3.. .F51	 NEW
SEKX 1305.. .Z52	

GLI ARTICOLI CON DIAMETRO ≥ 160mm SONO SPROVVISTI DI FORI PER ADDUZIONE REFRIGERANTE INTERNA
ITEMS WITH DIAMETER ≥ 160mm ARE NOT EQUIPPED WITH INTERNAL COOLING BORE
ARTIKEL MIT DURCHMESSER ≥ 160mm SIND NICHT MIT INNENKÜHLBOHRUNG AUSGESTATTET
LES ARTICLES AVEC DIAMETRE ≥ 160 mm SONT DEPOURVUS DE TROUS POUR L'ARROSAGE DU LIQUIDE REFRIGERANT INTERNE

INSERTI - INSERTS
PAG. 514

ART.	(mm) ØD	Ød	ØA	H	h	Z		kg	Nm	ISO 6462								
S 438W 050 - 13 New	50	22	63	40	6	4	Y	0,37	3,0÷3,5	A	13T3	13T3	PA13M	BCL7	123512P	5035	5615P	AL10x30
S 438W 063 - 13 New	63	22	76	40	6	5	Y	0,56	3,0÷3,5	A								
S 438W 080 - 13 New	80	27	93	50	6	6	Y	1,06	3,0÷3,5	A-B	13T3	13T3	PA13M	BCL7	123512P	5035	5615P	AL12x35
S 438W 100 - 13 New	100	32	113	50	6	7	Y	1,67	3,0÷3,5	A-B	13T3	13T3	PA13M	BCL7	123512P	5035	5615P	AL16x35
S 438W 125 - 13 New	125	40	138	63	6	8	Y	3,13	3,0÷3,5	A-B	13T3	13T3	PA13M	BCL7	123512P	5035	5615P	AL20x45
S 438 160 - 13	160	40	173	63	6	10	Y	4,16	3,0÷3,5	C	13T3	13T3	PA13M	BCL7	123512P	5035	5615P	–
S 438 200 - 13	200	60	213	63	6	12	–	6,81	3,0÷3,5	D								
S 438 250 - 13	250	60	263	63	6	14	–	9,68	3,0÷3,5	D								
S 438WF 050 - 13 New	50	22	63	40	6	5	–	0,36	3,0÷3,5	A	13T3	13T3	PA13M	BCL7	123512P	5035	5615P	AL10x30
S 438WF 063 - 13 New	63	22	76	40	6	6	–	0,56	3,0÷3,5	A								
S 438WF 080 - 13 New	80	27	93	50	6	8	–	1,03	3,0÷3,5	A-B	13T3	13T3	PA13M	BCL7	123512P	5035	5615P	AL12x35
S 438WF 100 - 13 New	100	32	113	50	6	10	–	1,61	3,0÷3,5	A-B	13T3	13T3	PA13M	BCL7	123512P	5035	5615P	AL16x35
S 438WF 125 - 13 New	125	40	138	63	6	12	–	3,06	3,0÷3,5	A-B	13T3	13T3	PA13M	BCL7	123512P	5035	5615P	AL20x45
S 438G 160 - 13	160	40	173	63	6	7	Y	4,32	3,0÷3,5	C	13T3	13T3	PA13M	BCL7	123512P	5035	5615P	–
S 438G 200 - 13	200	60	213	63	6	8	Y	7,01	3,0÷3,5	B								
S 438G 250 - 13	250	60	263	63	6	10	Y	9,88	3,0÷3,5	D								





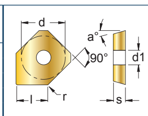
F = PASSO FINE - FINE PITCH - FEINE ZAHNTEILUNG - PAS FIN
= PASSO DIFFERENZIATO - DIFFERENTIAL PITCH - UNGLEICHE TEILUNG - PAS DIFFERENCIE

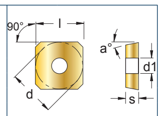
SCELTA VELOCE - QUICK PICK

Tenacità / Toughness + / -

Pag. 486

COD.	P F	P M	P R	M F	M M	M R	K F	K M	K R	N F	N M	N R	S F	S M	S R	H F	H M	H R	HT CERMET DT63	HT CERMET	HW NON RIV. CEMENTED N3005	HW NON RIV. CEMENTED N3815 (NEW)	HC RIVESTITI COATED GRADES BESCHICHTET RECOUVERTS F2135 (NEW)	F2740	F3120	T1120 (NEW)	T528N		F1325	F1335	l	d	s	d1	r	a°
SEEX 13T3 AGTR .M12	●						●												■												8,2	13,4	3,97	4,1	1,5	20
							●														■															
SEHT 13T3 AZFN .F44P											●	●										■ (NEW)									13,4	13,4	3,97	4,2	–	20
SEKT 13T3 AFEN .F53					●	●								○	○								■ (NEW)								13,4	13,4	3,97	4,2	–	20
					●	●																		■ (NEW)												
SEKT 13T3 AFSN .F58	○	●	●	○	○	○	○	○	○																				■ (NEW)		13,4	13,4	3,97	4,2	–	20
		●	●		○	○																								■ (NEW)						
	○	●	●																							■ (NEW)										
SEKW 13T3 AFSN .F51		○	○					●	●																■ (NEW)						13,4	13,4	3,97	4,2	–	20
SEKX 1305 AGSR .Z52	○	●	●	○	○	○	○	○	○				○	○	○												■				3,9	15,17	5,58	4,1	1,0	20

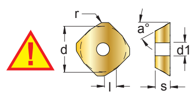




- CON INSERTI **SEKX 1305.. .Z52** PROFONDITÀ MASSIMA DI LAVORO = 2 (mm) PER ALTI AVANZAMENTI
PROFONDITÀ MASSIMA DI LAVORO = 6 (mm) PER AVANZAMENTI STANDARD

- WITH INSERTS **SEKX 1305.. .Z52** MAXIMUM MACHINING DEPTH = 2 (mm) FOR HIGH FEED
MAXIMUM MACHINING DEPTH = 6 (mm) FOR STANDARD FEED

	DT63		N3005	N3815	F2135	F2740	F3120	T1120	T528N		F1325	F1335
CON ADDUZIONE LUBROREFRIGERANTE - WITH COOLANT SUPPLY	●		●	○	●	○	○	○	○		○	○
SENZA ADDUZIONE LUBROREFRIGERANTE - WITHOUT COOLANT SUPPLY	○		○	●	○	●	●	●	●		●	●



SEKX..

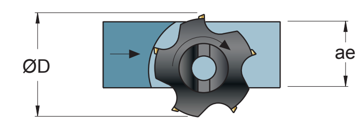
MATERIALI - MATERIALS Pag. 1119		VDI 3323 GR.	HB Rm[1] HRC[2]	fz0 mm F	fz0 mm M	fz0 mm R	Vc m/min Pag. 500 N3815	F3120	F1325	F1335	F2135	F2740	T1120
P	ACCIAIO NON LEGATO - NOT ALLOY STEEL	1---5	125-300	0,12	0,15	0,19		200	240	220			250
P	ACCIAIO POCO LEGATO - LOW ALLOY STEEL	6--9	180-350	0,12	0,15	0,19		180	190	180			200
P	ACCIAIO ALTO LEGATO - ALLOY STEEL	10-11	200-325	0,12	0,15	0,19		160	150	160			180
P	INOX MARTENS. - STAINLESS STEEL MART	12-13	200-240	0,12	0,15	0,19		120	150				140
M	INOX AUST. DUPLEX - STAINLESS STEEL AUST	14.1-14.2	180-230	0,1	0,15	0,17			100	90	120	100	
K	GHISA GRIGIA - GREY CAST IRON	15-16	180-260	0,1	0,15	0,19		280	250				
K	GHISA SFEROIDALE - SPHEROIDAL GRAPHITE	17-18	160-250	0,1	0,15	0,19		260	220				
K	GHISA MALLEABILE - MALLEABLE CAST IRON	19-20	130-230	0,1	0,15	0,19		240	140				
N	ALLUMINIO E SUE LEGHE - ALUMINIUM	21---25	60-130	0,1	0,13	0,16	700						
N	RAME E SUE LEGHE - COPPER	26--28	90-110	0,1	0,13	0,16	280						
N	NON METALLICI - PLASTICS	29-30	/	0,1	0,13	0,16	280						
S	LEGHE RESIST. CALORE - HIG. TEMP. ALLOY	31---35	200-320	0,08	0,14						50		
S	TITANIO E SUE LEGHE - TITANIUM	36-37	400-1050[1]	0,08	0,14						45		
H	ACCIAIO TEMPRATO - HARDENED STEEL	38--41	45-60[2]										

$$n = \frac{Vc \cdot 1000}{ØD \cdot 3{,}14} = \text{giri/min } (min^{-1})$$

$$fz = fz0 \cdot Kae = mm$$

$$fn = fz \cdot z = mm$$

$$Vf = fz \cdot z \cdot n = mm/min$$



ae/D	0,5-1 50-100%	0,2 20%	0,1 10%	0,05 5%	0,02 2%
Kae	1	1,1	1,2	1,3	1,5

Vc Pag. 500	ae/D	0,5-1 50-100%	0,2 20%	0,1 10%	0,05 5%
	Vc (min)---------Vc (max)				

F = FINITURA , LAV. LEGGERA - FINISHING , LIGHT MACHINING
M = LAV. MEDIA , GENERICA - MEDIUM MACHINING , GENERIC
R = SGROSSATURA , LAV. PESANTE - ROUGHING , HEAVY MACHINING

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED
Kae = FATTORE DI CORREZIONE - CORRECTION FACTOR

INSERTO SEKX.. IN GRADO T528N / INSERT SEKX.. WITH QUALITY T528N	MATERIALI MATERIALS pag. 1119	P: ACCIAIO NON LEGATO NOT ALLOY STEEL	P: ACCIAIO POCO LEGATO LOW ALLOY STEEL	P: ACCIAIO ALTO LEGATO ALLOY STEEL	P: INOX MARTENSITICO STAINLESS STEEL MART	M: INOX AUST. DUPLEX STAINLESS STEEL AUST	K: GHISA GRIGIA GREY CAST IRON	K: GHISA SFEROIDALE SPHEROIDAL GRAPHITE	K: GHISA MALLEABILE MALLEABLE CAST IRON	S: LEGHE RESIST. CALORE HIG. TEMP. ALLOY	S: TITANIO E SUE LEGHE TITANIUM
ALTI AVANZAMENTI HIGH FEED	fz0 mm ap<2	0,2-0,6	0,2-0,5	0,2-0,4	0,2-0,4	0,2-0,5	0,2-0,6	0,2-0,6	0,2-0,6	0,1-0,4	0,1-0,4
AVANZAMENTI STAND. STANDARD FEED	fz0 mm ap>2	0,25	0,25	0,25	0,25	0,25	0,25	0,25	0,25		
VELOCITÀ DI TAGLIO CUTTING SPEED	Vc m/min	100-220	80-220	80-180	70-180	60-200	80-180	70-160	70-170	20-60	40-70

■ DISPONIBILI - IN STOCK - LIEFERBAR - DISPONIBLES / ■ NEW
● ● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

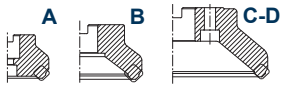
□ A RICHIESTA - ON REQUEST - AUF ANFRAGE - SUR DEMANDE / □ NEW
○ ○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

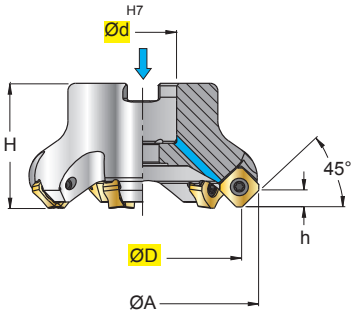
S 4501-8W .. 12N

Ø 50-250

γ_p -6°
γ_f -9°/-2°
γ_o -11°/-6°

ISO 6462 ...

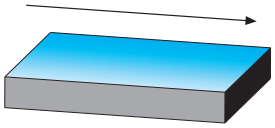


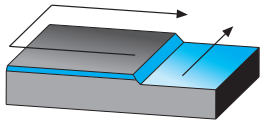


SNEX 1206NN .K11	
SNCX 1206ANFN .F57P	
SNMX 1206NN .F51	
SNMX 1206NN .F52	
SNMX 1206NN .F53	
SNMX 1206NN .F56	
SNMX 1206NN .F58	
SNMX 120612 .F51	
SNMX 120612 .F58	

INSERTI - INSERTS
PAG. 515

ART.	(mm) ØD	Ød	ØA	H	h	Z		kg	Nm	ISO 6462				
S 4501-8W-050-04-12N	50	22	63,4	40	6	4	–	0,41	3,8÷5	A	1206	124011P	5620P	AL10x30
S 4501-8W-050-06-12N	50	22	63,4	40	6	6	–	0,41	3,8÷5	A				
S 4501-8W-063-05-12N New	63	22	76,4	40	6	5	–	0,61	3,8÷5	A				
S 4501-8W-063-06-12N	63	22	76,4	40	6	6	–	0,55	3,8÷5	A				
S 4501-8W-063-08-12N	63	22	76,4	40	6	8	–	0,55	3,8÷5	A				
S 4501-8W-080-06-12N New	80	27	93,4	50	6	6	–	0,99	3,8÷5	A	1206	124011P	5620P	AL12x35
S 4501-8W-080-07-12N	80	27	93,4	50	6	7	–	0,98	3,8÷5	A				
S 4501-8W-080-10-12N	80	27	93,4	50	6	10	–	0,98	3,8÷5	A				
S 4501-8W-100-08-12N	100	32	113,4	50	6	8	–	1,60	3,8÷5	A	1206	124011P	5620P	AL16x35
S 4501-8W-100-12-12N	100	32	113,4	50	6	12	–	1,60	3,8÷5	A				
S 4501-8W-125-08-12N New	125	40	138,4	63	6	8	–	3,31	3,8÷5	A	1206	124011P	5620P	AL20x45
S 4501-8W-125-10-12N	125	40	138,4	63	6	10	–	3,25	3,8÷5	A				
S4501-8W-125-16-12 N	125	40	138,4	63	6	16	–	3,26	3,8÷5	A				
S4501-8-160-10-12 N New	160	40	173,4	63	6	10	–	4,17	3,8÷5	C				
S4501-8-160-12-12 N	160	40	173,4	63	6	12	–	4,14	3,8÷5	C				
S4501-8-160-20-12N	160	40	173,4	63	6	20	–	4,16	3,8÷5	C				
S4501-8-200-18-12N	200	60	213,4	63	6	18	–	6,69	3,8÷5	D				
S4501-8-200-26-12N	200	60	213,4	63	6	26	–	6,81	3,8÷5	D				
S4501-8-250-20-12N	250	60	263,4	63	6	20	–	9,40	3,8÷5	D				
S4501-8-250-30-12N	250	60	263,4	63	6	30	–	9,51	3,8÷5	D				





F = PASSO FINE - FINE PITCH - FEINE ZAHNTEILUNG - PAS FIN
⌖ = PASSO DIFFERENZIATO - DIFFERENTIAL PITCH - UNGLEICHE TEILUNG - PAS DIFFERENCIE

PAG. 1059

SAU QUALITY TOOLS ENGINEERING

SCELTA VELOCE - QUICK PICK

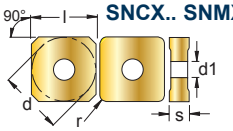
Tenacità / Toughness +/-

Pag. 486

COD.			P			M			K			N			S			H		
			F	M	R	F	M	R	F	M	R	F	M	R	F	M	R	F	M	R
SNEX	1206NN	.K11	○	○					●	●	○									
SNCX	1206ANFN	.F57P										○	●							
SNMX	1206NN	.F51		○	○					●	●									
										●	●									
SNMX	1206NN	.F52	●	●	●															
SNMX	1206NN	.F53					●	●												
SNMX	1206NN	.F56							○	●	●									
SNMX	1206NN	.F58		●	●															
				●	●		○	○												
SNMX	120612	.F51								●	●									
SNMX	120612	.F58		●	●															
				●	●		○	○												

HT	HW	HC										
CERMET	NON RIV. CEMENTED CARBIDE GRADES	RIVESTITI COATED GRADES BESCHICHTET RECOUVERTS										
	N3815	F3120	F2740	T3116	F3420	T1025	T1730			F3010	F1335	
			■	■								
	■					■						
			■									
				■								
							■				■	
				■								
							■				■	

SNCX.. SNMX..



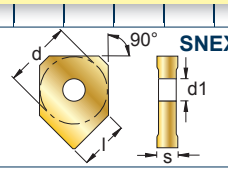
l	d	s	d1	r	a°
8,5	12,7	6,35	4,5	–	–
12,7	12,7	6,35	5,4	–	–
12,7	12,7	6,35	5,4	–	–
12,7	12,7	6,35	5,4	–	–
12,7	12,7	6,35	5,4	–	–
12,7	12,7	6,35	5,4	–	–
12,7	12,7	6,35	5,4	–	–
12,7	12,7	6,35	5,4	1,2	–
12,7	12,7	6,35	5,4	1,2	–

ÉPOSSIBILE UTILIZZARE INSERTI **ONMU..**, PAG 511
ONMU.. INSERTS CAN BE USED.. , PAGE 511
DIE VERWENDUNG WENDEPLATTEN **ONMU**.. IST MÖGLICH, S. SEITE 511
IL EST POSSIBLE D'UTILISER DES PLAQUETTES **ONMU**.. , PAGE 511

CON ADDUZIONE LUBROREFRIGERANTE - WITH COOLANT SUPPLY ○

SENZA ADDUZIONE LUBROREFRIGERANTE - WITHOUT COOLANT SUPPLY ●

SNEX..



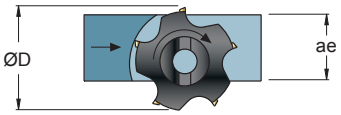
MATERIALI - MATERIALS Pag. 1119		VDI 3323 GR.	HB Rm[1] HRC[2]	fz0 mm			Vc m/min Pag. 500									
				F	M	R	F3010	N3815	T3116	F3120	F3420	T1025	T1730	F1335	F2740	
P	ACCIAIO NON LEGATO - NOT ALLOY STEEL	1---5	125-300	0,12	0,25	0,35	200			200		240	230	220		
P	ACCIAIO POCO LEGATO - LOW ALLOY STEEL	6--9	180-350	0,1	0,2	0,3	200			180		240	190	180		
P	ACCIAIO ALTO LEGATO - ALLOY STEEL	10-11	200-325	0,1	0,2	0,3	180			160		220	165	160		
P	INOX MARTENS. - STAINLESS STEEL MART	12-13	200-240	0,08	0,15	0,25	120			120		160	150			
M	INOX AUST. DUPLEX - STAINLESS STEEL AUST	14.1-14.2	180-230	0,06	0,10	0,20								90	100	
K	GHISA GRIGIA - GREY CAST IRON	15-16	180-260	0,12	0,3	0,4	290		310	280	300					
K	GHISA SFEROIDALE - SPHEROIDAL GRAPHITE	17-18	160-250	0,12	0,25	0,35	180		180	260	170					
K	GHISA MALLEABILE - MALLEABLE CAST IRON	19-20	130-230	0,12	0,25	0,35	260		280	240	270					
N	ALLUMINIO E SUE LEGHE - ALUMINIUM	21---25	60-130					700								
N	RAME E SUE LEGHE - COPPER	26--28	90-110					280								
N	NON METALLICI - PLASTICS	29-30	/					280								
S	LEGHE RESIST. CALORE - HIG. TEMP. ALLOY	31---35	200-320													
S	TITANIO E SUE LEGHE - TITANIUM	36-37	400-1050[1]													
H	ACCIAIO TEMPRATO - HARDENED STEEL	38--41	45-60[2]													

$$n = \frac{Vc \cdot 1000}{\O D \cdot 3,14} = \text{giri/min (min}^{-1}\text{)}$$

$$fz = fz0 \cdot Kae = \text{mm}$$

$$fn = fz \cdot z = \text{mm}$$

$$Vf = fz \cdot z \cdot n = \text{mm/min}$$



ae/D	0,5-1 50-100%	0,2 20%	0,1 10%	0,05 5%	0,02 2%
Kae	1	1,1	1,2	1,3	1,5

ae/D	0,5-1 50-100%	0,2 20%	0,1 10%	0,05 5%
Vc Pag. 500	Vc (min)---------Vc(max)			

F = FINITURA , LAV. LEGGERA - FINISHING , LIGHT MACHINING
M = LAV. MEDIA , GENERICA - MEDIUM MACHINING , GENERIC
R = SGROSSATURA , LAV. PESANTE - ROUGHING , HEAVY MACHINING

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED
Kae = FATTORE DI CORREZIONE - CORRECTION FACTOR

- 8 Taglienti "Utili" disponibili grazie all'inserto bilaterale.
- 8 "Useful" cutting-edges thanks to two-sided insert
- 8 "Nützliche" schneidkanten dank zweiseitiger wendeschneidplatten
- 8 Tranchants "Utiles" disponibles grace a la plaquette bilaterale

■ DISPONIBILI - IN STOCK - LIEFERBAR - DISPONIBLES / ■ NEW
●● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE
□ A RICHIESTA - ON REQUEST - AUF ANFRAGE - SUR DEMANDE / □ NEW
○○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

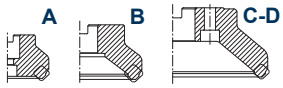
S 4502-8W .. 05

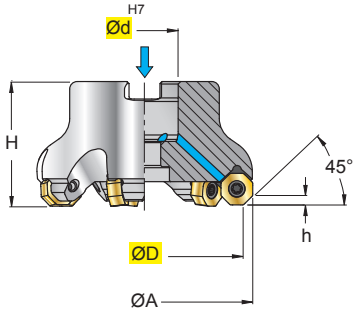
NEW

Ø 50-125

γ_p -6°
γ_f -9°/-4°
γ_o -11°/-7°

ISO 6462 ...

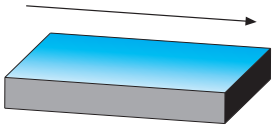


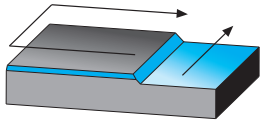


ONMU 050608SN .F51	 NEW
ONMU 050608SN .F53	 NEW
ONMU 050608SN .F55	 NEW
ONMU 050608SN .F58	 NEW

INSERTI - INSERTS
PAG. 511

ART.	(mm) ØD	Ød	ØA	H	h	Z		kg	Nm	ISO 6462				
S 4502-8W-050-04-05	50	22	57,7	40	3	4	–	0,38	3,8÷5	A	0506	124011P	5620P	AL10x30
S 4502-8W-050-06-05	50	22	57,7	40	3	6	–	0,39	3,8÷5	A				
S 4502-8W-063-06-05	63	22	70,7	40	3	6	–	0,52	3,8÷5	A				
S 4502-8W-063-08-05	63	22	70,7	40	3	8	–	0,53	3,8÷5	A				
S 4502-8W-080-07-05	80	27	87,6	50	3	7	–	1,03	3,8÷5	A-B	0506	124011P	5620P	AL12x35
S 4502-8W-080-10-05	80	27	87,6	50	3	10	–	1,04	3,8÷5	A-B				
S 4502-8W-100-08-05	100	32	107,6	50	3	8	–	1,66	3,8÷5	A-B	0506	124011P	5620P	AL16x35
S 4502-8W-100-12-05	100	32	107,6	50	3	12	–	1,68	3,8÷5	A-B				
S 4502-8W-125-10-05	125	40	132,6	63	3	10	–	3,50	3,8÷5	A-B	0506	124011P	5620P	AL 20x45
S 4502-8W-125-16-05	125	40	132,6	63	3	16	–	3,50	3,8÷5	A-B				





W = FORO PER LIQUIDO REFRIGERANTE - COOLANT BORE - KÜHLMITTELBOHRUNG - TROU DU LIQUIDE D'ARROSAGE
= PASSO DIFFERENZIATO - DIFFERENTIAL PITCH - UNGLEICHE TEILUNG - PAS DIFFERENCIE

SAU QUALITY TOOLS ENGINEERING

SCELTA VELOCE - QUICK PICK

Tenacità / Toughness +/-

Pag. 486

COD.			P			M			K			N			S			H		
			F	M	R	F	M	R	F	M	R	F	M	R	F	M	R	F	M	R
ONMU	050608SN	.F51		○	○					●	●									
ONMU	050608SN	.F53					●	●								○	○			
							●	●												
ONMU	050608SN	.F55		●	●		○	○		●	●								●	
ONMU	050608SN	.F58	○	●	●	○	○	○	○	○	○									
				●	●		○	○												

HT	HW	HC								
CERMET	NON RIV. CEMENTED CARBIDE GRADES	RIVESTITI COATED GRADES BESCHICHTET RECOUVERTS								
		EnW F7810	EnW F3120	EnW F2135	F2740			F1325	F1335	
		■	■	■	■			■	■	
		■								
		○	○	○				○	○	
		●	●	●	●			●	●	

l	d	s	d1	r	a°
5,24	12,7	5,8	5,45	0,8	–
5,24	12,7	5,8	5,45	0,8	–
5,24	12,7	5,8	5,45	0,8	–
5,24	12,7	5,8	5,45	0,8	–

- COME OPZIONE SI POSSONO MONTARE GLI INSERTI **SNMX**. DA TENERE PRESENTE CHE DIAMETRO E ALTEZZA CON QUESTI INSERTI SARANNO DIVERSI: **ØD** DIMINUIRÀ DI CIRCA 2,9 mm MENTRE QUOTA **H** AUMENTERÀ DI CIRCA 1,45 mm

- **SNMX** INSERTS CAN BE OPTIONALLY USED. PLASE NOTE THAT WITH THESE INSERTS DIAMETER AND HEIGHT WILL CHANGE: **ØD** WILL DECREASE BY AROUND 2,9 mm AND **H** WILL INCREASE BY AROUND 1,45 mm

CON ADDUZIONE LUBROREFRIGERANTE - WITH COOLANT SUPPLY	○	○	○			○	○					
SENZA ADDUZIONE LUBROREFRIGERANTE - WITHOUT COOLANT SUPPLY	●	●	●	●		●	●					

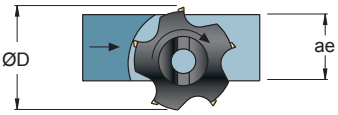
MATERIALI - MATERIALS Pag. 1119		VDI 3323 GR.	HB Rm[1] HRC[2]	fz0 mm			Vc m/min Pag. 500										
				F	M	R	F7810	F3120	F1325	F1335	F2135	F2740					
P	ACCIAIO NON LEGATO - NOT ALLOY STEEL	1---5	125-300	0,16	0,22	0,3	270	250	240	220							
	ACCIAIO POCO LEGATO - LOW ALLOY STEEL	6--9	180-350	0,16	0,22	0,3	230	200	190	180							
	ACCIAIO ALTO LEGATO - ALLOY STEEL	10-11	200-325	0,16	0,22	0,3	200	190	150	160							
	INOX MARTENS. - STAINLESS STEEL MART	12-13	200-240	0,16	0,22	0,3		150	150								
M	INOX AUST. DUPLEX - STAINLESS STEEL AUST	14.1-14.2	180-230	0,12	0,18	0,25	120		100	90	120	100					
K	GHISA GRIGIA - GREY CAST IRON	15-16	180-260	0,2	0,25	0,35	280	230	250								
	GHISA SFEROIDALE - SPHEROIDAL GRAPHITE	17-18	160-250	0,2	0,25	0,35	250	170	220								
	GHISA MALLEABILE - MALLEABLE CAST IRON	19-20	130-230	0,2	0,25	0,35	250	150	140								
N	ALLUMINIO E SUE LEGHE - ALUMINIUM	21---25	60-130														
	RAME E SUE LEGHE - COPPER	26--28	90-110														
	NON METALLICI - PLASTICS	29-30	/														
S	LEGHE RESIST. CALORE - HIG. TEMP. ALLOY	31---35	200-320	0,1	0,13	0,2					50						
	TITANIO E SUE LEGHE - TITANIUM	36-37	400-1050[1]	0,1	0,13	0,2					45						
H	ACCIAIO TEMPRATO - HARDENED STEEL	38--41	45-60[2]	0,1	0,16	0,26	75										

$$n = \frac{Vc \cdot 1000}{ØD \cdot 3,14} = \text{giri/min (min}^{-1}\text{)}$$

$$fz = fz0 \cdot Kae = \text{mm}$$

$$fn = fz \cdot z = \text{mm}$$

$$Vf = fz \cdot z \cdot n = \text{mm/min}$$



ae/D	0,5-1 50-100%	0,2 20%	0,1 10%	0,05 5%	0,02 2%
Kae	1	1,1	1,2	1,3	1,5

ae/D	0,5-1 50-100%	0,2 20%	0,1 10%	0,05 5%
Vc Pag. 500	Vc (min)---------Vc(max)			

F = FINITURA , LAV. LEGGERA - FINISHING , LIGHT MACHINING
M = LAV. MEDIA , GENERICA - MEDIUM MACHINING , GENERIC
R = SGROSSATURA , LAV. PESANTE - ROUGHING , HEAVY MACHINING

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED
Kae = FATTORE DI CORREZIONE - CORRECTION FACTOR

LATO A - SIDE A

LATO B - SIDE B

- 16 Taglienti "Utili" disponibili grazie all'inserto bilaterale.
- 16 "Useful" cutting-edges thanks to two-sided insert
- 16 "Nützliche" schneidkanten dank zweiseitiger wendeschneidplatten
- 16 Tranchants "Utiles" disponibles grace a la plaquette bilaterale

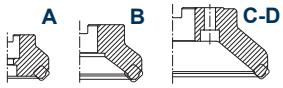
■ DISPONIBILI - IN STOCK - LIEFERBAR - DISPONIBLES / ■ NEW
●● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE
□ A RICHIESTA - ON REQUEST - AUF ANFRAGE - SUR DEMANDE / □ NEW
○○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

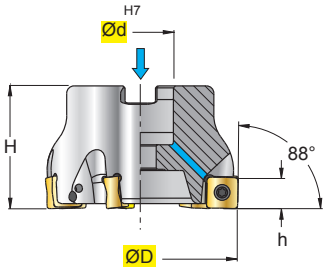
S 8801-8 .. 12
S 8801-8W .. 12

Ø 50-250

γ_p -6°
γ_f -8°/-5,5°
γ_o -8°/-5,5°

ISO 6462 ...

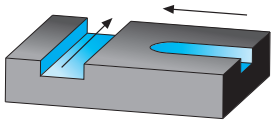




SNMX 1206QNN .F51	
SNMX 1206QNN .F53	
SNMX 1206QNN .F58	
SNMX 120612 .F51	
SNMX 120612 .F58	

INSERTI - INSERTS
PAG. 515

ART.	(mm) ØD	Ød	H	h	Z		kg	Nm	ISO 6462				
S 8801-8W-050-04-12	50	22	40	11,5	4	–	0,27	3,8÷5	A	1206	124011P	5620P	VBSF10
S 8801-8W-063-06-12	63	22	40	11,5	6	–	0,46	3,8÷5	A				
S 8801-8W-080-07-12	80	27	50	11,5	7	–	0,94	3,8÷5	A	1206	124011P	5620P	AL12x35
S 8801-8W-080-09-12	80	27	50	11,5	9	–	0,92	3,8÷5	A				
S 8801-8W-100-08-12	100	32	50	11,5	8	–	1,63	3,8÷5	A-B	1206	124011P	5620P	AL16x35
S 8801-8W-100-11-12	100	32	50	11,5	11	–	1,59	3,8÷5	A-B				
S 8801-8W-125-10-12	125	40	63	11,5	10	–	3,05	3,8÷5	A-B	1206	124011P	5620P	AL20x45
S 8801-8W-125-14-12	125	40	63	11,5	14	–	2,99	3,8÷5	A-B				
S 8801-8-160-12-12	160	40	63	11,5	12	–	4,00	3,8÷5	C	1206	124011P	5620P	–
S 8801-8-160-18-12	160	40	63	11,5	18	–	3,91	3,8÷5	C				
S 8801-8-200-14-12	200	60	63	11,5	14	–	6,61	3,8÷5	D				
S 8801-8-200-22-12	200	60	63	11,5	22	–	6,48	3,8÷5	D				
S 8801-8-250-16-12	250	60	63	11,5	16	–	9,68	3,8÷5	D				
S 8801-8-250-24-12	250	60	63	11,5	24	–	9,52	3,8÷5	D				



W = FORO PER LIQUIDO REFRIGERANTE - COOLANT BORE - KÜHLMITTELBOHRUNG - TROU DU LIQUIDE D'ARROSAGE
= PASSO DIFFERENZIATO - DIFFERENTIAL PITCH - UNGLEICHE TEILUNG - PAS DIFFERENCIE

SAU QUALITY TOOLS ENGINEERING

SCELTA VELOCE - QUICK PICK

Tenacità / Toughness + -

Pag. 486

COD.			P			M			K			N			S			H		
			F	M	R	F	M	R	F	M	R	F	M	R	F	M	R	F	M	R
SNMX	1206QNN	.F51		○	○					●	●									
										●										
SNMX	1206QNN	.F53					●	●												
SNMX	1206QNN	.F58		●	●															
				●	●		○	○												
SNMX	120612	.F51								●	●									
SNMX	120612	.F58		●	●															
				●	●		○	○												

HT	HW	HC																	
CERMET	NON RIV. CEMENTED CARBIDE GRADES	RIVESTITI COATED GRADES BESCHICHTET RECOUVERTS																	
						F2740		T3116	F3120	T1730			F1335						
						■		■	■										
										■									
													■						
								■											
										■			■						

l	d	s	d1	r	a°
12,7	12,7	6,35	5,4	0,8	–
12,7	12,7	6,35	5,4	0,8	–
12,7	12,7	6,35	5,4	0,8	–
12,7	12,7	6,35	5,4	1,2	–
12,7	12,7	6,35	5,4	1,2	–

CON ADDUZIONE LUBROREFRIGERANTE - WITH COOLANT SUPPLY

								○	○	○			○						

SENZA ADDUZIONE LUBROREFRIGERANTE - WITHOUT COOLANT SUPPLY

						●		●	●	●			●						

MATERIALI - MATERIALS

Pag. 1119

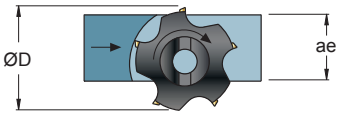
		VDI 3323 GR.	HB Rm[1] HRC[2]	fz0 mm F	M	R	Vc m/min Pag. 500 T3116	F3120	T1730	F1335	F2740
P	ACCIAIO NON LEGATO - NOT ALLOY STEEL	1---5	125-300	0,12	0,25	0,35		200	230	220	
	ACCIAIO POCO LEGATO - LOW ALLOY STEEL	6--9	180-350	0,1	0,2	0,3		180	190	180	
	ACCIAIO ALTO LEGATO - ALLOY STEEL	10-11	200-325	0,1	0,2	0,3		160	165	160	
	INOX MARTENS. - STAINLESS STEEL MART	12-13	200-240	0,08	0,15	0,25		120	150		
M	INOX AUST. DUPLEX - STAINLESS STEEL AUST	14.1-14.2	180-230	0,06	0,10	0,15				90	100
K	GHISA GRIGIA - GREY CAST IRON	15-16	180-260	0,12	0,3	0,4	310	280			
	GHISA SFEROIDALE - SPHEROIDAL GRAPHITE	17-18	160-250	0,12	0,25	0,35	180	260			
	GHISA MALLEABILE - MALLEABLE CAST IRON	19-20	130-230	0,12	0,25	0,35	280	240			
N	ALLUMINIO E SUE LEGHE - ALUMINIUM	21---25	60-130								
	RAME E SUE LEGHE - COPPER	26--28	90-110								
	NON METALLICI - PLASTICS	29-30	/								
S	LEGHE RESIST. CALORE - HIG. TEMP. ALLOY	31---35	200-320								
	TITANIO E SUE LEGHE - TITANIUM	36-37	400-1050[1]								
H	ACCIAIO TEMPRATO - HARDENED STEEL	38--41	45-60[2]								

$$n = \frac{Vc \cdot 1000}{\text{ØD} \cdot 3{,}14} = \text{giri/min (min}^{-1}\text{)}$$

$$fz = fz0 \cdot Kae = \text{mm}$$

$$fn = fz \cdot z = \text{mm}$$

$$Vf = fz \cdot z \cdot n = \text{mm/min}$$



ae/D	0,5-1 50-100%	0,2 20%	0,1 10%	0,05 5%	0,02 2%
Kae	1	1,1	1,2	1,3	1,5

ae/D	0,5-1 50-100%	0,2 20%	0,1 10%	0,05 5%
Vc Pag. 500	Vc (min)--------Vc(max)			

F = FINITURA , LAV. LEGGERA - FINISHING , LIGHT MACHINING
M = LAV. MEDIA , GENERICA - MEDIUM MACHINING , GENERIC
R = SGROSSATURA , LAV. PESANTE - ROUGHING , HEAVY MACHINING

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED
Kae = FATTORE DI CORREZIONE - CORRECTION FACTOR

LATO A - SIDE A

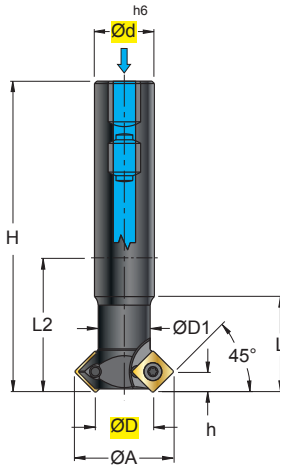
LATO B - SIDE B

- 8 Taglienti "Utili" disponibili grazie all'inserto bilaterale.
- 8 "Useful" cutting-edges thanks to two-sided insert
- 8 "Nützliche" schneidkanten dank zweiseitiger wendeschneidplatten
- 8 Tranchants "Utiles" disponibles grace a la plaquette bilaterale

■ DISPONIBILI - IN STOCK - LIEFERBAR - DISPONIBLES / ■ NEW
●● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE
□ A RICHIESTA - ON REQUEST - AUF ANFRAGE - SUR DEMANDE / □ NEW
○○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

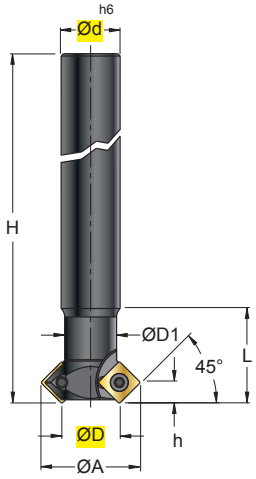
S 676W ..

Ø 09-032



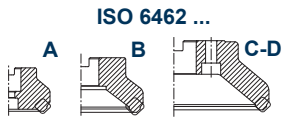
S 676XLZ ..

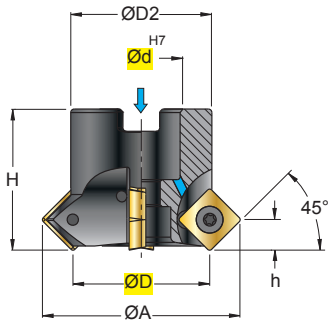
Ø 09-032



S 678W .. 12

Ø 040-050

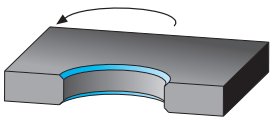


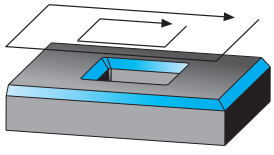


SPMT N54	
SPMW N51	
SPMW N59	

INSERTI - INSERTS **PAG. 517**

ART.		(mm) ØD	Ød	ØD1	ØD2	ØA	H	h	L	L2	Z		kg	Nm	ISO 6462				
S 676W	009 - 06	9	16	9	–	17,0	90	4,0	29	42	1	/	0,107	1,1÷1,3	–	060304	12256P	5608P	–
S 676W	016 - 09	16	20	16	–	28,0	110	5,8	42	60	2	–	0,209	3,0÷3,5	–	09T308	123509P	5615P	–
S 676W	025 - 12	25	25	22	–	41,5	130	8	40	74	2	–	0,434	4,0÷5,0	–	120408	124510P	5620P	–
S 676W	032 - 12	32	32	30	–	48,5	130	8	50	70	3	–	0,716	4,0÷5,0	–				
S 676XLZ	009 - 06	9	16	9	–	17,0	150	4,0	29	–	1	/	0,205	1,1÷1,3	–	060304	12256P	5608P	–
S 676XLZ	016 - 09	16	20	16	–	28,0	200	5,8	42	–	2	–	0,444	3,0÷3,5	–	09T308	123509P	5615P	–
S 676XLZ	025 - 12	25	25	22	–	41,5	200	8	40	–	2	–	0,723	4,0÷5,0	–	120408	124510P	5620P	–
S 676XLZ	032 - 12	32	32	30	–	48,5	250	8	50	–	3	–	1,491	4,0÷5,0	–				
S 678W	040 - 12	40	22	–	40	56,0	40	8	–	–	4	–	0,252	4,0÷5,0	A	120408	124510P	5620P	VBSF10
S 678W	050 - 12	50	22	–	48	66,0	40	8	–	–	5	–	0,403	4,0÷5,0	A				



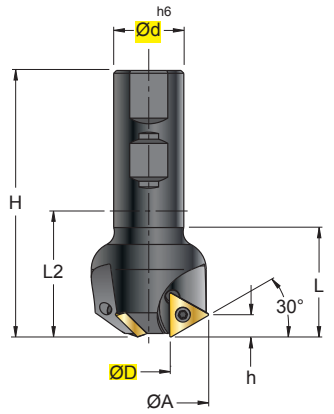


W = FORO PER LIQUIDO REFRIGERANTE - COOLANT BORE - KÜHLMITTELBOHRUNG - TROU DU LIQUIDE D'ARROSAGE
XLZ = EXTRALUNGA , STELO CILINDRICO - EXTRALONG , CYLINDRICAL SHANK - EXTRALANG , ZYLINDERSCHAFT - EXTRALONGUE , QUEUE CYLINDRIQUE
= PASSO DIFFERENZIATO - DIFFERENTIAL PITCH - UNGLEICHE TEILUNG - PAS DIFFERENCIE

S 616.30 ..

Ø 16

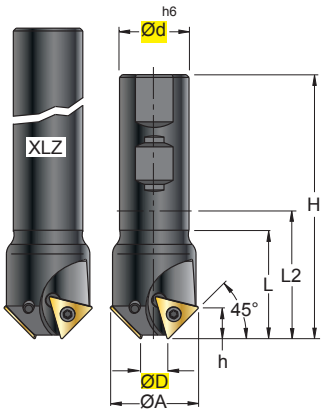
γ_p +10°
γ_f 0°
γ_o +5°



S 616.45 .. S 616XLZ ..

Ø 1,2-25

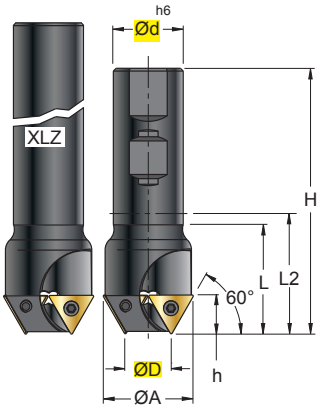
γ_p +29,5°/+6°
γ_f -15°/-5°
γ_o -15°/+1°



S 616.60 ..

Ø 5,4-17

γ_p +8,5°/+4°
γ_f -15°/-7°
γ_o -0,5°/0°



TCMT 110204 .G39	
TCMT S42	
TCMT G52	
TCMT 220408 EN .Z52	

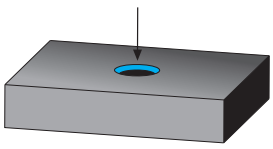
INSERTI - INSERTS
PAG. 517

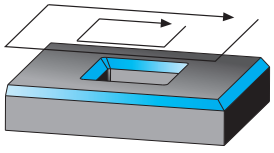
ART.	(mm) ØD	Ød	ØA	H	h	L	L2	Z		kg	Nm			
S616.30-16-16 (**)	16,0	25	42,5	95	7,5	39	39	3	–	0,420	3,8÷5,0	16T3	1240P	5615P
S616.45-1,2-11 (*)	1,2	12	15,0	70	6,9	25	25	1	/	0,060	1,1÷1,3	1102	12256P	5608P
S616.45-3,5-11 (*)	3,5	12	16,0	70	6,0	25	25	1	/	0,060	1,1÷1,3			
S616.45-6,2-11 (*)	6,2	16	21,0	80	7,3	27	32	2	–	0,120	1,1÷1,3			
S616.45-10,4-16 (**)	10,4	25	32,0	95	10,8	39	39	2	–	0,352	3,8÷5,0	16T3	1240P	5615P
S616.45-25-22 (***)	25,0	32	53,0	110	13,8	40	50	3	–	0,694	4,0÷5,0	2204	124510P	5620P
S616XLZ.45-6,2-11 (*)	6,2	16	21,0	150	7,3	27	–	2	–	0,231	1,1÷1,3	1102	12256P	5608P
S616XLZ.45-10,4-16 (**)	10,4	25	32,0	150	10,8	39	–	2	–	0,519	3,8÷5,0	16T3	1240P	5615P
S616.60-5,4-11 (*)	5,4	12	16,0	70	9,0	25	25	1	–	0,060	1,1÷1,3	1102	12256P	5608P
S616.60-14,4-11 (*)	14,4	16	24,0	80	8,5	27	32	2	–	0,140	1,1÷1,3			
S616.60-17-16 (**)	17,0	25	32,0	95	13,0	39	39	2	–	0,326	3,8÷5,0	16T3	1240P	5615P
S616XLZ.60-14,4-11 (*)	14,4	16	24,0	150	8,5	27	–	2	–	0,248	1,1÷1,3	1102	12256P	5608P
S616XLZ.60-17-16 (**)	17,0	25	32,0	150	13,0	39	–	2	–	0,543	3,8÷5,0	16T3	1240P	5615P

(*) Misure rilevate con inserto TCMT 110202
Dimensions obtained with insert TCMT 110202
Mit der Wendeplatte TCMT 110202 aufgenommene Bemessungen
Dimensions relevées avec plaquette TCMT 110202

(**) Misure rilevate con inserto TCMT 16T304
Dimensions obtained with insert TCMT 16T304
Mit der Wendeplatte TCMT 16T304 aufgenommene Bemessungen
Dimensions relevées avec plaquette TCMT 16T304

(***) Misure rilevate con inserto TCMT 220408
Dimensions obtained with insert TCMT 220408
Mit der Wendeplatte Tcmt 220408 aufgenommene Bemessungen
Dimensions relevées avec plaquette TCMT 220408

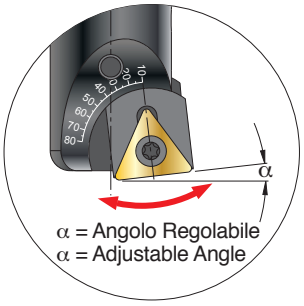


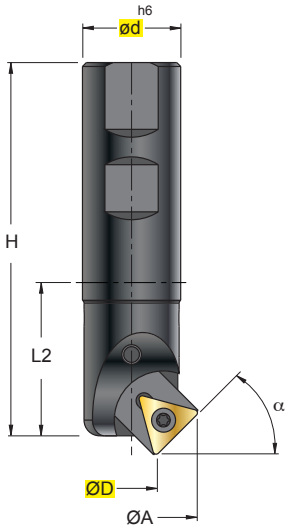


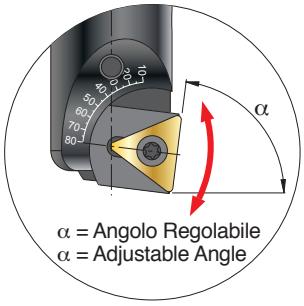
XLZ = EXTRALUNGA , STELO CILINDRICO - EXTRALONG , CYLINDRICAL SHANK - EXTRALANG , ZYLINDERSCHAFT - EXTRALONGUE , QUEUE CYLINDRIQUE
= PASSO DIFFERENZIATO - DIFFERENTIAL PITCH - UNGLEICHE TEILUNG - PAS DIFFERENCIE

S 618 .. .3

Ø 20-25



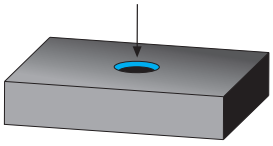


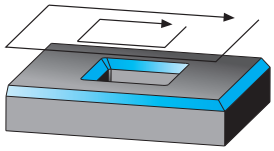


TCMT 110204 .G39	
TCMT S42	
TCMT G52	

INSERTI - INSERTS
PAG. 517

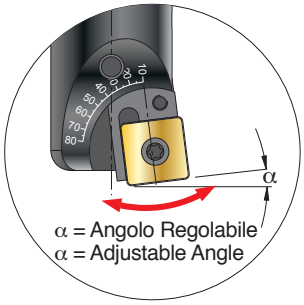
ART.		(mm) ØD	Ød	ØA	H	L2	α	kg	Nm					
S 618	020-11 .3	7,1	20	25,6	100	51	10°	0,213	1,1÷1,3	1102	S11	12256P	5608P	FS243
		8,6	20	26,2	100	51	20°	0,213	1,1÷1,3					
		10,3	20	26,5	100	51	30°	0,213	1,1÷1,3					
		12,2	20	26,4	100	51	40°	0,213	1,1÷1,3					
		13,2	20	26,3	100	51	45°	0,213	1,1÷1,3					
		14,2	20	26,0	100	51	50°	0,213	1,1÷1,3					
		16,2	20	25,3	100	51	60°	0,213	1,1÷1,3					
		18,2	20	24,2	100	51	70°	0,213	1,1÷1,3					
		20,1	20	22,9	100	51	80°	0,213	1,1÷1,3					
S 618	025-16 .3	4,9	25	31,6	100	44	10°	0,310	3,8÷5,0	16T3	S16	12409P	5515P	SM612
		7,1	25	32,6	100	44	20°	0,310	3,8÷5,0					
		9,7	25	33,1	100	44	30°	0,310	3,8÷5,0					
		12,4	25	33,1	100	44	40°	0,310	3,8÷5,0					
		13,8	25	32,9	100	44	45°	0,310	3,8÷5,0					
		15,3	25	32,6	100	44	50°	0,310	3,8÷5,0					
		18,2	25	31,6	100	44	60°	0,310	3,8÷5,0					
		21,0	25	30,1	100	44	70°	0,310	3,8÷5,0					
		23,8	25	28,2	100	44	80°	0,310	3,8÷5,0					

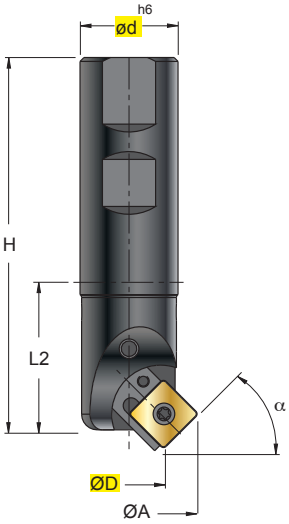


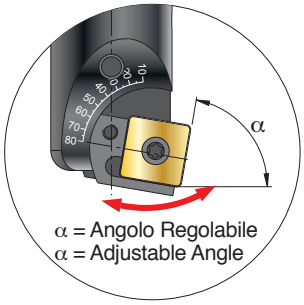


S 618 .. .4

Ø 20



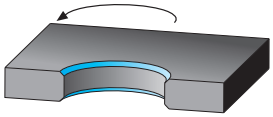


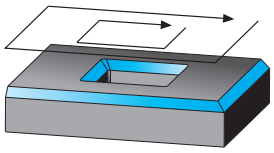


SCMT 1204.. .G52	


INSERTI - INSERTS
PAG. 205

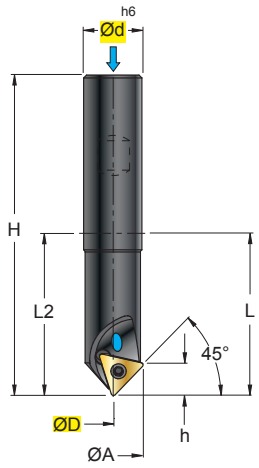
ART.		(mm) ØD	Ød	ØA	H	L2	α	kg	Nm	1204	S12.4	FS243	5620	SM612	5004	5015
S 618	020-12 .4	7,8	20	29,5	100	51	10°	0,213	5,5÷7,0	1204	S12.4	FS243	5620	SM612	5004	5015
		10,5	20	31,0	100	51	20°	0,213	5,5÷7,0							
		13,3	20	32,3	100	51	30°	0,213	5,5÷7,0							
		16,2	20	33,0	100	51	40°	0,213	5,5÷7,0							
		17,7	20	33,1	100	51	45°	0,213	5,5÷7,0							
		19,2	20	33,2	100	51	50°	0,213	5,5÷7,0							
		22,1	20	32,8	100	51	60°	0,213	5,5÷7,0							
		24,8	20	32,0	100	51	70°	0,213	5,5÷7,0							
		27,2	20	30,7	100	51	80°	0,213	5,5÷7,0							





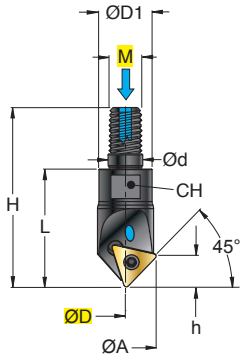
S 613.45W-0-16

Ø 0



S 613.9.45W-0-16

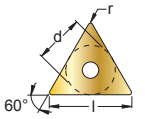
Ø 0



TCMX 16T308ZN .S52

INSERTI - INSERTS
PAG. 517

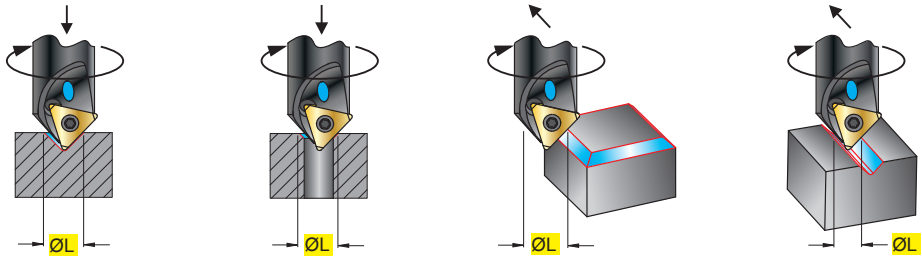
GRADO GRADE	QUICK PICK	MATERIALI MATERIALS					
		P	M	K	N	S	H
F4140		●	●	○	○	●	



mm					
l	d	S	d1	r
16,5	9,52	3,97	4,4	0,8

(mm)

ART.	ØD	M	Ød	ØD1	ØA	H	h	L	L2	Z	CH	kg	Nm			
S 613.45W-0-16	0	–	20	–	21,6	110	10	50	60	1	–	0,21	3,8÷5,0	16T308	12409P	5615P
S 613.9.45W-0-16	0	10	10,5	18	21,6	59	10	40	–	1	15	0,07	3,8÷5,0	16T308	12409P	5615P



① ② ③ ④

MATERIALI - MATERIALS Pag. 1119		VDI 3323 GR.	HB Rm[1] HRC[2]	Vc m/min	fz mm		
				F4140	①	②-③	④
P	ACCIAIO NON LEGATO - NOT ALLOY STEEL	1---5	125-300	120	0,02-0,04	0,05-0,2	0,03-0,08
	ACCIAIO POCO LEGATO - LOW ALLOY STEEL	6--9	180-350	100	0,02-0,04	0,05-0,2	0,03-0,08
	ACCIAIO ALTO LEGATO - ALLOY STEEL	10-11	200-325	80	0,02-0,04	0,05-0,2	0,03-0,08
	INOX MARTENS. - STAINLESS STEEL MART	12-13	200-240	100	0,02-0,04	0,05-0,2	0,03-0,08
M	INOX AUST. DUPLEX - STAINLESS STEEL AUST	14.1-14.2	180-230	100	0,03-0,05	0,05-0,2	0,03-0,08
K	GHISA GRIGIA - GREY CAST IRON	15-16	180-260	120	0,03-0,06	0,05-0,2	0,05-0,1
	GHISA SFEROIDALE - SPHEROIDAL GRAPHITE	17-18	160-250	140	0,03-0,06	0,05-0,2	0,05-0,1
	GHISA MALLEABILE - MALLEABLE CAST IRON	19-20	130-230	120	0,03-0,06	0,05-0,2	0,05-0,1
N	ALLUMINIO E SUE LEGHE - ALUMINIUM	21---25	60-130	200	0,03-0,06	0,05-0,2	0,08-0,15
	RAME E SUE LEGHE - COPPER	26--28	90-110	150	0,03-0,06	0,05-0,2	0,08-0,15
	NON METALLICI - PLASTICS	29-30	/				
S	LEGHE RESIST. CALORE - HIG. TEMP. ALLOY	31---35	200-320	50	0,01-0,06	0,03-0,07	0,05-0,1
	TITANIO E SUE LEGHE - TITANIUM	36-37	400-1050[1]	50	0,01-0,06	0,03-0,07	0,05-0,1
H	ACCIAIO TEMPRATO - HARDENED STEEL	38--41	45-60[2]				

$$n = \frac{Vc \cdot 1000}{ØL \cdot 3,14} = \text{giri/min (min}^{-1}\text{)}$$

$$fz = fz0 \cdot Kae = \text{mm}$$

$$fn = fz \cdot z = \text{mm}$$

$$Vf = fz \cdot z \cdot n = \text{mm/min}$$

F = FINITURA , LAV. LEGGERA - FINISHING , LIGHT MACHINING
M = LAV. MEDIA , GENERICA - MEDIUM MACHINING , GENERIC
R = SGROSSATURA , LAV. PESANTE - ROUGHING , HEAVY MACHINING

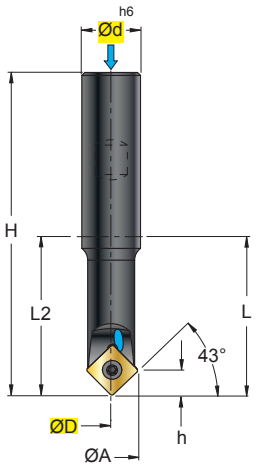
Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED
Kae = FATTORE DI CORREZIONE - CORRECTION FACTOR

W = FORO PER LIQUIDO REFRIGERANTE - COOLANT BORE - KÜHLMITTELBOHRUNG - TROU DU LIQUIDE D'ARROSAGE

PAG. 1059

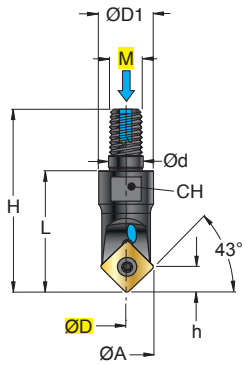
S 614.45W-0-12

Ø 0



S 614.9.45W-0-12

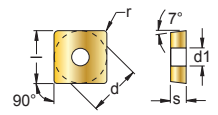
Ø 0



SCMX 120408ZN .S52

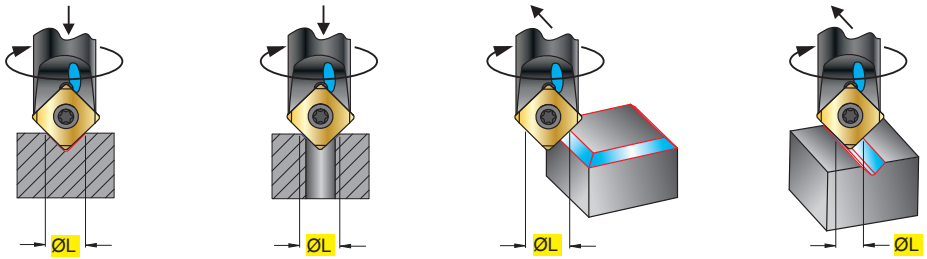
INSERTI - INSERTS
PAG. 513

GRADO GRADE	QUICK PICK	MATERIALI MATERIALS P	M	K	N	S	H
F4140		●	●	○	○	●	



mm l	d	S	d1	r
12,7	12,7	4,76	5,3	0,8

ART. (mm)	ØD	M	Ød	ØD1	ØA	H	h	L	L2	Z	CH	kg	Nm			
S 614.45W-0-12	0	–	20	–	18,4	110	7,8	50	60	1	–	0,21	5,5÷7,0	120408	FS242	5620
S 614.9.45W-0-12	0	10	10,5	18	18,4	59	7,8	40	–	1	15	0,07	5,5÷7,0	120408	FS242	5620



① ② ③ ④

MATERIALI - MATERIALS Pag. 1119		VDI 3323 GR.	HB Rm[1] HRC[2]	Vc m/min	fz mm		
				F4140	①	②-③	④
P	ACCIAIO NON LEGATO - NOT ALLOY STEEL	1---5	125-300	120	0,02-0,04	0,05-0,2	0,03-0,08
	ACCIAIO POCO LEGATO - LOW ALLOY STEEL	6--9	180-350	100	0,02-0,04	0,05-0,2	0,03-0,08
	ACCIAIO ALTO LEGATO - ALLOY STEEL	10-11	200-325	80	0,02-0,04	0,05-0,2	0,03-0,08
	INOX MARTENS. - STAINLESS STEEL MART	12-13	200-240	100	0,02-0,04	0,05-0,2	0,03-0,08
M	INOX AUST. DUPLEX - STAINLESS STEEL AUST	14.1-14.2	180-230	100	0,03-0,05	0,05-0,2	0,03-0,08
K	GHISA GRIGIA - GREY CAST IRON	15-16	180-260	120	0,03-0,06	0,05-0,2	0,05-0,1
	GHISA SFEROIDALE - SPHEROIDAL GRAPHITE	17-18	160-250	140	0,03-0,06	0,05-0,2	0,05-0,1
	GHISA MALLEABILE - MALLEABLE CAST IRON	19-20	130-230	120	0,03-0,06	0,05-0,2	0,05-0,1
N	ALLUMINIO E SUE LEGHE - ALUMINIUM	21---25	60-130	200	0,03-0,06	0,05-0,2	0,08-0,15
	RAME E SUE LEGHE - COPPER	26--28	90-110	150	0,03-0,06	0,05-0,2	0,08-0,15
	NON METALLICI - PLASTICS	29-30	/				
S	LEGHE RESIST. CALORE - HIG. TEMP. ALLOY	31---35	200-320	50	0,01-0,06	0,03-0,07	0,05-0,1
	TITANIO E SUE LEGHE - TITANIUM	36-37	400-1050[1]	50	0,01-0,06	0,03-0,07	0,05-0,1
H	ACCIAIO TEMPRATO - HARDENED STEEL	38--41	45-60[2]				

$$n = \frac{Vc \cdot 1000}{ØL \cdot 3,14} \text{ = giri/min (min}^{-1}\text{)}$$

$$fz = fz0 \cdot Kae \text{ = mm}$$

$$fn = fz \cdot z \text{ = mm}$$

$$Vf = fz \cdot z \cdot n \text{ = mm/min}$$

F = FINITURA , LAV. LEGGERA - FINISHING , LIGHT MACHINING
M = LAV. MEDIA , GENERICA - MEDIUM MACHINING , GENERIC
R = SGROSSATURA , LAV. PESANTE - ROUGHING , HEAVY MACHINING

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED
Kae = FATTORE DI CORREZIONE - CORRECTION FACTOR

W = FORO PER LIQUIDO REFRIGERANTE - COOLANT BORE - KÜHLMITTELBOHRUNG - TROU DU LIQUIDE D'ARROSAGE

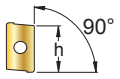
PAG. 1059

SAU
QUALITY TOOLS ENGINEERING

FRESE PER SPALLAMENTI
SHOULDER MILLING CUTTERS
ECKFRÄSER
FRAISES À DRESSER
FRESAS PARA ESCUADRAR

S2000. 86..07 Pag. 416

S 2000.86W .. 07

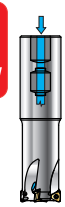


BD..0703 **h = 6**

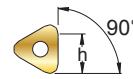
S2000. 89..07 Pag. 416

S 2000.89W .. 07

S9006.6.. W.. -06 Pag. 422



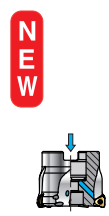
S 9006.6W .. -06



TNGX..0604 **h = 6**

S9006.8W.. -06 Pag. 422

S 9006.6XLW .. -06

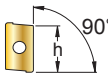


S 9006.8W .. -06

S1086 Pag. 426

S 1086 .. 10

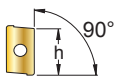
S 1086W/GW .. 10



AP..1003 **h = 10**

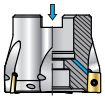
S2000. 86..11 Pag. 418

S 2000.86W .. 11
S 2000.86MW .. 11
S 2000.86XLW .. 11
S 2000.86XLMW .. 11



BD..11T3 **h = 11**

S2000. 88..11 Pag. 418



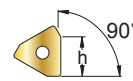
S 2000.88W .. 11

S2000. 89..11 Pag. 418

S 2000.89W .. 11

S9005-6..W..-09 Pag. 424

S 9005-6W- .. -09
S 9005-6XLW- .. -09



TOKX..09T3 **h = 8**

S9005-8W..-09 Pag. 424

S 9005-8W- .. -09

S9005-9W..-09 Pag. 424

S 9005-9W- .. -09

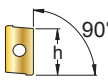
S1086 Pag. 428

S 1086GXL .. 10

S1087 Pag. 428

S 1086XLZ .. 10
S 1086XLZM .. 10

S 1087 .. 10



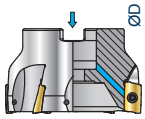
AP..1003 **h = 10**

S2000. 86..17 Pag. 420

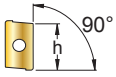
S 2000.86W .. 17

S2000. 88..17 Pag. 420

S 2000.86XLMW .. 17

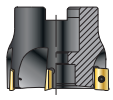


S 2000.88W .. 17

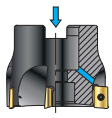


BD..1704 **h = 15,7**

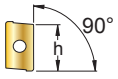
S1088 Pag. 430



S 1088 .. 10



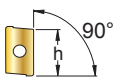
S 1088W/GW .. 10



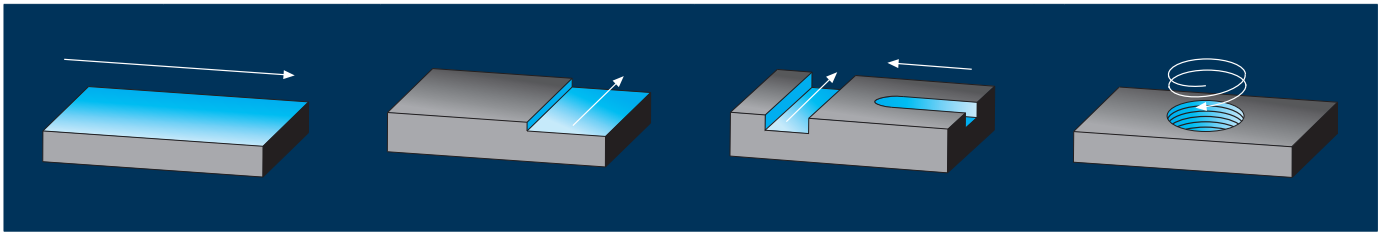
AP..1003 **h = 10**

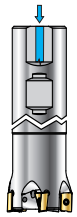
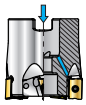
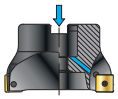
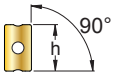
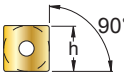
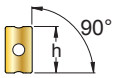
S1089 Pag. 430

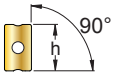
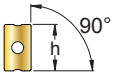
S 1089W ..

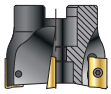
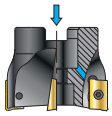
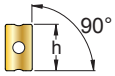


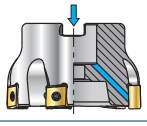
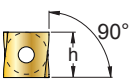
AP..1003 **h = 10**



S9001-6..-10	Pag. 432	S9001-8W..-10	Pag. 432	S1296	Pag. 436	S1298	Pag. 436	S1696	Pag. 438	
 ØD = 20 - 40	 ØD = 20 - 32	 ØD = 40 - 63	 ØD = 32 - 40	 ØD = 32 - 40	 ØD = 50 - 250	 ØD = 25 - 40	 ØD = 25 - 40			
S 9001-6W .. -10	S 9001-6XLW .. -10 S 9001-6XLMW .. -10	S 9001-8W .. -10	S 1296W .. 12	S 1296XLZ .. 12	S 1298W/G/GW.. 12	S 1696 .. 16	S 1696W .. 16			
 90° h	LNMM..1006	h = 9	 90° h	SD..1205	h = 10,5	 90° h	AP..1604	h = 16		

S9001-6W..-15	Pag. 434	S9001-8W..-15	Pag. 434			S1696	Pag. 440	S1697	Pag. 440
 ØD = 32 - 40		 ØD = 50 - 80				 ØD = 25 - 40		 ØD = 25 - 40	
S 9001-6W .. -15		S 9001-8W .. -15				S 1696XLZ .. 16 S 1696XLZM .. 16		S 1697 .. 16	
 90° h	LNMM..1510	h = 14				 90° h	AP..1604	h = 16	

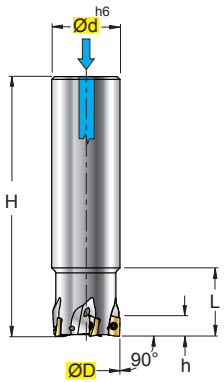
S1698	Pag. 442		
 ØD = 40 - 125	 ØD = 40 - 125		
S 1698 .. 16	S 1698W/GW .. 16		
 90° h	AP..1604	h = 16	

S9003.8W	Pag. 444		
 ØD = 50 - 160			
S 9003.8W ..13			
 90° h	LNMX 1313	h = 12	

S 2000.86W.. 07

Ø 10-25

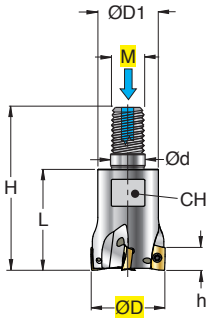
γ_p +3,5°/+7°
γ_f -18,7°/-9,7°
γ_o -18,7°/-9,7°



S 2000.89W.. 07

Ø 18-35

γ_p +7°
γ_f -10,85°/-8,56°
γ_o -10,85°/-8,56°



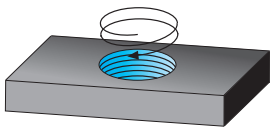
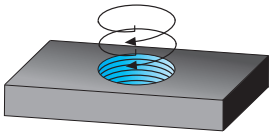
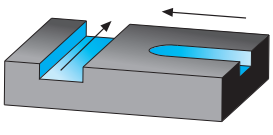
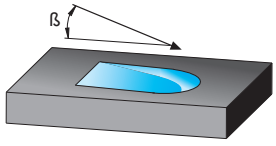
BDMT 0703 .Y42

BDMT 0703 .Y52

INSERTI - INSERTS
PAG. 510

(mm)

ART.	ØD	M	Ød	ØD1	H	h	L	ß	Z	⌖	CH	kg	Nm			
S 2000.86W 010-01.07	10	–	10	–	80	6	17	6°	1	/	–	0,04	0,5÷0,6	0703	122041P	5606P
S 2000.86W 012-02.07	12	–	12	–	80	6	18	3,5°	2	–	–	0,06	0,5÷0,6			
S 2000.86W 014-02.07	14	–	12	–	80	6	18	3°	2	–	–	0,07	0,5÷0,6			
S 2000.86W 016-03.07	16	–	16	–	85	6	20	1,8°	3	–	–	0,12	0,5÷0,6	0703	122041P	5606P
S 2000.86W 020-04.07	20	–	20	–	90	6	20	1,4°	4	–	–	0,20	0,5÷0,6			
S 2000.86W 025-05.07	25	–	25	–	95	6	25	1,0°	5	–	–	0,33	0,5÷0,6			
S 2000.89W 018-03.07	18	8	8,5	13	42	6	25	1,6°	3	–	10	0,04	0,5÷0,6	0703	122041P	5606P
S 2000.89W 022-03.07	22	10	10,5	18	49	6	30	1,2°	3	–	15	0,07	0,5÷0,6			
S 2000.89W 022-04.07	22	10	10,5	18	49	6	30	1,2°	4	–	15	0,07	0,5÷0,6			
S 2000.89W 028-05.07	28	12	12,5	21	57	6	35	0,9°	5	–	17	0,12	0,5÷0,6			
S 2000.89W 035-07.07	35	16	17,0	29	67	6	43	0,7°	7	–	24	0,26	0,5÷0,6			

W = FORO PER LIQUIDO REFRIGERANTE - COOLANT BORE - KÜHLMITTELBOHRUNG - TROU DU LIQUIDE D'ARROSAGE
⌖ = PASSO DIFFERENZIATO - DIFFERENTIAL PITCH - UNGLEICHE TEILUNG - PAS DIFFERENCIE

PAG. 1059

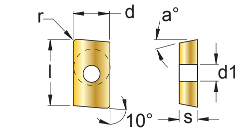
SAU QUALITY TOOLS ENGINEERING

SCELTA VELOCE - QUICK PICK

Tenacità + / Toughness -

Pag.486

HT: CERMET — HW: NON RIV. CEMENTED CARBIDE GRADES — HC: RIVESTITI COATED GRADES BESCHICHTET RECOUVERTS



COD.			P F	P M	P R	M F	M M	M R	K F	K M	K R	N F	N M	N R	S F	S M	S R	H F	H M	H R	F3710	F4725	l	d	s	d1	r	a°
BDMT	070304ER	.Y42							○	●	●				○	○					■		6,7	4,6	2,6	2,3	0,4	16
			○	●	●	○	●	●														■						
BDMT	070302ER	.Y52	○	●	●	○	●	●														■	6,7	4,6	2,6	2,3	0,2	16
BDMT	070304ER	.Y52							○	●	●				○	○					■		6,7	4,6	2,6	2,3	0,4	16
			○	●	●	○	●	●														■						

	F3710	F4725
CON ADDUZIONE LUBROREFRIGERANTE - WITH COOLANT SUPPLY	●	●
SENZA ADDUZIONE LUBROREFRIGERANTE - WITHOUT COOLANT SUPPLY	○	○

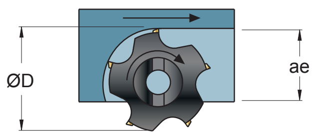
	MATERIALI - MATERIALS Pag. 1119	VDI 3323 GR.	HB Rm 1) HRC 2)	fz0 mm F	fz0 mm M	fz0 mm R	Vc m/min Pag. 500 F3710	F4725
P	ACCIAIO NON LEGATO - NOT ALLOY STEEL	1---5	125-300	0,08	0,15	0,25		200
P	ACCIAIO POCO LEGATO - LOW ALLOY STEEL	6--9	180-350	0,08	0,15	0,2		170
P	ACCIAIO ALTO LEGATO - ALLOY STEEL	10-11	200-325	0,06	0,12	0,16		160
P	INOX MARTENS. - STAINLESS STEEL MART	12-13	200-240	0,08	0,12	0,15		140
M	INOX AUST. DUPLEX - STAINLESS STEEL AUST	14.1-14.2	180-230	0,08	0,12	0,15		170
K	GHISA GRIGIA - GREY CAST IRON	15-16	180-260	0,08	0,18	0,25	190	
K	GHISA SFEROIDALE - SPHEROIDAL GRAPHITE	17-18	160-250	0,08	0,15	0,2	170	
K	GHISA MALLEABILE - MALLEABLE CAST IRON	19-20	130-230	0,08	0,15	0,2	150	
N	ALLUMINIO E SUE LEGHE - ALUMINIUM	21---25	60-130					
N	RAME E SUE LEGHE - COPPER	26--28	90-110					
N	NON METALLICI - PLASTICS	29-30	/					
S	LEGHE RESIST. CALORE - HIG. TEMP. ALLOY	31---35	200-320	0,05	0,07	0,1	50	
S	TITANIO E SUE LEGHE - TITANIUM	36-37	400-1050 1)	0,05	0,07	0,1	50	
H	ACCIAIO TEMPRATO - HARDENED STEEL	38--41	45-60 2)					

$$n = \frac{Vc \cdot 1000}{ØD \cdot 3{,}14} = \text{giri/min } (\text{min}^{-1})$$

$$fz = fz0 \cdot Kae = \text{mm}$$

$$fn = fz \cdot z = \text{mm}$$

$$Vf = fz \cdot z \cdot n = \text{mm/min}$$



ae/D	0,5-1 50-100%	0,3 30%	0,2 20%	0,1 10%	0,05 5%	0,02 2%
Kae	1	1,2	1,5	2,1	3	4,8

Vc Pag. 500	ae/D	0,5-1 50-100%	0,2 20%	0,1 10%	0,05 5%
		Vc (min)---------Vc(max)			

F = FINITURA , LAV. LEGGERA - FINISHING , LIGHT MACHINING
M = LAV. MEDIA , GENERICA - MEDIUM MACHINING , GENERIC
R = SGROSSATURA , LAV. PESANTE - ROUGHING , HEAVY MACHINING

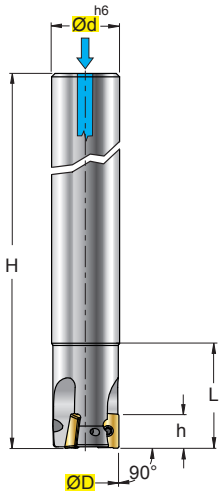
Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED
Kae = FATTORE DI CORREZIONE - CORRECTION FACTOR

■ DISPONIBILI - IN STOCK - LIEFERBAR - DISPONIBLES / ■ NEW
●● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE
□ A RICHIESTA - ON REQUEST - AUF ANFRAGE - SUR DEMANDE / □ NEW
○○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

SAU QUALITY TOOLS ENGINEERING

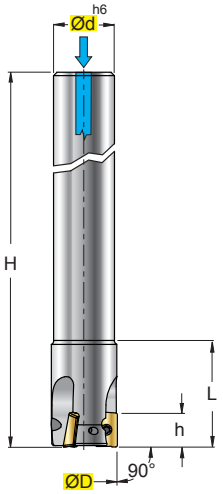
S 2000.86W..11 / S 2000.86XLW..11

Ø 16-40
γ_p +6,3°/+11,7°
γ_f -15°/-7,63°
γ_o -15°/-7,63°



S 2000.86MW..11 / S 2000.86XLMW..11

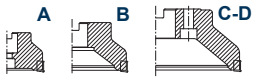
Ø 16-32
γ_p +6,3°/+11,7°
γ_f -15°/-7,63°
γ_o -15°/-7,63°

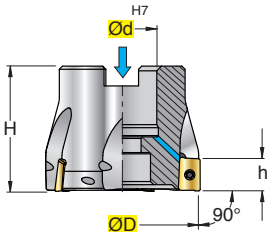


S 2000.88W.. 11

Ø 40-80
γ_p +11°/+11,7°
γ_f -7°/-7,5°
γ_o -7°/-7,5°

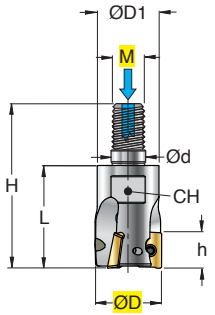
ISO 6462 ...





S 2000.89W.. 11

Ø 16-35
γ_p +6,3°/+10,5°
γ_f -15°/-8,5°
γ_o -15°/-8,5°



BDGT 11T3 .Y57

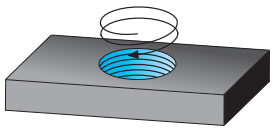
BDMT 11T3 .Y42

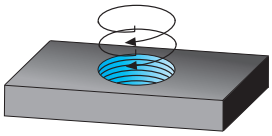
BDMT 11T3 .Y52

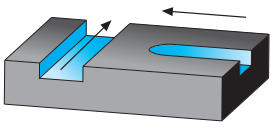
INSERTI - INSERTS
PAG. 510

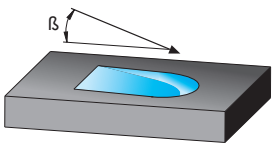
(mm)

ART.	ØD	M	Ød	ØD1	H	h	L	ß	Z	⌖	CH	kg	Nm	ISO 6462	11T3	122555PK	5608	–
S 2000.86W 016-02.11	16	–	16	–	100	10	30	3°	2	–	–	0,14	1,1÷1,3	–	11T3	122555PK	5608	–
S 2000.86W 020-03.11	20	–	20	–	110	10	26	5°	3	–	–	0,23	1,1÷1,3	–				
S 2000.86W 025-03.11	25	–	25	–	120	10	32	2,5°	3	–	–	0,42	1,1÷1,3	–				
S 2000.86W 032-04.11	32	–	32	–	130	10	30	1,5°	4	–	–	0,73	1,1÷1,3	–				
S 2000.86XLW 020-02-11	20	–	20	–	140	10	60	5°	2	–	–	0,30	1,1÷1,3	–	11T3	122555PK	5608	–
S 2000.86XLW 025-02-11	25	–	25	–	160	10	60	2,5°	2	–	–	0,58	1,1÷1,3	–				
S 2000.86XLW 032-02-11	32	–	32	–	200	10	65	1,5°	2	–	–	1,18	1,1÷1,3	–				
S 2000.86XLW 040-02-11	40	–	32	–	240	10	65	0,7°	2	–	–	1,62	1,1÷1,3	–				
S 2000.86XLW 040-03-11	40	–	32	–	240	10	65	0,7°	3	–	–	1,60	1,1÷1,3	–				
S 2000.86MW 016-02.11	16	–	12	–	100	10	32	3°	2	–	–	0,10	1,1÷1,3	–	11T3	122555PK	5608	–
S 2000.86MW 020-03.11	20	–	16	–	110	10	32	5°	3	–	–	0,17	1,1÷1,3	–				
S 2000.86MW 025-03.11	25	–	20	–	120	10	34	2,5°	3	–	–	0,30	1,1÷1,3	–				
S 2000.86MW 032-04.11	32	–	25	–	130	10	43	1,5°	4	–	–	0,52	1,1÷1,3	–				
S 2000.86XLMW 018-02-11	18	–	16	–	170	10	32	3°	2	–	–	0,24	1,1÷1,3	–	11T3	122555PK	5608	–
S 2000.86XLMW 020-02-11	20	–	16	–	170	10	32	5°	2	–	–	0,25	1,1÷1,3	–				
S 2000.86XLMW 020-03-11	20	–	16	–	170	10	32	5°	3	–	–	0,24	1,1÷1,3	–				
S 2000.86XLMW 022-02-11	22	–	20	–	170	10	32	2,5°	2	–	–	0,39	1,1÷1,3	–				
S 2000.86XLMW 022-03-11	22	–	20	–	170	10	32	2,5°	3	–	–	0,39	1,1÷1,3	–				
S 2000.86XLMW 025-02-11	25	–	20	–	210	10	34	2,5°	2	–	–	0,49	1,1÷1,3	–				
S 2000.86XLMW 025-03-11	25	–	20	–	210	10	34	2,5°	3	–	–	0,48	1,1÷1,3	–				
S 2000.86XLMW 032-02-11	32	–	25	–	210	10	43	1,5°	2	–	–	0,78	1,1÷1,3	–				
S 2000.86XLMW 032-03-11	32	–	25	–	210	10	43	1,5°	3	–	–	0,77	1,1÷1,3	–				
S 2000.88W 040-05.11	40	–	16	–	40	10	–	0,7°	5	–	–	0,2	1,1÷1,3	A	11T3	122555PK	5608	VBSF08L
S 2000.88W 050-05.11	50	–	22	–	40	10	–	–	5	–	–	0,3	1,1÷1,3	A	11T3	122555PK	5608	VBSF10
S 2000.88W 063-06.11	63	–	22	–	40	10	–	–	6	–	–	0,5	1,1÷1,3	A				
S 2000.88W 080-07.11	80	–	27	–	50	10	–	–	7	–	–	1,0	1,1÷1,3	A	11T3	122555PK	5608	VBSF12
S 2000.89W 016-02.11	16	8	8,5	13	42	10	25	3°	2	–	10	0,03	1,1÷1,3	–	11T3	122555PK	5608	–
S 2000.89W 020-03.11	20	10	10,5	18	49	10	30	5°	3	–	15	0,06	1,1÷1,3	–				
S 2000.89W 022-03.11	22	10	10,5	18	49	10	30	2,5°	3	–	15	0,06	1,1÷1,3	–				
S 2000.89W 025-03.11	25	12	12,5	21	57	10	35	2,5°	3	–	17	0,10	1,1÷1,3	–				
S 2000.89W 028-03.11	28	12	12,5	21	57	10	35	1,5°	3	–	17	0,10	1,1÷1,3	–				
S 2000.89W 028-04.11	28	12	12,5	21	57	10	35	1,5°	4	–	17	0,11	1,1÷1,3	–				
S 2000.89W 032-04.11	32	16	17	29	67	10	43	1,5°	4	–	24	0,25	1,1÷1,3	–				
S 2000.89W 035-04.11	35	16	17	29	67	10	43	1°	4	–	24	0,27	1,1÷1,3	–				
S 2000.89W 035-05.11	35	16	17	29	67	10	43	1°	5	–	24	0,27	1,1÷1,3	–				









W = FORO PER LIQUIDO REFRIGERANTE - COOLANT BORE - KÜHLMITTELBOHRUNG - TROU DU LIQUIDE D'ARROSAGE
⌖ = PASSO DIFFERENZIATO - DIFFERENTIAL PITCH - UNGLEICHE TEILUNG - PAS DIFFERENCIE

PAG. 1059

SAU QUALITY TOOLS ENGINEERING

SCELTA VELOCE - QUICK PICK

Tenacità / Toughness + -

Pag. 486

COD.			P			M			K			N			S			H		
			F	M	R	F	M	R	F	M	R	F	M	R	F	M	R	F	M	R
BDGT	11T302FR	.Y57										●	●	●	○	○	○			
BDGT	11T304FR	.Y57										●	●	●	○	○	○			
BDGT	11T308FR	.Y57										●	●	●	○	○	○			
BDMT	11T304ER	.Y42	○	●	●	○	●	●												
BDMT	11T308ER	.Y42	○	●	●	○	●	●												
BDMT	11T308ER	.Y52	○	●	●	○	●	●	○	●	●				○	○				
BDMT	11T312ER	.Y52	○	●	●	○	●	●												
BDMT	11T316ER	.Y52	○	●	●	○	●	●												
BDMT	11T320ER	.Y52	○	●	●	○	●	●												
BDMT	11T324ER	.Y52	○	●	●	○	●	●												
BDMT	11T331ER	.Y52	○	●	●	○	●	●												

HT	HW	HC																	
CERMET	NON RIV. CEMENTED CARBIDE GRADES	RIVESTITI COATED GRADES BESCHICHTET RECOUVERTS																	
	N3015											F3710	F4725						
	□																		
	■																		
	■																		
													■						
													■						
												■	■						
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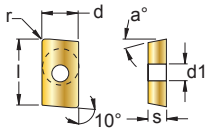
													■						
													■						
													■						
													■						



l	d	s	d1	r	a°
11,0	6,7	3,8	2,8	0,2	18
11,0	6,7	3,8	2,8	0,4	18
11,0	6,7	3,8	2,8	0,8	18
11,0	6,7	3,8	2,8	0,4	18
11,0	6,7	3,8	2,8	0,8	18
11,0	6,7	3,8	2,8	0,8	18
11,0	6,7	3,8	2,8	1,2	18
11,0	6,7	3,8	2,8	1,6	18
11,0	6,7	3,8	2,8	2,0	18
11,0	6,7	3,8	2,8	2,4	18
11,0	6,7	3,8	2,8	3,1	18

CON ADDUZIONE LUBROREFRIGERANTE - WITH COOLANT SUPPLY

													●						

SENZA ADDUZIONE LUBROREFRIGERANTE - WITHOUT COOLANT SUPPLY

													○						

MATERIALI - MATERIALS

Pag. 1119

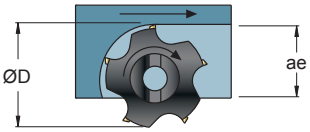
		VDI 3323 GR.	HB Rm[1] HRC[2]	fz0 mm F	M	R	Vc m/min Pag. 500 N3015	F3710	F4725
P	ACCIAIO NON LEGATO - NOT ALLOY STEEL	1---5	125-300	0,08	0,15	0,25			200
	ACCIAIO POCO LEGATO - LOW ALLOY STEEL	6--9	180-350	0,08	0,15	0,2			170
	ACCIAIO ALTO LEGATO - ALLOY STEEL	10-11	200-325	0,06	0,12	0,16			160
	INOX MARTENS. - STAINLESS STEEL MART	12-13	200-240	0,08	0,12	0,15			140
M	INOX AUST. DUPLEX - STAINLESS STEEL AUST	14.1-14.2	180-230	0,08	0,12	0,15			170
K	GHISA GRIGIA - GREY CAST IRON	15-16	180-260	0,08	0,18	0,25		190	
	GHISA SFEROIDALE - SPHEROIDAL GRAPHITE	17-18	160-250	0,08	0,15	0,2		170	
	GHISA MALLEABILE - MALLEABLE CAST IRON	19-20	130-230	0,08	0,15	0,2		150	
N	ALLUMINIO E SUE LEGHE - ALUMINIUM	21---25	60-130	0,08	0,15	0,2	950		
	RAME E SUE LEGHE - COPPER	26--28	90-110	0,08	0,15	0,2	625		
	NON METALLICI - PLASTICS	29-30	/	0,08	0,15	0,2	285		
S	LEGHE RESIST. CALORE - HIG. TEMP. ALLOY	31---35	200-320	0,05	0,10	0,15	80		
	TITANIO E SUE LEGHE - TITANIUM	36-37	400-1050[1]	0,05	0,10	0,15	80		
H	ACCIAIO TEMPRATO - HARDENED STEEL	38--41	45-60[2]						

$$n = \frac{Vc \cdot 1000}{\varnothing D \cdot 3,14} = \text{giri/min (min}^{-1}\text{)}$$

$$fz = fz0 \cdot Kae = \text{mm}$$

$$fn = fz \cdot z = \text{mm}$$

$$Vf = fz \cdot z \cdot n = \text{mm/min}$$

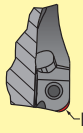


ae/D	0,5-1 50-100%	0,3 30%	0,2 20%	0,1 10%	0,05 5%	0,02 2%
Kae	1	1,2	1,5	2,1	3	4,8

ae/D	0,5-1 50-100%	0,2 20%	0,1 10%	0,05 5%
Vc Pag. 500	Vc (min)---------Vc(max)			

F = FINITURA , LAV. LEGGERA - FINISHING , LIGHT MACHINING
M = LAV. MEDIA , GENERICA - MEDIUM MACHINING , GENERIC
R = SGROSSATURA , LAV. PESANTE - ROUGHING , HEAVY MACHINING

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED
Kae = FATTORE DI CORREZIONE - CORRECTION FACTOR



Raggio Inserto Insert Radius (mm)	Raggio Fresa Milling cutter Radius (mm)
1,6	R1,0
2,0	
2,4	R1,2
3,1	R1,6
4,0	R2,5

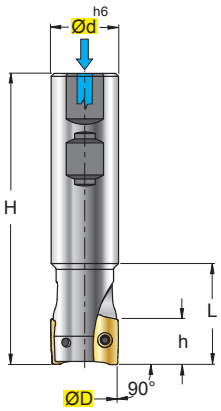
- Per usare inserti con r≥1,6mm, bisogna modificare il corpo fresa come indicato in figura.
- To use inserts with r≥1,6mm, it is necessary to modify the milling cutting body as illustred in the figure
- Um wendeschneidplatten mit r≥1,6mm, muss der fräserkörper wie in der abbildung angegeben verändert werden
- Pour utiliser les plaquettes avec r≥1,6mm, il faut modifier le corps de la fraise comme il est indiqué dans l'illustration.

■ DISPONIBILI - IN STOCK - LIEFERBAR - DISPONIBLES / ■ NEW
●● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE
□ A RICHIESTA - ON REQUEST - AUF ANFRAGE - SUR DEMANDE / □ NEW
○○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

S 2000.86W.. 17

Ø 25-40

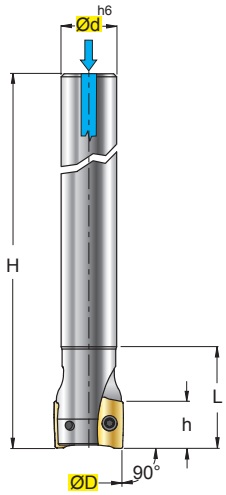
γ_p +7°/+10°
γ_f -11°/-7°
γ_o -11°/-7°



S 2000.86XLMW.. 17

Ø 25-40

γ_p +7°/+10°
γ_f -11°/-7°
γ_o -11°/-7°

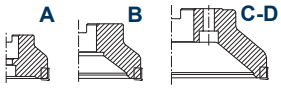


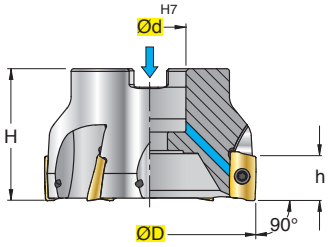
S 2000.88W.. 17

Ø 40-100

γ_p +10°
γ_f -7°
γ_o -7°

ISO 6462 ...



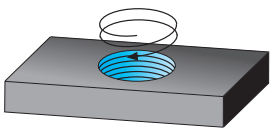
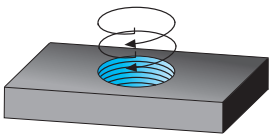
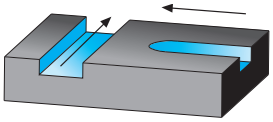
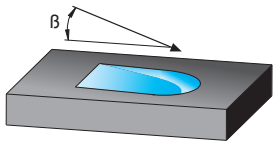


BDGT 1704 .Y57	
BDMT 1704 .Y42	
BDMT 1704 .Y52	

INSERTI - INSERTS
PAG. 510

(mm)

ART.	ØD	M	Ød	ØD1	H	h	L	ß	Z	✣	CH	kg	Nm	ISO 6462	1704	C04008P	5615P	–
S 2000.86W 025-02.17	25	–	25	–	92	15,7	36	4,5°	2	–	–	0,28	3,8÷5,0	–				
S 2000.86W 032-03.17	32	–	32	–	100	15,7	40	2,5°	3	–	–	0,50	3,8÷5,0	–				
S 2000.86W 040-04.17	40	–	32	–	110	15,7	50	2°	4	–	–	0,63	3,8÷5,0	–				
S 2000.86XLMW 025-02-17	25	–	20	–	210	15,7	60	4,5°	2	–	–	0,48	3,8÷5,0	–	1704	C04008P	5615P	–
S 2000.86XLMW 032-03-17	32	–	25	–	250	15,7	65	2,5°	3	–	–	0,90	3,8÷5,0	–				
S 2000.86XLMW 040-04-17	40	–	32	–	250	15,7	65	2°	4	–	–	1,49	3,8÷5,0	–				
S 2000.88W 040-04.17	40	–	16	–	40	15,7	–	2°	4	–	–	0,17	3,8÷5,0	A	1704	C04008P	5615P	VBSF08L
S 2000.88W 050-04.17	50	–	22	–	40	15,7	–	1,5°	4	–	–	0,29	3,8÷5,0	A	1704	C04008P	5615P	VBSF10
S 2000.88W 050-05.17	50	–	22	–	40	15,7	–	1,5°	5	–	–	0,27	3,8÷5,0	A				
S 2000.88W 063-05.17	63	–	22	–	40	15,7	–	1°	5	–	–	0,51	3,8÷5,0	A				
S 2000.88W 063-06.17	63	–	22	–	40	15,7	–	1°	6	–	–	0,49	3,8÷5,0	A				
S 2000.88W 080-06.17	80	–	27	–	50	15,7	–	1°	6	–	–	0,97	3,8÷5,0	A-B	1704	C04008P	5615P	AL12x35
S 2000.88W 100-07.17	100	–	32	–	50	15,7	–	0,5°	7	–	–	1,44	3,8÷5,0	A-B	1704	C04008P	5615P	AL16x35

W = FORO PER LIQUIDO REFRIGERANTE - COOLANT BORE - KÜHLMITTELBOHRUNG - TROU DU LIQUIDE D'ARROSAGE
✣ = PASSO DIFFERENZIATO - DIFFERENTIAL PITCH - UNGLEICHE TEILUNG - PAS DIFFERENCIE

PAG. 1059

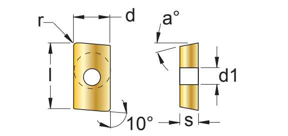
SAU QUALITY TOOLS ENGINEERING

SCELTA VELOCE - QUICK PICK

Tenacità + / Toughness -

Pag. 486

HT: CERMET — HW: NON RIV. CEMENTED CARBIDE GRADES — HC: RIVESTITI COATED GRADES BESCHICHTET RECOUVERTS



COD.			P F	P M	P R	M F	M M	M R	K F	K M	K R	N F	N M	N R	S F	S M	S R	H F	H M	H R	N3015	F3710	F4725	l	d	s	d1	r	a°
BDGT	170404FR	.Y57										●	●	●	○	○	○				■			17,0	9,6	4,9	4,4	0,4	18
BDGT	170408FR	.Y57										●	●	●	○	○	○				■			17,0	9,6	4,9	4,4	0,8	18
BDGT	170420FR	.Y57										●	●	●	○	○	○				■			17,0	9,6	4,9	4,4	2,0	18
BDGT	170431FR	.Y57										●	●	●	○	○	○				■			17,0	9,6	4,9	4,4	3,1	18
BDMT	170404ER	.Y42	○	●	●	○	●	●															■	17,0	9,6	4,9	4,4	0,4	18
BDMT	170408ER	.Y42	○	●	●	○	●	●															■	17,0	9,6	4,9	4,4	0,8	18
BDMT	170404ER	.Y52							○	●	●				○	○						■		17,0	9,6	4,9	4,4	0,4	18
BDMT	170408ER	.Y52	 ○	 ●	 ●	 ○	 ●	 ●	○	●	●				○	○						■	 ■	17,0	9,6	4,9	4,4	0,8	18
BDMT	170412ER	.Y52	 ○	 ●	 ●	 ○	 ●	 ●	○	●	●				○	○						■	 ■	17,0	9,6	4,9	4,4	1,2	18
BDMT	170416ER	.Y52	 ○	 ●	 ●	 ○	 ●	 ●	○	●	●				○	○						■	 ■	17,0	9,6	4,9	4,4	1,6	18
BDMT	170420ER	.Y52	○	●	●	○	●	●															■	17,0	9,6	4,9	4,4	2,0	18
BDMT	170424ER	.Y52	○	●	●	○	●	●															■	17,0	9,6	4,9	4,4	2,4	18
BDMT	170431ER	.Y52	○	●	●	○	●	●															■	17,0	9,6	4,9	4,4	3,1	18
BDMT	170440ER	.Y52	○	●	●	○	●	●															■	17,0	9,6	4,9	4,4	4,0	18

	N3015	F3710	F4725
CON ADDUZIONE LUBROREFRIGERANTE - WITH COOLANT SUPPLY	●	●	●
SENZA ADDUZIONE LUBROREFRIGERANTE - WITHOUT COOLANT SUPPLY	○	○	○

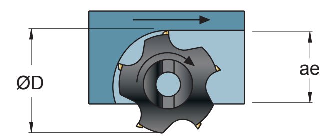
	MATERIALI - MATERIALS Pag. 1119	VDI 3323 GR.	HB Rm 1) HRC 2)	fz0 mm F	fz0 mm M	fz0 mm R	Vc m/min Pag. 500 N3015	F3710	F4725
P	ACCIAIO NON LEGATO - NOT ALLOY STEEL	1---5	125-300	0,08	0,15	0,25			200
P	ACCIAIO POCO LEGATO - LOW ALLOY STEEL	6--9	180-350	0,08	0,15	0,2			170
P	ACCIAIO ALTO LEGATO - ALLOY STEEL	10-11	200-325	0,06	0,12	0,16			160
P	INOX MARTENS. - STAINLESS STEEL MART	12-13	200-240	0,08	0,12	0,15			140
M	INOX AUST. DUPLEX - STAINLESS STEEL AUST	14.1-14.2	180-230	0,08	0,12	0,15			170
K	GHISA GRIGIA - GREY CAST IRON	15-16	180-260	0,08	0,18	0,25		190	
K	GHISA SFEROIDALE - SPHEROIDAL GRAPHITE	17-18	160-250	0,08	0,15	0,2		170	
K	GHISA MALLEABILE - MALLEABLE CAST IRON	19-20	130-230	0,08	0,15	0,2		150	
N	ALLUMINIO E SUE LEGHE - ALUMINIUM	21---25	60-130	0,08	0,15	0,2	950		
N	RAME E SUE LEGHE - COPPER	26--28	90-110	0,08	0,15	0,2	625		
N	NON METALLICI - PLASTICS	29-30	/	0,08	0,15	0,2	285		
S	LEGHE RESIST. CALORE - HIG. TEMP. ALLOY	31---35	200-320	0,05	0,10	0,15	80		
S	TITANIO E SUE LEGHE - TITANIUM	36-37	400-1050 1)	0,05	0,10	0,15	80		
H	ACCIAIO TEMPRATO - HARDENED STEEL	38--41	45-60 2)						

$$n = \frac{Vc \cdot 1000}{ØD \cdot 3,14} = \text{giri/min } (min^{-1})$$

$$fz = fz0 \cdot Kae = mm$$

$$fn = fz \cdot z = mm$$

$$Vf = fz \cdot z \cdot n = mm/min$$

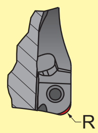


ae/D	0,5-1 50-100%	0,3 30%	0,2 20%	0,1 10%	0,05 5%	0,02 2%
Kae	1	1,2	1,5	2,1	3	4,8

ae/D	0,5-1 50-100%	0,2 20%	0,1 10%	0,05 5%
Vc Pag. 500	Vc (min)---------Vc(max)			

F = FINITURA , LAV. LEGGERA - FINISHING , LIGHT MACHINING
M = LAV. MEDIA , GENERICA - MEDIUM MACHINING , GENERIC
R = SGROSSATURA , LAV. PESANTE - ROUGHING , HEAVY MACHINING

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED
Kae = FATTORE DI CORREZIONE - CORRECTION FACTOR



Raggio Inserto Insert Radius (mm)	Raggio Fresa Milling cutter Radius (mm)
1,6	R1,0
2,0	
2,4	R1,2
3,1	R1,6
4,0	R2,5

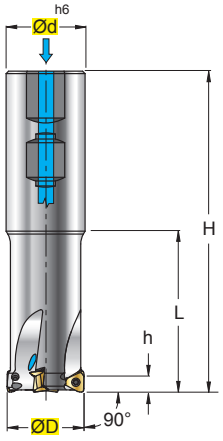
- Per usare inserti con r≥1,6mm, bisogna modificare il corpo fresa come indicato in figura.
- To use inserts with r≥1,6mm, it is necessary to modify the milling cutting body as illustred in the figure
- Um wendeschneidplatten mit r≥1,6mm, muss der fräserkörper wie in der abbildung angegeben verändert werden
- Pour utiliser les plaquettes avec r≥1,6mm, il faut modifier le corps de la fraise comme il est indiqué dans l'illustration.

■ DISPONIBILI - IN STOCK - LIEFERBAR - DISPONIBLES / ■ NEW
●● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE
□ A RICHIESTA - ON REQUEST - AUF ANFRAGE - SUR DEMANDE / □ NEW
○○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

S 9006.6W- .. -06

Ø 20-40 **NEW**

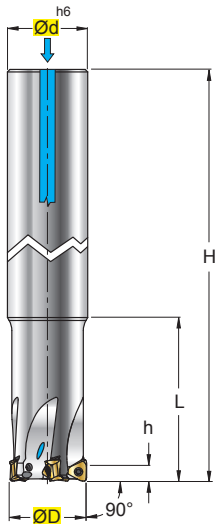
γ_p -11°
γ_f -16,5°/-15°
γ_o -16,5°/-15°



S 9006.6XLW- .. -06

Ø 20-40 **NEW**

γ_p -11°
γ_f -16,5°/-15°
γ_o -16,5°/-15°

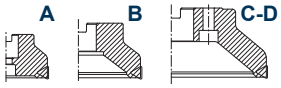


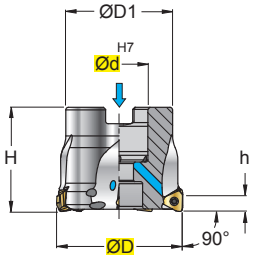
S 9006.8W- .. -06

Ø 40-100 **NEW**

γ_p -11°
γ_f -15°
γ_o -15°

ISO 6462 ...

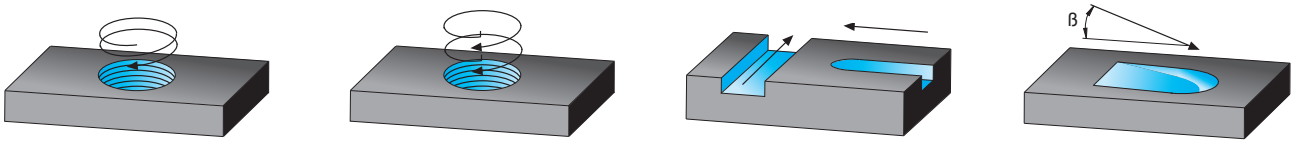




TNGX 0604.. .X42	 NEW
TNGX 0604.. .X54	 NEW

INSERTI - INSERTS
PAG. 518

ART.	(mm) ØD	Ød	ØD1	H	L	h	ß	Z		kg	Nm	ISO 6462		12256P	5608P	
S 9006.6W 020-03-06	20	20	–	100	40	6	2°	3	–	0,20	1,1÷1,3	–	0604...	12256P	5608P	–
S 9006.6W 025-03-06	25	25	–	115	50	6	1,5°	3	–	0,37	1,1÷1,3	–				
S 9006.6W 025-04-06	25	25	–	115	50	6	1,5°	4	Y	0,35	1,1÷1,3	–				
S 9006.6W 032-04-06	32	32	–	130	60	6	1°	4	Y	0,71	1,1÷1,3	–				
S 9006.6W 040-05-06	40	32	–	140	70	6	0,8°	5	Y	0,80	1,1÷1,3	–				
S 9006.6XLW 020-03-06	20	20	–	160	40	6	2°	3	–	0,34	1,1÷1,3	–	0604...	12256P	5608P	–
S 9006.6XLW 025-03-06	25	25	–	170	50	6	1,5°	3	Y	0,57	1,1÷1,3	–				
S 9006.6XLW 032-04-06	32	32	–	180	60	6	1°	4	Y	1,02	1,1÷1,3	–				
S 9006.6XLW 032-05-06	32	32	–	180	60	6	1°	5	Y	1,01	1,1÷1,3	–				
S 9006.6XLW 040-05-06	40	32	–	200	70	6	0,8°	5	Y	1,17	1,1÷1,3	–				
S 9006.8W 040-05-06	40	16	36	40	–	6	0,8°	5	Y	0,23	1,1÷1,3	–	0604...	12256P	5608P	VDST2008
S 9006.8W 040-06-06	40	16	36	40	–	6	0,8°	6	Y	0,23	1,1÷1,3	–				
S 9006.8W 050-05-06	50	22	41	40	–	6	0,5°	5	Y	0,33	1,1÷1,3	A	0604...	12256P	5608P	VBSF10
S 9006.8W 050-07-06	50	22	41	40	–	6	0,5°	7	Y	0,31	1,1÷1,3	A				
S 9006.8W 063-06-06	63	22	44	40	–	6	0,5°	6	Y	0,47	1,1÷1,3	A-B				
S 9006.8W 063-09-06	63	22	44	40	–	6	0,5°	9	Y	0,44	1,1÷1,3	A-B				
S 9006.8W 080-10-06	80	27	61	50	–	6	0,5°	10	Y	1,01	1,1÷1,3	A-B	0604...	12256P	5608P	VBSF12
S 9006.8W 100-12-06	100	32	75	50	–	6	0,5°	12	Y	1,61	1,1÷1,3	A-B	0604...	12256P	5608P	VBSF16



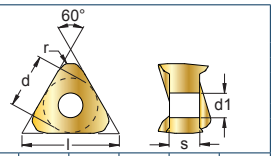
W = FORO PER LIQUIDO REFRIGERANTE - COOLANT BORE - KÜHLMITTELBOHRUNG - TROU DU LIQUIDE D'ARROSAGE
L = LUNGA , STELO CILINDRICO - LONG , CYLINDRICAL SHANK - LANG , ZYLINDERSCHAFT - LONGUE , QUEUE CYLINDRIQUE
= PASSO DIFFERENZIATO - DIFFERENTIAL PITCH - UNGLEICHE TEILUNG - PAS DIFFERENCIE

SCELTA VELOCE - QUICK PICK

Tenacità / Toughness + -

Pag. 486

COD.		P F	P M	P R	M F	M M	M R	K F	K M	K R	N F	N M	N R	S F	S M	S R	H F	H M	H R	HT CERMET	HW NON RIV. CEMENTED CARBIDE GRADES	HC RIVESTITI COATED GRADES BESCHICHTET RECOUVERTS F5105	HC F2330	HC F2335	l	d	s	d1	r	a°
TNGX	060404 .X42	○	○		●	●		○	○					○	○								■	■	11	6,35	3,42	2,8	0,4	–
		●	●		●	●		○	○					○	○															
		●	●		○	○		○	○					○	○															
TNGX	060408 .X42	○	○		●	●		○	○					○	○								■	■	11	6,35	3,42	2,8	0,8	–
		●	●		●	●		○	○					○	○															
		●	●		○	○		○	○					○	○															
TNGX	060404 .X54		○			●			○						○								■	■	11	6,35	3,42	2,8	0,4	–
			●			●			○						○															
			●			○			○						○															
TNGX	060408 .X54		○			●			○						○								■	■	11	6,35	3,42	2,8	0,8	–
			●			●			○						○															
			●			○			○						○															



CON ADDUZIONE LUBROREFRIGERANTE - WITH COOLANT SUPPLY ● ● ●

SENZA ADDUZIONE LUBROREFRIGERANTE - WITHOUT COOLANT SUPPLY ● ○

MATERIALI - MATERIALS Pag. 1119		VDI 3323 GR.	HB Rm[1] HRC[2]	fz0 mm F	fz0 mm M	fz0 mm R	Vc m/min Pag. 500 F5105	Vc m/min F2330	Vc m/min F2335
P	ACCIAIO NON LEGATO - NOT ALLOY STEEL	1---5	125-300	0,05	0,08	0,15	280	250	220
P	ACCIAIO POCO LEGATO - LOW ALLOY STEEL	6--9	180-350	0,05	0,08	0,15	280	200	200
P	ACCIAIO ALTO LEGATO - ALLOY STEEL	10-11	200-325	0,05	0,08	0,15	230	180	160
P	INOX MARTENS. - STAINLESS STEEL MART	12-13	200-240	0,05	0,08	0,15	180	180	160
M	INOX AUST. DUPLEX - STAINLESS STEEL AUST	14.1-14.2	180-230	0,05	0,08	0,12	160	170	140
K	GHISA GRIGIA - GREY CAST IRON	15-16	180-260	0,05	0,1	0,18	300		220
K	GHISA SFEROIDALE - SPHEROIDAL GRAPHITE	17-18	160-250	0,05	0,1	0,18	250		200
K	GHISA MALLEABILE - MALLEABLE CAST IRON	19-20	130-230	0,05	0,1	0,18	250		200
N	ALLUMINIO E SUE LEGHE - ALUMINIUM	21---25	60-130						
N	RAME E SUE LEGHE - COPPER	26--28	90-110						
N	NON METALLICI - PLASTICS	29-30	/						
S	LEGHE RESIST. CALORE - HIG. TEMP. ALLOY	31---35	200-320	0,05	0,08	0,12	60	60	60
S	TITANIO E SUE LEGHE - TITANIUM	36-37	400-1050[1]	0,05	0,08	0,12	60	60	60
H	ACCIAIO TEMPRATO - HARDENED STEEL	38--41	45-60[2]						

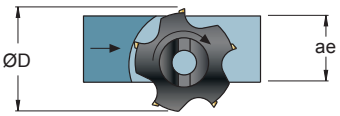
⚠ - SE LA SPORGENZA DELLA FRESA É **>3xD** RIDURRE I PARAMETRI DI LAVORO: **Vc, fz, ap** DEL 30%
- IF THE PROTRUSION OF THE CUTTER IS **>3xD**, REDUCE CUTTING PARAMETERS: **Vc, fz, ap** BY 30%

$$n = \frac{Vc \cdot 1000}{ØD \cdot 3,14} = \text{giri/min (min}^{-1}\text{)}$$

$$fz = fz0 \cdot Kae = \text{mm}$$

$$fn = fz \cdot K = \text{mm}$$

$$Vf = fz \cdot z \cdot n = \text{mm/min}$$



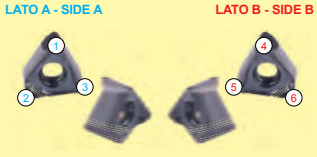
ae/D	0,5-1 50-100%	0,3 30%	0,2 20%	0,1 10%	0,05 5%	0,02 2%
Kae	1	1,2	1,5	2,1	3	4,8

ae/D	0,5-1 50-100%	0,2 20%	0,1 10%	0,05 5%
Vc (min)---------Vc(max)				
R-------M----------F				

Vc Pag. 500

F = FINITURA , LAV. LEGGERA - FINISHING , LIGHT MACHINING
M = LAV. MEDIA , GENERICA - MEDIUM MACHINING , GENERIC
R = SGROSSATURA , LAV. PESANTE - ROUGHING , HEAVY MACHINING

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED
Kae = FATTORE DI CORREZIONE - CORRECTION FACTOR



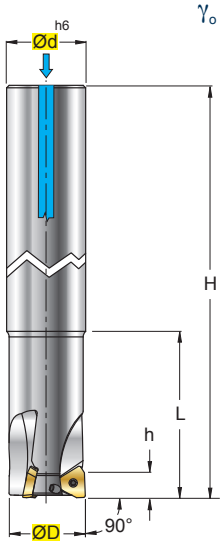
- 6 Taglienti "Utili" disponibili grazie all'inserto bilaterale.
- 6 "Useful" cutting-edges thanks to two-sided insert
- 6 "Nützliche" schneidkanten dank zweiseitiger wendeschneidplatten
- 6 Tranchants "Utiles" disponibles grace a la plaquette bilaterale

■ DISPONIBILI - IN STOCK - LIEFERBAR - DISPONIBLES / ■ NEW
●● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE
□ A RICHIESTA - ON REQUEST - AUF ANFRAGE - SUR DEMANDE / □ NEW
○○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

S 9005-6W- .. -09
S 9005-6XLW- .. -09

Ø 32-40 **NEW**

γ_p +12°/+13°
γ_f -7°/-6°
γ_o -7°/-6°

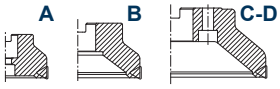


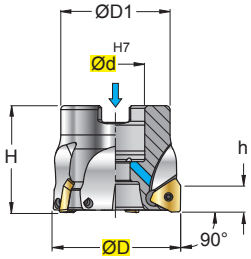
S 9005-8W- .. -09

Ø 40-125 **NEW**

γ_p +13°
γ_f -6°/-5°
γ_o -6°/-5°

ISO 6462 ...

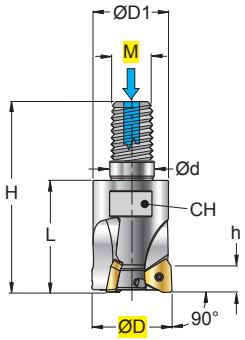




S 9005-9W- .. -09

Ø 32-40 **NEW**

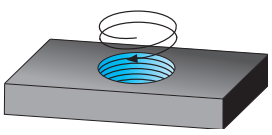
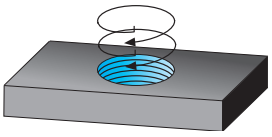
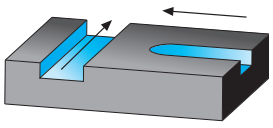
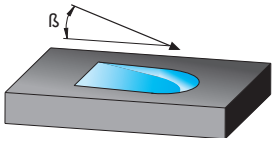
γ_p +12°/+13°
γ_f -7°/-6°
γ_o -7°/-6°



TOKX 09T3.. .G52	 NEW
TOKX 09T3.. .G53	 NEW

INSERTI - INSERTS
PAG. 518

ART.	(mm) ØD	M	Ød	ØD1	H	L	h	ß	Z	✣	CH	kg	Nm	ISO 6462				
S 9005-6W 032-03-09	32	–	32	–	130	40	8	1°	3	–	–	0,71	1,2÷1,5	–	09T3...	123008P	5608P	–
S 9005-6W 035-04-09	35	–	32	–	130	40	8	0,9°	4	–	–	0,72	1,2÷1,5	–				
S 9005-6W 040-04-09	40	–	32	–	130	40	8	0,8°	4	–	–	0,76	1,2÷1,5	–				
S 9005-6XLW 032-03-09	32	–	32	–	255	65	8	1°	3	–	–	1,42	1,2÷1,5	–	09T3...	123008P	5608P	–
S 9005-6XLW 035-04-09	35	–	32	–	255	65	8	0,9°	4	–	–	1,46	1,2÷1,5	–				
S 9005-6XLW 040-04-09	40	–	32	–	255	65	8	0,8°	4	–	–	1,51	1,2÷1,5	–				
S 9005-8W 040-04-09	40	–	16	36	40	–	8	0,8°	4	–	–	0,20	1,2÷1,5	A	09T3...	123008P	5608P	VDST2008
S 9005-8W 050-05-09	50	–	22	41	40	–	8	0,5°	5	Y	–	0,27	1,2÷1,5	A	09T3...	123008P	5608P	VBSF10
S 9005-8W 063-06-09	63	–	22	48	40	–	8	0,5°	6	Y	–	0,43	1,2÷1,5	A				
S 9005-8W 080-07-09	80	–	27	61	50	–	8	0,5°	7	Y	–	0,93	1,2÷1,5	A	09T3...	123008P	5608P	VBSF12
S 9005-8W 100-07-09	100	–	32	80	50	–	8	0,5°	7	Y	–	1,66	1,2÷1,5	A	09T3...	123008P	5608P	VBSF16
S 9005-8W 100-09-09	100	–	32	80	50	–	8	0,5°	9	Y	–	1,60	1,2÷1,5	A				
S 9005-8W 125-08-09	125	–	40	95	63	–	8	0,5°	8	Y	–	3,10	1,2÷1,5	A	09T3...	123008P	5608P	VBSF20
S 9005-8W 125-10-09	125	–	40	95	63	–	8	0,5°	10	Y	–	3,07	1,2÷1,5	A				
S 9005-9W 032-03-09	32	16	17	29	67	43	8	1°	3	–	24	0,19	1,2÷1,5	–	09T3...	123008P	5608P	–
S 9005-9W 035-04-09	35	16	17	29	67	43	8	0,9°	4	–	24	0,20	1,2÷1,5	–				
S 9005-9W 040-04-09	40	16	17	29	67	43	8	0,8°	4	–	24	0,23	1,2÷1,5	–				

W = FORO PER LIQUIDO REFRIGERANTE - COOLANT BORE - KÜHLMITTELBOHRUNG - TROU DU LIQUIDE D'ARROSAGE
L = LUNGA , STELO CILINDRICO - LONG , CYLINDRICAL SHANK - LANG , ZYLINDERSCHAFT - LONGUE , QUEUE CYLINDRIQUE
✣ = PASSO DIFFERENZIATO - DIFFERENTIAL PITCH - UNGLEICHE TEILUNG - PAS DIFFERENCIE

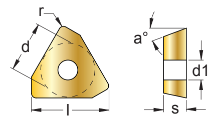
SAU QUALITY TOOLS ENGINEERING

SCELTA VELOCE - QUICK PICK

Tenacità / Toughness + / -

Pag. 486

HT: CERMET — HW: NON RIV. CEMENTED CARBIDE GRADES — HC: RIVESTITI COATED GRADES BESCHICHTET RECOUVERTS



COD.			P F	P M	P R	M F	M M	M R	K F	K M	K R	N F	N M	N R	S F	S M	S R	H F	H M	H R	T2035 (NEW)	F2635 (NEW)	F4635	T5130	l	d	s	d1	r	a°
TOKX	09T308PDER	.G52		●			○			○													■		13	9,58	3,85	3,35	0,8	12
				●			○			○														■						
TOKX	09T316PDER	.G52		●			○			○													■		13	9,58	3,85	3,35	1,6	12
				●			○			○														■						
TOKX	09T308PDER	.G53		○			●															■			13	9,58	3,85	3,35	0,8	12
							●									●					■									
TOKX	09T316PDER	.G53		○			●															■			13	9,58	3,85	3,35	1,6	12
							●									●					■									

	T2035	F2635	F4635	T5130
CON ADDUZIONE LUBROREFRIGERANTE - WITH COOLANT SUPPLY	●	●	●	●
SENZA ADDUZIONE LUBROREFRIGERANTE - WITHOUT COOLANT SUPPLY	○	●	○	●

	MATERIALI - MATERIALS Pag. 1119	VDI 3323 GR.	HB Rm 1) HRC 2)	fz0 mm F	fz0 mm M	fz0 mm R	Vc m/min Pag. 500 T5130	T2035	F2635	F4635
P	ACCIAIO NON LEGATO - NOT ALLOY STEEL	1---5	125-300	0,08	0,12	0,2	200		190	200
P	ACCIAIO POCO LEGATO - LOW ALLOY STEEL	6--9	180-350	0,08	0,12	0,2	160		160	150
P	ACCIAIO ALTO LEGATO - ALLOY STEEL	10-11	200-325	0,08	0,12	0,2	140		150	120
P	INOX MARTENS. - STAINLESS STEEL MART	12-13	200-240	0,08	0,12	0,2	140		150	120
M	INOX AUST. DUPLEX - STAINLESS STEEL AUST	14.1-14.2	180-230	0,08	0,1	0,17	120	130	140	100
K	GHISA GRIGIA - GREY CAST IRON	15-16	180-260	0,12	0,25	0,35	150			150
K	GHISA SFEROIDALE - SPHEROIDAL GRAPHITE	17-18	160-250	0,1	0,2	0,3	150			150
K	GHISA MALLEABILE - MALLEABLE CAST IRON	19-20	130-230	0,1	0,2	0,3	150			150
N	ALLUMINIO E SUE LEGHE - ALUMINIUM	21---25	60-130							
N	RAME E SUE LEGHE - COPPER	26--28	90-110							
N	NON METALLICI - PLASTICS	29-30	/							
S	LEGHE RESIST. CALORE - HIG. TEMP. ALLOY	31---35	200-320	0,05	0,1	0,15		55		
S	TITANIO E SUE LEGHE - TITANIUM	36-37	400-1050 1)	0,05	0,1	0,15		40		
H	ACCIAIO TEMPRATO - HARDENED STEEL	38--41	45-60 2)							

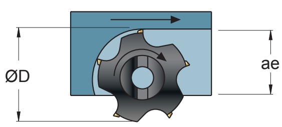
- SE LA SPORGENZA DELLA FRESA É **>3xD** RIDURRE I PARAMETRI DI LAVORO: **Vc, fz, ap** DEL 30%
- IF THE PROTRUSION OF THE CUTTER IS **>3xD**, REDUCE CUTTING PARAMETERS: **Vc, fz, ap** BY 30%

$$n = \frac{Vc \cdot 1000}{ØD \cdot 3{,}14} = \text{giri/min } (min^{-1})$$

$fz = fz0 \cdot Kae$ = mm

$fn = fz \cdot z$ = mm

$Vf = fz \cdot z \cdot n$ = mm/min



ae/D	0,5-1 50-100%	0,3 30%	0,2 20%	0,1 10%	0,05 5%	0,02 2%
Kae	1	1,2	1,5	2,1	3	4,8

	ae/D	0,5-1 50-100%	0,2 20%	0,1 10%	0,05 5%
Vc Pag. 500		Vc (min)---------Vc(max)			

F = FINITURA , LAV. LEGGERA - FINISHING , LIGHT MACHINING
M = LAV. MEDIA , GENERICA - MEDIUM MACHINING , GENERIC
R = SGROSSATURA , LAV. PESANTE - ROUGHING , HEAVY MACHINING

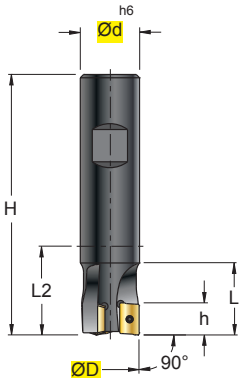
Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED
Kae = FATTORE DI CORREZIONE - CORRECTION FACTOR

■ DISPONIBILI - IN STOCK - LIEFERBAR - DISPONIBLES / ■ NEW
●● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE
□ A RICHIESTA - ON REQUEST - AUF ANFRAGE - SUR DEMANDE / □ NEW
○○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

S 1086 .. 10

Ø 16-32

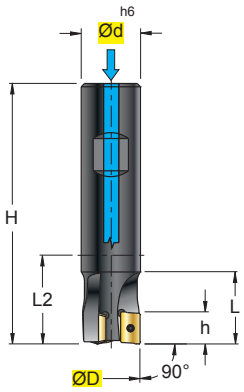
γ_p -1,5°/+10°
γ_f -21°/-11,5°
γ_o -21°/-11,5°



S 1086W..10
S 1086GW..10

Ø 10-32

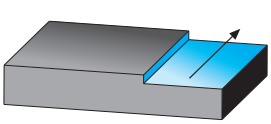
γ_p -1,5°/+10°
γ_f -21°/-11,5°
γ_o -21°/-11,5°

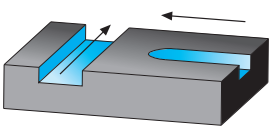


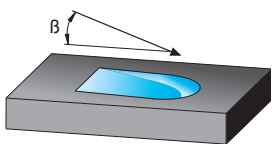
APKT 1003 .I52	
APKT 1003 .S52	
APKX 1003 .S52	
APHT 1003 .Z53	
APKT 1003 .Z54	
APKT 1003 .T55	
APHT 1003 .S57	

INSERTI - INSERTS
PAG. 508

ART.		(mm) ØD	Ød	H	h	L	L2	Z	⌖	ß	kg	Nm			
S 1086	016 - 10	16	16	85	10	25	37	2	–	3,5°	0,11	1,1÷1,3	1003	12255P	5608P
S 1086	020 - 10	20	20	90	10	25	40	3	–	1,5°	0,18	1,1÷1,3			
S 1086	025 - 10	25	25	95	10	25	39	4	–	0,9°	0,30	1,1÷1,3			
S 1086	032 - 10	32	25	95	10	25	39	5	–	0,6°	0,33	1,1÷1,3			
S 1086W	010 - 10	10	16	80	10	24	32	1	/	11°	0,09	1,1÷1,3	1003	12255P	5608P
S 1086W	011 - 10	11	16	80	10	24	32	1	/	11°	0,10	1,1÷1,3			
S 1086W	012 - 10	12	16	80	10	24	32	1	/	9°	0,10	1,1÷1,3			
S 1086W	013 - 10	13	16	80	10	24	32	1	/	8,5°	0,10	1,1÷1,3			
S 1086W	014 - 10	14	16	80	10	25	32	1	/	8°	0,10	1,1÷1,3			
S 1086W	015 - 10	15	16	85	10	25	37	2	–	4°	0,10	1,1÷1,3			
S 1086W	016 - 10	16	16	85	10	25	37	2	–	3,5°	0,11	1,1÷1,3			
S 1086W	017 - 10	17	20	85	10	25	35	2	–	3°	0,16	1,1÷1,3			
S 1086W	018 - 10	18	20	85	10	26,5	35	2	–	2,5°	0,16	1,1÷1,3			
S 1086W	019 - 10	19	20	90	10	25	40	2	–	2°	0,18	1,1÷1,3			
S 1086W	020 - 10	20	20	90	10	25	40	3	–	1,5°	0,18	1,1÷1,3			
S 1086W	022 - 10	22	25	95	10	25	39	3	–	1,5°	0,29	1,1÷1,3			
S 1086W	024 - 10	24	25	95	10	25	39	4	–	1°	0,29	1,1÷1,3			
S 1086W	025 - 10	25	25	95	10	25	39	4	–	0,9°	0,30	1,1÷1,3			
S 1086W	028 - 10	28	25	95	10	25	39	4	–	0,9°	0,32	1,1÷1,3			
S 1086W	029 - 10	29	25	95	10	25	39	4	–	0,8°	0,32	1,1÷1,3			
S 1086W	030 - 10	30	25	95	10	25	39	4	–	0,8°	0,33	1,1÷1,3			
S 1086W	032 - 10	32	25	95	10	25	39	5	–	0,6°	0,33	1,1÷1,3			
S 1086GW	020 - 10	20	20	90	10	25	40	2	–	1,5°	0,18	1,1÷1,3	1003	12255P	5608P
S 1086GW	025 - 10	25	25	95	10	25	39	3	–	0,9°	0,30	1,1÷1,3			
S 1086GW	032 - 10	32	25	95	10	25	39	4	–	0,6°	0,33	1,1÷1,3			







W = FORO PER LIQUIDO REFRIGERANTE - COOLANT BORE - KÜHLMITTELBOHRUNG - TROU DU LIQUIDE D'ARROSAGE
G = PASSO GROSSO - LARGE TEETH DISTANCE - NORMALE ZAHNTEILUNG - GRANDE DISTANCE DENTS.
⌖ = PASSO DIFFERENZIATO - DIFFERENTIAL PITCH - UNGLEICHE TEILUNG - PAS DIFFERENCIE

PAG. 1059

SAU QUALITY TOOLS ENGINEERING

SCELTA VELOCE - QUICK PICK

Tenacità / Toughness +/-

Pag. 486

COD.				P			M			K			N			S			H		
				F	M	R	F	M	R	F	M	R	F	M	R	F	M	R	F	M	R
APKT	1003	PDR	.I52	●	●	○	○	○	○	○	○	○				○	○	○			
APKT	1003	PDTR	.S52	○	●	●	○	●	●	○	●	●		○			○				
APKX	1003	PDR	.S52	○	●	●	○	●	●	○	○	○					○			○	
APKT	1003	PDSR	.Z54	○	●	●	○	●	○												
APKT	1003	PDER	.Z54		●	●															
APKT	1003	PDER	.T55		○			●								●					
					○			●			○					●					
APHT	100312SR		.Z53	○	○	○	●	●	●							○					
APHT	100320SR		.Z53	○	○	○	●	●	●							○					
APHT	1003	PDFR	.S57							●	●	●	●	●	●	○	○	○			

HT	HW	HC												
CERMET	NON RIV. CEMENTED CARBIDE GRADES	RIVESTITI COATED GRADES BESCHICHTET RECOUVERTS												
	T120	NEW F2140	T516	T526	T528N	T530	T525	NEW F2330	F1035	NEW F2335				
	■													
			■			■								
							■							
				■										
									■					
								■		■				
		■												
		■												
	■													

l	d	s	d1	r	a°
10,5	6,70	3,50	2,8	0,5	11
10,5	6,70	3,50	2,8	0,5	11
10,5	6,70	3,50	2,8	0,5	11
10,5	6,70	3,50	2,8	0,5	11
10,5	6,70	3,50	2,8	0,5	11
11,0	6,70	3,50	2,8	0,5	11
10,5	6,70	3,50	2,8	1,2	11
10,5	6,70	3,50	2,8	2,0	11
10,5	6,70	3,50	2,8	0,5	11

CON ADDUZIONE LUBROREFRIGERANTE - WITH COOLANT SUPPLY		○		●	●	○	○	●	○	●	●	●				
SENZA ADDUZIONE LUBROREFRIGERANTE - WITHOUT COOLANT SUPPLY		○		●	○	●	●	○	○	○	○	○				

MATERIALI - MATERIALS

Pag. 1119

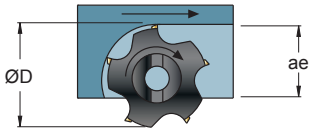
		VDI 3323 GR.	HB Rm[1] HRC[2]	fz0 mm			Vc m/min Pag. 500									
				F	M	R	T120	T516	T525	T526	T528N	T530	F2330	F1035	F2335	F2140
P	ACCIAIO NON LEGATO - NOT ALLOY STEEL	1---5	125-300	0,1	0,15	0,2			250	220	220	230	270	125	250	200
	ACCIAIO POCO LEGATO - LOW ALLOY STEEL	6--9	180-350	0,06	0,1	0,15			200	160	160	180	220	120	200	170
	ACCIAIO ALTO LEGATO - ALLOY STEEL	10-11	200-325	0,06	0,1	0,15			170	150	150	150	200	100	180	120
	INOX MARTENS. - STAINLESS STEEL MART	12-13	200-240	0,06	0,08	0,1			150	140	140	140	180	100	150	120
M	INOX AUST. DUPLEX - STAINLESS STEEL AUST	14.1-14.2	180-230	0,06	0,08	0,1	100		140	130	120	120	150		130	140
K	GHISA GRIGIA - GREY CAST IRON	15-16	180-260	0,1	0,15	0,2	120	250	200		180	160			240	
	GHISA SFEROIDALE - SPHEROIDAL GRAPHITE	17-18	160-250	0,06	0,12	0,15	110	200	180		160	150			200	
	GHISA MALLEABILE - MALLEABLE CAST IRON	19-20	130-230	0,06	0,12	0,15	120	220	200		170	160			200	
N	ALLUMINIO E SUE LEGHE - ALUMINIUM	21---25	60-130	0,06	0,15	0,2	500					600				
	RAME E SUE LEGHE - COPPER	26--28	90-110	0,06	0,12	0,18	300					300				
	NON METALLICI - PLASTICS	29-30	/	0,06	0,12	0,18										
S	LEGHE RESIST. CALORE - HIG. TEMP. ALLOY	31---35	200-320	0,06	0,08	0,1	20		40		40	40	40		40	50
	TITANIO E SUE LEGHE - TITANIUM	36-37	400-1050[1]	0,06	0,08	0,1	30		50		60	50	50		50	50
H	ACCIAIO TEMPRATO - HARDENED STEEL	38--41	45-60[2]	0,06	0,08	0,1			40							

$$n = \frac{Vc \cdot 1000}{\O D \cdot 3,14} = \text{giri/min (min}^{-1}\text{)}$$

$$fz = fz0 \cdot Kae = \text{mm}$$

$$fn = fz \cdot z = \text{mm}$$

$$Vf = fz \cdot z \cdot n = \text{mm/min}$$

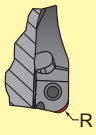


ae/D	0,5-1 50-100%	0,3 30%	0,2 20%	0,1 10%	0,05 5%	0,02 2%
Kae	1	1,2	1,5	2,1	3	4,8

ae/D	0,5-1 50-100%	0,2 20%	0,1 10%	0,05 5%
Vc Pag. 500	Vc (min)---------Vc(max)			

F = FINITURA , LAV. LEGGERA - FINISHING , LIGHT MACHINING
M = LAV. MEDIA , GENERICA - MEDIUM MACHINING , GENERIC
R = SGROSSATURA , LAV. PESANTE - ROUGHING , HEAVY MACHINING

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED
Kae = FATTORE DI CORREZIONE - CORRECTION FACTOR



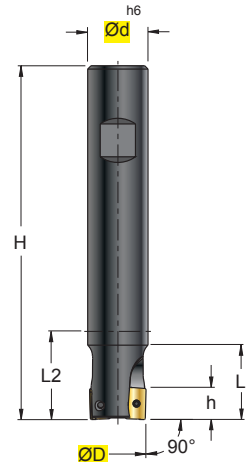
Raggio Inserto Insert Radius (mm)	Raggio Fresa Milling cutter Radius (mm)
1,2	R1,0
2,0	

- Per usare inserti con r≥1,2mm, bisogna modificare il corpo fresa come indicato in figura.
- To use inserts with r≥1,2mm, it is necessary to modify the milling cutting body as illustred in the figure
- Um wendeschneidplatten mit r≥1,2mm, muss der fräserkörper wie in der abbildung angegeben verändert werden
- Pour utiliser les plaquettes avec r≥1,2mm, il faut modifier le corps de la fraise comme il est indiqué dans l'illustration.

■ DISPONIBILI - IN STOCK - LIEFERBAR - DISPONIBLES / ■ NEW
●● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE
□ A RICHIESTA - ON REQUEST - AUF ANFRAGE - SUR DEMANDE / □ NEW
○○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

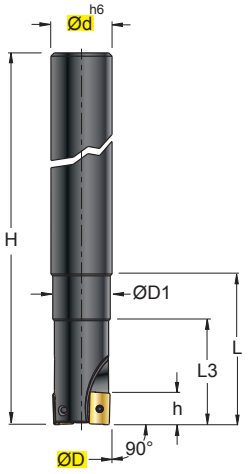
S 1086GXL..10

Ø 20-40 — γ_p +7°/+10° — γ_f -13,5°/-10° — γ_o -13,5°/-10°



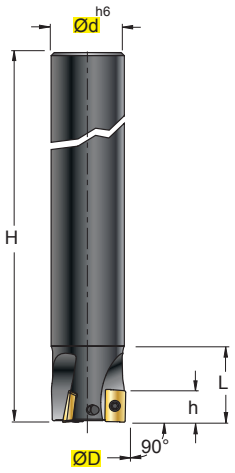
S 1086XLZ..10

Ø 10-32 — γ_p -1,5°/+10° — γ_f -21°/-11,5° — γ_o -21°/-11,5°



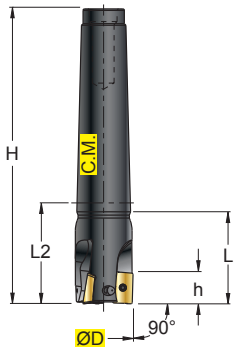
S 1086XLZM..10

Ø 16-25 — γ_p -1,5°/+10° — γ_f -21°/-11,5° — γ_o -21°/-11,5°



S 1087..10

Ø 20-32 — γ_p +7°/+10° — γ_f -13,5°/-11,5° — γ_o -13,5°/-11,5°



APKT 1003 .I52	
APKT 1003 .S52	
APKX 1003 .S52	
APHT 1003 .Z53	
APKT 1003 .Z54	
APKT 1003 .T55	
APHT 1003 .S57	

INSERTI - INSERTS
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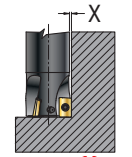
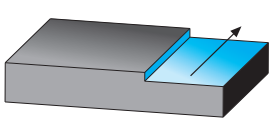
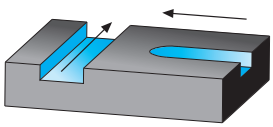
(mm)

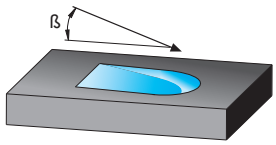
ART.		ØD	Ød/CM	ØD1	H	h	L	L2	L3	ß	Z	⌖	X	kg	Nm			
S 1086GXL	020 - 10	20	20	–	130	10	40	80	–	1,5°	2	–	–	0,29	1,1÷1,3	1003	12255P	5608P
S 1086GXL	025 - 10	25	25	–	140	10	40	84	–	0,9°	3	–	–	0,47	1,1÷1,3			
S 1086GXL	032 - 10	32	32	–	160	10	50	100	–	0,6°	4	–	–	0,93	1,1÷1,3			
S 1086GXL	040 - 10	40	32	–	200	10	60	140	–	–	5	–	–	1,23	1,1÷1,3			
S 1086XLZ	010 - 10	10	20	11,5	200	10	50	–	18	11°	1	/	–	0,40	1,1÷1,3	1003	12255P	5608P
S 1086XLZ	011 - 10	11	20	13,5	200	10	50	–	19	11°	1	/	–	0,41	1,1÷1,3			
S 1086XLZ	012 - 10	12	20	13,5	200	10	50	–	21	9°	1	/	–	0,41	1,1÷1,3			
S 1086XLZ	013 - 10	13	20	15,0	200	10	50	–	22	8,5°	1	/	–	0,42	1,1÷1,3			
S 1086XLZ	014 - 10	14	20	15,5	200	10	50	–	21	8°	1	/	–	0,43	1,1÷1,3			
S 1086XLZ	015 - 10	15	20	16,0	200	10	50	–	23	4°	2	–	–	0,42	1,1÷1,3			
S 1086XLZ	016 - 10	16	20	17,0	200	10	50	–	35	3,5°	2	–	–	0,43	1,1÷1,3			
S 1086XLZ	017 - 10	17	20	18,0	200	10	50	–	35	3°	2	–	–	0,44	1,1÷1,3			
S 1086XLZ	018 - 10	18	20	19,0	200	10	50	–	35	2,5°	2	–	–	0,44	1,1÷1,3			
S 1086XLZ	019 - 10	19	20	19,0	200	10	50	–	35	2°	2	–	–	0,45	1,1÷1,3			
S 1086XLZ	020 - 10	20	20	–	200	10	50	–	50	1,5°	2	–	–	0,46	1,1÷1,3			
S 1086XLZ	022 - 10	22	25	–	220	10	50	–	50	1,5°	2	–	–	0,76	1,1÷1,3			
S 1086XLZ	024 - 10	24	25	–	220	10	50	–	50	1°	3	–	–	0,79	1,1÷1,3			
S 1086XLZ	025 - 10	25	25	–	220	10	50	–	50	0,9°	3	–	–	0,80	1,1÷1,3			
S 1086XLZ	028 - 10	28	32	–	250	10	50	–	50	0,9°	3	–	–	1,44	1,1÷1,3			
S 1086XLZ	029 - 10	29	32	–	250	10	50	–	50	0,8°	3	–	–	1,46	1,1÷1,3			
S 1086XLZ	030 - 10	30	32	–	250	10	50	–	50	0,8°	4	–	–	1,46	1,1÷1,3			
S 1086XLZ	032 - 10	32	32	–	250	10	50	–	50	0,6°	4	–	–	1,50	1,1÷1,3			
S 1086XLZM	016 - 10	16	15	–	150	10	25	–	–	1,5°	2	–	0,5	0,20	1,1÷1,3	1003	12255P	5608P
S 1086XLZM	020 - 10	20	19	–	160	10	25	–	–	1,5°	2	–	0,5	0,34	1,1÷1,3			
S 1086XLZM	025 - 10	25	24	–	200	10	25	–	–	0,9°	3	–	0,5	0,68	1,1÷1,3			
S 1087	020 - 10	20	CM2	–	100	10	31	36	–	1,5°	3	–	–	0,14	1,1÷1,3	1003	12255P	5608P
S 1087	025 - 10	25	CM3	–	124	10	38	43	–	0,9°	4	–	–	0,33	1,1÷1,3			
S 1087	032 - 10	32	CM3	–	124	10	38	43	–	0,6°	5	–	–	0,35	1,1÷1,3			



S1086 XLZM... -10







XLZ = EXTRALUNGA , STELO CILINDRICO - EXTRALONG , CYLINDRICAL SHANK - EXTRALANG , ZYLINDERSCHAFT - EXTRALONGUE , QUEUE CYLINDRIQUE
GXL = PASSO GROSSO EXTRALUNGA - EXTRALONG WITH LARGE TEETH DISTANCE - EXTRALANG MIT NORMAL ZUHNTEILUNG - EXTRALONGUE AVEC GRANDE DISTANCE DENTS
⌖ = PASSO DIFFERENZIATO - DIFFERENTIAL PITCH - UNGLEICHE TEILUNG - PAS DIFFERENCIE

SAU QUALITY TOOLS ENGINEERING

SCELTA VELOCE - QUICK PICK

Tenacità / Toughness + -

Pag. 486

COD.				P			M			K			N			S			H		
				F	M	R	F	M	R	F	M	R	F	M	R	F	M	R	F	M	R
APKT	1003	PDR	.I52	●	●	○	○	○	○	○	○	○				○	○	○			
APKT	1003	PDTR	.S52	○	●	●	○	●	●	○	●	●		○			○				
APKX	1003	PDR	.S52	○	●	●	○	●	●	○	○	○					○			○	
APKT	1003	PDSR	.Z54	○	●	●	○	●	○												
APKT	1003	PDER	.Z54		●	●															
APKT	1003	PDER	.T55		○			●									●				
					○			●			○						●				
APHT	100312SR		.Z53	○	○	○	●	●	●								○				
APHT	100320SR		.Z53	○	○	○	●	●	●								○				
APHT	1003	PDFR	.S57							●	●	●	●	●	●	○	○	○			

	HT	HW	HC											
	CERMET	NON RIV. CEMENTED CARBIDE GRADES	RIVESTITI COATED GRADES BESCHICHTET RECOUVERTS											
		T120	NEW F2140	T516	T526	T528N	T530	T525	NEW F2330	F1035	NEW F2335			
APKT 1003 PDR .I52		■										10,5	6,70	3,50	2,8	0,5	11
APKT 1003 PDTR .S52				■			■					10,5	6,70	3,50	2,8	0,5	11
APKX 1003 PDR .S52								■				10,5	6,70	3,50	2,8	0,5	11
APKT 1003 PDSR .Z54					■							10,5	6,70	3,50	2,8	0,5	11
APKT 1003 PDER .Z54										■		10,5	6,70	3,50	2,8	0,5	11
APKT 1003 PDER .T55									■		■	11,0	6,70	3,50	2,8	0,5	11
APHT 100312SR .Z53			■									10,5	6,70	3,50	2,8	1,2	11
APHT 100320SR .Z53			■									10,5	6,70	3,50	2,8	2,0	11
APHT 1003 PDFR .S57		■										10,5	6,70	3,50	2,8	0,5	11

CON ADDUZIONE LUBROREFRIGERANTE - WITH COOLANT SUPPLY		○		●		●	○	○	●	○	●	●	●				
SENZA ADDUZIONE LUBROREFRIGERANTE - WITHOUT COOLANT SUPPLY		○		●		○	●	●	○	○	○	○	○				

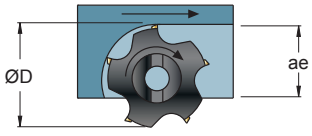
MATERIALI - MATERIALS Pag. 1119		VDI 3323 GR.	HB Rm[1] HRC[2]	fz0 mm			Vc m/min Pag. 500									
				F	M	R	T120	T516	T525	T526	T528N	T530	F2330	F1035	F2335	F2140
P	ACCIAIO NON LEGATO - NOT ALLOY STEEL	1---5	125-300	0,1	0,15	0,2			250	220	220	230	270	125	250	200
P	ACCIAIO POCO LEGATO - LOW ALLOY STEEL	6--9	180-350	0,06	0,1	0,15			200	160	160	180	220	120	200	170
P	ACCIAIO ALTO LEGATO - ALLOY STEEL	10-11	200-325	0,06	0,1	0,15			170	150	150	150	200	100	180	120
P	INOX MARTENS. - STAINLESS STEEL MART	12-13	200-240	0,06	0,08	0,1			150	140	140	140	180	100	150	120
M	INOX AUST. DUPLEX - STAINLESS STEEL AUST	14.1-14.2	180-230	0,06	0,08	0,1	100		140	130	120	120	150		130	140
K	GHISA GRIGIA - GREY CAST IRON	15-16	180-260	0,1	0,15	0,2	120	250	200		180	160			240	
K	GHISA SFEROIDALE - SPHEROIDAL GRAPHITE	17-18	160-250	0,06	0,12	0,15	110	200	180		160	150			200	
K	GHISA MALLEABILE - MALLEABLE CAST IRON	19-20	130-230	0,06	0,12	0,15	120	220	200		170	160			200	
N	ALLUMINIO E SUE LEGHE - ALUMINIUM	21---25	60-130	0,06	0,15	0,2	500					600				
N	RAME E SUE LEGHE - COPPER	26--28	90-110	0,06	0,12	0,18	300					300				
N	NON METALLICI - PLASTICS	29-30	/	0,06	0,12	0,18										
S	LEGHE RESIST. CALORE - HIG. TEMP. ALLOY	31---35	200-320	0,06	0,08	0,1	20		40		40	40	40		40	50
S	TITANIO E SUE LEGHE - TITANIUM	36-37	400-1050[1]	0,06	0,08	0,1	30		50		60	50	50		50	50
H	ACCIAIO TEMPRATO - HARDENED STEEL	38--41	45-60[2]	0,06	0,08	0,1			40							

$$n = \frac{Vc \cdot 1000}{\varnothing D \cdot 3,14} = \text{giri/min (min}^{-1}\text{)}$$

$$fz = fz0 \cdot Kae = \text{mm}$$

$$fn = fz \cdot z = \text{mm}$$

$$Vf = fz \cdot z \cdot n = \text{mm/min}$$



ae/D	0,5-1 50-100%	0,3 30%	0,2 20%	0,1 10%	0,05 5%	0,02 2%
Kae	1	1,2	1,5	2,1	3	4,8

ae/D	0,5-1 50-100%	0,2 20%	0,1 10%	0,05 5%
Vc Pag. 500	Vc (min)---------Vc(max)			

F = FINITURA , LAV. LEGGERA - FINISHING , LIGHT MACHINING
M = LAV. MEDIA , GENERICA - MEDIUM MACHINING , GENERIC
R = SGROSSATURA , LAV. PESANTE - ROUGHING , HEAVY MACHINING

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED
Kae = FATTORE DI CORREZIONE - CORRECTION FACTOR

Raggio Inserto Insert Radius (mm)	Raggio Fresa Milling cutter Radius (mm)
1,2	R1,0
2,0	

- Per usare inserti con r≥1,2mm, bisogna modificare il corpo fresa come indicato in figura.
- To use inserts with r≥1,2mm, it is necessary to modify the milling cutting body as illustred in the figure
- Um wendeschneidplatten mit r≥1,2mm, muss der fräserkörper wie in der abbildung angegeben verändert werden
- Pour utiliser les plaquettes avec r≥1,2mm, il faut modifier le corps de la fraise comme il est indiqué dans l'illustration.

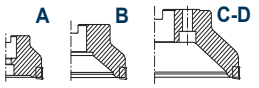
■ DISPONIBILI - IN STOCK - LIEFERBAR - DISPONIBLES / ■ NEW
●● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE
□ A RICHIESTA - ON REQUEST - AUF ANFRAGE - SUR DEMANDE / □ NEW
○○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

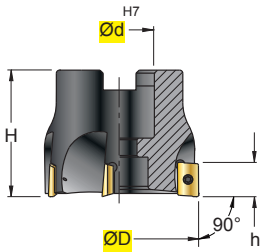
S 1088 .. 10

Ø 40-63

γ_p +11°/+12°
γ_f -10°/-8°
γ_o -10°/-8°

ISO 6462 ...



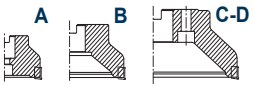


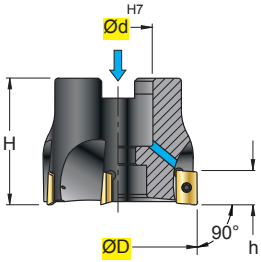
S 1088W .. 10
S 1088GW .. 10

Ø 40-63

γ_p +11°/+12°
γ_f -10°/-8°
γ_o -10°/-8°

ISO 6462 ...



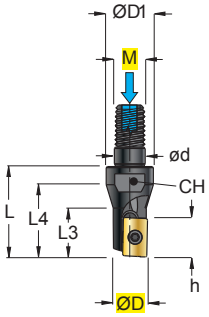


S 1089W ..

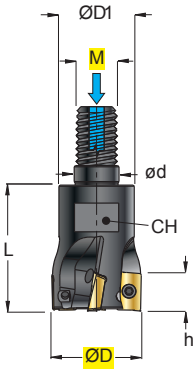
Ø 10-32

γ_p -1,5°/+10°
γ_f -21°/-11,5°
γ_o -21°/-11,5°

FORM A



FORM B

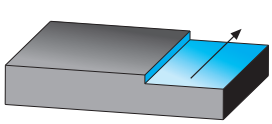


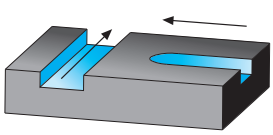
APKT 1003 .I52	
APKT 1003 .S52	
APKX 1003 .S52	
APHT 1003 .Z53	
APKT 1003 .Z54	
APKT 1003 .T55	
APHT 1003 .S57	

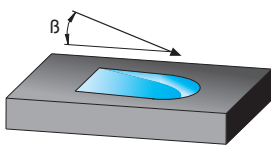
INSERTI - INSERTS
PAG. 508

(mm)

ART.		FORM	ØD	M	Ød	ØD1	H	h	L	L3	L4	ß	Z	✥	CH	kg	Nm	ISO 6462				
S 1088	040 - 10	–	40	–	22	–	40	10	–	–	–	–	6	–	–	0,210	1,1÷1,3	A	1003	12255P	5608P	VBSF10
S 1088	050 - 10	–	50	–	22	–	40	10	–	–	–	–	7	–	–	0,320	1,1÷1,3	A				
S 1088	063 - 10	–	63	–	22	–	40	10	–	–	–	–	8	–	–	0,550	1,1÷1,3	A				
S 1088W	040 - 10	–	40	–	22	–	40	10	–	–	–	–	6	–	–	0,210	1,1÷1,3	A	1003	12255P	5608P	VBSF10
S 1088W	050 - 10	–	50	–	22	–	40	10	–	–	–	–	7	–	–	0,320	1,1÷1,3	A				
S 1088W	063 - 10	–	63	–	22	–	40	10	–	–	–	–	8	–	–	0,350	1,1÷1,3	A				
S 1088GW	040 - 10	–	40	–	22	–	40	10	–	–	–	–	5	–	–	0,210	1,1÷1,3	A	1003	12255P	5608P	VBSF10
S 1088GW	050 - 10	–	50	–	22	–	40	10	–	–	–	–	6	–	–	0,320	1,1÷1,3	A				
S 1088GW	063 - 10	–	63	–	22	–	40	10	–	–	–	–	7	–	–	0,550	1,1÷1,3	A				
S 1089W	10 25 01.10	A	10	8	8,5	13	–	10	25	13,5	20	11°	1	/	10	0,017	1,1÷1,3	–	1003	12255P	5608P	–
S 1089W	12 25 01.10	A	12	8	8,5	13	–	10	25	13	20	9°	1	/	10	0,020	1,1÷1,3	–				
S 1089W	16 25 02.10	B	16	8	8,5	13	–	10	25	–	–	3,5°	2	–	10	0,023	1,1÷1,3	–				
S 1089W	20 30 03.10	B	20	10	10,5	18	–	10	30	–	–	1,5°	3	–	15	0,049	1,1÷1,3	–				
S 1089W	25 35 03.10	B	25	12	12,5	21	–	10	35	–	–	0,9°	3	–	17	0,090	1,1÷1,3	–				
S 1089W	25 35 04.10	B	25	12	12,5	21	–	10	35	–	–	0,9°	4	–	17	0,089	1,1÷1,3	–				
S 1089W	32 43 05.10	B	32	16	17	29	–	10	43	–	–	0,6°	5	–	24	0,212	1,1÷1,3	–				







W = FORO PER LIQUIDO REFRIGERANTE - COOLANT BORE - KÜHLMITTELBOHRUNG - TROU DU LIQUIDE D'ARROSAGE
G = PASSO GROSSO - LARGE TEETH DISTANCE - NORMALE ZAHNTEILUNG - GRANDE DISTANCE DENTS.
✥ = PASSO DIFFERENZIATO - DIFFERENTIAL PITCH - UNGLEICHE TEILUNG - PAS DIFFERENCIE

PAG. 1059

SCELTA VELOCE - QUICK PICK

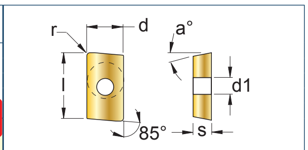
Tenacità + / *Toughness* -

Pag. 486

HT: CERMET — HW: NON RIV. CEMENTED CARBIDE GRADES — HC: RIVESTITI COATED GRADES BESCHICHTET RECOUVERTS

COD.	P F	P M	P R	M F	M M	M R	K F	K M	K R	N F	N M	N R	S F	S M	S R	H F	H M	H R	T120	F2140 (NEW)	T516	T526	T528N	T530	T525	F2330 (NEW)	F1035	F2335 (NEW)	l	d	s	d1	r	a°
APKT 1003 PDR .I52	●	●	○	○	○	○	○	○	○				○	○	○								■						10,5	6,70	3,50	2,8	0,5	11
APKT 1003 PDTR .S52							○	●	●												■								10,5	6,70	3,50	2,8	0,5	11
	○	●	●	○	●	●		○			○			○										■										
APKX 1003 PDR .S52	○	●	●	○	●	●	○	○	○					○			○								■				10,5	6,70	3,50	2,8	0,5	11
APKT 1003 PDSR .Z54	○	●	●	○	●	○																■							10,5	6,70	3,50	2,8	0,5	11
APKT 1003 PDER .Z54		●	●																								■		10,5	6,70	3,50	2,8	0,5	11
APKT 1003 PDER .T55		○			●									●												■ (red)			11,0	6,70	3,50	2,8	0,5	11
		○			●			○						●														■ (red)						
APHT 100312SR .Z53	○	○	○	●	●	●								○						■									10,5	6,70	3,50	2,8	1,2	11
APHT 100320SR .Z53	○	○	○	●	●	●								○						■									10,5	6,70	3,50	2,8	2,0	11
APHT 1003 PDFR .S57							●	●	●	●	●	●	○	○	○				■										10,5	6,70	3,50	2,8	0,5	11

	T120	F2140	T516	T526	T528N	T530	T525	F2330	F1035	F2335
CON ADDUZIONE LUBROREFRIGERANTE - WITH COOLANT SUPPLY	○	●	●	○	○	●	○	●	●	●
SENZA ADDUZIONE LUBROREFRIGERANTE - WITHOUT COOLANT SUPPLY	○	●	○	●	●	○	○	○	○	○



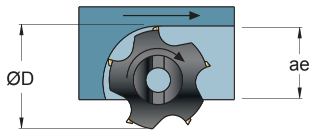
MATERIALI - MATERIALS Pag. 1119		VDI 3323 GR.	HB Rm[1] HRC[2]	fz0 mm F	fz0 mm M	fz0 mm R	Vc m/min Pag. 500 T120	T516	T525	T526	T528N	T530	F2330	F1035	F2335	F2140
P	ACCIAIO NON LEGATO - NOT ALLOY STEEL	1---5	125-300	0,1	0,15	0,2			250	220	220	230	270	125	250	200
P	ACCIAIO POCO LEGATO - LOW ALLOY STEEL	6--9	180-350	0,06	0,1	0,15			200	160	160	180	220	120	200	170
P	ACCIAIO ALTO LEGATO - ALLOY STEEL	10-11	200-325	0,06	0,1	0,15			170	150	150	150	200	100	180	120
P	INOX MARTENS. - STAINLESS STEEL MART	12-13	200-240	0,06	0,08	0,1			150	140	140	140	180	100	150	120
M	INOX AUST. DUPLEX - STAINLESS STEEL AUST	14.1-14.2	180-230	0,06	0,08	0,1	100		140	130	120	120	150		130	140
K	GHISA GRIGIA - GREY CAST IRON	15-16	180-260	0,1	0,15	0,2	120	250	200		180	160			240	
K	GHISA SFEROIDALE - SPHEROIDAL GRAPHITE	17-18	160-250	0,06	0,12	0,15	110	200	180		160	150			200	
K	GHISA MALLEABILE - MALLEABLE CAST IRON	19-20	130-230	0,06	0,12	0,15	120	220	200		170	160			200	
N	ALLUMINIO E SUE LEGHE - ALUMINIUM	21---25	60-130	0,06	0,15	0,2	500					600				
N	RAME E SUE LEGHE - COPPER	26--28	90-110	0,06	0,12	0,18	300					300				
N	NON METALLICI - PLASTICS	29-30	/	0,06	0,12	0,18										
S	LEGHE RESIST. CALORE - HIG. TEMP. ALLOY	31---35	200-320	0,06	0,08	0,1	20		40		40	40	40		40	50
S	TITANIO E SUE LEGHE - TITANIUM	36-37	400-1050[1]	0,06	0,08	0,1	30		50		60	50	50		50	50
H	ACCIAIO TEMPRATO - HARDENED STEEL	38--41	45-60[2]	0,06	0,08	0,1			40							

$$n = \frac{Vc \cdot 1000}{ØD \cdot 3{,}14} = \text{giri/min (min}^{-1}\text{)}$$

$fz = fz0 \cdot Kae$ = mm

$fn = fz \cdot z$ = mm

$Vf = fz \cdot z \cdot n$ = mm/min



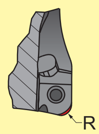
ae/D	0,5-1 50-100%	0,3 30%	0,2 20%	0,1 10%	0,05 5%	0,02 2%
Kae	1	1,2	1,5	2,1	3	4,8

Vc Pag. 500

ae/D	0,5-1 50-100%	0,2 20%	0,1 10%	0,05 5%
	Vc (min)---------Vc(max)			

F = FINITURA , LAV. LEGGERA - FINISHING , LIGHT MACHINING
M = LAV. MEDIA , GENERICA - MEDIUM MACHINING , GENERIC
R = SGROSSATURA , LAV. PESANTE - ROUGHING , HEAVY MACHINING

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED
Kae = FATTORE DI CORREZIONE - CORRECTION FACTOR



Raggio Inserto Insert Radius (mm)	Raggio Fresa Milling cutter Radius (mm)
1,2	R1,0
2,0	

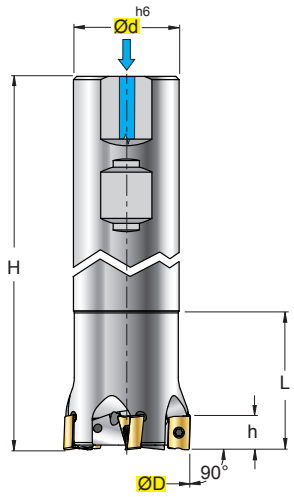
- Per usare inserti con r≥1,2mm, bisogna modificare il corpo fresa come indicato in figura.
- To use inserts with r≥1,2mm, it is necessary to modify the milling cutting body as illustred in the figure
- Um wendeschneidplatten mit r≥1,2mm, muss der fräserkörper wie in der abbildung angegeben verändert werden
- Pour utiliser les plaquettes avec r≥1,2mm, il faut modifier le corps de la fraise comme il est indiqué dans l'illustration.

■ DISPONIBILI - IN STOCK - LIEFERBAR - DISPONIBLES / ■ NEW
●● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE
□ A RICHIESTA - ON REQUEST - AUF ANFRAGE - SUR DEMANDE / □ NEW
○○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

S 9001-6W..-10

Ø 20-40

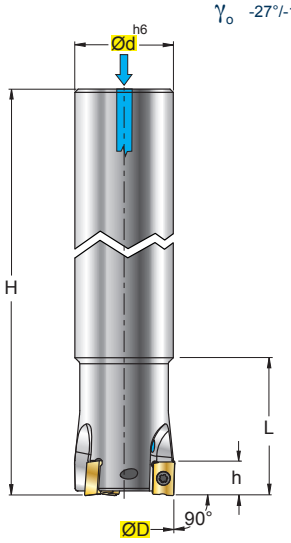
γ_p -6°
γ_f -27°/-17,5°
γ_o -27°/-17,5°



S 9001-6XLW.. -10
S 9001-6XLMW.. -10

Ø 20-32

γ_p -6°
γ_f -27°/-19°
γ_o -27°/-19°

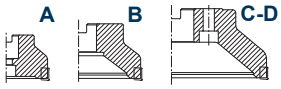


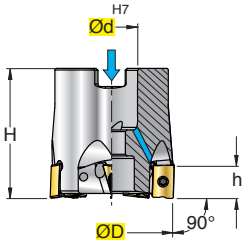
S 9001-8W..-10

Ø 40-63

γ_p -6,35°/-6°
γ_f -17,5°/-13°
γ_o -17,5°/-13°

ISO 6462 ...



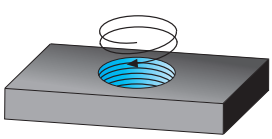


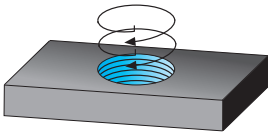
LNMM 1006 .F56

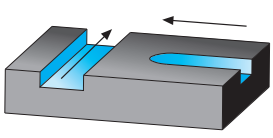
LNMM 1006 .F61

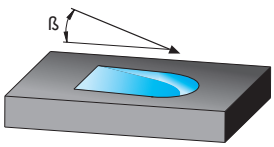
INSERTI - INSERTS
PAG. 510

ART.	(mm) ØD	Ød	H	h	L	ß	Z		kg	Nm	ISO 6462				
S9001-6W-020-02-10	20	20	100	9	30	4°	2	–	0,20	1,5÷2,0	–	1006	C03007	5609	–
S9001-6W-020-03-10	20	20	100	9	30	4°	3	–	0,20	1,5÷2,0	–				
S9001-6W-025-02-10	25	25	115	9	35	3,5°	2	–	0,41	1,5÷2,0	–				
S9001-6W-025-03-10	25	25	115	9	35	3,5°	3	–	0,41	1,5÷2,0	–				
S9001-6W-032-03-10	32	32	125	9	42	3°	3	–	0,76	1,5÷2,0	–				
S9001-6W-032-04-10	32	32	125	9	42	3°	4	–	0,76	1,5÷2,0	–				
S9001-6W-040-04-10	40	32	130	9	42	2°	4	–	0,87	1,5÷2,0	–				
S9001-6W-040-05-10	40	32	130	9	42	2°	5	–	0,87	1,5÷2,0	–				
S9001-6XLW-020-02-10	20	20	150	9	30	4°	2	–	0,31	1,5÷2,0	–	1006	C03007	5609	–
S9001-6XLW-025-02-10	25	25	150	9	35	3,5°	2	–	0,51	1,5÷2,0	–				
S9001-6XLW-032-03-10	32	32	180	9	42	3°	3	–	0,99	1,5÷2,0	–				
S9001-6XLMW-020-02-10	20	19	150	9	30	4°	2	–	0,31	1,5÷2,0	–	1006	C03007	5609	–
S9001-6XLMW-025-02-10	25	24	150	9	35	3,5°	2	–	0,51	1,5÷2,0	–				
S9001-6XLMW-032-03-10	32	30	180	9	42	3°	3	–	0,99	1,5÷2,0	–				
S9001-8W-040-04-10	40	16	40	9	–	2°	4	–	0,24	1,5÷2,0	A	1006	C03007	5609	VBSF08L
S9001-8W-040-05-10	40	16	40	9	–	2°	5	–	0,24	1,5÷2,0	A				
S9001-8W-050-05-10	50	22	40	9	–	1,5°	5	–	0,35	1,5÷2,0	A	1006	C03007	5609	VBSF10
S9001-8W-050-07-10	50	22	40	9	–	1,5°	7	–	0,35	1,5÷2,0	A				
S9001-8W-063-06-10	63	22	40	9	–	1°	6	–	0,60	1,5÷2,0	A				
S9001-8W-063-08-10	63	22	40	9	–	1°	8	–	0,60	1,5÷2,0	A				









W = FORO PER LIQUIDO REFRIGERANTE - COOLANT BORE - KÜHLMITTELBOHRUNG - TROU DU LIQUIDE D'ARROSAGE
= PASSO DIFFERENZIATO - DIFFERENTIAL PITCH - UNGLEICHE TEILUNG - PAS DIFFERENCIE

PAG. 1059

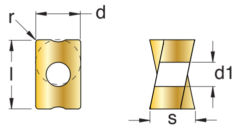
SAU QUALITY TOOLS ENGINEERING

SCELTA VELOCE - QUICK PICK

Tenacità + / Toughness -

Pag. 486

HT: CERMET — HW: NON RIV. CEMENTED CARBIDE GRADES — HC: RIVESTITI COATED GRADES BESCHICHTET RECOUVERTS



COD.			P F	P M	P R	M F	M M	M R	K F	K M	K R	N F	N M	N R	S F	S M	S R	H F	H M	H R	Grade	l	d	s	d1	r	a°
LNMM	100605	.F56							○	●	●										F3420 ■	10	6,5	6,5	3,5	0,5	–
			○	●	●	○	○	○	○	○	○										F1325 ■						
				●	●		○	○													F1335 ■						
				●	●		○	○													F4345 ■						
LNMM	100605	.F61								●	●										T3116 ■	10	6,5	6,5	3,5	0,5	–
				○	○					●											F3120 ■						

	T3116	F3120	F3420	F1325	F1335	F4345
CON ADDUZIONE LUBROREFRIGERANTE - WITH COOLANT SUPPLY	○	○	●	○	○	○
SENZA ADDUZIONE LUBROREFRIGERANTE - WITHOUT COOLANT SUPPLY	●	●	●	●	●	●

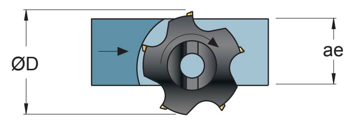
MATERIALI - MATERIALS Pag. 1119		VDI 3323 GR.	HB Rm[1] HRC[2]	fz0 mm F	fz0 mm M	fz0 mm R	Vc m/min Pag. 500 T3116	F3120	F3420	F1325	F1335	F4345
P	ACCIAIO NON LEGATO - NOT ALLOY STEEL	1---5	125-300	0,08	0,15	0,25		200		230	220	200
P	ACCIAIO POCO LEGATO - LOW ALLOY STEEL	6--9	180-350	0,08	0,15	0,2		180		190	180	170
P	ACCIAIO ALTO LEGATO - ALLOY STEEL	10-11	200-325	0,06	0,12	0,16		160		170	160	160
P	INOX MARTENS. - STAINLESS STEEL MART	12-13	200-240	0,08	0,12	0,15		120				
M	INOX AUST. DUPLEX - STAINLESS STEEL AUST	14.1-14.2	180-230	0,08	0,12	0,15				100	90	80
K	GHISA GRIGIA - GREY CAST IRON	15-16	180-260	0,08	0,18	0,25	310	280	250	220		
K	GHISA SFEROIDALE - SPHEROIDAL GRAPHITE	17-18	160-250	0,08	0,15	0,2	180	260	260	180		
K	GHISA MALLEABILE - MALLEABLE CAST IRON	19-20	130-230	0,08	0,15	0,2	280	240	240	160		
N	ALLUMINIO E SUE LEGHE - ALUMINIUM	21---25	60-130									
N	RAME E SUE LEGHE - COPPER	26--28	90-110									
N	NON METALLICI - PLASTICS	29-30	/									
S	LEGHE RESIST. CALORE - HIG. TEMP. ALLOY	31---35	200-320									
S	TITANIO E SUE LEGHE - TITANIUM	36-37	400-1050[1]									
H	ACCIAIO TEMPRATO - HARDENED STEEL	38--41	45-60[2]									

$$n = \frac{Vc \cdot 1000}{ØD \cdot 3{,}14} = \text{giri/min (min}^{-1}\text{)}$$

$fz = fz0 \cdot Kae$ = mm

$fn = fz \cdot z$ = mm

$Vf = fz \cdot z \cdot n$ = mm/min

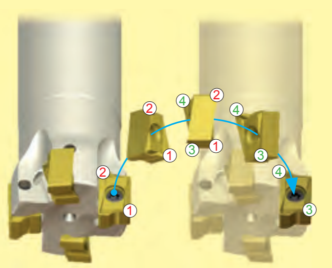


ae/D	0,5-1 50-100%	0,2 20%	0,1 10%	0,05 5%	0,02 2%
Kae	1	1,1	1,2	1,3	1,5

ae/D	0,5-1 50-100%	0,2 20%	0,1 10%	0,05 5%
Vc Pag. 500	Vc (min)---------Vc(max)			

F = FINITURA , LAV. LEGGERA - FINISHING , LIGHT MACHINING
M = LAV. MEDIA , GENERICA - MEDIUM MACHINING , GENERIC
R = SGROSSATURA , LAV. PESANTE - ROUGHING , HEAVY MACHINING

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED
Kae = FATTORE DI CORREZIONE - CORRECTION FACTOR



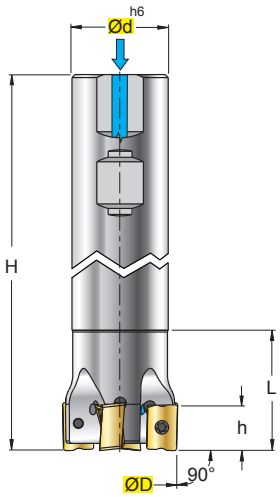
- 4 Taglienti "Utili" disponibili grazie all'inserto bilaterale.
- 4 "Useful" cutting-edges thanks to two-sided insert
- "Nützliche" schneidkanten dank zweiseitiger wendeschneidplatten
- Tranchants "Utiles" disponibles grace a la plaquette bilaterale

■ DISPONIBILI - IN STOCK - LIEFERBAR - DISPONIBLES / ■ NEW
●● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE
□ A RICHIESTA - ON REQUEST - AUF ANFRAGE - SUR DEMANDE / □ NEW
○○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

S 9001-6W..-15

Ø 32-40

γ_p -6°
γ_f -24°/-20°
γ_o -24°/-20°

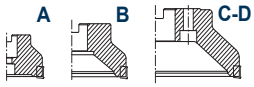


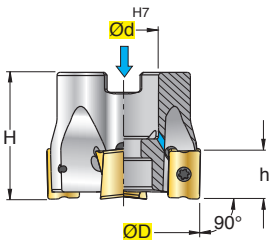
S 9001-8W..-15

Ø 50-80

γ_p -6,35°/-6°
γ_f -17°
γ_o -17°

ISO 6462 ...

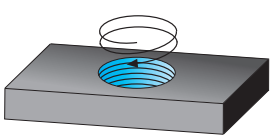


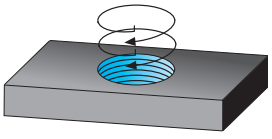


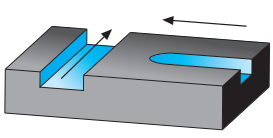
LNMM 1510 .F56	
LNMM 1510 .F61	

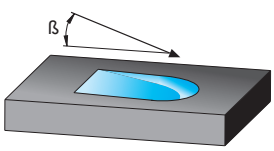
INSERTI - INSERTS
PAG. 510

ART.	(mm) ØD	Ød	H	h	L	ß	Z		kg	Nm	ISO 6462				
S9001-6W-032-02-15	32	32	125	14	40	2,5°	2	–	0,71	3,8÷5	–	1510	1240P	5615P	–
S9001-6W-032-03-15	32	32	125	14	40	2,5°	3	–	0,71	3,8÷5	–				
S9001-6W-040-03-15	40	32	130	14	40	2°	3	–	0,78	3,8÷5	–				
S9001-6W-040-04-15	40	32	130	14	40	2°	4	–	0,78	3,8÷5	–				
S9001-8W-050-03-15	50	22	40	14	–	2°	3	–	0,31	3,8÷5	A	1510	1240P	5615P	VBSF10
S9001-8W-050-04-15	50	22	40	14	–	2°	4	–	0,31	3,8÷5	A				
S9001-8W-063-04-15	63	22	40	14	–	2°	4	–	0,54	3,8÷5	A				
S9001-8W-063-06-15	63	22	40	14	–	2°	6	–	0,54	3,8÷5	A				
S9001-8W-080-05-15	80	27	50	14	–	1,5°	5	–	1,0	3,8÷5	A-B	1510	1240P	5615P	AL12x35
S9001-8W-080-07-15	80	27	50	14	–	1,5°	7	–	1,0	3,8÷5	A-B				









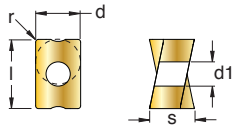
W = FORO PER LIQUIDO REFRIGERANTE - COOLANT BORE - KÜHLMITTELBOHRUNG - TROU DU LIQUIDE D'ARROSAGE
= PASSO DIFFERENZIATO - DIFFERENTIAL PITCH - UNGLEICHE TEILUNG - PAS DIFFERENCIE

SAU QUALITY TOOLS ENGINEERING

SCELTA VELOCE - QUICK PICK

Tenacità / Toughness + -

Pag. 486



COD.			P F	P M	P R	M F	M M	M R	K F	K M	K R	N F	N M	N R	S F	S M	S R	H F	H M	H R	HT CERMET	HW NON RIV. CEMENTED CARBIDE GRADES	HC RIVESTITI COATED GRADES BESCHICHTET RECOUVERTS T3116	HC F3120	HC F3420	HC F1325	HC F1335	HC F4345	l	d	s	d1	r	a°
LNMM	151008	.F56	○	●	●	○	○	○	○	●	●														■			■			15	10	10	4,5	0,8	–
				●	●		○	○		○	○																		■							
				●	●		○	○																					■						
LNMM	151008	.F61		○	○					●	●														■	■					15	10	10	4,5	0,8	–
										●																										

CON ADDUZIONE LUBROREFRIGERANTE - WITH COOLANT SUPPLY

| | | | | | | | | | | | | | | | | | | | | | ○ | ○ | ● | | ○ | ○ | ○ | | | | | | | | |

SENZA ADDUZIONE LUBROREFRIGERANTE - WITHOUT COOLANT SUPPLY

| | | | | | | | | | | | | | | | | | | | | | ● | ● | ● | | ● | ● | ● | | | | | | | | |

MATERIALI - MATERIALS

Pag. 1119

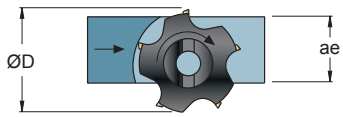
		VDI 3323 GR.	HB Rm[1] HRC[2]	fz0 mm F	fz0 mm M	fz0 mm R	Vc m/min Pag. 500 T3116	F3120	F3420	F1325	F1335	F4345
P	ACCIAIO NON LEGATO - NOT ALLOY STEEL	1---5	125-300	0,08	0,15	0,25		200		230	220	200
P	ACCIAIO POCO LEGATO - LOW ALLOY STEEL	6--9	180-350	0,08	0,15	0,2		180		190	180	170
P	ACCIAIO ALTO LEGATO - ALLOY STEEL	10-11	200-325	0,06	0,12	0,16		160		170	160	160
P	INOX MARTENS. - STAINLESS STEEL MART	12-13	200-240	0,08	0,12	0,15		120				
M	INOX AUST. DUPLEX - STAINLESS STEEL AUST	14.1-14.2	180-230	0,08	0,12	0,15				100	90	80
K	GHISA GRIGIA - GREY CAST IRON	15-16	180-260	0,08	0,18	0,25	310	280	250	220		
K	GHISA SFEROIDALE - SPHEROIDAL GRAPHITE	17-18	160-250	0,08	0,15	0,2	180	260	260	180		
K	GHISA MALLEABILE - MALLEABLE CAST IRON	19-20	130-230	0,08	0,15	0,2	280	240	240	160		
N	ALLUMINIO E SUE LEGHE - ALUMINIUM	21---25	60-130									
N	RAME E SUE LEGHE - COPPER	26--28	90-110									
N	NON METALLICI - PLASTICS	29-30	/									
S	LEGHE RESIST. CALORE - HIG. TEMP. ALLOY	31---35	200-320									
S	TITANIO E SUE LEGHE - TITANIUM	36-37	400-1050[1]									
H	ACCIAIO TEMPRATO - HARDENED STEEL	38--41	45-60[2]									

$$n = \frac{Vc \cdot 1000}{\varnothing D \cdot 3,14} = \text{giri/min (min}^{-1}\text{)}$$

$$fz = fz0 \cdot Kae = \text{mm}$$

$$fn = fz \cdot z = \text{mm}$$

$$Vf = fz \cdot z \cdot n = \text{mm/min}$$

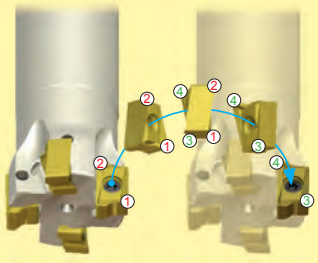


ae/D	0,5-1 50-100%	0,2 20%	0,1 10%	0,05 5%	0,02 2%
Kae	1	1,1	1,2	1,3	1,5

ae/D	0,5-1 50-100%	0,2 20%	0,1 10%	0,05 5%
Vc Pag. 500	Vc (min)---------Vc(max)			

F = FINITURA , LAV. LEGGERA - FINISHING , LIGHT MACHINING
M = LAV. MEDIA , GENERICA - MEDIUM MACHINING , GENERIC
R = SGROSSATURA , LAV. PESANTE - ROUGHING , HEAVY MACHINING

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED
Kae = FATTORE DI CORREZIONE - CORRECTION FACTOR



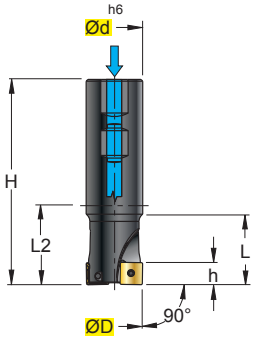
- 4 Taglienti "Utili" disponibili grazie all'inserto bilaterale.
- 4 "Useful" cutting-edges thanks to two-sided insert
- 4 "Nützliche" schneidkanten dank zweiseitiger wendeschneidplatten
- 4 Tranchants "Utiles" disponibles grace a la plaquette bilaterale

■ DISPONIBILI - IN STOCK - LIEFERBAR - DISPONIBLES / ■ NEW
●● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE
□ A RICHIESTA - ON REQUEST - AUF ANFRAGE - SUR DEMANDE / □ NEW
○○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

S 1296W .. 12

Ø 32-40

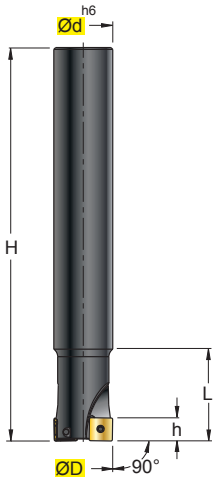
γ_p +8°/+7°
γ_f -9°/-8°
γ_o -9°/-8°



S 1296XLZ .. 12

Ø 32-40

γ_p +8°/+7°
γ_f -9°/-8°
γ_o -9°/-8°

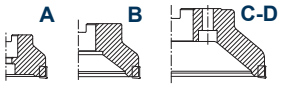


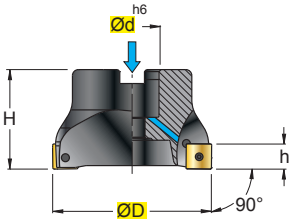
S 1298W ..12
S 1298GW..12
S 1298G..12

Ø 50-250

γ_p +7°/+8°
γ_f -8°/-1,6°
γ_o -8°/-1,6°

ISO 6462 ...

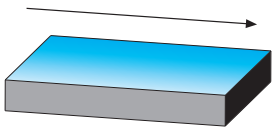


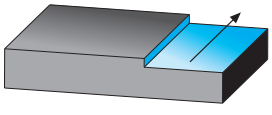


SDMT 1205 .F58

INSERTI - INSERTS
PAG. 513

ART.	(mm) ØD	Ød	H	h	L	L2	Z		kg	Nm	ISO 6462				
S 1296W 032 - 12	32	32	110	10,5	40	50	2	–	0,545	3,8÷5,0	–	1205	124011P	5620P	–
S 1296W 040 - 12	40	32	115	10,5	45	45	3	–	0,618	3,8÷5,0	–				
S 1296XLZ 032 - 12	32	32	250	10,5	40	–	2	–	1,432	3,8÷5,0	–	1205	124011P	5620P	–
S 1296XLZ 040 - 12	40	40	250	10,5	45	–	3	–	2,247	3,8÷5,0	–				
S 1298W 050 - 12	50	22	40	10,5	–	–	5	Y	0,295	3,8÷5,0	A	1205	124011P	5620P	VBSF10
S 1298W 063 - 12	63	22	40	10,5	–	–	6	Y	0,470	3,8÷5,0	A				
S 1298W 080 - 12	80	27	50	10,5	–	–	6	Y	1,040	3,8÷5,0	A	1205	124011P	5620P	VBSF12
S 1298W 100 - 12	100	32	50	10,5	–	–	8	Y	1,600	3,8÷5,0	A	1205	124011P	5620P	VBSF16
S 1298W 125 - 12	125	40	63	10,5	–	–	9	Y	3,300	3,8÷5,0	A	1205	124011P	5620P	VBSF20
S 1298GW 050 - 12	50	22	40	10,5	–	–	3	–	0,289	3,8÷5,0	A	1205	124011P	5620P	VBSF10
S 1298GW 063 - 12	63	22	40	10,5	–	–	4	Y	0,474	3,8÷5,0	A				
S 1298GW 080 - 12	80	27	50	10,5	–	–	5	Y	1,04	3,8÷5,0	A	1205	124011P	5620P	VBSF12
S 1298GW 100 - 12	100	32	50	10,5	–	–	6	Y	1,61	3,8÷5,0	A-B	1205	124011P	5620P	VBSF16
S 1298GW 125 - 12	125	40	63	10,5	–	–	7	Y	3,275	3,8÷5,0	A-B	1205	124011P	5620P	VBSF20
S 1298G 160 - 12	160	40	63	10,5	–	–	8	Y	3,74	3,8÷5,0	C	1205	124011P	5620P	–
S 1298G 200 - 12	200	60	63	10,5	–	–	10	Y	7,07	3,8÷5,0	D				
S 1298G 250 - 12	250	60	63	10,5	–	–	12	Y	10,06	3,8÷5,0	D				





W = FORO PER LIQUIDO REFRIGERANTE - COOLANT BORE - KÜHLMITTELBOHRUNG - TROU DU LIQUIDE D'ARROSAGE
XLZ = EXTRALUNGA , STELO CILINDRICO - EXTRALONG , CYLINDRICAL SHANK - EXTRALANG , ZYLINDERSCHAFT - EXTRALONGUE , QUEUE CYLINDRIQUE
G = PASSO GROSSO - LARGE TEETH DISTANCE - NORMALE ZAHNTEILUNG - GRANDE DISTANCE DENTS.
Y = PASSO DIFFERENZIATO - DIFFERENTIAL PITCH - UNGLEICHE TEILUNG - PAS DIFFERENCIE

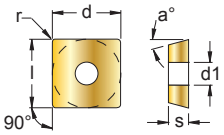
PAG. 1059

SAU QUALITY TOOLS ENGINEERING

SCELTA VELOCE - QUICK PICK

Tenacità / Toughness + -

Pag. 486



COD.	P F	P M	P R	M F	M M	M R	K F	K M	K R	N F	N M	N R	S F	S M	S R	H F	H M	H R	HT CERMET	HW NON RIV. CEMENTED CARBIDE GRADES	HC RIVESTITI COATED GRADES BESCHICHTET RECOUVERTS T1730	HC F1335	l	d	s	d1	r	a°
SDMT 1205 PDSR .F58		●	●		○	○															■	■	12,7	12,7	5,0	5,5	0,8	15
		●	●																									
CON ADDUZIONE LUBROREFRIGERANTE - WITH COOLANT SUPPLY																					○	○						
SENZA ADDUZIONE LUBROREFRIGERANTE - WITHOUT COOLANT SUPPLY																					●	●						

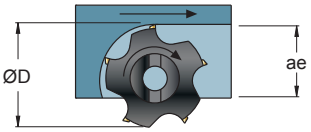
MATERIALI - MATERIALS Pag. 1119		VDI 3323 GR.	HB Rm[1] HRC[2]	fz0 mm F	M	R	Vc m/min Pag. 500 T1730	F1335
P	ACCIAIO NON LEGATO - NOT ALLOY STEEL	1---5	125-300	0,12	0,25	0,35	230	220
P	ACCIAIO POCO LEGATO - LOW ALLOY STEEL	6--9	180-350	0,1	0,2	0,3	190	180
P	ACCIAIO ALTO LEGATO - ALLOY STEEL	10-11	200-325	0,1	0,2	0,3	165	160
P	INOX MARTENS. - STAINLESS STEEL MART	12-13	200-240	0,08	0,15	0,25	150	
M	INOX AUST. DUPLEX - STAINLESS STEEL AUST	14.1-14.2	180-230	0,06	0,10	0,20		90
K	GHISA GRIGIA - GREY CAST IRON	15-16	180-260					
K	GHISA SFEROIDALE - SPHEROIDAL GRAPHITE	17-18	160-250					
K	GHISA MALLEABILE - MALLEABLE CAST IRON	19-20	130-230					
N	ALLUMINIO E SUE LEGHE - ALUMINIUM	21---25	60-130					
N	RAME E SUE LEGHE - COPPER	26--28	90-110					
N	NON METALLICI - PLASTICS	29-30	/					
S	LEGHE RESIST. CALORE - HIG. TEMP. ALLOY	31---35	200-320					
S	TITANIO E SUE LEGHE - TITANIUM	36-37	400-1050[1]					
H	ACCIAIO TEMPRATO - HARDENED STEEL	38--41	45-60[2]					

$$n = \frac{Vc \cdot 1000}{\varnothing D \cdot 3{,}14} = \text{giri/min (min}^{-1}\text{)}$$

$$fz = fz0 \cdot Kae = \text{mm}$$

$$fn = fz \cdot z = \text{mm}$$

$$Vf = fz \cdot z \cdot n = \text{mm/min}$$



ae/D	0,5-1 50-100%	0,3 30%	0,2 20%	0,1 10%	0,05 5%	0,02 2%
Kae	1	1,2	1,5	2,1	3	4,8

ae/D	0,5-1 50-100%	0,2 20%	0,1 10%	0,05 5%
Vc Pag. 500	Vc (min)---------Vc(max)			

F = FINITURA , LAV. LEGGERA - FINISHING , LIGHT MACHINING
M = LAV. MEDIA , GENERICA - MEDIUM MACHINING , GENERIC
R = SGROSSATURA , LAV. PESANTE - ROUGHING , HEAVY MACHINING

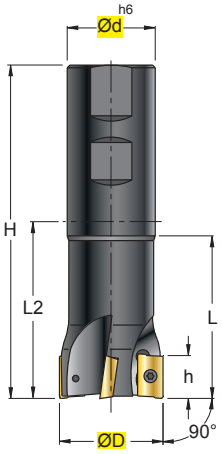
Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED
Kae = FATTORE DI CORREZIONE - CORRECTION FACTOR

■ DISPONIBILI - IN STOCK - LIEFERBAR - DISPONIBLES / ■ NEW
●● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE
□ A RICHIESTA - ON REQUEST - AUF ANFRAGE - SUR DEMANDE / □ NEW
○○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

S 1696 .. 16

Ø 25-40

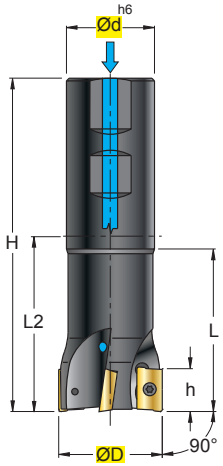
γ_p +4°/+8°
γ_f -13,5°/-12,5°
γ_o -13,5°/-12,5°



S 1696W .. 16

Ø 25-40

γ_p +4°/+8°
γ_f -13,5°/-12,5°
γ_o -13,5°/-12,5°

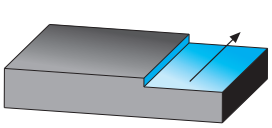


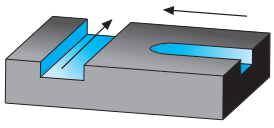
APKT 1604 .S51/.S54	
APKT 1604 .S52	
APMT 1604 .I52	
APFT 1604 .S52	
APKX 1604 .S52	
APFX 1604 .S52	
APKT 1604 .Z54	
APKT 1604 .T55	 NEW
APKT 1604 .K57P	

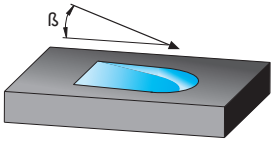
INSERTI - INSERTS
PAG. 509

(mm)

ART.		ØD	Ød	H	h	L	L2	ß	Z		kg	Nm			
S 1696	025 - 16	25	25	100	16	44	44	3,5°	2	Y	0,29	3,8÷5,0	1604	C04008P	5615P
S 1696	032 - 16	32	32	110	16	50	50	2,0°	3	Y	0,54	3,8÷5,0	1604	C04011P	5615P
S 1696	040 - 16	40	32	115	16	55	55	1,5°	4	Y	0,64	3,8÷5,0			
S 1696W	025 - 16	25	25	100	16	44	44	3,5°	2	Y	0,29	3,8÷5,0	1604	C04008P	5615P
S 1696W	032 - 16	32	32	110	16	50	50	2,0°	3	Y	0,54	3,8÷5,0	1604	C04011P	5615P
S 1696W	040 - 16	40	32	115	16	55	55	1,5°	4	Y	0,64	3,8÷5,0			







W = FORO PER LIQUIDO REFRIGERANTE - COOLANT BORE - KÜHLMITTELBOHRUNG - TROU DU LIQUIDE D'ARROSAGE
XLZ = EXTRALUNGA , STELO CILINDRICO - EXTRALONG , CYLINDRICAL SHANK - EXTRALANG , ZYLINDERSCHAFT - EXTRALONGUE , QUEUE CYLINDRIQUE
= PASSO DIFFERENZIATO - DIFFERENTIAL PITCH - UNGLEICHE TEILUNG - PAS DIFFERENCIE

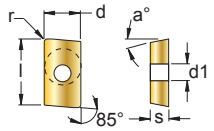
PAG. 1059

SAU QUALITY TOOLS ENGINEERING

SCELTA VELOCE - QUICK PICK

Tenacità / Toughness + -

Pag. 486



COD.				P			M			K			N			S			H			HW		HC											l	d	s	d1	r	a°
				F	M	R	F	M	R	F	M	R	F	M	R	F	M	R	F	M	R	T110	T120	T516	T526	T528N	T530	T525	F2330	F2335	T544									
APKT	1604	PDR	.S51				○	○	○	○	●	●	○	○	○	○	○	○				■													17,0	9,45	5,26	4,4	0,4	11
APMT	1604	PDR	.I52	○	●	●	○	○	○	○	○	○				○	○	○								■											17,0	9,45	5,26	4,4	0,8	11
APKT	1604	PDTR	.S52	○	●	●	○	●	●	○	○	○		○		○	○	○						■			■										17,0	9,45	5,26	4,4	0,8	11
										○	●	●																											
APFT	1604	PDTR	.S52	○	●	●	○	●	●		○						○			○							■										17,0	9,45	4,76	4,4	0,8	11
APKX	1604	PDR	.S52							○	●	●												■													17,0	9,45	5,76	4,4	0,8	11
				○	●	●	○	●	●		○						○			○							■														
				○	●	●	○	●	●		○			○			○											■													
APFX	160416	R	.S52	○	●	●	○	●	●		○						○			○							■										17,0	9,45	4,76	4,4	1,6	11
APFX	160424	R	.S52	○	●	●	○	●	●		○						○			○							■										17,0	9,45	4,76	4,4	2,4	11
APFX	160430	R	.S52	○	●	●	○	●	●		○						○			○							■										17,0	9,45	4,76	4,4	3,0	11
APFX	160440	R	.S52	○	●	●	○	●	●		○						○			○							■										17,0	9,45	4,76	4,4	4,0	11
APFX	160448	R	.S52	○	●	●	○	●	●		○						○			○							■										17,0	9,45	4,76	4,4	4,8	11
APFX	160460	R	.S52	○	●	●	○	●	●		○			○			○											■									17,0	9,45	4,76	4,4	6,0	11
APKT	1604	PDTR	.S54	●	●	●	○	●	○								○											■									17,0	9,45	5,26	4,4	0,4	11
APKT	1604	PDSR	.Z54		●	●																			■											17,0	9,45	5,26	4,4	0,8	11
APKT	1604	PDR	.T55		○			●									●												■	■						17,0	9,45	5,76	4,5	0,8	11
					○			●			○						●																								
APKT	1604	PDFR	.K57P										●	●	●							■														16,4	9,53	4,76	4,4	0,2	11
CON ADDUZIONE LUBROREFRIGERANTE - WITH COOLANT SUPPLY																						●	○			●	○	○	●	○	●	●	●							
SENZA ADDUZIONE LUBROREFRIGERANTE - WITHOUT COOLANT SUPPLY																						○	○			○	●	●	○	○	○	○	○							

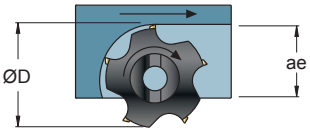
MATERIALI - MATERIALS Pag. 1119		VDI 3323 GR.	HB Rm[1] HRC[2]	fz0 mm			Vc m/min Pag. 500																
				F	M	R	T110	T120	T516	T525	T526	T528N	T530	F2330	F2335	T544							
P	ACCIAIO NON LEGATO - NOT ALLOY STEEL	1---5	125-300	0,1	0,2	0,3				250	220	220	230	270	250	230							
P	ACCIAIO POCO LEGATO - LOW ALLOY STEEL	6--9	180-350	0,08	0,15	0,25				200	160	160	180	220	200	180							
P	ACCIAIO ALTO LEGATO - ALLOY STEEL	10-11	200-325	0,08	0,15	0,25				170	150	150	150	200	180	150							
P	INOX MARTENS. - STAINLESS STEEL MART	12-13	200-240	0,06	0,12	0,2				150	140	140	140	180	150	140							
M	INOX AUST. DUPLEX - STAINLESS STEEL AUST	14.1-14.2	180-230	0,06	0,1	0,15		100		140	130	120	120	150	130	120							
K	GHISA GRIGIA - GREY CAST IRON	15-16	180-260	0,12	0,25	0,35	120	120	250	200		180	160		240	160							
K	GHISA SFEROIDALE - SPHEROIDAL GRAPHITE	17-18	160-250	0,1	0,2	0,3	120	110	200	180		160	150		200	150							
K	GHISA MALLEABILE - MALLEABLE CAST IRON	19-20	130-230	0,1	0,2	0,3	120	120	220	200		170	160		200	160							
N	ALLUMINIO E SUE LEGHE - ALUMINIUM	21---25	60-130	0,08	0,2	0,35	950	500					600			600							
N	RAME E SUE LEGHE - COPPER	26--28	90-110	0,06	0,18	0,3	400	300					300			300							
N	NON METALLICI - PLASTICS	29-30	/	0,06	0,18	0,3	300																
S	LEGHE RESIST. CALORE - HIG. TEMP. ALLOY	31---35	200-320	0,05	0,08	0,12	20	20		40		40	40	40	40	40							
S	TITANIO E SUE LEGHE - TITANIUM	36-37	400-1050[1]	0,05	0,08	0,12	30	30		50		60	50	50	50	50							
H	ACCIAIO TEMPRATO - HARDENED STEEL	38--41	45-60[2]	0,05	0,08					40													

$$n = \frac{Vc \cdot 1000}{\O D \cdot 3,14} = \text{giri/min (min}^{-1}\text{)}$$

$$fz = fz0 \cdot Kae = \text{mm}$$

$$fn = fz \cdot z = \text{mm}$$

$$Vf = fz \cdot z \cdot n = \text{mm/min}$$

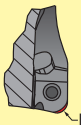


ae/D	0,5-1 50-100%	0,3 30%	0,2 20%	0,1 10%	0,05 5%	0,02 2%
Kae	1	1,2	1,5	2,1	3	4,8

ae/D	0,5-1 50-100%	0,2 20%	0,1 10%	0,05 5%
Vc Pag. 500	Vc (min)---------Vc(max)			

F = FINITURA , LAV. LEGGERA - FINISHING , LIGHT MACHINING
M = LAV. MEDIA , GENERICA - MEDIUM MACHINING , GENERIC
R = SGROSSATURA , LAV. PESANTE - ROUGHING , HEAVY MACHINING

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED
Kae = FATTORE DI CORREZIONE - CORRECTION FACTOR



Raggio Inserto Insert Radius (mm)	Raggio Fresa Milling cutter Radius (mm)
1,6	R1,0
2,4	R1,2
3,0	R1,6
4,0	R2,5
4,8	R3,3
6,0	R4,5

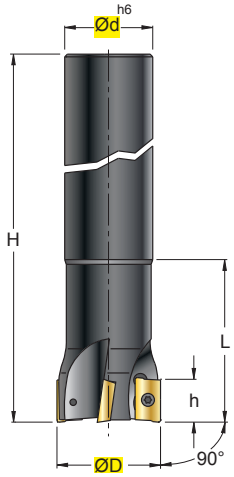
- Per usare inserti con r≥1,6mm, bisogna modificare il corpo fresa come indicato in figura.
- To use inserts with r≥1,6mm, it is necessary to modify the milling cutting body as illustred in the figure
- Um wendeschneidplatten mit r≥1,6mm, muss der fräserkörper wie in der abbildung angegeben verändert werden
- Pour utiliser les plaquettes avec r≥1,6mm, il faut modifier le corps de la fraise comme il est indiqué dans l'illustration.

■ DISPONIBILI - IN STOCK - LIEFERBAR - DISPONIBLES / ■ NEW
●● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE
□ A RICHIESTA - ON REQUEST - AUF ANFRAGE - SUR DEMANDE / □ NEW
○○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

S 1696XLZ .. 16

Ø 25-40

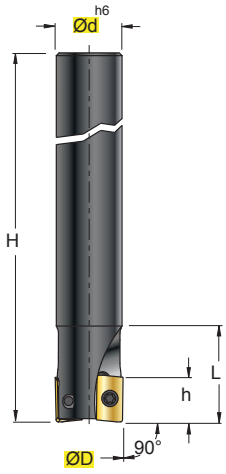
γ_p +4°/+8°
γ_f -13,5°/-12,5°
γ_o -13,5°/-12,5°



S 1696XLZM..16

Ø 25-32

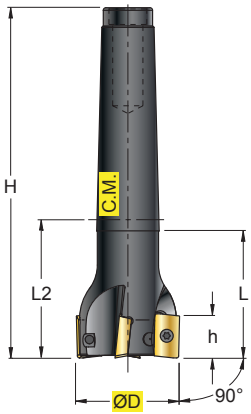
γ_p +4°/+8°
γ_f -13,5°/-12,5°
γ_o -13,5°/-12,5°



S 1697 .. 16

Ø 25-40

γ_p +4°/+8°
γ_f -13,5°/-12,5°
γ_o -13,5°/-12,5°

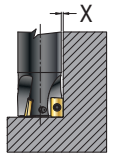


APKT 1604 .S51/.S54	
APKT 1604 .S52	
APMT 1604 .I52	
APFT 1604 .S52	
APKX 1604 .S52	
APFX 1604 .S52	
APKT 1604 .Z54	
APKT 1604 .T55	 NEW
APKT 1604 .K57P	

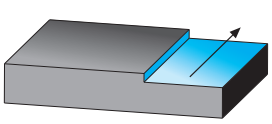
INSERTI - INSERTS
PAG. 509

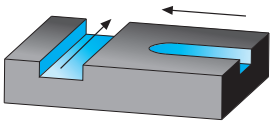
(mm)

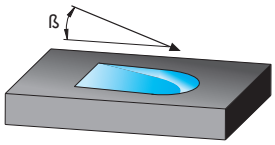
ART.		ØD	Ød/CM	H	h	L	L2	ß	Z		X	kg	Nm			
S 1696XLZ	025 - 16	25	25	200	16	44	–	3,5°	2	Y	–	0,69	3,8÷5,0	1604	C04008P	5615P
S 1696XLZ	032 - 16	32	32	250	16	50	–	2,0°	3	Y	–	1,44	3,8÷5,0	1604	C04011P	5615P
S 1696XLZ	040 - 16	40	32	250	16	50	–	1,5°	4	Y	–	2,30	3,8÷5,0			
S 1696XLZM	025 - 16	25	24	200	16	35	–	3,5°	2	Y	0,5	0,67	3,8÷5,0	1604	C04008P	5615P
S 1696XLZM	032 - 16	32	30	250	16	35	–	2,0°	3	Y	1,0	1,51	3,8÷5,0	1604	C04011P	5615P
S 1697	025 - 16	25	CM3	124	16	38	43	3,5°	2	Y	–	0,30	3,8÷5,0	1604	C04008P	5615P
S 1697	032 - 16	32	CM3	124	16	38	43	2,0°	3	Y	–	0,34	3,8÷5,0	1604	C04011P	5615P
S 1697	040 - 16	40	CM3	135	16	49	54	1,5°	4	Y	–	0,43	3,8÷5,0			



S1696 XLZM... -16







W = FORO PER LIQUIDO REFRIGERANTE - COOLANT BORE - KÜHLMITTELBOHRUNG - TROU DU LIQUIDE D'ARROSAGE
GXL = PASSO GROSSO EXTRALUNGA - EXTRALONG WITH LARGE TEETH DISTANCE - EXTRALANG MIT NORMAL ZUHNTEILUNG - EXTRALONGUE AVEC GRANDE DISTANCE DENTS
= PASSO DIFFERENZIATO - DIFFERENTIAL PITCH - UNGLEICHE TEILUNG - PAS DIFFERENCIE

PAG. 1059

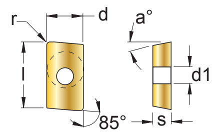
SAU QUALITY TOOLS ENGINEERING

SCELTA VELOCE - QUICK PICK

Tenacità + / *Toughness* -

Pag. 486

HW: NON RIV. CEMENTED CARBIDE GRADES (T110, T120)
HC: RIVESTITI COATED GRADES BESCHICHTET RECOUVERTS (T516, T526, T528N, T530, T525, F2330 NEW, F2335 NEW, T544)



COD.	P F	P M	P R	M F	M M	M R	K F	K M	K R	N F	N M	N R	S F	S M	S R	H F	H M	H R	T110	T120	T516	T526	T528N	T530	T525	F2330	F2335	T544	l	d	s	d1	r	a°
APKT 1604 PDR .S51				○	○	○	○	●	●	○	○	○	○	○	○					■									17,0	9,45	5,26	4,4	0,4	11
APMT 1604 PDR .I52	○	●	●	○	○	○	○	○	○				○	○	○								■						17,0	9,45	5,26	4,4	0,8	11
APKT 1604 PDTR .S52	○	●	●	○	●	●	○	○	○		○		○	○	○									■					17,0	9,45	5,26	4,4	0,8	11
							○	●	●												■													
APFT 1604 PDTR .S52	○	●	●	○	●	●		○						○			○								■				17,0	9,45	4,76	4,4	0,8	11
APKX 1604 PDR .S52							○	●	●												■								17,0	9,45	5,76	4,4	0,8	11
	○	●	●	○	●	●		○						○			○								■									
	○	●	●	○	●	●		○			○			○												■								
APFX 160416 R .S52	○	●	●	○	●	●		○						○			○								■				17,0	9,45	4,76	4,4	1,6	11
APFX 160424 R .S52	○	●	●	○	●	●		○						○			○								■				17,0	9,45	4,76	4,4	2,4	11
APFX 160430 R .S52	○	●	●	○	●	●		○						○			○								■				17,0	9,45	4,76	4,4	3,0	11
APFX 160440 R .S52	○	●	●	○	●	●		○						○			○								■				17,0	9,45	4,76	4,4	4,0	11
APFX 160448 R .S52	○	●	●	○	●	●		○						○			○								■				17,0	9,45	4,76	4,4	4,8	11
APFX 160460 R .S52	○	●	●	○	●	●		○			○			○												■			17,0	9,45	4,76	4,4	6,0	11
APKT 1604 PDTR .S54	●	●	●	○	●	○								○											■				17,0	9,45	5,26	4,4	0,4	11
APKT 1604 PDSR .Z54		●	●																			■							17,0	9,45	5,26	4,4	0,8	11
APKT 1604 PDR .T55		○			●									●												■ (NEW)			17,0	9,45	5,76	4,5	0,8	11
		○			●			○						●													■ (NEW)							
APKT 1604 PDFR .K57P										●	●	●							■										16,4	9,53	4,76	4,4	0,2	11

	T110	T120	T516	T526	T528N	T530	T525	F2330	F2335	T544
CON ADDUZIONE LUBROREFRIGERANTE - WITH COOLANT SUPPLY	●	○	●	○	○	●	○	●	●	●
SENZA ADDUZIONE LUBROREFRIGERANTE - WITHOUT COOLANT SUPPLY	○	○	○	●	●	○	○	○	○	○

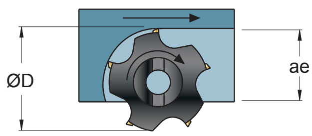
	MATERIALI - MATERIALS Pag. 1119	VDI 3323 GR.	HB Rm 1) HRC 2)	fz0 mm F	fz0 mm M	fz0 mm R	Vc m/min Pag. 500 T110	T120	T516	T525	T526	T528N	T530	F2330	F2335	T544
P	ACCIAIO NON LEGATO - NOT ALLOY STEEL	1---5	125-300	0,1	0,2	0,3				250	220	220	230	270	250	230
P	ACCIAIO POCO LEGATO - LOW ALLOY STEEL	6--9	180-350	0,08	0,15	0,25				200	160	160	180	220	200	180
P	ACCIAIO ALTO LEGATO - ALLOY STEEL	10-11	200-325	0,08	0,15	0,25				170	150	150	150	200	180	150
P	INOX MARTENS. - STAINLESS STEEL MART	12-13	200-240	0,06	0,12	0,2				150	140	140	140	180	150	140
M	INOX AUST. DUPLEX - STAINLESS STEEL AUST	14.1-14.2	180-230	0,06	0,1	0,15		100		140	130	120	120	150	130	120
K	GHISA GRIGIA - GREY CAST IRON	15-16	180-260	0,12	0,25	0,35	120	120	250	200		180	160		240	160
K	GHISA SFEROIDALE - SPHEROIDAL GRAPHITE	17-18	160-250	0,1	0,2	0,3	120	110	200	180		160	150		200	150
K	GHISA MALLEABILE - MALLEABLE CAST IRON	19-20	130-230	0,1	0,2	0,3	120	120	220	200		170	160		200	160
N	ALLUMINIO E SUE LEGHE - ALUMINIUM	21---25	60-130	0,08	0,2	0,35	950	500					600			600
N	RAME E SUE LEGHE - COPPER	26--28	90-110	0,06	0,18	0,3	400	300					300			300
N	NON METALLICI - PLASTICS	29-30	/	0,06	0,18	0,3	300									
S	LEGHE RESIST. CALORE - HIG. TEMP. ALLOY	31---35	200-320	0,05	0,08	0,12	20	20		40		40	40	40	40	40
S	TITANIO E SUE LEGHE - TITANIUM	36-37	400-1050 1)	0,05	0,08	0,12	30	30		50		60	50	50	50	50
H	ACCIAIO TEMPRATO - HARDENED STEEL	38--41	45-60 2)	0,05	0,08					40						

$$n = \frac{Vc \cdot 1000}{ØD \cdot 3,14} = \text{giri/min } (min^{-1})$$

$fz = fz0 \cdot Kae$ = mm

$fn = fz \cdot z$ = mm

$Vf = fz \cdot z \cdot n$ = mm/min

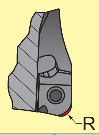


ae/D	0,5-1 50-100%	0,3 30%	0,2 20%	0,1 10%	0,05 5%	0,02 2%
Kae	1	1,2	1,5	2,1	3	4,8

Vc Pag. 500	ae/D	0,5-1 50-100%	0,2 20%	0,1 10%	0,05 5%
		Vc (min)---------Vc(max)			

F = FINITURA , LAV. LEGGERA - FINISHING , LIGHT MACHINING
M = LAV. MEDIA , GENERICA - MEDIUM MACHINING , GENERIC
R = SGROSSATURA , LAV. PESANTE - ROUGHING , HEAVY MACHINING

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED
Kae = FATTORE DI CORREZIONE - CORRECTION FACTOR



Raggio Inserto Insert Radius (mm)	Raggio Fresa Milling cutter Radius (mm)
1,6	R1,0
2,4	R1,2
3,0	R1,6
4,0	R2,5
4,8	R3,3
6,0	R4,5

- Per usare inserti con r≥1,6mm, bisogna modificare il corpo fresa come indicato in figura.
- To use inserts with r≥1,6mm, it is necessary to modify the milling cutting body as illustred in the figure
- Um wendeschneidplatten mit r≥1,6mm, muss der fräserkörper wie in der abbildung angegeben verändert werden
- Pour utiliser les plaquettes avec r≥1,6mm, il faut modifier le corps de la fraise comme il est indiqué dans l'illustration.

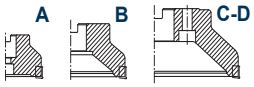
■ DISPONIBILI - IN STOCK - LIEFERBAR - DISPONIBLES / ■ NEW
●● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE
□ A RICHIESTA - ON REQUEST - AUF ANFRAGE - SUR DEMANDE / □ NEW
○○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

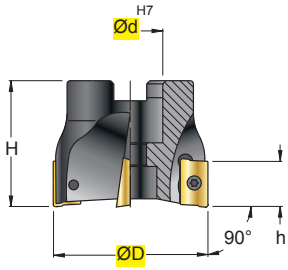
S 1698 .. 16

Ø 40-125

γ_p +6°/+9°
γ_f -12,5°/-3°
γ_o -12,5°/-3°

ISO 6462 ...



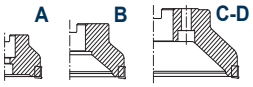


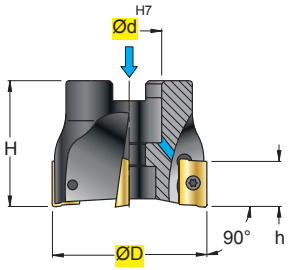
S 1698W ..16
S 1698GW..16

Ø 40-125

γ_p +6°/+9°
γ_f -12,5°/-3°
γ_o -12,5°/-3°

ISO 6462 ...

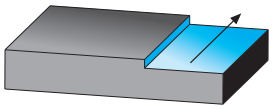


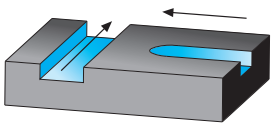


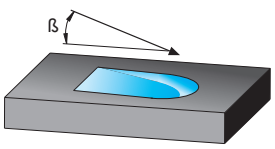
APKT 1604 .S51/.S54	
APKT 1604 .S52	
APMT 1604 .I52	
APFT 1604 .S52	
APKX 1604 .S52	
APFX 1604 .S52	
APKT 1604 .Z54	
APKT 1604 .T55	 NEW
APKT 1604 .K57P	

INSERTI - INSERTS
PAG. 509

ART.		(mm) ØD	Ød	H	h	ß	Z		kg	Nm	ISO 6462				
S 1698	040 - 16	40	16	40	16	1,8°	4	Y	0,18	3,8÷5,0	A	1604	C04011P	5615P	VBSF08
S 1698	050 - 16	50	22	40	16	1,0°	5	Y	0,25	3,8÷5,0	A	1604	C04011P	5615P	VBSF10
S 1698	063 - 16	63	22	40	16	0,7°	6	Y	0,47	3,8÷5,0	A				
S 1698	080 - 16	80	27	50	16	0,6°	7	Y	0,94	3,8÷5,0	A-B	1604	C04011P	5615P	VBSF12
S 1698	100 - 16	100	32	50	16	0,4°	8	Y	1,55	3,8÷5,0	A-B	1604	C04011P	5615P	VBSF16
S 1698	125 - 16	125	40	63	16	0,3°	9	Y	3,43	3,8÷5,0	A-B	1604	C04011P	5615P	VBSF20
S 1698W	040 - 16	40	16	40	16	1,8°	4	Y	0,18	3,8÷5,0	A	1604	C04011P	5615P	VBSF08
S 1698W	050 - 16	50	22	40	16	1,0°	5	Y	0,25	3,8÷5,0	A	1604	C04011P	5615P	VBSF10
S 1698W	063 - 16	63	22	40	16	0,7°	6	Y	0,47	3,8÷5,0	A				
S 1698W	080 - 16	80	27	50	16	0,6°	7	Y	0,94	3,8÷5,0	A-B	1604	C04011P	5615P	VBSF12
S 1698W	100 - 16	100	32	50	16	0,4°	8	Y	1,55	3,8÷5,0	A-B	1604	C04011P	5615P	VBSF16
S 1698W	125 - 16	125	40	63	16	0,3°	9	Y	3,43	3,8÷5,0	A	1604	C04011P	5615P	VBSF20
S 1698GW	040 - 16	40	16	40	16	1,8°	3	Y	0,17	3,8÷5,0	A	1604	C04011P	5615P	VBSF08
S 1698GW	050 - 16	50	22	40	16	1,0°	4	Y	0,24	3,8÷5,0	A	1604	C04011P	5615P	VBSF10
S 1698GW	063 - 16	63	22	40	16	0,7°	5	Y	0,45	3,8÷5,0	A				
S 1698GW	080 - 16	80	27	50	16	0,6°	6	Y	0,92	3,8÷5,0	A-B	1604	C04011P	5615P	VBSF12
S 1698GW	100 - 16	100	32	50	16	0,4°	7	Y	1,52	3,8÷5,0	A-B	1604	C04011P	5615P	VBSF16
S 1698GW	125 - 16	125	40	63	16	0,3°	8	Y	3,10	3,8÷5,0	A-B	1604	C04011P	5615P	VBSF20







W = FORO PER LIQUIDO REFRIGERANTE - COOLANT BORE - KÜHLMITTELBOHRUNG - TROU DU LIQUIDE D'ARROSAGE
G = PASSO GROSSO - LARGE TEETH DISTANCE - NORMALE ZAHNTEILUNG - GRANDE DISTANCE DENTS.
= PASSO DIFFERENZIATO - DIFFERENTIAL PITCH - UNGLEICHE TEILUNG - PAS DIFFERENCIE

PAG. 1059

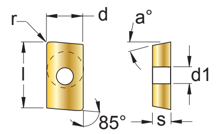
SAU QUALITY TOOLS ENGINEERING

SCELTA VELOCE - QUICK PICK

Tenacità + / *Toughness* -

Pag. 486

HW: NON RIV. CEMENTED CARBIDE GRADES — HC: RIVESTITI COATED GRADES BESCHICHTET RECOUVERTS



COD.				P F	P M	P R	M F	M M	M R	K F	K M	K R	N F	N M	N R	S F	S M	S R	H F	H M	H R	T110 (HW)	T120 (HW)	T516	T526	T528N	T530	T525	F2330 (NEW)	F2335 (NEW)	T544	l	d	s	d1	r	a°
APKT	1604	PDR	.S51				○	○	○	○	●	●	○	○	○	○	○	○					■									17,0	9,45	5,26	4,4	0,4	11
APMT	1604	PDR	.I52	○	●	●	○	○	○	○	○	○				○	○	○								■						17,0	9,45	5,26	4,4	0,8	11
APKT	1604	PDTR	.S52	○	●	●	○	●	●	○	○	○		○		○	○	○									■					17,0	9,45	5,26	4,4	0,8	11
										○	●	●												■													
APFT	1604	PDTR	.S52	○	●	●	○	●	●		○						○			○								■				17,0	9,45	4,76	4,4	0,8	11
APKX	1604	PDR	.S52							○	●	●												■								17,0	9,45	5,76	4,4	0,8	11
				○	●	●	○	●	●		○						○			○								■									
				○	●	●	○	●	●		○			○			○												■								
APFX	160416 R		.S52	○	●	●	○	●	●		○						○			○								■				17,0	9,45	4,76	4,4	1,6	11
APFX	160424 R		.S52	○	●	●	○	●	●		○						○			○								■				17,0	9,45	4,76	4,4	2,4	11
APFX	160430 R		.S52	○	●	●	○	●	●		○						○			○								■				17,0	9,45	4,76	4,4	3,0	11
APFX	160440 R		.S52	○	●	●	○	●	●		○						○			○								■				17,0	9,45	4,76	4,4	4,0	11
APFX	160448 R		.S52	○	●	●	○	●	●		○						○			○								■				17,0	9,45	4,76	4,4	4,8	11
APFX	160460 R		.S52	○	●	●	○	●	●		○			○			○												■			17,0	9,45	4,76	4,4	6,0	11
APKT	1604	PDTR	.S54	●	●	●	○	●	○								○											■				17,0	9,45	5,26	4,4	0,4	11
APKT	1604	PDSR	.Z54		●	●																			■							17,0	9,45	5,26	4,4	0,8	11
APKT	1604	PDR	.T55		○			●									●												■ (NEW)			17,0	9,45	5,76	4,5	0,8	11
					○			●			○						●													■ (NEW)							
APKT	1604	PDFR	.K57P										●	●	●							■										16,4	9,53	4,76	4,4	0,2	11

	T110	T120	T516	T526	T528N	T530	T525	F2330	F2335	T544
CON ADDUZIONE LUBROREFRIGERANTE - WITH COOLANT SUPPLY	●	○	●	○	○	●	○	●	●	●
SENZA ADDUZIONE LUBROREFRIGERANTE - WITHOUT COOLANT SUPPLY	○	○	○	●	●	○	○	○	○	○

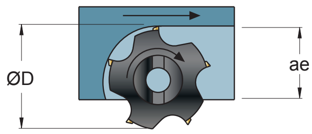
	MATERIALI - MATERIALS Pag. 1119	VDI 3323 GR.	HB Rm 1) HRC 2)	fz0 mm F	fz0 mm M	fz0 mm R	Vc m/min Pag. 500 T110	T120	T516	T525	T526	T528N	T530	F2330	F2335	T544
P	ACCIAIO NON LEGATO - NOT ALLOY STEEL	1---5	125-300	0,1	0,2	0,3				250	220	220	230	270	250	230
P	ACCIAIO POCO LEGATO - LOW ALLOY STEEL	6--9	180-350	0,08	0,15	0,25				200	160	160	180	220	200	180
P	ACCIAIO ALTO LEGATO - ALLOY STEEL	10-11	200-325	0,08	0,15	0,25				170	150	150	150	200	180	150
P	INOX MARTENS. - STAINLESS STEEL MART	12-13	200-240	0,06	0,12	0,2				150	140	140	140	180	150	140
M	INOX AUST. DUPLEX - STAINLESS STEEL AUST	14.1-14.2	180-230	0,06	0,1	0,15		100		140	130	120	120	150	130	120
K	GHISA GRIGIA - GREY CAST IRON	15-16	180-260	0,12	0,25	0,35	120	120	250	200		180	160		240	160
K	GHISA SFEROIDALE - SPHEROIDAL GRAPHITE	17-18	160-250	0,1	0,2	0,3	120	110	200	180		160	150		200	150
K	GHISA MALLEABILE - MALLEABLE CAST IRON	19-20	130-230	0,1	0,2	0,3	120	120	220	200		170	160		200	160
N	ALLUMINIO E SUE LEGHE - ALUMINIUM	21---25	60-130	0,08	0,2	0,35	950	500					600			600
N	RAME E SUE LEGHE - COPPER	26--28	90-110	0,06	0,18	0,3	400	300					300			300
N	NON METALLICI - PLASTICS	29-30	/	0,06	0,18	0,3	300									
S	LEGHE RESIST. CALORE - HIG. TEMP. ALLOY	31---35	200-320	0,05	0,08	0,12	20	20		40		40	40	40	40	40
S	TITANIO E SUE LEGHE - TITANIUM	36-37	400-1050 1)	0,05	0,08	0,12	30	30		50		60	50	50	50	50
H	ACCIAIO TEMPRATO - HARDENED STEEL	38--41	45-60 2)	0,05	0,08					40						

$$n = \frac{Vc \cdot 1000}{ØD \cdot 3{,}14} = \text{giri/min } (min^{-1})$$

$$fz = fz0 \cdot Kae = mm$$

$$fn = fz \cdot z = mm$$

$$Vf = fz \cdot z \cdot n = mm/min$$

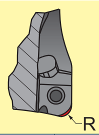


ae/D	0,5-1 50-100%	0,3 30%	0,2 20%	0,1 10%	0,05 5%	0,02 2%
Kae	1	1,2	1,5	2,1	3	4,8

ae/D	0,5-1 50-100%	0,2 20%	0,1 10%	0,05 5%
Vc Pag. 500	Vc (min)---------Vc(max)			

F = FINITURA , LAV. LEGGERA - FINISHING , LIGHT MACHINING
M = LAV. MEDIA , GENERICA - MEDIUM MACHINING , GENERIC
R = SGROSSATURA , LAV. PESANTE - ROUGHING , HEAVY MACHINING

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED
Kae = FATTORE DI CORREZIONE - CORRECTION FACTOR



Raggio Inserto Insert Radius (mm)	Raggio Fresa Milling cutter Radius (mm)
1,6	R1,0
2,4	R1,2
3,0	R1,6
4,0	R2,5
4,8	R3,3
6,0	R4,5

- Per usare inserti con r≥1,6mm, bisogna modificare il corpo fresa come indicato in figura.
- To use inserts with r≥1,6mm, it is necessary to modify the milling cutting body as illustred in the figure
- Um wendeschneidplatten mit r≥1,6mm, muss der fräserkörper wie in der abbildung angegeben verändert werden
- Pour utiliser les plaquettes avec r≥1,6mm, il faut modifier le corps de la fraise comme il est indiqué dans l'illustration.

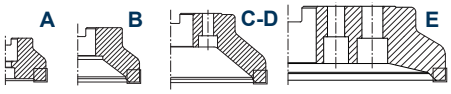
■ DISPONIBILI - IN STOCK - LIEFERBAR - DISPONIBLES / ■ NEW
●● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE
□ A RICHIESTA - ON REQUEST - AUF ANFRAGE - SUR DEMANDE / □ NEW
○○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

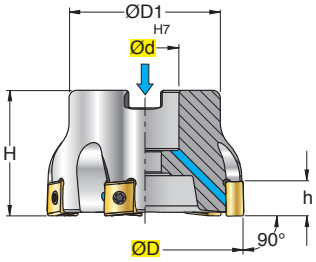
S 9003.8W .. 13

Ø 50-160

γ_p -5°
γ_f -15,8°/-9°
γ_o -15,8°/-9°

ISO 6462 ...

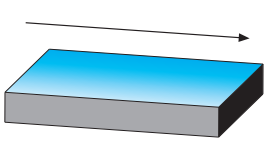


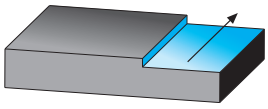


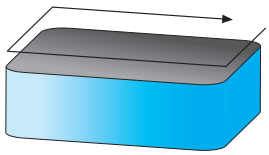
LNMX 131308.. .F58	
LNMX 131308.. .F61	

INSERTI - INSERTS
PAG. 511

ART.	(mm) ØD	Ød	ØD1	H	h	Z		kg	Nm	ISO 6462				
S 9003.8W-050-05-13	50	22	42	40	12	5	–	0,30	3,8÷5,0	A	1313	1240P	5615P	VBSF10
S 9003.8W-050-06-13	50	22	42	40	12	6	–	0,29	3,8÷5,0	A				
S 9003.8W-063-06-13	63	22	48	40	12	6	–	0,51	3,8÷5,0	A				
S 9003.8W-063-08-13	63	22	48	40	12	8	–	0,50	3,8÷5,0	A				
S 9003.8W-080-07-13	80	27	60	50	12	7	–	1,00	3,8÷5,0	A	1313	1240P	5615P	AL 12x35
S 9003.8W-080-10-13	80	27	60	50	12	10	–	1,00	3,8÷5,0	A				
S 9003.8W-100-09-13	100	32	80	50	12	9	–	1,66	3,8÷5,0	A	1313	1240P	5615P	AL 16x35
S 9003.8W-100-13-13	100	32	80	50	12	13	–	1,64	3,8÷5,0	A				
S 9003.8W-125-11-13	125	40	95	63	12	11	–	3,20	3,8÷5,0	A-B	1313	1240P	5615P	AL 20x45
S 9003.8W-125-17-13	125	40	95	63	12	17	–	3,17	3,8÷5,0	A-B				
S 9003.8-160-12-13 New	160	40	115	63	12	12	–	4,00	3,8÷5,0	C-D	1313	1240P	5615P	–
S 9003.8-160-19-13 New	160	40	115	63	12	19	–	3,98	3,8÷5,0	C-D				







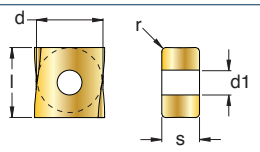
W = FORO PER LIQUIDO REFRIGERANTE - COOLANT BORE - KÜHLMITTELBOHRUNG - TROU DU LIQUIDE D'ARROSAGE
= PASSO DIFFERENZIATO - DIFFERENTIAL PITCH - UNGLEICHE TEILUNG - PAS DIFFERENCIE

SAU QUALITY TOOLS ENGINEERING

SCELTA VELOCE - QUICK PICK

Tenacità / Toughness + -

Pag. 486



COD.			P			M			K			N			S			H		
			F	M	R	F	M	R	F	M	R	F	M	R	F	M	R	F	M	R
LNMX	131308	.F58	○	● ●	● ●	○	○ ○	○ ○	○	○	○									
LNMX	131308	.F61		○	○					●	●									

HT	HW	HC																		
CERMET	NON RIV. CEMENTED CARBIDE GRADES	RIVESTITI COATED GRADES BESCHICHTET RECOUVERTS																		
						F3120						F1325	F1335							
						■						■	■							
						■														

l	d	s	d1	r	a°
13	13	7	4,6	0,8	–
13	13	7	4,6	0,8	–

CON ADDUZIONE LUBROREFRIGERANTE - WITH COOLANT SUPPLY ○ ○ ○

SENZA ADDUZIONE LUBROREFRIGERANTE - WITHOUT COOLANT SUPPLY ● ● ●

MATERIALI - MATERIALS

Pag. 1119

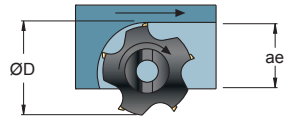
		VDI 3323 GR.	HB Rm[1] HRC[2]	fz0 mm F	fz0 mm M	fz0 mm R	Vc m/min Pag. 500 F3120	F1325	F1335
P	ACCIAIO NON LEGATO - NOT ALLOY STEEL	1---5	125-300	0,15	0,25	0,4	200	230	220
P	ACCIAIO POCO LEGATO - LOW ALLOY STEEL	6--9	180-350	0,12	0,18	0,3	180	190	180
P	ACCIAIO ALTO LEGATO - ALLOY STEEL	10-11	200-325	0,12	0,18	0,3	160	170	160
P	INOX MARTENS. - STAINLESS STEEL MART	12-13	200-240	0,1	0,14	0,25	120		
M	INOX AUST. DUPLEX - STAINLESS STEEL AUST	14.1-14.2	180-230	0,1	0,12	0,2		100	90
K	GHISA GRIGIA - GREY CAST IRON	15-16	180-260	0,15	0,3	0,5	280	220	
K	GHISA SFEROIDALE - SPHEROIDAL GRAPHITE	17-18	160-250	0,15	0,25	0,4	260	180	
K	GHISA MALLEABILE - MALLEABLE CAST IRON	19-20	130-230	0,12	0,2	0,35	240	160	
N	ALLUMINIO E SUE LEGHE - ALUMINIUM	21---25	60-130						
N	RAME E SUE LEGHE - COPPER	26--28	90-110						
N	NON METALLICI - PLASTICS	29-30	/						
S	LEGHE RESIST. CALORE - HIG. TEMP. ALLOY	31---35	200-320						
S	TITANIO E SUE LEGHE - TITANIUM	36-37	400-1050[1]						
H	ACCIAIO TEMPRATO - HARDENED STEEL	38--41	45-60[2]						

$$n = \frac{Vc \cdot 1000}{\varnothing D \cdot 3,14} = \text{giri/min (min}^{-1}\text{)}$$

$$fz = fz0 \cdot Kae = \text{mm}$$

$$fn = fz \cdot z = \text{mm}$$

$$Vf = fz \cdot z \cdot n = \text{mm/min}$$

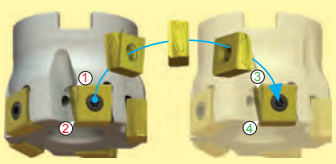


ae/D	0,5-1 50-100%	0,3 30%	0,2 20%	0,1 10%	0,05 5%	0,02 2%
Kae	1	1,2	1,5	2,1	3	4,8

ae/D	0,5-1 50-100%	0,2 20%	0,1 10%	0,05 5%
Vc Pag. 500	Vc (min)---------Vc(max)			

F = FINITURA , LAV. LEGGERA - FINISHING , LIGHT MACHINING
M = LAV. MEDIA , GENERICA - MEDIUM MACHINING , GENERIC
R = SGROSSATURA , LAV. PESANTE - ROUGHING , HEAVY MACHINING

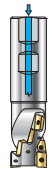
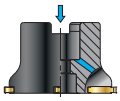
Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED
Kae = FATTORE DI CORREZIONE - CORRECTION FACTOR

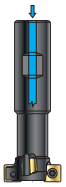


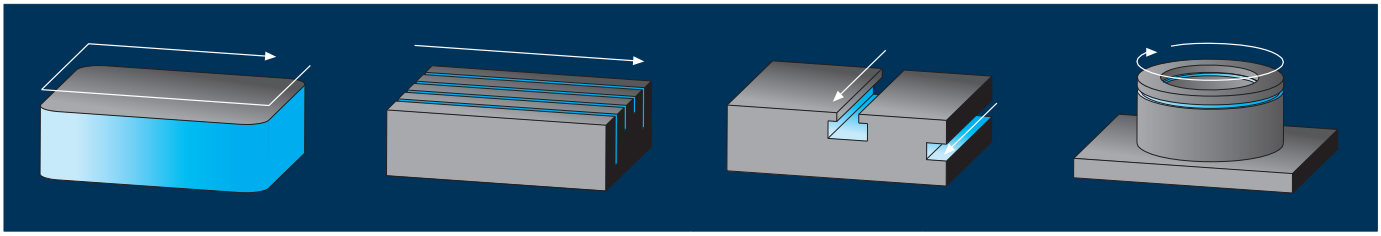
- 4 Taglienti "Utili" disponibili grazie all'inserto bilaterale.
- 4 "Useful" cutting-edges thanks to two-sided insert
- 4 "Nützliche" schneidkanten dank zweiseitiger wendeschneidplatten
- 4 Tranchants "Utiles" disponibles grace a la plaquette bilaterale

■ DISPONIBILI - IN STOCK - LIEFERBAR - DISPONIBLES / ■ NEW
●● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

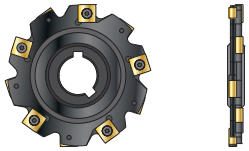
□ A RICHIESTA - ON REQUEST - AUF ANFRAGE - SUR DEMANDE / □ NEW
○○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

S1056 Pag. 448	S1058 Pag. 448	S666 Pag. 452	S668 Pag. 452		
 ØD = 20 - 40	 ØD = 40 - 63	 ØD = 19 - 34	 ØD = 48 - 63		
S 1056W .. 10	S 1058W .. 10 S 1058WF .. 10	S 666 .. 16	S 668 .. 16		
 AP..1003		 156.15.16..			

S1656 Pag. 450	S1658 Pag. 450	S976 Pag. 454			
 ØD = 25 - 40	 ØD = 50 - 125	 ØD = 21 - 50			
S 1656W .. 16	S 1658 .. 16	S 976W ..			
 AP..1604		 SP..0603 SP..09T3 SP..1204			



S950 Pag. 456



ØD = 63 - 250

S 950 ..

SNHX..11..
SNHX..12..

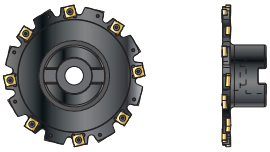
S905 Pag. 462

ØD = 20 - 32

S 905W ..

AP..1003
AP..1604

S955 Pag. 458

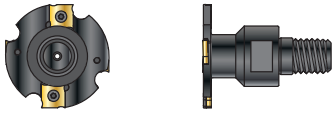


ØD = 50 - 160

S 955 ..
S 955M ..

SNHX..11..
SNHX..12..

S959 Pag. 460



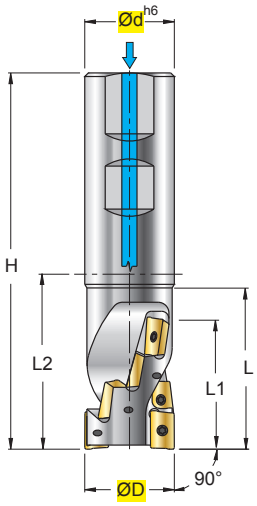
ØD = 50 - 80

S 959 ..

SNHX..11..
SNHX..12..

S 1056W .. 10

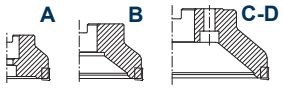
Ø 20-40

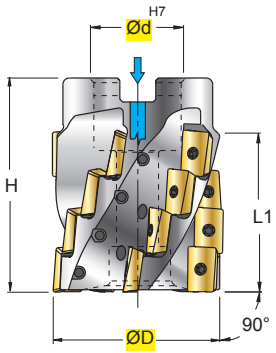


S 1058W .. 10
S 1058WF .. 10

Ø 40-63

ISO 6462 ...

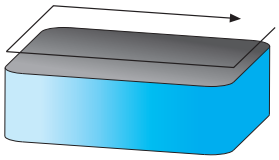


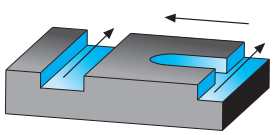


APKT 1003 .I52	
APKT 1003 .S52	
APKX 1003 .S52	
APKT 1003 .Z54	
APKT 1003 .T55	 NEW
APHT 1003 .S57	

INSERTI - INSERTS
PAG. 508

ART.		(mm) ØD	Ød	H	L	L1	L2	Z	N	K	kg	Nm	ISO 6462	1003	12255P	5608P	
S 1056W	020-10	20	20	87	37	28	37	2	4	1	0,200	1,1÷1,3	–	1003	12255P	5608P	–
S 1056W	020.2-10(**)	20	20	87	37	28	37	2	6	2	0,200	1,1÷1,3	–				
S 1056W	025-10	25	25	105	49	37	49	2	8	2	0,340	1,1÷1,3	–				
S 1056W	032-10(***)	32	32	115	55	46	55	4	12	2	0,605	1,1÷1,3	–				
S 1056W	032.2-10(**)	32	32	115	55	46	55	2	10	2	0,605	1,1÷1,3	–				
S 1056W	032.3-10(*)	32	32	115	55	46	55	3	15	3	0,600	1,1÷1,3	–				
S 1056W	040-10	40	32	130	70	55	70	3	18	3	0,810	1,1÷1,3	–				
S 1056W	040.2-10(**)	40	32	130	70	55	70	2	12	2	0,810	1,1÷1,3	–				
S 1058W	040-10	40	16	50	–	37	–	3	12	3	0,250	1,1÷1,3	A	1003	12255P	5608P	VBSF08L
S 1058W	050-10	50	22	60	–	46	–	3	15	3	0,510	1,1÷1,3	A	1003	12255P	5608P	VBSF10L
S 1058W	063-10	63	27	60	–	46	–	4	20	4	0,800	1,1÷1,3	A	1003	12255P	5608P	VBSF12L
S 1058WF	040-10	40	16	50	–	37	–	5	20	5	0,240	1,1÷1,3	A	1003	12255P	5608P	VBSF08L
S 1058WF	050-10	50	22	60	–	46	–	5	25	5	0,510	1,1÷1,3	A	1003	12255P	5608P	VBSF10L
S 1058WF	063-10	63	27	60	–	46	–	7	35	7	0,840	1,1÷1,3	A	1003	12255P	5608P	VBSF12L





(*) 3 ELICHE
(*) 3 FLUTES
(*) 3 SPIRALEN
(*) 3 HÉLICES

(**) 2 ELICHE
(**) 2 FLUTES
(**) 2 SPIRALEN
(**) 2 HÉLICES

(***) 2 ELICHE N°4 INSERTI IN TESTA
(***) 2 FLUTES 4 FRONT INSERTS
(***) 2 SPIRALEN A STIRNWENDEPLATTEN
(***) 2 HÉLICES 4 PLAQUETTES À L' EXTREMITÉ

Z = NUMERO DI ELICHE - NUMBER OF FLUTES - SPIRALENANZAHL - NOMBRE D' HELICES
K = FATTORE D 'AVANZAMENTO - FACTOR OF FEED - VORSCHUBFAKTOR - FACTEUR D' AVANCE
N = NUMERO D'INSERTI - INSERT NUMBER - WENDEPLATTENANZAHL - NOMBRE DES PLAQUETTES
W = FORO PER LIQUIDO REFRIGERANTE - COOLLANT BORE - KÜHLMITTELBOHRUNG - TROU DU LIQUIDE D'ARROSAGE
F = PASSO FINE - FINE PITCH - FEINE ZUHNTEILUNG - PAS FIN

PAG. 1059

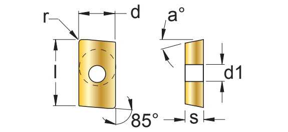
SCELTA VELOCE - QUICK PICK

Tenacità + / *Toughness* -

Pag. 486

COD.	P F	P M	P R	M F	M M	M R	K F	K M	K R	N F	N M	N R	S F	S M	S R	H F	H M	H R	HW T120	HC T516	HC T526	HC T528N	HC T530	HC T525	HC F2330 (NEW)	HC F1035	HC F2335 (NEW)	l	d	s	d1	r	a°
APKT 1003 PDR .I52	●	●	○	○	○	○	○	○	○				○	○	○							■						10,5	6,70	3,50	2,8	0,5	11
APKT 1003 PDTR .S52							○	●	●											■								10,5	6,70	3,50	2,8	0,5	11
	○	●	●	○	●	●		○			○			○									■										
APKX 1003 PDR .S52	○	●	●	○	●	●	○	○	○					○			○							■				10,5	6,70	3,50	2,8	0,5	11
APKT 1003 PDSR .Z54	○	●	●	○	●	○															■							10,5	6,70	3,50	2,8	0,5	11
APKT 1003 PDER .Z54		●	●																							■		10,5	6,70	3,50	2,8	0,5	11
APKT 1003 PDER .T55		○			●									●											■ (NEW)			11,0	6,70	3,50	2,8	0,5	11
		○			●			○						●													■ (NEW)						
APHT 1003 PDFR .S57							●	●	●	●	●	●	○	○	○				■									10,5	6,70	3,50	2,8	0,5	11

HT = CERMET; HW = NON RIV. CEMENTED CARBIDE GRADES; HC = RIVESTITI COATED GRADES BESCHICHTET RECOUVERTS



	T120	T516	T526	T528N	T530	T525	F2330	F1035	F2335
CON ADDUZIONE LUBROREFRIGERANTE - WITH COOLANT SUPPLY	○	●	○	○	●	○	●	●	●
SENZA ADDUZIONE LUBROREFRIGERANTE - WITHOUT COOLANT SUPPLY	○	○	●	●	○	○	○	○	○

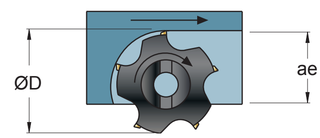
MATERIALI - MATERIALS Pag. 1119		VDI 3323 GR.	HB Rm 1) HRC 2)	fz0 mm F	fz0 mm M	fz0 mm R	Vc m/min Pag. 500 T120	T516	T525	T526	T528N	T530	F2330	F1035	F2335		
P	ACCIAIO NON LEGATO - NOT ALLOY STEEL	1---5	125-300	0,1	0,15	0,2			250	220	220	230	270	125	250		
P	ACCIAIO POCO LEGATO - LOW ALLOY STEEL	6--9	180-350	0,06	0,1	0,15			200	160	160	180	220	120	200		
P	ACCIAIO ALTO LEGATO - ALLOY STEEL	10-11	200-325	0,06	0,1	0,15			170	150	150	150	200	100	180		
P	INOX MARTENS. - STAINLESS STEEL MART	12-13	200-240	0,06	0,08	0,1			150	140	140	140	180	100	150		
M	INOX AUST. DUPLEX - STAINLESS STEEL AUST	14.1-14.2	180-230	0,06	0,08	0,1	100		140	130	120	120	150		130		
K	GHISA GRIGIA - GREY CAST IRON	15-16	180-260	0,1	0,15	0,2	120	250	200		180	160			240		
K	GHISA SFEROIDALE - SPHEROIDAL GRAPHITE	17-18	160-250	0,06	0,12	0,15	110	200	180		160	150			200		
K	GHISA MALLEABILE - MALLEABLE CAST IRON	19-20	130-230	0,06	0,12	0,15	120	220	200		170	160			200		
N	ALLUMINIO E SUE LEGHE - ALUMINIUM	21---25	60-130	0,06	0,15	0,2	500					600					
N	RAME E SUE LEGHE - COPPER	26---28	90-110	0,06	0,12	0,18	300					300					
N	NON METALLICI - PLASTICS	29-30	/	0,06	0,12	0,18											
S	LEGHE RESIST. CALORE - HIG. TEMP. ALLOY	31---35	200-320	0,06	0,08	0,1	20		40		40	40	40		40		
S	TITANIO E SUE LEGHE - TITANIUM	36-37	400-1050 1)	0,06	0,08	0,1	30		50		60	50	50		50		
H	ACCIAIO TEMPRATO - HARDENED STEEL	38--41	45-60 2)	0,06	0,08	0,1			40								

$$n = \frac{Vc \cdot 1000}{ØD \cdot 3,14} = \text{giri/min } (min^{-1})$$

$$fz = fz0 \cdot Kae \cdot Kap = mm$$

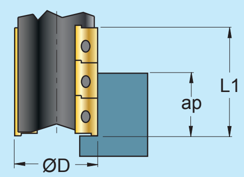
$$fn = fz \cdot K = mm$$

$$Vf = fz \cdot K \cdot n = mm/min$$



ae/D	0,5-1 50-100%	0,3 30%	0,2 20%	0,1 10%	0,05 5%	0,02 2%
Kae	1	1,2	1,5	2,1	3	4,8

Vc Pag. 500	ae/D	0,5-1 50-100%	0,2 20%	0,1 10%	0,05 5%
		Vc (min)---------Vc(max)			



ap/D	0,25	0,5	0,75	1,0	ap max=L1
Kap	1	1	0,8	0,7	0,5

F = FINITURA , LAV. LEGGERA - FINISHING , LIGHT MACHINING
M = LAV. MEDIA , GENERICA - MEDIUM MACHINING , GENERIC
R = SGROSSATURA , LAV. PESANTE - ROUGHING , HEAVY MACHINING

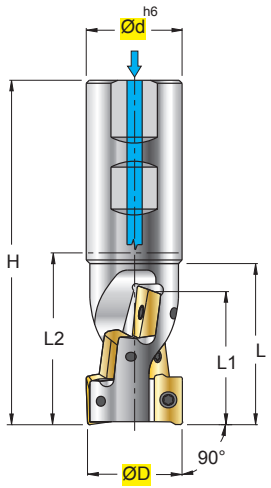
Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED
Kae / Kap = FATTORE DI CORREZIONE - CORRECTION FACTOR

■ DISPONIBILI - IN STOCK - LIEFERBAR - DISPONIBLES / ■ NEW
●● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

□ A RICHIESTA - ON REQUEST - AUF ANFRAGE - SUR DEMANDE / □ NEW
○○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

S 1656W .. 16

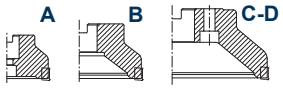
Ø 25-40

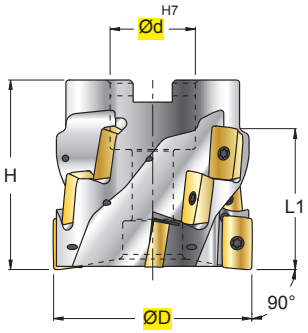


S 1658 .. 16

Ø 50-125

ISO 6462 ...

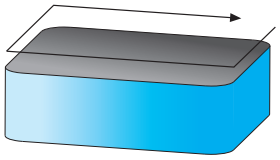


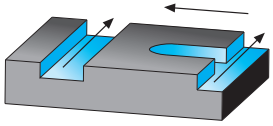


APKT 1604 .S51/.S54	
APMT 1604 .I52	
APFT 1604 .S52	
APKX 1604 .S52	
APKT 1604 .Z54	
APKT 1604 .K57P	

INSERTI - INSERTS
PAG. 509

ART.		(mm) ØD	Ød	H	L	L1	L2	Z	N	K	kg	Nm	ISO 6462		C04008P	5615P	–
S 1656W	025-16	25	25	95	38	29	39	1	2	1	0,29	3,8÷5,0	–	1604			
S 1656W	032-16	32	32	115	53	44	55	2	6	2	0,52	3,8÷5,0	–				
S 1656W	040-16	40	32	130	65	58	70	2	8	2	0,73	3,8÷5,0	–	1604	C04011P	5615P	–
S 1658	050-16	50	27	50	–	30	–	3	6	3	0,36	3,8÷5,0	A	1604	C04011P	5615P	VBSF12
S 1658	063-16	63	27	60	–	44	–	4	12	4	0,74	3,8÷5,0	A	1604	C04011P	5615P	VBSF12L
S 1658	080-16	80	32	60	–	44	–	5	15	5	1,20	3,8÷5,0	A	1604	C04011P	5615P	VBSF16L
S 1658	100-16	100	40	60	–	44	–	6	18	6	1,70	3,8÷5,0	A-B	1604	C04011P	5615P	VBSF20
S 1658	125-16	125	40	60	–	44	–	7	21	7	3,15	3,8÷5,0	A-B				





Z = NUMERO DI ELICHE - NUMBER OF FLUTES - SPIRALENANZAHL - NOMBRE D' HELICES
K = FATTORE D 'AVANZAMENTO - FACTOR OF FEED - VORSCHUBFAKTOR - FACTEUR D' AVANCE
N = NUMERO D'INSERTI - INSERT NUMBER - WENDEPLATTENANZAHL - NOMBRE DES PLAQUETTES
W = FORO PER LIQUIDO REFRIGERANTE - COOLLANT BORE - KÜHLMITTELBOHRUNG - TROU DU LIQUIDE D'ARROSAGE

PAG. 1059

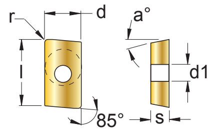
SAU QUALITY TOOLS ENGINEERING

SCELTA VELOCE - QUICK PICK

Tenacità + / *Toughness* -

Pag. 486

HT: CERMET — HW: NON RIV. CEMENTED CARBIDE GRADES — HC: RIVESTITI COATED GRADES BESCHICHTET RECOUVERTS



COD.				P F	P M	P R	M F	M M	M R	K F	K M	K R	N F	N M	N R	S F	S M	S R	H F	H M	H R	T110	T120	T516	T526	T528N	T525	T544	l	d	s	d1	r	a°
APKT	1604	PDR	.S51				○	○	○	○	●	●	○	○	○	○	○	○					■						17,0	9,45	5,26	4,4	0,4	11
APMT	1604	PDR	.I52	○	●	●	○	○	○	○	○	○				○	○	○								■			17,0	9,45	5,26	4,4	0,8	11
APFT	1604	PDTR	.S52	○	●	●	○	●	●		○						○			○							■		17,0	9,45	4,76	4,4	0,8	11
APKX	1604	PDR	.S52							○	●	●												■					17,0	9,45	5,76	4,4	0,8	11
				○	●	●	○	●	●		○						○			○							■							
				○	●	●	○	●	●		○			○			○											■						
APKT	1604	PDTR	.S54	●	●	●	○	●	○								○										■		17,0	9,45	5,26	4,4	0,4	11
APKT	1604	PDSR	.Z54	○	●	●	○	●	○																■				17,0	9,45	5,26	4,4	0,8	11
APKT	1604	PDFR	.K57P										●	●	●							■							16,4	9,53	4,76	4,4	0,2	11

	T110	T120	T516	T526	T528N	T525	T544
CON ADDUZIONE LUBROREFRIGERANTE - WITH COOLANT SUPPLY	●	○	●	○	○	○	●
SENZA ADDUZIONE LUBROREFRIGERANTE - WITHOUT COOLANT SUPPLY	○	○	○	●	●	○	○

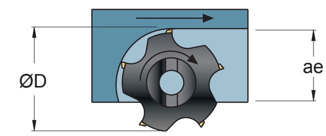
	MATERIALI - MATERIALS Pag. 1119	VDI 3323 GR.	HB Rm 1) HRC 2)	fz0 mm F	fz0 mm M	fz0 mm R	Vc m/min Pag. 500 T110	T120	T516	T525	T526	T528N	T544
P	ACCIAIO NON LEGATO - NOT ALLOY STEEL	1---5	125-300	0,1	0,2	0,3				250	220	220	230
P	ACCIAIO POCO LEGATO - LOW ALLOY STEEL	6--9	180-350	0,08	0,15	0,25				200	160	160	180
P	ACCIAIO ALTO LEGATO - ALLOY STEEL	10-11	200-325	0,08	0,15	0,25				170	150	150	150
P	INOX MARTENS. - STAINLESS STEEL MART	12-13	200-240	0,06	0,12	0,2				150	140	140	140
M	INOX AUST. DUPLEX - STAINLESS STEEL AUST	14.1-14.2	180-230	0,06	0,1	0,15		100		140	130	120	120
K	GHISA GRIGIA - GREY CAST IRON	15-16	180-260	0,12	0,25	0,35	120	120	250	200		180	
K	GHISA SFEROIDALE - SPHEROIDAL GRAPHITE	17-18	160-250	0,1	0,2	0,3	120	110	200	180		160	
K	GHISA MALLEABILE - MALLEABLE CAST IRON	19-20	130-230	0,1	0,2	0,3	120	120	220	200		170	
N	ALLUMINIO E SUE LEGHE - ALUMINIUM	21---25	60-130	0,06	0,2	0,35	950	500					600
N	RAME E SUE LEGHE - COPPER	26---28	90-110	0,06	0,18	0,3	400	300					300
N	NON METALLICI - PLASTICS	29-30	/	0,06	0,18	0,3	30						
S	LEGHE RESIST. CALORE - HIG. TEMP. ALLOY	31---35	200-320	0,05	0,08	0,12	20	20		40		40	50
S	TITANIO E SUE LEGHE - TITANIUM	36-37	400-1050 1)	0,05	0,08	0,12	30	30		50		60	50
H	ACCIAIO TEMPRATO - HARDENED STEEL	38--41	45-60 2)	0,05	0,08					40			

$$n = \frac{Vc \cdot 1000}{ØD \cdot 3{,}14} = \text{giri/min } (min^{-1})$$

$fz = fz0 \cdot Kae \cdot Kap$ = mm

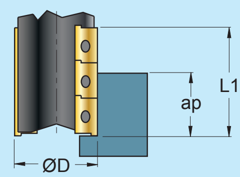
$fn = fz \cdot K$ = mm

$Vf = fz \cdot K \cdot n$ = mm/min



ae/D	0,5-1 50-100%	0,3 30%	0,2 20%	0,1 10%	0,05 5%	0,02 2%
Kae	1	1,2	1,5	2,1	3	4,8

Vc Pag. 500	ae/D	0,5-1 50-100%	0,2 20%	0,1 10%	0,05 5%
	Vc (min)---------Vc(max)				



ap/D	0,25	0,5	0,75	1,0	ap max=L1
Kap	1	1	0,8	0,7	0,5

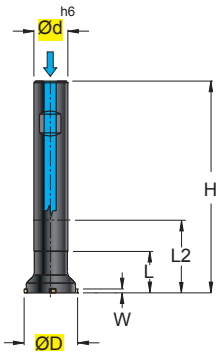
F = FINITURA , LAV. LEGGERA - FINISHING , LIGHT MACHINING
M = LAV. MEDIA , GENERICA - MEDIUM MACHINING , GENERIC
R = SGROSSATURA , LAV. PESANTE - ROUGHING , HEAVY MACHINING

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED
Kae / Kap = FATTORE DI CORREZIONE - CORRECTION FACTOR

■ DISPONIBILI - IN STOCK - LIEFERBAR - DISPONIBLES / ■ NEW
□ A RICHIESTA - ON REQUEST - AUF ANFRAGE - SUR DEMANDE / □ NEW
●● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE
○○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

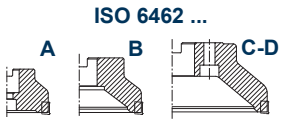
S 666W .. 16

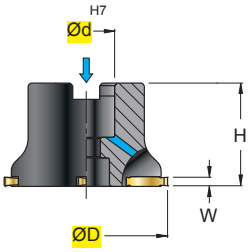
Ø 19-34



S 668W .. 16

Ø 48-63

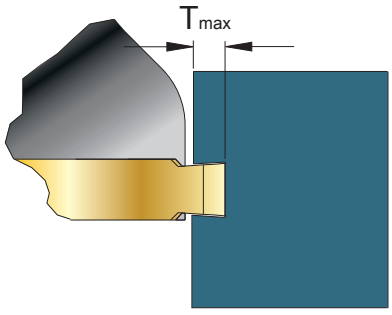




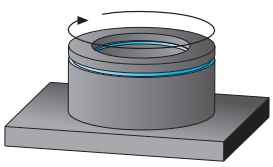
156.15.16.. .C54	
156.15.16.. .C57	
154.15.16..	

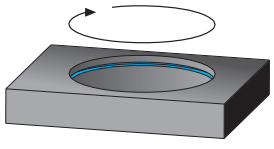
INSERTI - INSERTS
PAG. 507

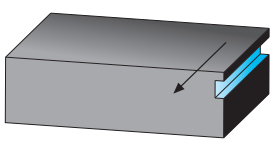
ART.		(mm) ØD	Ød	H	L	L2	Z	K	W	kg	Nm	ISO 6462	156.15-16			
S 666W	019-16	19	16	100	20	52	1	1	1,1-1,3	0,15	3,5÷4,0	–	156.15-16	FS244P	5615P	–
S 666W	034-16	34	20	125	25	75	3	3	1,6-2,15	0,31	3,5÷4,0	–				
S 668W	048-16	48	16	40	–	–	4	4	2,15-3,15	0,35	3,5÷4,0	A	156.15-16	FS244P	5515P	VBSF08
S 668W	063-16	63	22	40	–	–	5	5	2,65-4,15	0,44	3,5÷4,0	A	156.15-16	FS244P	5515P	VBSF10



ØD	T max
19	1,8
34 - 48 - 63	2,3







K = FATTORE D 'AVANZAMENTO - FACTOR OF FEED - VORSCHUBFAKTOR - FACTEUR D' AVANCE

SAU QUALITY TOOLS ENGINEERING

SCELTA VELOCE - QUICK PICK

Tenacità / Toughness + -

Pag. 486

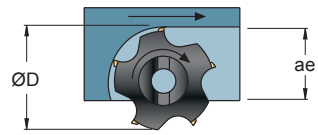
COD.	P	M	K	N	S	H	HT CERMET	HW NON RIV. CEMENTED CARBIDE GRADES N6315	HC RIVESTITI COATED GRADES BESCHICHTET RECOUVERTS F6315	l	d	s	d1	T	W
										TOLLERANZA W - W TOLERANCE					+0,05 +0,01
156.15-16110 .C54	●	●	●						■	16,0	9,52	3	4,5	3,0	1,10
156.15-16130 .C54	●	●	●						■	16,0	9,52	3	4,5	3,0	1,30
156.15-16160 .C54	●	●	●						■	16,0	9,52	3	4,5	3,0	1,60
156.15-16185 .C54	●	●	●						■	16,0	9,52	3	4,5	3,0	1,85
156.15-16215 .C54	●	●	●						■	16,0	9,52	3	4,5	3,0	2,15
156.15-16265 .C54	●	●	●						■	16,0	9,52	3	4,5	3,0	2,65
156.15-16315 .C54	●	●	●						■	16,0	9,52	3,5	4,5	3,3	3,15
156.15-16415 .C54	●	●	●						■	16,0	9,52	4,5	4,5	3,3	4,15
156.15-16110 .C57				●				■		16,0	9,52	3	4,5	3,0	1,10
156.15-16130 .C57				●				■		16,0	9,52	3	4,5	3,0	1,30
156.15-16160 .C57				●				■		16,0	9,52	3	4,5	3,0	1,60
156.15-16185 .C57				●				■		16,0	9,52	3	4,5	3,0	1,85
156.15-16215 .C57				●				■		16,0	9,52	3	4,5	3,0	2,15
156.15-16265 .C57				●				■		16,0	9,52	3	4,5	3,0	2,65
156.15-16315 .C57				●				■		16,0	9,52	3,5	4,5	3,3	3,15
156.15-16415 .C57				●				■		16,0	9,52	4,5	4,5	3,3	4,15

É POSSIBILE UTILIZZARE INSERTI **154..** NON RETTIFICATI, PAG 507
154.. INSERTS CAN BE USED.. NOT GROUND, PAGE 507
DIE VERWENDUNG NICHT GESCHLIFFENER WENDEPLATTEN 154.. IST MÖGLICH, S. SEITE 507
IL EST POSSIBLE D'UTILISER DES PLAQUETTES **154..** NON RECTIFIÉES, PAGE 507

CON ADDUZIONE LUBROREFRIGERANTE - WITH COOLANT SUPPLY		●	●
SENZA ADDUZIONE LUBROREFRIGERANTE - WITHOUT COOLANT SUPPLY		○	○

	MATERIALI - MATERIALS Pag. 1119	VDI 3323 GR.	HB Rm[1] HRC[2]	fz0 mm F	M	R	Vc m/min Pag.500 N6315	F6315		
P	ACCIAIO NON LEGATO - NOT ALLOY STEEL	1---5	125-300	0,06	0,08	0,1		140		
P	ACCIAIO POCO LEGATO - LOW ALLOY STEEL	6--9	180-350	0,06	0,08	0,1		130		
P	ACCIAIO ALTO LEGATO - ALLOY STEEL	10-11	200-325	0,06	0,08	0,1		130		
P	INOX MARTENS. - STAINLESS STEEL MART	12-13	200-240	0,06	0,08	0,1		130		
M	INOX AUST. DUPLEX - STAINLESS STEEL AUST	14.1-14.2	180-230	0,06	0,08	0,1		110		
K	GHISA GRIGIA - GREY CAST IRON	15-16	180-260	0,08	0,1	0,12		110		
K	GHISA SFEROIDALE - SPHEROIDAL GRAPHITE	17-18	160-250	0,08	0,1	0,12		110		
K	GHISA MALLEABILE - MALLEABLE CAST IRON	19-20	130-230	0,08	0,1	0,12		110		
N	ALLUMINIO E SUE LEGHE - ALUMINIUM	21---25	60-130	0,06	0,08	0,1	340			
N	RAME E SUE LEGHE - COPPER	26--28	90-110	0,06	0,08	0,1	300			
N	NON METALLICI - PLASTICS	29-30	/	0,06	0,08	0,1	290			
S	LEGHE RESIST. CALORE - HIG. TEMP. ALLOY	31---35	200-320							
S	TITANIO E SUE LEGHE - TITANIUM	36-37	400-1050[1]							
H	ACCIAIO TEMPRATO - HARDENED STEEL	38--41	45-60[2]							

ae/D	0,5-1 50-100%	0,2 20%	0,1 10%	0,05 5%
Vc Pag. 500	**Vc (min)---------Vc(max)**			



ae/D	0,1 10%	0,05 5%	0,04 4%	0,03 3%	0,02 2%
Kae	2,1	3	3,5	4	4,8

$$n = \frac{Vc \cdot 1000}{ØD \cdot 3,14} \text{ = giri/min (min}^{-1}\text{)}$$

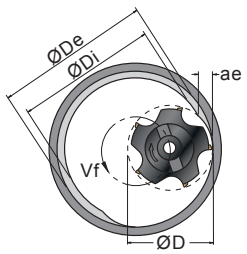
$$fz = fz0 \cdot Kae \text{ = mm}$$

$$fn = fz \cdot z \text{ = mm}$$

$$Vf = fz \cdot z \cdot n \text{ = mm/min}$$

$$ae = \frac{ØDe^2 - ØDi^2}{4 \cdot (ØDe - ØD)} \text{ = mm}$$

$$Vf = \left(1 - \frac{ØD}{ØDe}\right) \cdot n \cdot fz \cdot z \text{ = mm/min}$$

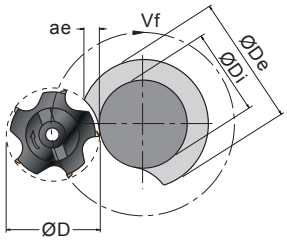


F = FINITURA , LAV. LEGGERA - FINISHING , LIGHT MACHINING
M = LAV. MEDIA , GENERICA - MEDIUM MACHINING , GENERIC
R = SGROSSATURA , LAV. PESANTE - ROUGHING , HEAVY MACHINING

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED
Kae = FATTORE DI CORREZIONE - CORRECTION FACTOR

$$ae = \frac{ØDe^2 - ØDi^2}{4 \cdot (ØDi + ØD)} \text{ = mm}$$

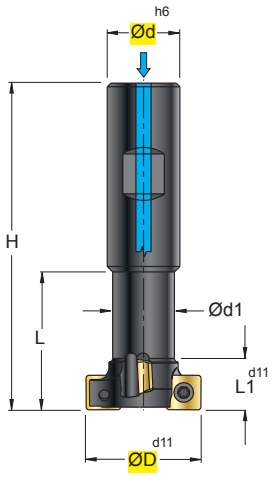
$$Vf = \left(1 + \frac{ØD}{ØDi}\right) \cdot n \cdot fz \cdot z \text{ = mm/min}$$



■ DISPONIBILI - IN STOCK - LIEFERBAR - DISPONIBLES / ■ NEW
●● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE
□ A RICHIESTA - ON REQUEST - AUF ANFRAGE - SUR DEMANDE / □ NEW
○○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

S 976W ..

Ø 21-50



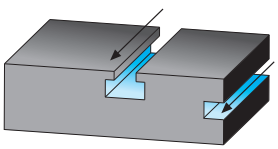
SPMT N54	
SPMW.. .N51	
SPMW.. .N59	

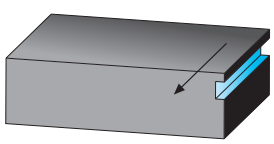
INSERTI - INSERTS
PAG. 517

ART.		(mm) ØD	Ød	Ød1	H	L	L1	Z	K	kg	Nm			
S 976W	021-06	21	16	11	76	24	9	2	1	0,10	1,1÷1,3	060304	12256P	5608P
S 976W	025-06	25	16	13	82	28	11	4	2	0,11	1,1÷1,3			
S 976W	032-09	32	20	17	88	35	14	4	2	0,15	3,0÷3,5	09T308	123509P	5615P
S 976W	040-09	40	25	21	108	44	17	4	2	0,37	3,0÷3,5			
S 976W	050-12	50	32	27	120	59	21	4	2	0,65	4,0÷5,0	120408	124510P	5620P

NOTE:

- Per cave a "T" secondo norme DIN 650-UNI 4788-ISO 299
- For "T" slot cutters according to DIN 650-UNI 4788-ISO 299 norms
- Fuer "T" Nuten nach DIN 650-UNI 4788-ISO 299 Normen
- Pour rainures à "T" selon les normes DIN 650-UNI 4788-ISO 299





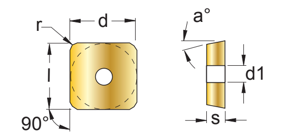
Z = NUMERO DI ELICHE - NUMBER OF FLUTES - SPIRALENANZAHL - NOMBRE D' HELICES
K = FATTORE D 'AVANZAMENTO - FACTOR OF FEED - VORSCHUBFAKTOR - FACTEUR D' AVANCE
W = FORO PER LIQUIDO REFRIGERANTE - COOLLANT BORE - KÜHLMITTELBOHRUNG - TROU DU LIQUIDE D'ARROSAGE

SCELTA VELOCE - QUICK PICK

Tenacità + / Toughness -

Pag. 486

HT: CERMET — HW: NON RIV. CEMENTED CARBIDE GRADES — HC: RIVESTITI COATED GRADES BESCHICHTET RECOUVERTS



COD.	P F	P M	P R	M F	M M	M R	K F	K M	K R	N F	N M	N R	S F	S M	S R	H F	H M	H R	T3115	T528N	l	d	s	d1	r	a°
SPMT 060304 .N54	○	○	○	●	●	●							○	○						■	6,35	6,35	3,18	2,8	0,4	11
SPMT 09T308 .N54	○	○	○	●	●	●							○	○						■	9,52	9,52	3,97	4,5	0,8	11
SPMT 120408 .N54	○	○	○	●	●	●							○	○						■	12,7	12,7	4,76	5,5	0,8	11
SPMW 060304 .N51							○	●	●										■		6,35	6,35	3,18	2,8	0,4	11
SPMW 09T308 .N51							○	●	●										■		9,52	9,52	3,97	4,5	0,8	11
SPMW 120408 .N51							○	●	●										■		12,7	12,7	4,76	5,5	0,8	11
SPMW 060304 .N59	○	●	●		○									○						■	6,35	6,35	3,18	2,8	0,4	11
SPMW 09T308 .N59	○	●	●		○									○						■	9,52	9,52	3,97	4,5	0,8	11
SPMW 120408 .N59	○	●	●		○									○						■	12,7	12,7	4,76	5,5	0,8	11

	T3115	T528N
CON ADDUZIONE LUBROREFRIGERANTE - WITH COOLANT SUPPLY	●	○
SENZA ADDUZIONE LUBROREFRIGERANTE - WITHOUT COOLANT SUPPLY	○	●

	MATERIALI - MATERIALS Pag. 1119	VDI 3323 GR.	HB Rm 1) HRC 2)	fz0 mm 1°	fz0 mm 2°	Vc m/min Pag. 500 T3115	T528N
P	ACCIAIO NON LEGATO - NOT ALLOY STEEL	1---5	125-300	0,1	0,2		220
P	ACCIAIO POCO LEGATO - LOW ALLOY STEEL	6--9	180-350	0,06	0,15		220
P	ACCIAIO ALTO LEGATO - ALLOY STEEL	10-11	200-325	0,06	0,15		180
P	INOX MARTENS. - STAINLESS STEEL MART	12-13	200-240	0,06	0,12		160
M	INOX AUST. DUPLEX - STAINLESS STEEL AUST	14.1-14.2	180-230	0,06	0,12		150
K	GHISA GRIGIA - GREY CAST IRON	15-16	180-260	0,1	0,2	250	
K	GHISA SFEROIDALE - SPHEROIDAL GRAPHITE	17-18	160-250	0,08	0,16	200	
K	GHISA MALLEABILE - MALLEABLE CAST IRON	19-20	130-230	0,08	0,16	230	
N	ALLUMINIO E SUE LEGHE - ALUMINIUM	21---25	60-130				
N	RAME E SUE LEGHE - COPPER	26--28	90-110				
N	NON METALLICI - PLASTICS	29-30	/				
S	LEGHE RESIST. CALORE - HIG. TEMP. ALLOY	31---35	200-320	0,06	0,12		40
S	TITANIO E SUE LEGHE - TITANIUM	36-37	400-1050 1)	0,06	0,12		60
H	ACCIAIO TEMPRATO - HARDENED STEEL	38--41	45-60 2)				

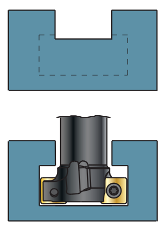
$$n = \frac{Vc \cdot 1000}{ØD \cdot 3{,}14} = \text{giri/min } (min^{-1})$$

$$fz = fz0 \cdot Kae = mm$$

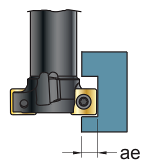
$$fn = fz \cdot K = mm$$

$$Vf = fz \cdot K \cdot n = mm/min$$

Vc Pag. 500	ae/D	0,5-1 50-100%	0,2 20%	0,1 10%	0,05 5%
		Vc (min)---------Vc(max)			



1°



2°

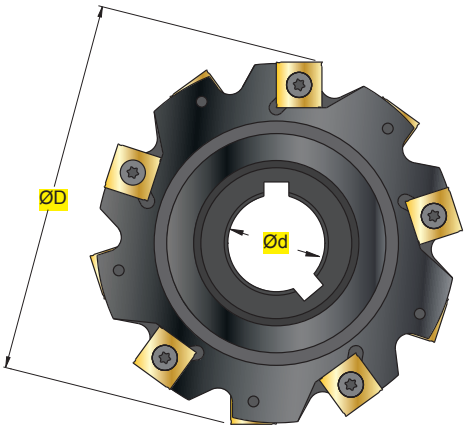
F = FINITURA , LAV. LEGGERA - FINISHING , LIGHT MACHINING
M = LAV. MEDIA , GENERICA - MEDIUM MACHINING , GENERIC
R = SGROSSATURA , LAV. PESANTE - ROUGHING , HEAVY MACHINING

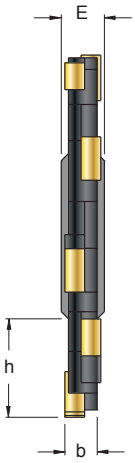
Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED
Kae = FATTORE DI CORREZIONE - CORRECTION FACTOR

■ DISPONIBILI - IN STOCK - LIEFERBAR - DISPONIBLES / ■ NEW
●● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE
□ A RICHIESTA - ON REQUEST - AUF ANFRAGE - SUR DEMANDE / □ NEW
○○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

S 950 ..

Ø 63-250

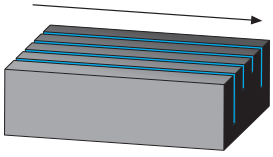


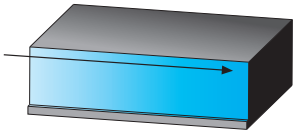


SNHX.. .Z47	
SNHX.. .Z52	
SNHX.. .Z62	

INSERTI - INSERTS
PAG. 516

ART.		(mm) ØD	Ød	h	b	E	Z	K	kg	Nm			
S 950	063 - 04	63	22	14	4	8	8	4	0,06	1,8÷2,0	1102	C93504	5609
S 950	063 - 05	63	22	14	5	8	8	4	0,07	1,8÷2,0	1103	C93505P	5609P
S 950	063 - 06	63	22	14	6	8	6	3	0,07	2,0÷2,2	1203	C94005P	5615P
S 950	080 - 04	80	22	22	4	8	10	5	0,10	1,8÷2,0	1102	C93504	5609
S 950	080 - 05	80	22	22	5	8	10	5	0,12	1,8÷2,0	1103	C93505P	5609P
S 950	080 - 06	80	22	22	6	8	8	4	0,13	2,0÷2,2	1203	C94005P	5615P
S 950	100 - 04	100	27	25	4	12	12	6	0,20	1,8÷2,0	1102	C93504	5609
S 950	100 - 05	100	27	25	5	12	12	6	0,23	1,8÷2,0	1103	C93505P	5609P
S 950	100 - 06	100	27	25	6	12	10	5	0,26	2,0÷2,2	1203	C94005P	5615P
S 950	100 - 07/08	100	27	25	7/8	12	10	5	0,30	2,0÷2,2	1204/12045	C94006P	5615P
S 950	100 - 10	100	27	25	10	12	10	5	0,37	2,0÷2,2	1205	C94008P	5615P
S 950	125 - 04	125	40	31	4	12	12	6	0,31	1,8÷2,0	1102	C93504	5609
S 950	125 - 05	125	40	31	5	12	12	6	0,35	1,8÷2,0	1103	C93505P	5609P
S 950	125 - 06	125	40	31	6	12	12	6	0,40	2,0÷2,2	1203	C94005P	5615P
S 950	125 - 07/08	125	40	31	7/8	12	12	6	0,45	2,0÷2,2	1204/12045	C94006P	5615P
S 950	125 - 10	125	40	31	10	12	12	6	0,57	2,0÷2,2	1205	C94008P	5615P
S 950	125 - 12	125	40	31	12	12	12	6	0,67	2,0÷2,2	1207	C94010	5615
S 950	160 - 04	160	40	44	4	12	18	9	0,56	1,8÷2,0	1102	C93504	5609
S 950	160 - 05	160	40	44	5	12	18	9	0,64	1,8÷2,0	1103	C93505P	5609P
S 950	160 - 06	160	40	44	6	12	16	8	0,74	2,0÷2,2	1203	C94005P	5615P
S 950	160 - 07/08	160	40	44	7/8	12	16	8	0,82	2,0÷2,2	1204/12045	C94006P	5615P
S 950	160 - 10	160	40	44	10	12	16	8	1,03	2,0÷2,2	1205	C94008P	5615P
S 950	160 - 12	160	40	44	12	12	16	8	1,30	2,0÷2,2	1207	C94010	5615
S 950	160 - 14	160	40	44	14	14	15	5	1,50	2,0÷2,2	1205	C94008P	5615P
S 950	200 - 04	200	50	62	4	12	18	9	0,76	1,8÷2,0	1102	C93504	5609
S 950	200 - 05	200	50	62	5	12	18	9	0,89	1,8÷2,0	1103	C93505P	5609P
S 950	200 - 06	200	50	62	6	12	18	9	1,10	2,0÷2,2	1203	C94005P	5615P
S 950	200 - 07/08	200	50	62	7/8	12	18	9	1,30	2,0÷2,2	1204/12045	C94006P	5615P
S 950	200 - 10	200	50	62	10	12	18	9	1,70	2,0÷2,2	1205	C94008P	5615P
S 950	200 - 12	200	50	62	12	12	18	9	2,00	2,0÷2,2	1207	C94010	5615
S 950	200 - 14	200	50	62	14	14	18	6	2,40	2,0÷2,2	1205	C94008P	5615P
S 950	250 - 10	250	50	87	10	12	24	12	2,70	2,0÷2,2	1205	C94008P	5615P
S 950	250 - 12	250	50	87	12	12	20	10	3,40	2,0÷2,2	1207	C94010	5615





K = FATTORE D 'AVANZAMENTO - FACTOR OF FEED - VORSCHUBFAKTOR - FACTEUR D' AVANCE

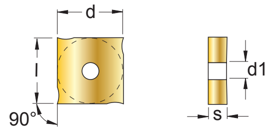
PAG. 1059

SAU QUALITY TOOLS ENGINEERING

SCELTA VELOCE - QUICK PICK

Tenacità / Toughness + / -

Pag. 486



HT: CERMET — HW: NON RIV. CEMENTED CARBIDE GRADES — HC: RIVESTITI COATED GRADES BESCHICHTET RECOUVERTS

COD.			P F	P M	P R	M F	M M	M R	K F	K M	K R	N F	N M	N R	S F	S M	S R	H F	H M	H R	HT CERMET	HW T115	HC T5020	HC T528N	HC F1035	l	d	s	d1	r	a°
SNHX	1102	.Z47							●	●		●	●									■				11,0	11,0	2,3	4,4	–	–
SNHX	1103	.Z47							●	●		●	●									■				11,0	11,0	2,7	4,4	–	–
SNHX	1203	.Z47							●	●		●	●									■				12,7	12,7	3,2	5,0	–	–
SNHX	1204	.Z47							●	●		●	●									■				12,7	12,7	4,0	5,0	–	–
SNHX	12045	.Z47							●	●		●	●									■				12,7	12,7	4,5	5,0	–	–
SNHX	1205	.Z47							●	●		●	●									■				12,7	12,7	5,4	5,0	–	–
SNHX	1207	.Z47							●	●		●	●									■				12,7	12,7	7,0	5,0	–	–
SNHX	1102	.Z52		●	●					●	●												■			11,0	11,0	2,3	4,4	–	–
				●	●		●	●		○	○					●	●							■							
SNHX	1103	.Z52		●	●					●	●												■			11,0	11,0	2,7	4,4	–	–
				●	●		●	●		○	○					●	●							■							
SNHX	1203	.Z52		●	●					●	●												■			12,7	12,7	3,2	5,0	–	–
				●	●		●	●		○	○					●	●							■							
SNHX	1204	.Z52		●	●					●	●												■			12,7	12,7	4,0	5,0	–	–
				●	●		●	●		○	○					●	●							■							
SNHX	12045	.Z52		●	●					●	●												■			12,7	12,7	4,5	5,0	–	–
				●	●		●	●		○	○					●	●							■							
SNHX	1205	.Z52		●	●					●	●												■			12,7	12,7	5,4	5,0	–	–
				●	●		●	●		○	○					●	●							■							
SNHX	1207	.Z52		●	●					●	●												■			12,7	12,7	7,0	5,0	–	–
				●	●		●	●		○	○					●	●							■							
SNHX	1102	.Z62			●																				■	11,0	11,0	2,3	4,4	–	–
SNHX	1103	.Z62			●																				■	11,0	11,0	2,7	4,4	–	–
SNHX	1203	.Z62			●																				■	12,7	12,7	3,2	5,0	–	–
SNHX	1204	.Z62			●																				■	12,7	12,7	4,0	5,0	–	–
SNHX	12045	.Z62			●																				■	12,7	12,7	4,5	5,0	–	–
SNHX	1205	.Z62			●																				■	12,7	12,7	5,4	5,0	–	–
SNHX	1207	.Z62			●																				■	12,7	12,7	7,0	5,0	–	–

	CERMET	T115	T5020	T528N	F1035
CON ADDUZIONE LUBROREFRIGERANTE - WITH COOLANT SUPPLY		●	○	○	●
SENZA ADDUZIONE LUBROREFRIGERANTE - WITHOUT COOLANT SUPPLY		○	○	●	●

	MATERIALI - MATERIALS Pag. 1119	VDI 3323 GR.	HB Rm 1) HRC 2)	fz0 mm F	fz0 mm M	fz0 mm R	Vc m/min Pag. 500 T115	T5020	T528N	F1035
P	ACCIAIO NON LEGATO - NOT ALLOY STEEL	1---5	125-300	0,08	0,12	0,16		220	220	125
P	ACCIAIO POCO LEGATO - LOW ALLOY STEEL	6--9	180-350	0,06	0,11	0,15		150	160	120
P	ACCIAIO ALTO LEGATO - ALLOY STEEL	10-11	200-325	0,06	0,11	0,15		140	150	100
P	INOX MARTENS. - STAINLESS STEEL MART	12-13	200-240	0,05	0,07	0,1		150	140	100
M	INOX AUST. DUPLEX - STAINLESS STEEL AUST	14.1-14.2	180-230	0,05	0,07	0,1			120	90
K	GHISA GRIGIA - GREY CAST IRON	15-16	180-260	0,1	0,14	0,18	120	160	180	
K	GHISA SFEROIDALE - SPHEROIDAL GRAPHITE	17-18	160-250	0,08	0,12	0,16	120	150	160	
K	GHISA MALLEABILE - MALLEABLE CAST IRON	19-20	130-230	0,08	0,12	0,16	120	160	170	
N	ALLUMINIO E SUE LEGHE - ALUMINIUM	21---25	60-130	0,08	0,12	0,16	950			
N	RAME E SUE LEGHE - COPPER	26--28	90-110	0,06	0,1	0,15	400			
N	NON METALLICI - PLASTICS	29-30	/	0,06	0,1	0,15	300			
S	LEGHE RESIST. CALORE - HIG. TEMP. ALLOY	31---35	200-320	0,06	0,08	0,12			40	
S	TITANIO E SUE LEGHE - TITANIUM	36-37	400-1050 1)	0,06	0,08	0,12			60	
H	ACCIAIO TEMPRATO - HARDENED STEEL	38--41	45-60 2)							

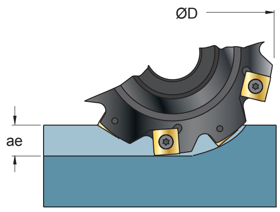
$$n = \frac{Vc \cdot 1000}{ØD \cdot 3{,}14} = \text{giri/min } (min^{-1})$$

$$fz = fz0 \cdot Kae = mm$$

$$fn = fz \cdot K = mm$$

$$Vf = fz \cdot K \cdot n = mm/min$$

ae/D	0,5-1 50-100%	0,2 20%	0,1 10%	0,05 5%
Vc Pag. 500	Vc (min)---------Vc(max)			



ae/D	0,3 30%	0,2 20%	0,1 10%	0,05 5%	0,02 2%
Kae	1,2	1,5	2,1	3	4,8

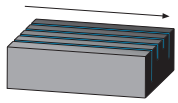
F = FINITURA , LAV. LEGGERA - FINISHING , LIGHT MACHINING
M = LAV. MEDIA , GENERICA - MEDIUM MACHINING , GENERIC
R = SGROSSATURA , LAV. PESANTE - ROUGHING , HEAVY MACHINING

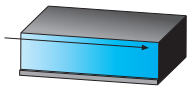
Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED
Kae = FATTORE DI CORREZIONE - CORRECTION FACTOR

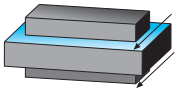
■ DISPONIBILI - IN STOCK - LIEFERBAR - DISPONIBLES / ■ NEW
●● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE
□ A RICHIESTA - ON REQUEST - AUF ANFRAGE - SUR DEMANDE / □ NEW
○○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

SAU QUALITY TOOLS ENGINEERING

S 955 ..
S 955M ..

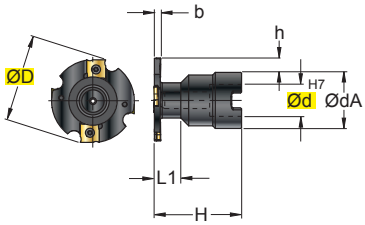




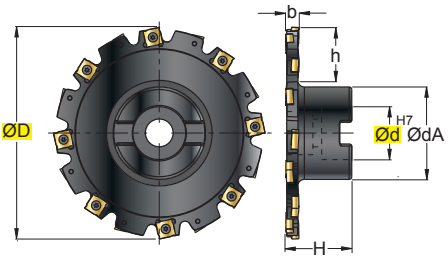


Ø 50-160

ISO 6462 ...
A B



Ø50



Ø63÷Ø160

SNHX.. .Z47	
SNHX.. .Z52	
SNHX.. .Z62	

INSERTI - INSERTS
PAG. 516

(mm)

ART.		ØD	Ød	b	ØdA	H	L1	h	Z	K	kg	Nm	ISO 6462					
S 955	050 - 04	50	16	4	32	50	15	8,5	4	2	0,20	1,8÷2,0	–	1102	C93504	5609	VDST2008	–
S 955	050 - 05	50	16	5	32	50	15	8,5	4	2	0,21	1,8÷2,0	–	1103	C93505P	5609P	VDST2008	–
S 955	050 - 06	50	16	6	32	50	15	8,5	4	2	0,21	2,0÷2,2	–	1203	C94005P	5615P	VDST2008	–
S 955	050 - 07/08	50	16	7/8	32	50	15	8,5	4	2	0,22	2,0÷2,2	–	1204/12045	C94006P	5615P	VDST2008	–
S 955	050 - 10	50	16	10	32	50	15	8,5	4	2	0,25	2,0÷2,2	–	1205	C94008P	5615P	VDST2008	–
S 955	050 - 12	50	16	12	32	50	15	8,5	4	2	0,26	2,0÷2,2	–	1207	C94010	5615	VDST2008	–
S 955	063 - 04	63	22	4	40	50	–	10,5	8	4	0,34	1,8÷2,0	A	1102	C93504	5609	–	AL10x40
S 955	063 - 05	63	22	5	40	50	–	10,5	8	4	0,35	1,8÷2,0	A	1103	C93505P	5609P	–	AL10x40
S 955	063 - 06	63	22	6	40	50	–	10,5	6	3	0,35	2,0÷2,2	A	1203	C94005P	5615P	–	AL10x40
S 955	063 - 07/08	63	22	7/8	40	50	–	10,5	6	3	0,37	2,0÷2,2	A	1204/12045	C94006P	5615P	–	AL10x40
S 955	063 - 10	63	22	10	40	50	–	10,5	6	3	0,39	2,0÷2,2	A	1205	C94008P	5615P	–	AL10x40
S 955	063 - 12	63	22	12	40	50	–	10,5	6	3	0,40	2,0÷2,2	A	1207	C94010	5615	–	AL10x40
S 955	063 - 14	63	22	14	40	50	–	10,5	6	2	0,43	2,0÷2,2	A	1205	C94008P	5615P	–	AL10x40
S 955	063 - 16	63	22	16	40	50	–	10,5	6	2	0,45	2,0÷2,2	A	1207	C94008	5615	–	AL10x40
S 955	080 - 04	80	22	4	40	50	–	20	10	5	0,38	1,8÷2,0	A	1102	C93504	5609	–	AL10x40
S 955	080 - 05	80	22	5	40	50	–	20	10	5	0,40	1,8÷2,0	A	1103	C93505P	5609P	–	AL10x40
S 955	080 - 06	80	22	6	40	50	–	20	8	4	0,41	2,0÷2,2	A	1203	C94005P	5615P	–	AL10x40
S 955	080 - 07/08	80	22	7/8	40	50	–	20	8	4	0,44	2,0÷2,2	A	1204/12045	C94006P	5615P	–	AL10x40
S 955	080 - 10	80	22	10	40	50	–	20	8	4	0,49	2,0÷2,2	A	1205	C94008P	5615P	–	AL10x40
S 955	080 - 12	80	22	12	40	50	–	20	8	4	0,53	2,0÷2,2	A	1207	C94010	5615	–	AL10x40
S 955	080 - 14	80	22	14	40	50	–	20	6	2	0,59	2,0÷2,2	A	1205	C94008P	5615P	–	AL10x40
S 955	080 - 16	80	22	16	40	50	–	20	6	2	0,63	2,0÷2,2	A	1207	C94008P	5615P	–	AL10x40
S 955	100 - 04	100	27	4	48	50	–	24,2	12	6	0,64	1,8÷2,0	A	1102	C93504	5609	–	VBSF12L
S 955	100 - 05	100	27	5	48	50	–	24,2	12	6	0,68	1,8÷2,0	A	1103	C93505P	5609P	–	VBSF12L
S 955	100 - 06	100	27	6	48	50	–	24,2	10	5	0,69	2,0÷2,2	A	1203	C94005P	5615P	–	VBSF12L
S 955	100 - 07/08	100	27	7/8	48	50/50,5	–	24,2	10	5	0,73	2,0÷2,2	A	1204/12045	C94006P	5615P	–	VBSF12L
S 955	100 - 10	100	27	10	48	50	–	24,2	10	5	0,79	2,0÷2,2	A	1205	C94008P	5615P	–	VBSF12L
S 955	100 - 12	100	27	12	48	50	–	24,2	10	5	0,85	2,0÷2,2	A	1207	C94010	5615	–	VBSF12L
S 955	100 - 14	100	27	14	48	50	–	24,2	9	3	0,95	2,0÷2,2	A	1205	C94008P	5615P	–	VBSF12L
S 955	100 - 16	100	27	16	48	50	–	24,2	9	3	1,00	2,0÷2,2	A	1207	C94008P	5615P	–	VBSF12L
S 955M	125 - 04	125	32	4	59	50	–	31	12	6	0,98	1,8÷2,0	A	1102	C93504	5609	–	VBSF16
S 955M	125 - 05	125	32	5	59	50	–	31	12	6	1,02	1,8÷2,0	A	1103	C93505P	5609P	–	VBSF16
S 955M	125 - 06	125	32	6	59	50	–	31	12	6	1,05	2,0÷2,2	A	1203	C94005P	5615P	–	VBSF16
S 955M	125 - 07/08	125	32	7/8	59	50/50,5	–	31	12	6	1,09	2,0÷2,2	A	1204/12045	C94006P	5615P	–	VBSF16
S 955M	125 - 10	125	32	10	59	50	–	31	12	6	1,19	2,0÷2,2	A	1205	C94008P	5615P	–	VBSF16
S 955M	125 - 12	125	32	12	59	50	–	31	12	6	1,28	2,0÷2,2	A	1207	C94010	5615	–	VBSF16
S 955	125 - 04	125	40	4	70	50	–	23,7	12	6	0,95	1,8÷2,0	A	1102	C93504	5609	–	–
S 955	125 - 05	125	40	5	70	50	–	23,7	12	6	0,99	1,8÷2,0	A	1103	C93505P	5609P	–	–
S 955	125 - 06	125	40	6	70	50	–	23,7	12	6	1,02	2,0÷2,2	A	1203	C94005P	5615P	–	–
S 955	125 - 07/08	125	40	7/8	70	50/50,5	–	23,7	12	6	1,06	2,0÷2,2	A	1204/12045	C94006P	5615P	–	–
S 955	125 - 10	125	40	10	70	50	–	23,7	12	6	1,16	2,0÷2,2	A	1205	C94008P	5615P	–	–
S 955	125 - 12	125	40	12	70	50	–	23,7	12	6	1,25	2,0÷2,2	A	1207	C94010	5615	–	–
S 955	125 - 14	125	40	14	70	50	–	23,7	12	4	1,35	2,0÷2,2	A	1205	C94008P	5615P	–	–
S 955	125 - 16	125	40	16	70	50	–	23,7	12	4	1,43	2,0÷2,2	A	1207	C94008P	5615P	–	–
S 955	160 - 04	160	40	4	70	50	–	41,2	16	8	1,14	1,8÷2,0	B	1102	C93504	5609	–	–
S 955	160 - 05	160	40	5	70	50	–	41,2	16	8	1,21	1,8÷2,0	B	1103	C93505P	5609P	–	–
S 955	160 - 06	160	40	6	70	50	–	41,2	16	8	1,41	2,0÷2,2	B	1203	C94005P	5615P	–	–
S 955	160 - 07/08	160	40	7/8	70	50/50,5	–	41,2	16	8	1,41	2,0÷2,2	B	1204/12045	C94006P	5615P	–	–
S 955	160 - 10	160	40	10	70	50	–	41,2	16	8	1,62	2,0÷2,2	B	1205	C94008P	5615P	–	–
S 955	160 - 12	160	40	12	70	50	–	41,2	16	8	1,81	2,0÷2,2	B	1207	C94010	5615	–	–
S 955	160 - 14	160	40	14	70	50	–	41,2	15	5	2,04	2,0÷2,2	B	1205	C94008P	5615P	–	–
S 955	160 - 16	160	40	16	70	50	–	41,2	15	5	2,23	2,0÷2,2	B	1207	C94008P	5615P	–	–

K = FATTORE D 'AVANZAMENTO - FACTOR OF FEED - VORSCHUBFAKTOR - FACTEUR D' AVANCE

PAG. 1059

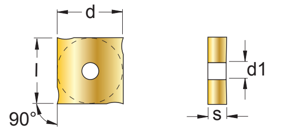
SAU QUALITY TOOLS ENGINEERING

SCELTA VELOCE - QUICK PICK

Tenacità + / Toughness -

Pag. 486

HT: CERMET — HW: NON RIV. CEMENTED CARBIDE GRADES — HC: RIVESTITI COATED GRADES BESCHICHTET RECOUVERTS



COD.			P F	P M	P R	M F	M M	M R	K F	K M	K R	N F	N M	N R	S F	S M	S R	H F	H M	H R	T115	T5020	T528N	F1035	l	d	s	d1	r	a°
SNHX	1102	.Z47							●	●		●	●								■				11,0	11,0	2,3	4,4	–	–
SNHX	1103	.Z47							●	●		●	●								■				11,0	11,0	2,7	4,4	–	–
SNHX	1203	.Z47							●	●		●	●								■				12,7	12,7	3,2	5,0	–	–
SNHX	1204	.Z47							●	●		●	●								■				12,7	12,7	4,0	5,0	–	–
SNHX	12045	.Z47							●	●		●	●								■				12,7	12,7	4,5	5,0	–	–
SNHX	1205	.Z47							●	●		●	●								■				12,7	12,7	5,4	5,0	–	–
SNHX	1207	.Z47							●	●		●	●								■				12,7	12,7	7,0	5,0	–	–
SNHX	1102	.Z52		●	●					●	●											■			11,0	11,0	2,3	4,4	–	–
				●	●		●	●		○	○					●	●						■							
SNHX	1103	.Z52		●	●					●	●											■			11,0	11,0	2,7	4,4	–	–
				●	●		●	●		○	○					●	●						■							
SNHX	1203	.Z52		●	●					●	●											■			12,7	12,7	3,2	5,0	–	–
				●	●		●	●		○	○					●	●						■							
SNHX	1204	.Z52		●	●					●	●											■			12,7	12,7	4,0	5,0	–	–
				●	●		●	●		○	○					●	●						■							
SNHX	12045	.Z52		●	●					●	●											■			12,7	12,7	4,5	5,0	–	–
				●	●		●	●		○	○					●	●						■							
SNHX	1205	.Z52		●	●					●	●											■			12,7	12,7	5,4	5,0	–	–
				●	●		●	●		○	○					●	●						■							
SNHX	1207	.Z52		●	●					●	●											■			12,7	12,7	7,0	5,0	–	–
				●	●		●	●		○	○					●	●						■							
SNHX	1102	.Z62			●																			■	11,0	11,0	2,3	4,4	–	–
SNHX	1103	.Z62			●																			■	11,0	11,0	2,7	4,4	–	–
SNHX	1203	.Z62			●																			■	12,7	12,7	3,2	5,0	–	–
SNHX	1204	.Z62			●																			■	12,7	12,7	4,0	5,0	–	–
SNHX	12045	.Z62			●																			■	12,7	12,7	4,5	5,0	–	–
SNHX	1205	.Z62			●																			■	12,7	12,7	5,4	5,0	–	–
SNHX	1207	.Z62			●																			■	12,7	12,7	7,0	5,0	–	–

	T115	T5020	T528N	F1035
CON ADDUZIONE LUBROREFRIGERANTE - WITH COOLANT SUPPLY	●	○	○	●
SENZA ADDUZIONE LUBROREFRIGERANTE - WITHOUT COOLANT SUPPLY	○	○	●	●

	MATERIALI - MATERIALS Pag. 1119	VDI 3323 GR.	HB Rm 1) HRC 2)	fz0 mm F	fz0 mm M	fz0 mm R	Vc m/min Pag. 500 T115	T5020	T528N	F1035
P	ACCIAIO NON LEGATO - NOT ALLOY STEEL	1---5	125-300	0,08	0,12	0,16		220	220	125
P	ACCIAIO POCO LEGATO - LOW ALLOY STEEL	6--9	180-350	0,06	0,11	0,15		150	160	120
P	ACCIAIO ALTO LEGATO - ALLOY STEEL	10-11	200-325	0,06	0,11	0,15		140	150	100
P	INOX MARTENS. - STAINLESS STEEL MART	12-13	200-240	0,05	0,07	0,1		150	140	100
M	INOX AUST. DUPLEX - STAINLESS STEEL AUST	14.1-14.2	180-230	0,05	0,07	0,1			120	90
K	GHISA GRIGIA - GREY CAST IRON	15-16	180-260	0,1	0,14	0,18	120	160	180	
K	GHISA SFEROIDALE - SPHEROIDAL GRAPHITE	17-18	160-250	0,08	0,12	0,16	120	150	160	
K	GHISA MALLEABILE - MALLEABLE CAST IRON	19-20	130-230	0,08	0,12	0,16	120	160	170	
N	ALLUMINIO E SUE LEGHE - ALUMINIUM	21---25	60-130	0,08	0,12	0,16	950			
N	RAME E SUE LEGHE - COPPER	26--28	90-110	0,06	0,1	0,15	400			
N	NON METALLICI - PLASTICS	29-30	/	0,06	0,1	0,15	300			
S	LEGHE RESIST. CALORE - HIG. TEMP. ALLOY	31---35	200-320	0,06	0,08	0,12			40	
S	TITANIO E SUE LEGHE - TITANIUM	36-37	400-1050 1)	0,06	0,08	0,12			60	
H	ACCIAIO TEMPRATO - HARDENED STEEL	38--41	45-60 2)							

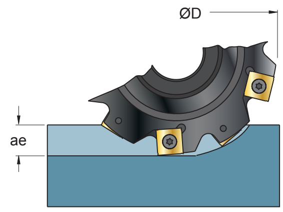
$$n = \frac{Vc \cdot 1000}{ØD \cdot 3{,}14} = \text{giri/min } (min^{-1})$$

$fz = fz0 \cdot Kae$ = mm

$fn = fz \cdot K$ = mm

$Vf = fz \cdot K \cdot n$ = mm/min

Vc Pag. 500	ae/D	0,5-1 50-100%	0,2 20%	0,1 10%	0,05 5%
	Vc (min)---------Vc(max)				



ae/D	0,3 30%	0,2 20%	0,1 10%	0,05 5%	0,02 2%
Kae	1,2	1,5	2,1	3	4,8

F = FINITURA , LAV. LEGGERA - FINISHING , LIGHT MACHINING
M = LAV. MEDIA , GENERICA - MEDIUM MACHINING , GENERIC
R = SGROSSATURA , LAV. PESANTE - ROUGHING , HEAVY MACHINING

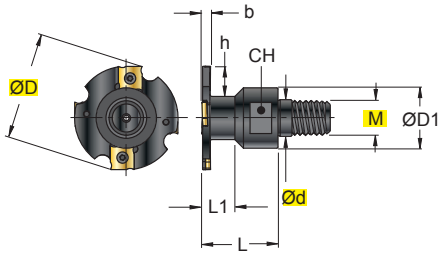
Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED
Kae = FATTORE DI CORREZIONE - CORRECTION FACTOR

■ DISPONIBILI - IN STOCK - LIEFERBAR - DISPONIBLES / ■ NEW
● ● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

□ A RICHIESTA - ON REQUEST - AUF ANFRAGE - SUR DEMANDE / □ NEW
○ ○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

S 959 ..

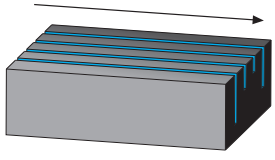
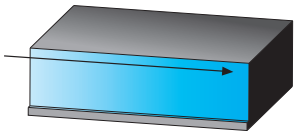
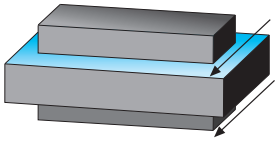
Ø 50-80



SNHX.. .Z47	
SNHX.. .Z52	
SNHX.. .Z62	

INSERTI - INSERTS
PAG. 516

ART.		(mm) ØD	M	Ød	b	ØD1	h	L	L1	Z	K	CH	kg	Nm			
S 959	050 - 04	50	16	17	4	29	14	35	15	4	2	24	0,19	1,8÷2,0	1102	C93504	5609
S 959	050 - 05	50	16	17	5	29	14	35	15	4	2	24	0,20	1,8÷2,0	1103	C93505P	5609P
S 959	050 - 06	50	16	17	6	29	14	35	15	4	2	24	0,20	2,0÷2,2	1203	C94005P	5615P
S 959	063 - 04	63	16	17	4	29	14	35	–	8	4	24	0,26	1,8÷2,0	1102	C93504	5609
S 959	063 - 05	63	16	17	5	29	14	35	–	8	4	24	0,27	1,8÷2,0	1103	C93505P	5609P
S 959	063 - 06	63	16	17	6	29	14	35	–	6	3	24	0,28	2,0÷2,2	1203	C94005P	5615P
S 959	080 - 04	80	16	17	4	29	22,5	35	–	10	5	24	0,31	1,8÷2,0	1102	C93504	5609
S 959	080 - 05	80	16	17	5	29	22,5	35	–	10	5	24	0,32	1,8÷2,0	1103	C93505P	5609P
S 959	080 - 06	80	16	17	6	29	22,5	35	–	8	4	24	0,34	2,0÷2,2	1203	C94005P	5615P

K = FATTORE D 'AVANZAMENTO - FACTOR OF FEED - VORSCHUBFAKTOR - FACTEUR D' AVANCE

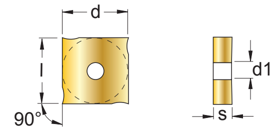
PAG. 1059

SCELTA VELOCE - QUICK PICK

Tenacità + / *Toughness* -

Pag. 486

HT: CERMET — HW: NON RIV. CEMENTED CARBIDE GRADES — HC: RIVESTITI COATED GRADES BESCHICHTET RECOUVERTS



COD.			P F	P M	P R	M F	M M	M R	K F	K M	K R	N F	N M	N R	S F	S M	S R	H F	H M	H R	T115	T5020	T528N	F1035	l	d	s	d1	r	a°
SNHX	1102	.Z47							●	●		●	●								■				11,0	11,0	2,3	4,4	–	–
SNHX	1103	.Z47							●	●		●	●								■				11,0	11,0	2,7	4,4	–	–
SNHX	1203	.Z47							●	●		●	●								■				12,7	12,7	3,2	5,0	–	–
SNHX	1204	.Z47							●	●		●	●								■				12,7	12,7	4,0	5,0	–	–
SNHX	12045	.Z47							●	●		●	●								■				12,7	12,7	4,5	5,0	–	–
SNHX	1205	.Z47							●	●		●	●								■				12,7	12,7	5,4	5,0	–	–
SNHX	1207	.Z47							●	●		●	●								■				12,7	12,7	7,0	5,0	–	–
SNHX	1102	.Z52		●	●					●	●											■			11,0	11,0	2,3	4,4	–	–
				●	●		●	●		○	○					●	●						■							
SNHX	1103	.Z52		●	●					●	●											■			11,0	11,0	2,7	4,4	–	–
				●	●		●	●		○	○					●	●						■							
SNHX	1203	.Z52		●	●					●	●											■			12,7	12,7	3,2	5,0	–	–
				●	●		●	●		○	○					●	●						■							
SNHX	1204	.Z52		●	●					●	●											■			12,7	12,7	4,0	5,0	–	–
				●	●		●	●		○	○					●	●						■							
SNHX	12045	.Z52		●	●					●	●											■			12,7	12,7	4,5	5,0	–	–
				●	●		●	●		○	○					●	●						■							
SNHX	1205	.Z52		●	●					●	●											■			12,7	12,7	5,4	5,0	–	–
				●	●		●	●		○	○					●	●						■							
SNHX	1207	.Z52		●	●					●	●											■			12,7	12,7	7,0	5,0	–	–
				●	●		●	●		○	○					●	●						■							
SNHX	1102	.Z62			●																			■	11,0	11,0	2,3	4,4	–	–
SNHX	1103	.Z62			●																			■	11,0	11,0	2,7	4,4	–	–
SNHX	1203	.Z62			●																			■	12,7	12,7	3,2	5,0	–	–
SNHX	1204	.Z62			●																			■	12,7	12,7	4,0	5,0	–	–
SNHX	12045	.Z62			●																			■	12,7	12,7	4,5	5,0	–	–
SNHX	1205	.Z62			●																			■	12,7	12,7	5,4	5,0	–	–
SNHX	1207	.Z62			●																			■	12,7	12,7	7,0	5,0	–	–

	T115	T5020	T528N	F1035
CON ADDUZIONE LUBROREFRIGERANTE - WITH COOLANT SUPPLY	●	○	○	●
SENZA ADDUZIONE LUBROREFRIGERANTE - WITHOUT COOLANT SUPPLY	○	○	●	●

MATERIALI - MATERIALS Pag. 1119		VDI 3323 GR.	HB Rm 1) HRC 2)	fz0 mm F	fz0 mm M	fz0 mm R	Vc m/min Pag. 500 T115	T5020	T528N	F1035
P	ACCIAIO NON LEGATO - NOT ALLOY STEEL	1---5	125-300	0,08	0,12	0,16		220	220	125
P	ACCIAIO POCO LEGATO - LOW ALLOY STEEL	6--9	180-350	0,06	0,11	0,15		150	160	120
P	ACCIAIO ALTO LEGATO - ALLOY STEEL	10-11	200-325	0,06	0,11	0,15		140	150	100
P	INOX MARTENS. - STAINLESS STEEL MART	12-13	200-240	0,05	0,07	0,1		150	140	100
M	INOX AUST. DUPLEX - STAINLESS STEEL AUST	14.1-14.2	180-230	0,05	0,07	0,1			120	90
K	GHISA GRIGIA - GREY CAST IRON	15-16	180-260	0,1	0,14	0,18	120	160	180	
K	GHISA SFEROIDALE - SPHEROIDAL GRAPHITE	17-18	160-250	0,08	0,12	0,16	120	150	160	
K	GHISA MALLEABILE - MALLEABLE CAST IRON	19-20	130-230	0,08	0,12	0,16	120	160	170	
N	ALLUMINIO E SUE LEGHE - ALUMINIUM	21---25	60-130	0,08	0,12	0,16	950			
N	RAME E SUE LEGHE - COPPER	26--28	90-110	0,06	0,1	0,15	400			
N	NON METALLICI - PLASTICS	29-30	/	0,06	0,1	0,15	300			
S	LEGHE RESIST. CALORE - HIG. TEMP. ALLOY	31---35	200-320	0,06	0,08	0,12			40	
S	TITANIO E SUE LEGHE - TITANIUM	36-37	400-1050 1)	0,06	0,08	0,12			60	
H	ACCIAIO TEMPRATO - HARDENED STEEL	38--41	45-60 2)							

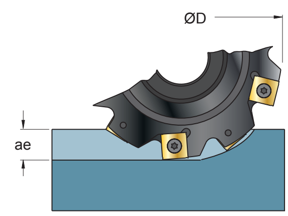
$$n = \frac{Vc \cdot 1000}{ØD \cdot 3{,}14} = \text{giri/min } (min^{-1})$$

$fz = fz0 \cdot Kae$ = mm

$fn = fz \cdot K$ = mm

$Vf = fz \cdot K \cdot n$ = mm/min

ae/D	0,5-1 50-100%	0,2 20%	0,1 10%	0,05 5%
Vc Pag. 500	Vc (min)---------Vc(max)			



ae/D	0,3 30%	0,2 20%	0,1 10%	0,05 5%	0,02 2%
Kae	1,2	1,5	2,1	3	4,8

F = FINITURA , LAV. LEGGERA - FINISHING , LIGHT MACHINING
M = LAV. MEDIA , GENERICA - MEDIUM MACHINING , GENERIC
R = SGROSSATURA , LAV. PESANTE - ROUGHING , HEAVY MACHINING

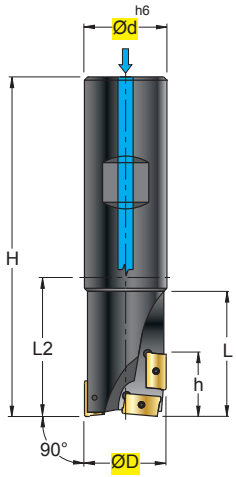
Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED
Kae = FATTORE DI CORREZIONE - CORRECTION FACTOR

■ DISPONIBILI - IN STOCK - LIEFERBAR - DISPONIBLES / ■ NEW
● ● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

□ A RICHIESTA - ON REQUEST - AUF ANFRAGE - SUR DEMANDE / □ NEW
○ ○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

S 905W ..

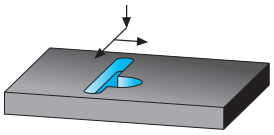
Ø 20-32

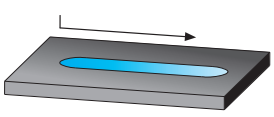


APKT 1003 .S52	
APKT 1604 .S52	

INSERTI - INSERTS
PAG. 508/509

ART.		(mm) ØD	Ød	H	h	L	L2	Z	K	kg	Nm			
S 905W	020 - 10	20	20	90	19	35	40	2	1	0,17	1,1÷1,3	N°3 1003	12255P	5608P
S 905W	025 - 10	25	25	110	19	50	54	2	1	0,32	1,1÷1,3			
S 905W	032 - 16	32	32	130	29	50	70	2	1	0,64	3,8÷5,0	N°3 1604	C04011P	5615P





Z = NUMERO DI ELICHE - NUMBER OF FLUTES - SPIRALENANZAHL - NOMBRE D' HELICES
K = FATTORE D 'AVANZAMENTO - FACTOR OF FEED - VORSCHUBFAKTOR - FACTEUR D' AVANCE
W = FORO PER LIQUIDO REFRIGERANTE - COOLLANT BORE - KÜHLMITTELBOHRUNG - TROU DU LIQUIDE D'ARROSAGE

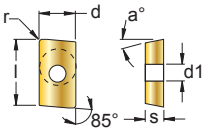
PAG. 1059

SAU QUALITY TOOLS ENGINEERING

SCELTA VELOCE - QUICK PICK

Tenacità / Toughness + -

Pag. 486



COD.				P			M			K			N			S			H		
				F	M	R	F	M	R	F	M	R	F	M	R	F	M	R	F	M	R
APKT	1003	PDTR	.S52	○	●	●	○	●	●	○	●	●	○	○	○	○	○	○			
				○	○	○	○	○	○	○	○	○	○	○	○	○	○	○			
APKT	1604	PDTR	.S52	○	●	●	○	●	●	○	●	●	○	○	○	○	○	○			
				○	○	○	○	○	○	○	○	○	○	○	○	○	○	○			

HT	HW	HC																		
CERMET	NON RIV. CEMENTED CARBIDE GRADES	RIVESTITI COATED GRADES BESCHICHTET RECOUVERTS																		
		T516	T530																	
		■																		
			■																	
		■																		
			■																	

l	d	s	d1	r	a°
10,5	6,70	3,5	2,8	0,5	11
17,0	9,45	5,26	4,4	0,8	11

CON ADDUZIONE LUBROREFRIGERANTE - WITH COOLANT SUPPLY ● ●

SENZA ADDUZIONE LUBROREFRIGERANTE - WITHOUT COOLANT SUPPLY ○ ○

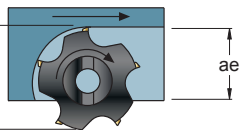
MATERIALI - MATERIALS Pag. 1119		VDI 3323 GR.	HB Rm[1] HRC[2]	fz0 mm F	M	R	fz mm FORATURA DRILLING	Vc m/min Pag. 500 T516	T530
P	ACCIAIO NON LEGATO - NOT ALLOY STEEL	1---5	125-300	0,08	0,15	0,2	0,05		230
	ACCIAIO POCO LEGATO - LOW ALLOY STEEL	6--9	180-350	0,06	0,11	0,15	0,04		180
	ACCIAIO ALTO LEGATO - ALLOY STEEL	10-11	200-325	0,06	0,11	0,15	0,04		150
	INOX MARTENS. - STAINLESS STEEL MART	12-13	200-240	0,05	0,07	0,1	0,04		140
M	INOX AUST. DUPLEX - STAINLESS STEEL AUST	14.1-14.2	180-230	0,05	0,07	0,1	0,04		120
K	GHISA GRIGIA - GREY CAST IRON	15-16	180-260	0,1	0,14	0,18	0,08	250	160
	GHISA SFEROIDALE - SPHEROIDAL GRAPHITE	17-18	160-250	0,08	0,12	0,16	0,06	200	150
	GHISA MALLEABILE - MALLEABLE CAST IRON	19-20	130-230	0,08	0,12	0,16	0,06	220	160
N	ALLUMINIO E SUE LEGHE - ALUMINIUM	21---25	60-130	0,08	0,12	0,16	0,08		600
	RAME E SUE LEGHE - COPPER	26--28	90-110	0,06	0,1	0,15	0,08		300
	NON METALLICI - PLASTICS	29-30	/	0,06	0,1	0,15	0,08		
S	LEGHE RESIST. CALORE - HIG. TEMP. ALLOY	31---35	200-320	0,06	0,08	0,12	0,04		40
	TITANIO E SUE LEGHE - TITANIUM	36-37	400-1050[1]	0,06	0,08	0,12	0,04		50
H	ACCIAIO TEMPRATO - HARDENED STEEL	38--41	45-60[2]						

$$n = \frac{Vc \cdot 1000}{\varnothing D \cdot 3,14} = \text{giri/min (min}^{-1}\text{)}$$

$$fz = fz0 \cdot Kae = \text{mm}$$

$$fn = fz \cdot K = \text{mm}$$

$$Vf = fz \cdot K \cdot n = \text{mm/min}$$



ae/D	0,5-1 50-100%	0,3 30%	0,2 20%	0,1 10%	0,05 5%	0,02 2%
Kae	1	1,2	1,5	2,1	3	4,8

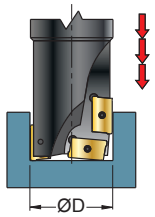
ae/D	0,5-1 50-100%	0,2 20%	0,1 10%	0,05 5%
Vc Pag. 500	Vc (min)---------Vc(max)			

F = FINITURA , LAV. LEGGERA - FINISHING , LIGHT MACHINING
M = LAV. MEDIA , GENERICA - MEDIUM MACHINING , GENERIC
R = SGROSSATURA , LAV. PESANTE - ROUGHING , HEAVY MACHINING

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED
Kae = FATTORE DI CORREZIONE - CORRECTION FACTOR

-IN FORATURA AVANZARE CON PASSI DI 1-1,5 mm PER ROMPERE IL TRUCIOLO

-FOR DRILLING FEED WITH 1-1,5 mm STEP TO BREAK THE CHIP



■ DISPONIBILI - IN STOCK - LIEFERBAR - DISPONIBLES / ■ NEW
●● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

□ A RICHIESTA - ON REQUEST - AUF ANFRAGE - SUR DEMANDE / □ NEW
○○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

S846W Pag. 466 | S848W Pag. 466 | S849W Pag. 466

S 846LW .. 06
S 846XLW .. 06
S 846LW .. 08
S 846GLW .. 08
S 846XLW .. 08
S 846GXLW .. 08

S 848W .. 06
S 848W .. 08
S 848WF .. 08

S 849W .. 06
S 849W .. 08
S 849W .. 08

WP..06..
WP..08.. **h = 1,5**

S806 Pag. 472

S 806W ..

RD.. 0701 **h = 3,5**
RD.. 0702 **h = 3,5**
RD.. 1003 **h = 5**

S1502 Pag. 468

S 1502.8W ..

WN.. 1405 **h = 2**

S808 Pag. 474

S 808W ..

RD.. 1003 **h = 5**
RD.. 12T3 **h = 6**
RD.. 1604 **h = 8**

S1503. 6LW Pag. 470 | S1503. 8W Pag. 470 | S1503. 9W Pag. 470

S 1503.6LW ..

S 1503.8W ..

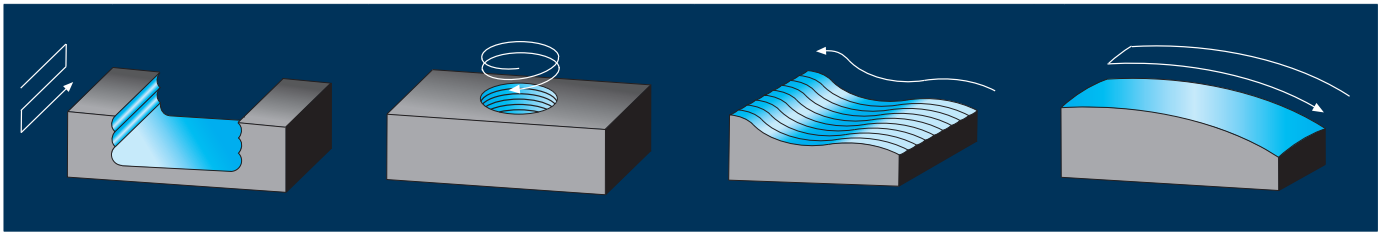
S 1503.9W ..

LNMT 060312 **h = 1**

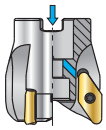
S809 Pag. 476

S 809W ..

RD.. 0501 **h = 2,5**
RD.. 0701 **h = 3,5**
RD.. 0702 **h = 3,5**
RD.. 1003 **h = 5**
RD.. 12T3 **h = 6**
RD.. 1604 **h = 8**



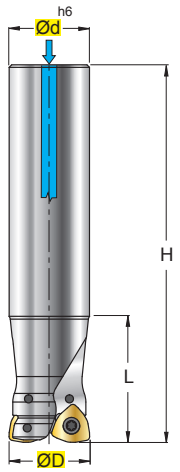
S926W	Pag. 478	S9002. -6W..-11	Pag. 482	S9002. -9W..-11	Pag. 482		
 ØD = 8 - 32	 ØD = 12 - 32	 ØD = 16 - 25		 ØD = 16 - 25			
S 926 ..		S 9002-6W .. -11		S 9002-9W .. -11			
 RA 08-32 r = 4-16 RAE 10-25 r = 5-12,5 RAET 10-25 r = 0,8-5,0		 VDKT 11T2 h = 8					

S929W	Pag. 480	S9002. -8W..-22	Pag. 484	S9002. -9W..-22	Pag. 484		
 ØD = 10 - 12	 ØD = 16 - 32	 ØD = 42 - 80		 ØD = 32 - 42			
S 929 ..		S 9002-8W .. -22		S 9002-9W .. -22			
 RA 10-32 r = 5-16 RAE 10-25 r = 5-12,5 RAET 10-25 r = 0,8-5,0		 VCKT 2205 h = 15					

S 846..W .. 06
S 846..W .. 08

Ø 25-40

γ_p +5°/-4°
γ_f -2,8°
γ_o -5,8°

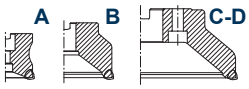


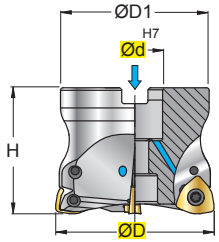
S 848..W .. 06
S 848..W .. 08

Ø 40-100

γ_p +5°
γ_f -3,5°
γ_o -6,2°

ISO 6462 ...

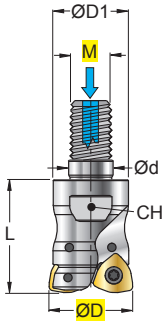




S 849..W .. 06
S 849..W .. 08

Ø 25-40

γ_p +4°/+5°
γ_f -2,8°
γ_o -5,7°



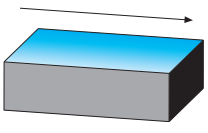
WPMT .. .N42

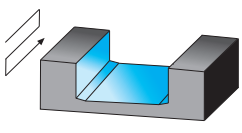
WPMW .. .N52

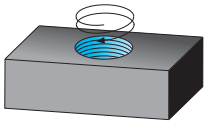
INSERTI - INSERTS
PAG. 519

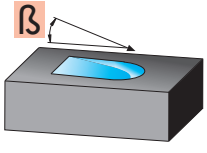
ART.		(mm) ØD	M	Ød	ØD1	H	L	ß	Z	CH	kg	Nm	ISO 6462					
S 846LW	025 - 06	25	–	25	–	140	60	5°	2	–	–	0,43	3,8÷5,0	–	06...	C04008P	5615P	–	2440
S 846LW	026 - 06	26	–	25	–	140	60	4,5°	2	–	–	0,44	3,8÷5,0	–					
S 846LW	032 - 06	32	–	32	–	150	70	3,5°	3	–	–	0,79	3,8÷5,0	–					
S 846LW	033 - 06	33	–	32	–	150	70	3°	3	–	–	0,80	3,8÷5,0	–					
S 846XLW	025 - 06	25	–	25	–	200	120	5°	2	–	–	0,60	3,8÷5,0	–	06...	C04008P	5615P	–	2440
S 846XLW	026 - 06	26	–	25	–	200	120	4,5°	2	–	–	0,62	3,8÷5,0	–					
S 846XLW	032 - 06	32	–	32	–	250	170	3,5°	3	–	–	1,29	3,8÷5,0	–					
S 846XLW	033 - 06	33	–	32	–	250	170	3°	3	–	–	1,32	3,8÷5,0	–					
S 846LW	032 - 08	32	–	32	–	150	50	10°	2	–	–	0,77	4,0÷5,0	–	08...	124512P	5620P	–	2445
S 846LW	033 - 08	33	–	32	–	150	50	8°	2	–	–	0,78	4,0÷5,0	–					
S 846LW	040 - 08	40	–	32	–	150	50	6°	3	–	–	0,84	4,0÷5,0	–	08...	124512P	5620P	–	2445
S 846GLW	040 - 08	40	–	32	–	150	50	6°	2	–	–	0,85	4,0÷5,0	–	08...	124512P	5620P	–	2445
S 846XLW	032 - 08	32	–	32	–	250	50	10°	2	–	–	1,38	4,0÷5,0	–	08...	124512P	5620P	–	2445
S 846XLW	033 - 08	33	–	32	–	250	50	8°	2	–	–	1,40	4,0÷5,0	–					
S 846XLW	040 - 08	40	–	32	–	250	50	6°	3	–	–	1,45	4,0÷5,0	–	08...	124512P	5620P	–	2445
S 846GXLW	040 - 08	40	–	32	–	250	50	6°	2	–	–	1,46	4,0÷5,0	–	08...	124512P	5620P	–	2445
S 848W	040 - 06	40	–	16	38	40	–	2°	3	–	–	0,21	3,8÷5,0	A	06...	C04008P	5615P	VBSF08L	2440
S 848W	050 - 08	50	–	22	48	50	–	4°	3	–	–	0,39	4,0÷5,0	A	08...	124513P	5520P	VBSF10AV	2445
S 848W	052 - 08	52	–	22	50	50	–	4°	3	–	–	0,45	4,0÷5,0	A					
S 848W	063 - 08	63	–	22	59	50	–	2,5°	4	–	–	0,65	4,0÷5,0	A	08...	124513P	5520P	VBSF10	2445
S 848W	066 - 08	66	–	27	63	50	–	2,5°	4	–	–	0,70	4,0÷5,0	A	08...	124513P	5520P	VBSF12	2445
S 848W	080 - 08	80	–	27	76	63	–	1,5°	5	–	–	1,47	4,0÷5,0	A	08...	124513P	5520P	VBSF12L	2445
S 848W	100 - 08	100	–	32	96	63	–	1°	6	–	–	2,45	4,0÷5,0	A	08...	124513P	5520P	VBSF16L	2445
S 848WF	050 - 08	50	–	22	48	50	–	4°	4	–	–	0,38	4,0÷5,0	A	08...	124513P	5520P	VBSF10AV	2445
S 848WF	052 - 08	52	–	22	50	50	–	4°	4	–	–	0,43	4,0÷5,0	A					
S 848WF	063 - 08	63	–	22	59	50	–	2,5°	5	–	–	0,67	4,0÷5,0	A	08...	124513P	5520P	VBSF10	2445
S 848WF	066 - 08	66	–	27	63	50	–	2,5°	5	–	–	0,73	4,0÷5,0	A	08...	124513P	5520P	VBSF12	2445
S 848WF	080 - 08	80	–	27	76	63	–	1,5°	6	–	–	1,51	4,0÷5,0	A	08...	124513P	5520P	VBSF12L	2445
S 848WF	100 - 08	100	–	32	96	63	–	1°	8	–	–	2,49	4,0÷5,0	A	08...	124513P	5520P	VBSF16L	2445
S 849W	025 - 06	25	12	12,5	21	–	35	5°	2	–	17	0,09	3,8÷5,0	–	06...	C04008P	5615P	–	2440
S 849W	026 - 06	26	12	12,5	21	–	35	4,5°	2	–	17	0,09	3,8÷5,0	–					
S 849W	032 - 06	32	16	17	29	–	43	3,5°	3	–	24	0,20	3,8÷5,0	–					
S 849W	033 - 06	33	16	17	29	–	43	3°	3	–	24	0,20	3,8÷5,0	–					
S 849W	032 - 08	32	16	17	29	–	43	10°	2	–	24	0,17	4,0÷5,0	–	08...	124512P	5620P	–	2445
S 849W	033 - 08	33	16	17	29	–	43	8°	2	–	24	0,18	4,0÷5,0	–					
S 849W	040 - 08	40	16	17	29	–	43	6°	3	–	24	0,22	4,0÷5,0	–	08...	124512P	5620P	–	2445
S 849GW	040 - 08	40	16	17	29	–	43	6°	2	–	24	0,24	4,0÷5,0	–	08...	124512P	5620P	–	2445

PAG. 1059









W = FORO PER LIQUIDO REFRIGERANTE - COOLANT BORE - KÜHLMITTELBOHRUNG - TROU DU LIQUIDE D'ARROSAGE
G = PASSO GROSSO - LARGE TEETH DISTANCE - NORMALE ZAHNTEILUNG - GRANDE DISTANCE DENTS.
L = LUNGA, STELO CILINDRICO - LONG, CYLINDRICAL SHANK - LANG, ZYLINDERSCHAFT - LONGUE, QUEUE CYLINDRIQUE
XL = EXTRALUNGA, STELO CILINDRICO - EXTRALONG, CYLINDRICAL SHANK - EXTRALANG, ZYLINDERSCHAFT - EXTRALONGUE, QUEUE CYLINDRIQUE

SAU QUALITY TOOLS ENGINEERING

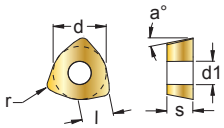
SCELTA VELOCE - QUICK PICK

Tenacità / Toughness + -

Pag. 486

COD.			P			M			K			N			S			H		
			F	M	R	F	M	R	F	M	R	F	M	R	F	M	R	F	M	R
WPMT	06X415 ZSR	.N42		●	○		●	○		○									○	
WPMT	080615 ZSR	.N42		●	○		●	○		○									○	
WPMW	06X415 ZSR	.N52		●	○		●	○		○									○	
			●	●	●				●	●	●								○	
WPMW	080615 ZSR	.N52		●	○		●	○		○									○	
			●	●	●				●	●	●								○	

HT	HW	HC													
CERMET	NON RIV. CEMENTED CARBIDE GRADES	RIVESTITI COATED GRADES BESCHICHTET RECOUVERTS													
			F4140						T5120						
			■												
			■												
			■						■						
			■						■						



l	d	s	d1	r	a°
6	9,52	4,20	4,3	1,5	11°
8	12,7	6,35	5,4	1,5	11°
6	9,52	4,20	4,3	1,5	11°
8	12,7	6,35	5,4	1,5	11°

FORMA DEL TAGLIENTE
CUTTING EDGE SHAPE


.N42


.N52

CON ADDUZIONE LUBROREFRIGERANTE - WITH COOLANT SUPPLY ● ●

SENZA ADDUZIONE LUBROREFRIGERANTE - WITHOUT COOLANT SUPPLY ● ●

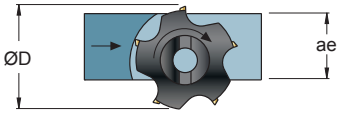
MATERIALI - MATERIALS Pag. 1119		VDI 3323 GR.	HB Rm[1] HRC[2]	fz0 mm WP..06	fz0 mm WP..08	fz mm	Vc m/min Pag. 500 T5120	Vc m/min F4140
P	ACCIAIO NON LEGATO - NOT ALLOY STEEL	1---5	125-300	0,5-1,5	0,5-2	0,2	250	290
	ACCIAIO POCO LEGATO - LOW ALLOY STEEL	6--9	180-350	0,5-1,5	0,5-2	0,2	250	240
	ACCIAIO ALTO LEGATO - ALLOY STEEL	10-11	200-325	0,4-0,8	0,5-1	0,15	230	205
	INOX MARTENS. - STAINLESS STEEL MART	12-13	200-240	0,5-1,5	0,5-2	0,2	180	170
M	INOX AUST. DUPLEX - STAINLESS STEEL AUST	14.1-14.2	180-230	0,5-1,3	0,5-1,8	0,2		150
K	GHISA GRIGIA - GREY CAST IRON	15-16	180-260	0,8-2	1-2,5	0,2	250	180
	GHISA SFEROIDALE - SPHEROIDAL GRAPHITE	17-18	160-250	0,8-2	1-2,5	0,2	220	150
	GHISA MALLEABILE - MALLEABLE CAST IRON	19-20	130-230	0,8-2	1-2,5	0,2	200	110
N	ALLUMINIO E SUE LEGHE - ALUMINIUM	21---25	60-130					
	RAME E SUE LEGHE - COPPER	26--28	90-110					
	NON METALLICI - PLASTICS	29-30	/					
S	LEGHE RESIST. CALORE - HIG. TEMP. ALLOY	31---35	200-320					
	TITANIO E SUE LEGHE - TITANIUM	36-37	400-1050[1]					
H	ACCIAIO TEMPRATO - HARDENED STEEL	38--41	45-60[2]	0,3-0,6	0,4-0,8	0,1		140

$$n = \frac{Vc \cdot 1000}{\varnothing D \cdot 3,14} = \text{giri/min (min}^{-1}\text{)}$$

$$fz = fz0 \cdot Kae = \text{mm}$$

$$fn = fz \cdot z = \text{mm}$$

$$Vf = fz \cdot z \cdot n = \text{mm/min}$$



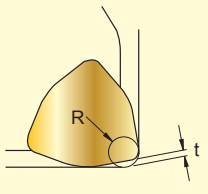
ae/D	0,5-1 50-100%	0,2 20%	0,1 10%	0,05 5%	0,02 2%
Kae	1	1,1	1,2	1,3	1,5

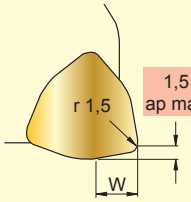
ae/D	0,5-1 50-100%	0,2 20%	0,1 10%	0,05 5%
Vc (min)---------Vc(max)				

Vc Pag. 500

F = FINITURA , LAV. LEGGERA - FINISHING , LIGHT MACHINING
M = LAV. MEDIA , GENERICA - MEDIUM MACHINING , GENERIC
R = SGROSSATURA , LAV. PESANTE - ROUGHING , HEAVY MACHINING

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED
Kae = FATTORE DI CORREZIONE - CORRECTION FACTOR





Inserto Insert	W (mm)	t (mm)	R (mm)
WPM..06	4,3	0,7	2,5
WPM..08	5,7	0,7	2,0

t = Materiale residuo
t = Residual Material

ap = Profondità massima di passata
ap = Maximum cutting depth

■ DISPONIBILI - IN STOCK - LIEFERBAR - DISPONIBLES / ■ NEW
●● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

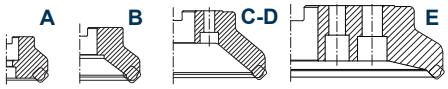
□ A RICHIESTA - ON REQUEST - AUF ANFRAGE - SUR DEMANDE / □ NEW
○○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

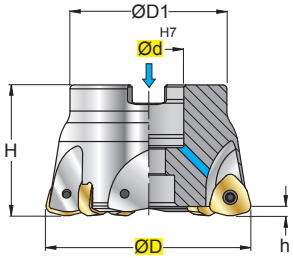
S 1502.8W .. 14

Ø 50-80

γ_p +15°
γ_f -12°/-9°
γ_o +12°

ISO 6462 ...

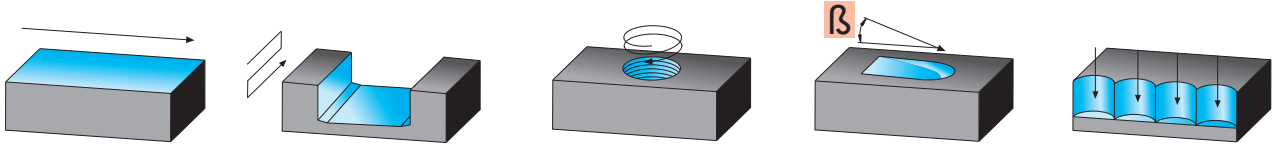




WNMT 1405.. .X52	

INSERTI - INSERTS
PAG. 519

ART.	(mm) ØD	Ød	ØD1	H	h	ß	Z	⌖	kg	Nm	ISO 6462				
S 1502.8W-050-03-14	50	22	40	40	2	4,3°	3	–	0,24	3,8÷5,0	A	1405	C04011P	5615P	VBSF10
S 1502.8W-050-04-14	50	22	40	40	2	4,3°	4	–	0,21	3,8÷5,0	A				
S 1502.8W-052-03-14	52	22	40	40	2	4°	3	–	0,27	3,8÷5,0	A				
S 1502.8W-052-04-14	52	22	40	40	2	4°	4	–	0,24	3,8÷5,0	A				
S 1502.8W-063-04-14	63	22	49	40	2	2,7°	4	–	0,44	3,8÷5,0	A				
S 1502.8W-063-05-14	63	22	49	40	2	2,7°	5	–	0,42	3,8÷5,0	A				
S 1502.8W-066-04-14	66	22	49	40	2	2,5°	4	–	0,48	3,8÷5,0	A				
S 1502.8W-066-05-14	66	22	49	40	2	2,5°	5	–	0,46	3,8÷5,0	A				
S 1502.8W-080-05-14	80	27	60	50	2	1,9°	5	–	1,02	3,8÷5,0	A	1405	C04011P	5615P	VBSF12
S 1502.8W-080-06-14	80	27	60	50	2	1,9°	6	–	0,99	3,8÷5,0	A				



W = FORO PER LIQUIDO REFRIGERANTE - COOLANT BORE - KÜHLMITTELBOHRUNG - TROU DU LIQUIDE D'ARROSAGE
⌖ = PASSO DIFFERENZIATO - DIFFERENTIAL PITCH - UNGLEICHE TEILUNG - PAS DIFFERENCIE

PAG. 1059

SAU QUALITY TOOLS ENGINEERING

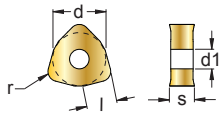
SCELTA VELOCE - QUICK PICK

Tenacità / Toughness + -

Pag. 486

COD.			P			M			K			N			S			H		
			F	M	R	F	M	R	F	M	R	F	M	R	F	M	R	F	M	R
WNMT	140525	.X52	●	●		●	●			○									○	
			●	●	●				●	●	●								○	

HT	HW	HC												
CERMET	NON RIV. CEMEN-TED CARBIDE GRADES	RIVESTITI COATED GRADES BESCHICHTET RECOUVERTS												
								F4130				T5120		



l	d	s	d1	r	a°
7	13,7	5,5	4,9	2,5	–

CON ADDUZIONE LUBROREFRIGERANTE - WITH COOLANT SUPPLY								○				○		
SENZA ADDUZIONE LUBROREFRIGERANTE - WITHOUT COOLANT SUPPLY								●				○		

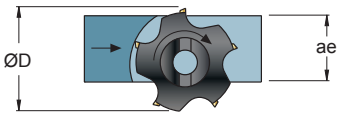
MATERIALI - MATERIALS Pag. 1119		VDI 3323 GR.	HB Rm[1] HRC[2]	fz0 mm	fz mm	Vc m/min Pag. 500 T5120	Vc m/min F4130
P	ACCIAIO NON LEGATO - NOT ALLOY STEEL	1---5	125-300	0,3-1,5	0,06-0,1	250	240
P	ACCIAIO POCO LEGATO - LOW ALLOY STEEL	6--9	180-350	0,3-1,5	0,06-0,1	250	220
P	ACCIAIO ALTO LEGATO - ALLOY STEEL	10-11	200-325	0,3-1,0	0,06-0,1	230	200
P	INOX MARTENS. - STAINLESS STEEL MART	12-13	200-240	0,3-1,0	0,06-0,1	180	180
M	INOX AUST. DUPLEX - STAINLESS STEEL AUST	14.1-14.2	180-230	0,3-0,7	0,06-0,1		170
K	GHISA GRIGIA - GREY CAST IRON	15-16	180-260	0,4-1,5	0,06-0,1	250	190
K	GHISA SFEROIDALE - SPHEROIDAL GRAPHITE	17-18	160-250	0,4-1,5	0,06-0,1	220	170
K	GHISA MALLEABILE - MALLEABLE CAST IRON	19-20	130-230	0,4-1,5	0,06-0,1	200	130
N	ALLUMINIO E SUE LEGHE - ALUMINIUM	21---25	60-130				
N	RAME E SUE LEGHE - COPPER	26--28	90-110				
N	NON METALLICI - PLASTICS	29-30	/				
S	LEGHE RESIST. CALORE - HIG. TEMP. ALLOY	31---35	200-320				
S	TITANIO E SUE LEGHE - TITANIUM	36-37	400-1050[1]				
H	ACCIAIO TEMPRATO - HARDENED STEEL	38--41	45-60[2]	0,2-0,7	0,06-0,1		50

$$n = \frac{Vc \cdot 1000}{\text{ØD} \cdot 3{,}14} = \text{giri/min (min}^{-1}\text{)}$$

$$fz = fz0 \cdot Kae = \text{mm}$$

$$fn = fz \cdot z = \text{mm}$$

$$Vf = fz \cdot z \cdot n = \text{mm/min}$$



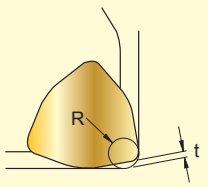
ae/D	0,5-1 50-100%	0,2 20%	0,1 10%	0,05 5%	0,02 2%
Kae	1	1,1	1,2	1,3	1,5

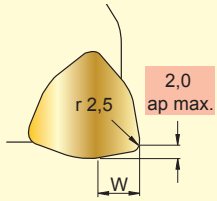
ae/D	0,5-1 50-100%	0,2 20%	0,1 10%	0,05 5%
Vc (min)---------Vc(max)				

Vc Pag. 500

F = FINITURA , LAV. LEGGERA - FINISHING , LIGHT MACHINING
M = LAV. MEDIA , GENERICA - MEDIUM MACHINING , GENERIC
R = SGROSSATURA , LAV. PESANTE - ROUGHING , HEAVY MACHINING

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED
Kae = FATTORE DI CORREZIONE - CORRECTION FACTOR





Inserto Insert	W (mm)	t (mm)	R (mm)
WNMT 14	6,6	0,85	3,5

t = Materiale residuo
t = Residual Material

ap = Profondità massima di passata
ap = Maximum cutting depth

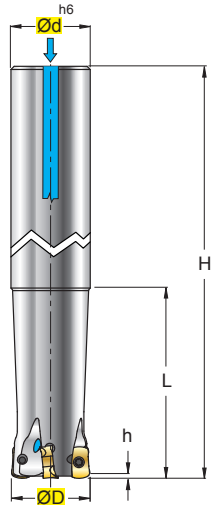
■ DISPONIBILI - IN STOCK - LIEFERBAR - DISPONIBLES / ■ NEW
●● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

□ A RICHIESTA - ON REQUEST - AUF ANFRAGE - SUR DEMANDE / □ NEW
○○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

S 1503.6LW .. 06

Ø 16-40

γ_p -6°
γ_f -13°/-10°
γ_o -10°/-9°

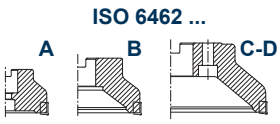


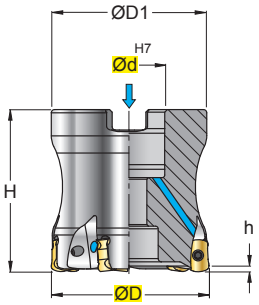
S 1503.8W .. 06

Ø 40-63

γ_p -6°
γ_f -10°/-7,5°
γ_o -9°/-8°

ISO 6462 ...

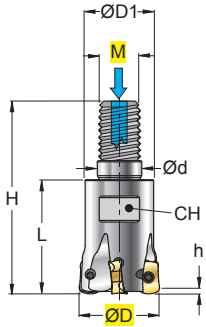




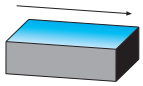
S 1503.9W .. 06

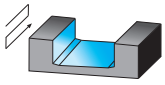
Ø 16-35

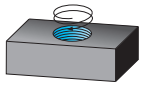
γ_p -6°
γ_f -13°/-10°
γ_o -10°/-9°

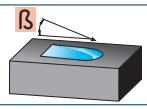


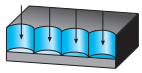
LNMT 060312 .X52











INSERTI - INSERTS
PAG. 511

(mm)

ART.	ØD	M	Ød	ØD1	H	L	h	ß	Z	⌖	CH	kg	Nm	ISO 6462				
S 1503.6LW-016-02-06	16	–	16	–	100	30	1	3,5°	2	–	–	0,13	1,1÷1,3	–	0603	122564P	5608P	–
S 1503.6LW-018-02-06	18	–	16	–	100	30	1	2,7°	2	–	–	0,14	1,1÷1,3	–				
S 1503.6LW-020-03-06	20	–	20	–	130	50	1	2,3°	3	–	–	0,26	1,1÷1,3	–				
S 1503.6LW-020-04-06	20	–	20	–	130	50	1	2,3°	4	–	–	0,26	1,1÷1,3	–				
S 1503.6LW-022-03-06	22	–	20	–	130	50	1	1,9°	3	–	–	0,27	1,1÷1,3	–				
S 1503.6LW-022-04-06	22	–	20	–	130	50	1	1,9°	4	–	–	0,28	1,1÷1,3	–				
S 1503.6LW-025-04-06	25	–	25	–	140	60	1	1,6°	4	–	–	0,46	1,1÷1,3	–				
S 1503.6LW-025-05-06	25	–	25	–	140	60	1	1,6°	5	–	–	0,45	1,1÷1,3	–				
S 1503.6LW-028-04-06	28	–	25	–	140	60	1	1,3°	4	–	–	0,48	1,1÷1,3	–				
S 1503.6LW-028-05-06	28	–	25	–	140	60	1	1,3°	5	–	–	0,48	1,1÷1,3	–				
S 1503.6LW-030-04-06	30	–	32	–	150	70	1	1,2°	4	–	–	0,80	1,1÷1,3	–				
S 1503.6LW-030-05-06	30	–	32	–	150	70	1	1,2°	5	–	–	0,80	1,1÷1,3	–				
S 1503.6LW-032-05-06	32	–	32	–	150	70	1	1,1°	5	–	–	0,81	1,1÷1,3	–				
S 1503.6LW-032-06-06	32	–	32	–	150	70	1	1,1°	6	–	–	0,81	1,1÷1,3	–				
S 1503.6LW-035-05-06	35	–	32	–	150	35	1	1,0°	5	–	–	0,88	1,1÷1,3	–				
S 1503.6LW-035-06-06	35	–	32	–	150	35	1	1,0°	6	–	–	0,88	1,1÷1,3	–				
S 1503.6LW-040-06-06 New	40	–	32	–	160	45	1	0,8°	6	–	–	0,96	1,1÷1,3	–				
S 1503.6LW-040-08-06 New	40	–	32	–	160	45	1	0,8°	8	–	–	0,96	1,1÷1,3	–				
S 1503.8W-040-06-06	40	–	16	35	50	–	1	0,8°	6	–	–	0,21	1,1÷1,3	A	0603	122564P	5608P	VBSF08L
S 1503.8W-040-08-06	40	–	16	35	50	–	1	0,8°	8	–	–	0,20	1,1÷1,3	A				
S 1503.8W-050-07-06	50	–	22	48	50	–	1	0,6°	7	–	–	0,46	1,1÷1,3	A	0603	122564P	5608P	VBSF10L
S 1503.8W-050-09-06	50	–	22	48	50	–	1	0,6°	9	–	–	0,45	1,1÷1,3	A				
S 1503.8W-052-07-06 New	52	–	22	48	50	–	1	0,6°	7	–	–	0,50	1,1÷1,3	A				
S 1503.8W-052-09-06 New	52	–	22	48	50	–	1	0,6°	9	–	–	0,50	1,1÷1,3	A				
S 1503.8W-063-09-06 New	63	–	22	48	50	–	1	0,5°	9	–	–	0,67	1,1÷1,3	A				
S 1503.8W-063-11-06 New	63	–	22	48	50	–	1	0,5°	11	–	–	0,66	1,1÷1,3	A				
S 1503.9W-016-02-06	16	8	8,5	13	42	25	1	3,5°	2	–	10	0,03	1,1÷1,3	–	0603	122564P	5608P	–
S 1503.9W-018-02-06	18	8	8,5	13	42	25	1	2,7°	2	–	10	0,03	1,1÷1,3	–				
S 1503.9W-020-03-06	20	10	10,5	17,8	49	30	1	2,3°	3	–	15	0,06	1,1÷1,3	–				
S 1503.9W-020-04-06	20	10	10,5	17,8	49	30	1	2,3°	4	–	15	0,05	1,1÷1,3	–				
S 1503.9W-022-03-06	22	10	10,5	18	49	30	1	1,9°	3	–	15	0,06	1,1÷1,3	–				
S 1503.9W-022-04-06	22	10	10,5	18	49	30	1	1,9°	4	–	15	0,06	1,1÷1,3	–				
S 1503.9W-025-04-06	25	12	12,5	21	57	35	1	1,6°	4	–	17	0,10	1,1÷1,3	–				
S 1503.9W-025-05-06	25	12	12,5	21	57	35	1	1,6°	5	–	17	0,09	1,1÷1,3	–				
S 1503.9W-028-04-06	28	12	12,5	21	57	35	1	1,3°	4	–	17	0,11	1,1÷1,3	–				
S 1503.9W-028-05-06	28	12	12,5	21	57	35	1	1,3°	5	–	17	0,10	1,1÷1,3	–				
S 1503.9W-030-04-06	30	16	17	27	64	40	1	1,2°	4	–	24	0,20	1,1÷1,3	–				
S 1503.9W-030-05-06	30	16	17	27	64	40	1	1,2°	5	–	24	0,19	1,1÷1,3	–				
S 1503.9W-032-05-06	32	16	17	29	64	40	1	1,1°	5	–	24	0,21	1,1÷1,3	–				
S 1503.9W-032-06-06	32	16	17	29	64	40	1	1,1°	6	–	24	0,21	1,1÷1,3	–				
S 1503.9W-035-05-06 New	35	16	17	29	64	40	1	1,0°	5	–	24	0,23	1,1÷1,3	–				
S 1503.9W-035-06-06 New	35	16	17	29	64	40	1	1,0°	6	–	24	0,23	1,1÷1,3	–				

W = FORO PER LIQUIDO REFRIGERANTE - COOLANT BORE - KÜHLMITTELBOHRUNG - TROU DU LIQUIDE D'ARROSAGE
L = LUNGA , STELO CILINDRICO - LONG , CYLINDRICAL SHANK - LANG , ZYLINDERSCHAFT - LONGUE , QUEUE CYLINDRIQUE
⌖ = PASSO DIFFERENZIATO - DIFFERENTIAL PITCH - UNGLEICHE TEILUNG - PAS DIFFERENCIE

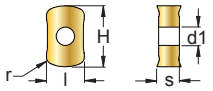
PAG. 1059

SAU QUALITY TOOLS ENGINEERING

SCELTA VELOCE - QUICK PICK

Tenacità / Toughness + -

Pag. 486



COD.			P			M			K			N			S			H			HT CERMET	HW NON RIV. CEMENTED CARBIDE GRADES	HC RIVESTITI COATED GRADES BESCHICHTET RECOUVERTS									l	H	s	d1	r	a°
			F	M	R	F	M	R	F	M	R	F	M	R	F	M	R	F	M	R			F4130					T5120							
LNMT	060312	.X52	●	●		●	●			○									○				■					■					6,2	10	3,65	3	1,2	–
			●	●	●				●	●	●								○																	

CON ADDUZIONE LUBROREFRIGERANTE - WITH COOLANT SUPPLY	○	○
SENZA ADDUZIONE LUBROREFRIGERANTE - WITHOUT COOLANT SUPPLY	●	○

	MATERIALI - MATERIALS Pag. 1119	VDI 3323 GR.	HB Rm[1] HRC[2]	fz0 mm	fz mm	Vc m/min Pag. 500 T5120	Vc m/min Pag. 500 F4130
P	ACCIAIO NON LEGATO - NOT ALLOY STEEL	1---5	125-300	0,5-2	0,1-0,15	250	240
P	ACCIAIO POCO LEGATO - LOW ALLOY STEEL	6--9	180-350	0,5-2	0,1-0,15	250	220
P	ACCIAIO ALTO LEGATO - ALLOY STEEL	10-11	200-325	0,3-1,5	0,1-0,15	230	200
P	INOX MARTENS. - STAINLESS STEEL MART	12-13	200-240	0,3-1,5	0,1-0,15	180	180
M	INOX AUST. DUPLEX - STAINLESS STEEL AUST	14.1-14.2	180-230	0,3-1,5	0,1-0,15		170
K	GHISA GRIGIA - GREY CAST IRON	15-16	180-260	0,5-1,8	0,1-0,2	250	190
K	GHISA SFEROIDALE - SPHEROIDAL GRAPHITE	17-18	160-250	0,5-1,8	0,1-0,2	220	170
K	GHISA MALLEABILE - MALLEABLE CAST IRON	19-20	130-230	0,5-1,8	0,1-0,2	200	130
N	ALLUMINIO E SUE LEGHE - ALUMINIUM	21---25	60-130				
N	RAME E SUE LEGHE - COPPER	26--28	90-110				
N	NON METALLICI - PLASTICS	29-30	/				
S	LEGHE RESIST. CALORE - HIG. TEMP. ALLOY	31---35	200-320				
S	TITANIO E SUE LEGHE - TITANIUM	36-37	400-1050[1]				
H	ACCIAIO TEMPRATO - HARDENED STEEL	38--41	45-60[2]	0,05-0,3	0,05-0,08		75

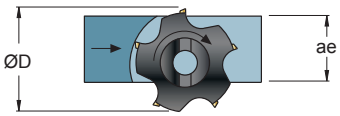
⚠ - SE LA SPORGENZA DELLA FRESA É **>3xD** RIDURRE I PARAMETRI DI LAVORO: **Vc, fz, ap** DEL 30%
- IF THE PROTRUSION OF THE CUTTER IS **>3xD**, REDUCE CUTTING PARAMETERS: **Vc, fz, ap** BY 30%

$$n = \frac{Vc \cdot 1000}{ØD \cdot 3,14} = \text{giri/min (min}^{-1}\text{)}$$

fz = fz0 · Kae = mm

fn = fz · z = mm

Vf = fz · z · n = mm/min



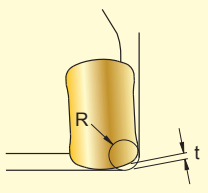
ae/D	0,5-1 50-100%	0,2 20%	0,1 10%	0,05 5%	0,02 2%
Kae	1	1,1	1,2	1,3	1,5

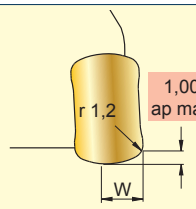
ae/D	0,5-1 50-100%	0,2 20%	0,1 10%	0,05 5%
Vc (min)---------Vc(max)				

Vc Pag. 500

F = FINITURA , LAV. LEGGERA - FINISHING , LIGHT MACHINING
M = LAV. MEDIA , GENERICA - MEDIUM MACHINING , GENERIC
R = SGROSSATURA , LAV. PESANTE - ROUGHING , HEAVY MACHINING

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min-1) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED
Kae = FATTORE DI CORREZIONE - CORRECTION FACTOR





Inserto Insert	W (mm)	t (mm)	R (mm)
LNMT 06	3,2	0,3	1,65

t = Materiale residuo
t = Residual Material

ap = Profondità massima di passata
ap = Maximum cutting depth

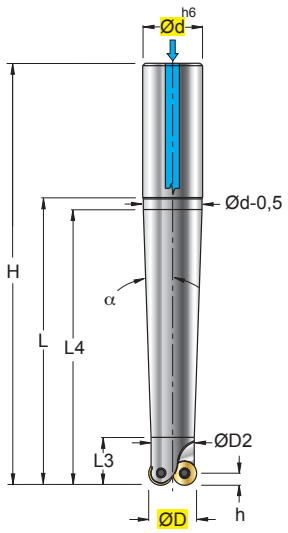
■ DISPONIBILI - IN STOCK - LIEFERBAR - DISPONIBLES / ■ NEW
●● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

□ A RICHIESTA - ON REQUEST - AUF ANFRAGE - SUR DEMANDE / □ NEW
○○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

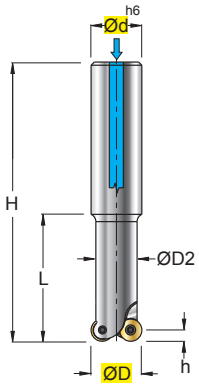
S 806W ..

Ø 12,5-20

FORM A



FORM B



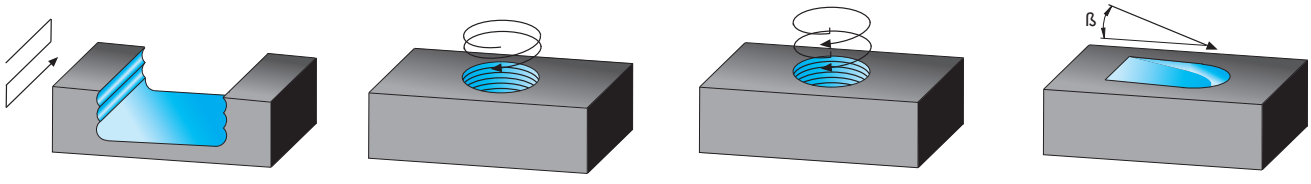
γ_p 0°
γ_f 0°

RDHX.. .T42	
RDET.. .T56	
RDEW.. .T56	
RDHT.. .T57P	

INSERTI - INSERTS
PAG. 512

(mm)

ART.	FORM	ØD	Ød	ØD2	H	h	L	L3	L4	α	ß	Z		kg	Nm			
S 806W 12,5 40 02.71	A	12,5	16	10	88	3,5	40	20	35	10,4°	22,7°	2	–	0,102	1,0÷1,2	07T1	12254P	5607P
S 806W 12,5 60 02.71	A	12,5	16	10	108	3,5	60	20	55	4,3°	22,7°	2	–	0,120	1,0÷1,2			
S 806W 12,5 80 02.71	A	12,5	16	10	128	3,5	80	20	75	2,9°	22,7°	2	–	0,139	1,0÷1,2			
S 806W 15 40 02.72	B	15	16	13	88	3,5	40	–	–	–	20°	2	–	0,106	1,0÷1,2	0702	12254P	5607P
S 806W 15 60 02.72	A	15	16	13	108	3,5	60	20	55	2,0°	20°	2	–	0,135	1,0÷1,2			
S 806W 15 80 02.72	A	15	20	13	130	3,5	80	20	75	3,4°	20°	2	–	0,232	1,0÷1,2			
S 806W 15 100 02.72	A	15	20	13	150	3,5	100	20	95	2,5°	20°	2	–	0,263	1,0÷1,2			
S 806W 15 120 02.72	A	15	25	13	176	3,5	120	20	115	3,5°	20°	2	–	0,447	1,0÷1,2			
S 806W 16 40 02.72	B	16	16	13	88	3,5	40	–	–	–	16,8°	2	–	0,107	1,0÷1,2	0702	12254P	5607P
S 806W 16 60 02.72	A	16	16	13	108	3,5	60	20	55	2,0°	16,8°	2	–	0,135	1,0÷1,2			
S 806W 16 80 02.72	A	16	20	13	130	3,5	80	20	75	3,4°	16,8°	2	–	0,232	1,0÷1,2			
S 806W 16 100 02.72	A	16	20	13	150	3,5	100	20	95	2,5°	16,8°	2	–	0,263	1,0÷1,2			
S 806W 16 120 02.72	A	16	25	13	176	3,5	120	20	115	3,5°	16,8°	2	–	0,449	1,0÷1,2			
S 806W 20 40 02.10	A	20	20	18	90	5	40	20	35	2,9°	39°	2	–	0,181	3,0÷3,5	1003	123507P	5615P
S 806W 20 60 02.10	A	20	20	18	110	5	60	20	55	1,3°	39°	2	–	0,222	3,0÷3,5			
S 806W 20 80 02.10	A	20	25	18	136	5	80	20	75	3,4°	39°	2	–	0,396	3,0÷3,5			
S 806W 20 100 02.10	A	20	25	18	156	5	100	20	95	2,5°	39°	2	–	0,450	3,0÷3,5			
S 806W 20 120 02.10	A	20	25	18	176	5	120	20	115	2,0°	39°	2	–	0,503	3,0÷3,5			



W = FORO PER LIQUIDO REFRIGERANTE - COOLANT BORE - KÜHLMITTELBOHRUNG - TROU DU LIQUIDE D'ARROSAGE
= PASSO DIFFERENZIATO - DIFFERENTIAL PITCH - UNGLEICHE TEILUNG - PAS DIFFERENCIE

PAG. 1059

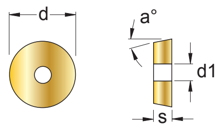
SAU QUALITY TOOLS ENGINEERING

SCELTA VELOCE - QUICK PICK

Tenacità + / Toughness -

Pag. 486

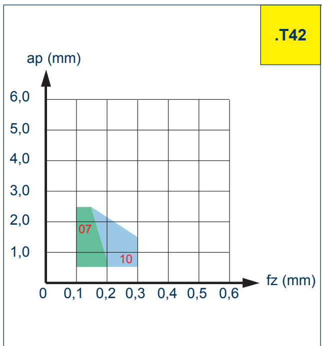
HT: CERMET — HW: NON RIV. CEMENTED CARBIDE GRADES — HC: RIVESTITI COATED GRADES BESCHICHTET RECOUVERTS

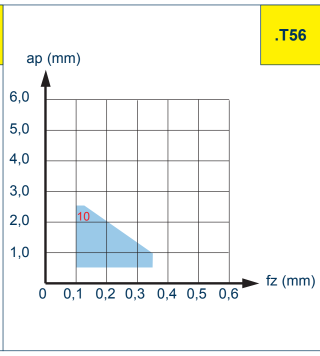


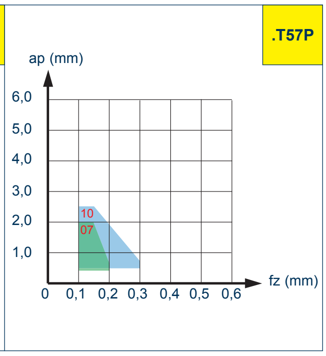
COD.	P F	P M	P HSC	M F	M M	M HSC	K F	K M	K HSC	N F	N M	N HSC	S F	S M	S HSC	H F	H M	H HSC	N3620	F5105	F2331 (NEW)	F2335 (NEW)	l	d	s	d1	r	a°
RDHX 07T1 MOT .T42	●	●					●	●								●	●			■			–	7,0	1,98	2,8	–	15
RDHX 0702 MOT .T42	●	●					●	●								●	●			■			–	7,0	2,38	2,8	–	15
RDHX 1003 MOT .T42	●	●					●	●								●	●			■			–	10,0	3,18	3,9	–	15
RDET 1003 MOSN .T56	●	●	●	●	●	●															■		–	10,0	3,18	4,4	–	15
	●	●		●	●		○	○					○	○								■						
RDEW 1003 MOSN .T56	●	●	●	●	●	●															■		–	10,0	3,18	4,4	–	15
RDHT 07T1 MO .T57P										●	●								■				–	7,0	1,98	2,8	–	15
RDHT 0702 MO .T57P										●	●								■				–	7,0	2,38	2,8	–	15
RDHT 1003 MO .T57P										●	●								■				–	10,0	3,18	3,9	–	15

	N3620	F5105	F2331	F2335
CON ADDUZIONE LUBROREFRIGERANTE - WITH COOLANT SUPPLY	○	●	●	●
SENZA ADDUZIONE LUBROREFRIGERANTE - WITHOUT COOLANT SUPPLY	●	●	●	○

	MATERIALI - MATERIALS Pag. 1119	VDI 3323 GR.	HB Rm 1) HRC 2)	Km	F5105 Vc (m/min) F	R	HSC	N3620 Vc (m/min) F	R	HSC	F2331 Vc (m/min) F	R	HSC	F2335 Vc (m/min) F	R	HSC
P	ACCIAIO NON LEGATO - NOT ALLOY STEEL	1---5	125-300	1	260	220	310				280	240		260	220	
P	ACCIAIO POCO LEGATO - LOW ALLOY STEEL	6--9	180-350	0,9	280	270	300				300	260		280	250	
P	ACCIAIO ALTO LEGATO - ALLOY STEEL	10-11	200-325	0,8	230	210	250				240	220		220	200	
P	INOX MARTENS. - STAINLESS STEEL MART	12-13	200-240	1	200	150	180				180	150		180	160	
M	INOX AUST. DUPLEX - STAINLESS STEEL AUST	14.1-14.2	180-230	1							160	120		150	120	
K	GHISA GRIGIA - GREY CAST IRON	15-16	180-260	1	300	260	330							290	250	
K	GHISA SFEROIDALE - SPHEROIDAL GRAPHITE	17-18	160-250	1,1	240	230	280							240	220	
K	GHISA MALLEABILE - MALLEABLE CAST IRON	19-20	130-230	1,2	260	230	280							250	220	
N	ALLUMINIO E SUE LEGHE - ALUMINIUM	21---25	60-130	1,3				430	400	450						
N	RAME E SUE LEGHE - COPPER	26--28	90-110	1,2				280	250	335						
N	NON METALLICI - PLASTICS	29-30	/	1,3				380	350	400						
S	LEGHE RESIST. CALORE - HIG. TEMP. ALLOY	31---35	200-320	0,9										70	40	
S	TITANIO E SUE LEGHE - TITANIUM	36-37	400-1050 1)	0,8										70	40	
H	ACCIAIO TEMPRATO - HARDENED STEEL	38--41	45-60 2)	0,8	120	80	140									







$$n = \frac{Vc \cdot 1000}{ØD \cdot 3{,}14} = \text{giri/min } (min^{-1})$$

$$fz = fz0 \cdot Kae \cdot Km = mm$$

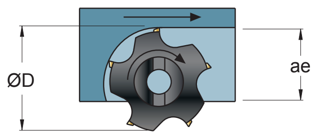
$$fn = fz \cdot z = mm$$

$$Vf = fz \cdot z \cdot n = mm/min$$

ae/D	0,5-1 50-100%	0,2 20%	0,1 10%	0,05 5%	0,02 2%
Kae	1	1,2	1,5	1,8	2

F = FINITURA , LAV. LEGGERA - FINISHING , LIGHT MACHINING
R = SGROSSATURA , LAV. PESANTE - ROUGHING , HEAVY MACHINING
HSC = LAVORAZIONE ALTA VELOCITÀ - HIGH SPEED CUTTING
Km = FATTORE DI AVANZAMENTO PER MATERIALE -FEED FACTOR FOR MATERIAL
Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED

n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REV.
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED
Kae = FATTORE DI CORREZIONE - CORRECTION FACTOR



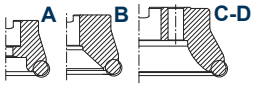
■ DISPONIBILI - IN STOCK - LIEFERBAR - DISPONIBLES / ■ NEW
●● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE
□ A RICHIESTA - ON REQUEST - AUF ANFRAGE - SUR DEMANDE / □ NEW
○○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

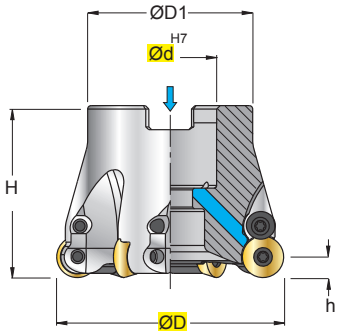
S 808W ..

Ø 40-160

γ_p 0°
γ_f 0°

ISO 6462 ...





RDHX.. .T42	
RDET.. .T56	
RDEX.. .T56	
RDEW.. .T56	
RDHT.. .T57P	

INSERTI - INSERTS
PAG. 512

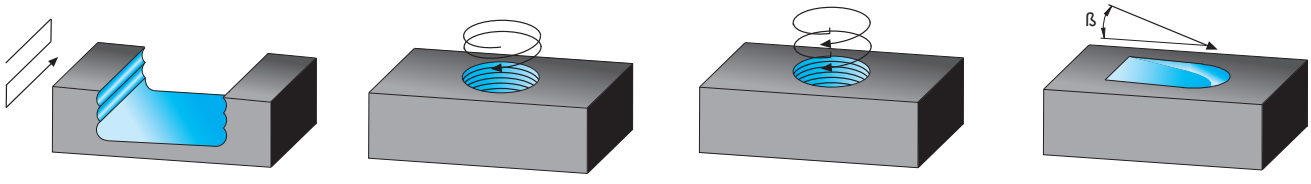
ART.	(mm) ØD	Ød	ØD1	H	h	ß	Z		kg	Nm	ISO 6462		*		
S 808W 40 40 05.10 New	40	16	32	40	5	7°	5	–	0,164	3,0÷3,5	A	1003	123507P	–	5615P	VBSF08L
S 808W 42 40 05.10 New	42	16	32	40	5	6,7°	5	–	0,182	3,0÷3,5	A					
S 808W 52 50 05.10 New	52	22	40	50	5	5,5°	5	–	0,385	3,0÷3,5	A	1003	123507P	–	5615P	VBSF10
S 808W 52 50 07.10 New	52	22	40	50	5	5,5°	7	–	0,394	3,0÷3,5	A					
S 808W 42 40 04.12 New	42	16	32	40	6	7,5°	4	–	0,156	3,0÷3,5	A	12T3	123509P	2435P	5615P	VBSF08L
S 808W 48 50 04.12 New	48	22	40	50	6	6,5°	4	–	0,319	3,0÷3,5	A	12T3	123509P	2435P	5615P	VBSF10
S 808W 50 50 05.12	50	22	40	50	6	6,1°	5	–	0,308	3,0÷3,5	A					
S 808W 52 50 05.12	52	22	40	50	6	5,7°	5	–	0,337	3,0÷3,5	A					
S 808W 63 50 06.12	63	27	48	50	6	4,3°	6	–	0,477	3,0÷3,5	A	12T3	123509P	2435P	5615P	VBSF12
S 808W 66 50 06.12	66	27	48	50	6	4,1°	6	–	0,524	3,0÷3,5	A					
S 808W 80 52 07.12	80	27	60	52	6	3,2°	7	–	0,889	3,0÷3,5	A-B					
S 808W 50 50 04.16	50	22	40	50	8	9,5°	4	–	0,273	4,0÷5,0	A	1604	124510P	2445	5620P	VBSF10
S 808W 52 50 04.16	52	22	40	50	8	8,8°	4	–	0,299	4,0÷5,0	A					
S 808W 63 50 05.16	63	27	48	50	8	7,1°	5	–	0,443	4,0÷5,0	A	1604	124510P	2445	5620P	VBSF12
S 808W 66 50 05.16	66	27	48	50	8	6,0°	5	–	0,493	4,0÷5,0	A					
S 808W 66 50 06.16 New	66	27	48	50	8	6,0°	6	–	0,450	4,0÷5,0	A					
S 808W 80 52 06.16	80	27	60	52	8	4,5°	6	–	0,833	4,0÷5,0	A-B					
S 808W 80 52 07.16 New	80	27	60	52	8	4,5°	7	–	0,797	4,0÷5,0	A-B					
S 808W 100 52 07.16	100	32	75	52	8	3,7°	7	–	1,276	4,0÷5,0	A-B	1604	124510P	2445	5620P	VBSF16
S 808W 125 63 08.16	125	40	90	63	8	2,8°	8	–	2,664	4,0÷5,0	A-B	1604	124510P	2445	5620P	VBSF20
S 808 160 63 09.16	160	40	120	63	8	1,8°	9	–	4,183	4,0÷5,0	C	1604	124510P	2445	5620P	–

* **CON INSERTI *RDET.. .T56 / RDEX.. .T56 / RDHT.. .T57P* NON É POSSIBILE UTILIZZARE LA STAFFA *24..***

* **WITH *RDET.. .T56 / RDEX.. .T56 / RDHT.. .T57P* INSERTS THE CLAMPING SCREW *24..* CANNOT BE USED.**

* **MIT *RDET.. .T56 / RDEX.. .T56 / RDHT.. .T57P*-WENDEPLATTEN IST DIE AUFSPANNSCHRAUBE *24..* NICHT EINSETZBAR.**

* **AVEC LES PLAQUETTES *RDET.. .T56 / RDEX.. .T56 / RDHT.. .T57P* ON NE PEUT PAS UTILISER LA VIS DE BRIDAGE *24..***



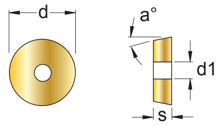
W = FORO PER LIQUIDO REFRIGERANTE - COOLANT BORE - KÜHLMITTELBOHRUNG - TROU DU LIQUIDE D'ARROSAGE
= PASSO DIFFERENZIATO - DIFFERENTIAL PITCH - UNGLEICHE TEILUNG - PAS DIFFERENCIE

PAG. 1059

SCELTA VELOCE - QUICK PICK

Tenacità + / Toughness -

Pag. 486



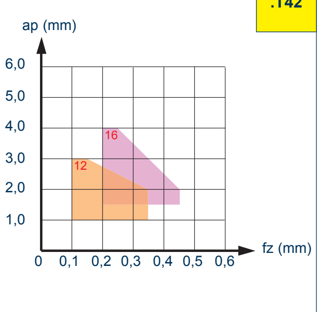
HT: CERMET — HW: NON RIV. CEMENTED CARBIDE GRADES — HC: RIVESTITI COATED GRADES BESCHICHTET RECOUVERTS

COD.	P F	P M	P HSC	M F	M M	M HSC	K F	K M	K HSC	N F	N M	N HSC	S F	S M	S HSC	H F	H M	H HSC	N3620 (HW)	F5105 (HC)	F2331 (HC, NEW)	F2335 (HC, NEW)	l	d	s	d1	r	a°
RDHX 1003 MOT .T42	●	●					●	●								●	●			■			–	10,0	3,18	3,9	–	15
RDHX 12T3 MOT .T42	●	●					●	●								●	●			■			–	12,0	3,97	3,9	–	15
RDHX 1604 MOT .T42	●	●					●	●								●	●			■			–	16,0	4,76	5,2	–	15
RDET 1003 MOSN .T56	●	●	●	●	●	●															■		–	10,0	3,18	4,4	–	15
	●	●		●	●		○	○					○	○								■						
RDET 12T3 MOSN .T56	●	●		●	●		○	○					○	○								■	–	12,0	3,97	4,4	–	15
RDEX 1604 MOSN .T56	●	●		●	●		○	○					○	○								■	–	16,0	4,76	5,5	–	15
RDEW 1003 MOSN .T56	●	●	●	●	●	●															■		–	10,0	3,18	4,4	–	15
RDEW 12T3 MOSN .T56	●	●	●	●	●	●															■		–	12,0	3,97	4,4	–	15
RDEW 1604 MOSN .T56	●	●	●	●	●	●															■		–	16,0	4,76	5,5	–	15
RDHT 07T1 MO .T57P										●	●								■				–	7,0	1,98	2,8	–	15
RDHT 12T3 MO .T57P										●	●								■				–	12,0	3,97	3,9	–	15
RDHT 1604 MO .T57P										●	●								■				–	16,0	4,76	5,2	–	15

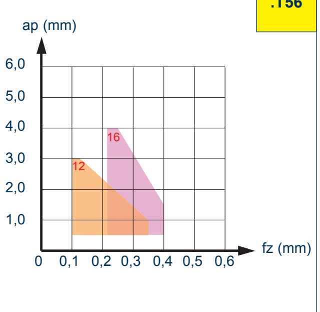
	N3620	F5105	F2331	F2335
CON ADDUZIONE LUBROREFRIGERANTE - WITH COOLANT SUPPLY	○	●	●	●
SENZA ADDUZIONE LUBROREFRIGERANTE - WITHOUT COOLANT SUPPLY	●	●	●	○

MATERIALI - MATERIALS Pag. 1119		VDI 3323 GR.	HB Rm[1] HRC[2]	Km	F5105 Vc (m/min) F	R	HSC	N3620 Vc (m/min) F	R	HSC	F2331 Vc (m/min) F	R	HSC	F2335 Vc (m/min) F	R	HSC
P	ACCIAIO NON LEGATO - NOT ALLOY STEEL	1---5	125-300	1	260	220	310				280	240		260	220	
P	ACCIAIO POCO LEGATO - LOW ALLOY STEEL	6--9	180-350	0,9	280	270	300				300	260		280	250	
P	ACCIAIO ALTO LEGATO - ALLOY STEEL	10-11	200-325	0,8	230	210	250				240	220		220	200	
P	INOX MARTENS. - STAINLESS STEEL MART	12-13	200-240	1	200	150	180				180	150		180	160	
M	INOX AUST. DUPLEX - STAINLESS STEEL AUST	14.1-14.2	180-230	1							160	120		150	120	
K	GHISA GRIGIA - GREY CAST IRON	15-16	180-260	1	300	260	330							290	250	
K	GHISA SFEROIDALE - SPHEROIDAL GRAPHITE	17-18	160-250	1,1	240	230	280							240	220	
K	GHISA MALLEABILE - MALLEABLE CAST IRON	19-20	130-230	1,2	260	230	280							250	220	
N	ALLUMINIO E SUE LEGHE - ALUMINIUM	21---25	60-130	1,3				430	400	450						
N	RAME E SUE LEGHE - COPPER	26--28	90-110	1,2				280	250	335						
N	NON METALLICI - PLASTICS	29-30	/	1,3				380	350	400						
S	LEGHE RESIST. CALORE - HIG. TEMP. ALLOY	31---35	200-320	0,9										70	40	
S	TITANIO E SUE LEGHE - TITANIUM	36-37	400-1050[1]	0,8										70	40	
H	ACCIAIO TEMPRATO - HARDENED STEEL	38--41	45-60[2]	0,8	120	80	140									

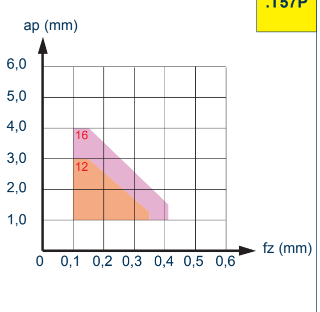
.T42



.T56



.T57P



$$n = \frac{Vc \cdot 1000}{ØD \cdot 3{,}14} = \text{giri/min } (min^{-1})$$

$$fz = fz0 \cdot Kae \cdot Km = mm$$

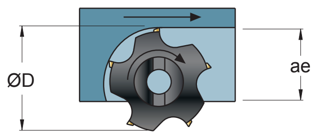
$$fn = fz \cdot z = mm$$

$$Vf = fz \cdot z \cdot n = mm/min$$

ae/D	0,5-1 50-100%	0,2 20%	0,1 10%	0,05 5%	0,02 2%
Kae	1	1,2	1,5	1,8	2

F = FINITURA , LAV. LEGGERA - FINISHING , LIGHT MACHINING
R = SGROSSATURA , LAV. PESANTE - ROUGHING , HEAVY MACHINING
HSC = LAVORAZIONE ALTA VELOCITÀ - HIGH SPEED CUTTING
Km = FATTORE DI AVANZAMENTO PER MATERIALE -FEED FACTOR FOR MATERIAL
Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED

n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REV.
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED
Kae = FATTORE DI CORREZIONE - CORRECTION FACTOR



■ DISPONIBILI - IN STOCK - LIEFERBAR - DISPONIBLES / ■ NEW
●● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

□ A RICHIESTA - ON REQUEST - AUF ANFRAGE - SUR DEMANDE / □ NEW
○○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

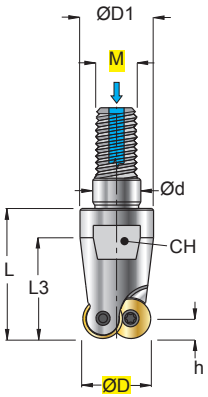
S 809W ..

Ø 10-42

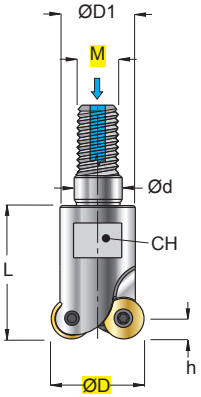
* CON INSERTI *RDET.. .T56 / RDEX.. .T56 / RDHT.. .T57P* NON É POSSIBILE UTILIZZARE LA STAFFA *24..*
* WITH *RDET.. .T56 / RDEX.. .T56 / RDHT.. .T57P* INSERTS THE CLAMPING SCREW *24..* CANNOT BE USED.D..
* MIT *RDET.. .T56 / RDEX.. .T56 / RDHT.. .T57P*-WENDEPLATTEN IST DIE AUFSPANNSCHRAUBE *24..* NICHT EINSETZBAR.
* AVEC LES PLAQUETTES *RDET.. .T56 / RDEX.. .T56 / RDHT.. .T57P* ON NE PEUT PAS UTILISER LA VIS DE BRIDAGE *24..*

γ_p 0°
γ_f 0°

FORM A



FORM B



RDHX.. .T42 

RDET.. .T56 

RDEX.. .T56 

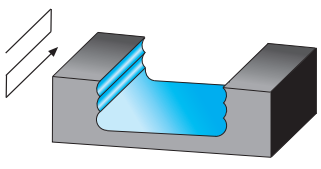
RDEW.. .T56 

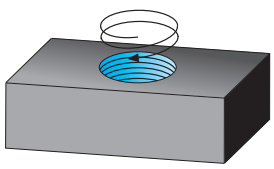
RDHT.. .T57P 

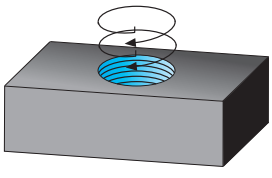
INSERTI - INSERTS
PAG. 512

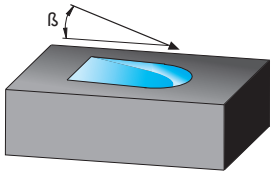
(mm)

ART.	FORM	ØD	M	Ød	ØD1	h	L	L3	ß	Z	⌖	CH	kg	Nm				
S 809W 10 23 02.05	A	10	8	8,5	13	2,5	23	17	28,9°	2	–	10	0,019	0,4÷0,5	0501	121837P	–	5606P
S 809W 12 23 03.05	A	12	8	8,5	13	2,5	23	17	13,8°	3	–	10	0,020	0,4÷0,5				
S 809W 15 23 04.05	B	15	8	8,5	13	2,5	23	–	8,6°	4	–	10	0,023	0,4÷0,5				
S 809W 16 23 04.05	B	16	8	8,5	13	2,5	23	–	7,7°	4	–	10	0,025	0,4÷0,5				
S 809W 20 30 05.05	B	20	10	10,5	18	2,5	30	–	6,9°	5	–	15	0,059	0,4÷0,5				
S 809W 25 35 06.05	B	25	12	12,5	21	2,5	35	–	4,0°	6	–	17	0,099	0,4÷0,5				
S 809W 12,5 23 02.71	A	12,5	8	8,5	13	3,5	23	17	22,7°	2	–	10	0,019	1,0÷1,2	07T1	12254P	–	5607P
S 809W 15 23 02.72	B	15	8	8,5	13	3,5	23	–	20,0°	2	–	10	0,020	1,0÷1,2	0702	12254P	–	5607P
S 809W 15 23 03.72	B	15	8	8,5	13	3,5	23	–	20,0°	3	–	10	0,021	1,0÷1,2				
S 809W 16 23 02.72	B	16	8	8,5	13	3,5	23	–	16,8°	2	–	10	0,022	1,0÷1,2				
S 809W 16 23 03.72	B	16	8	8,5	13	3,5	23	–	16,8°	3	–	10	0,022	1,0÷1,2				
S 809W 20 30 04.72	B	20	10	10,5	18	3,5	30	–	11,0°	4	–	15	0,054	1,0÷1,2				
S 809W 25 35 05.72	B	25	12	12,5	21	3,5	35	–	7,3°	5	–	17	0,093	1,0÷1,2				
S 809W 30 43 05.72	A	30	16	17	29	3,5	43	43	5,4°	5	–	24	0,208	1,0÷1,2				
S 809W 32 43 06.72	B	32	16	17	29	3,5	43	–	4,9°	6	–	24	0,219	1,0÷1,2				
S 809W 35 43 06.72	B	35	16	17	29	3,5	43	–	4,3°	6	–	24	0,233	1,0÷1,2				
S 809W 20 30 02.10	B	20	10	10,5	18	5	30	–	39,0°	2	–	15	0,048	3,0÷3,5	1003	123507P	–	5615P
S 809W 25 35 03.10	B	25	12	12,5	21	5	35	–	14,3°	3	–	17	0,083	3,0÷3,5				
S 809W 30 43 04.10	A	30	16	17	29	5	43	43	9,3°	4	–	24	0,196	3,0÷3,5				
S 809W 32 43 04.10	A	32	16	17	29	5	43	43	8,6°	4	–	24	0,200	3,0÷3,5				
S 809W 35 43 04.10	B	35	16	17	29	5	43	–	7,3°	4	–	24	0,215	3,0÷3,5				
S 809W 35 43 05.10	B	35	16	17	29	5	43	–	7,3°	5	–	24	0,216	3,0÷3,5				
S 809W 40 43 05.10	B	40	16	17	29	5	43	–	5,8°	5	–	24	0,232	3,0÷3,5				
S 809W 42 43 05.10	B	42	16	17	29	5	43	–	5,4°	5	–	24	0,243	3,0÷3,5				
S 809W 42 43 06.10	B	42	16	17	29	5	43	–	5,4°	6	–	24	0,245	3,0÷3,5				
S 809W 25 35 02.12	B	25	12	12,5	21	6	35	–	26,0°	2	–	17	0,076	3,0÷3,5	12T3	123509P	2435P	5615P
S 809W 32 43 03.12	A	32	16	17	29	6	43	43	14,3°	3	–	24	0,178	3,0÷3,5				
S 809W 35 43 03.12	B	35	16	17	29	6	43	–	11,9°	3	–	24	0,194	3,0÷3,5				
S 809W 40 43 04.12	B	40	16	17	29	6	43	–	9,3°	4	–	24	0,212	3,0÷3,5				
S 809W 42 43 04.12	B	42	16	17	29	6	43	–	8,3°	4	–	24	0,224	3,0÷3,5				
S 809W 32 43 02.16	A	32	16	17	29	8	43	43	29,6°	2	–	24	0,169	4,0÷5,0	1604	124510P	2445	5620P
S 809W 40 43 02.16	B	40	16	17	29	8	43	–	15°	2	–	24	0,226	4,0÷5,0				









W = FORO PER LIQUIDO REFRIGERANTE - COOLANT BORE - KÜHLMITTELBOHRUNG - TROU DU LIQUIDE D'ARROSAGE
⌖ = PASSO DIFFERENZIATO - DIFFERENTIAL PITCH - UNGLEICHE TEILUNG - PAS DIFFERENCIE

PAG. 1059

SAU QUALITY TOOLS ENGINEERING

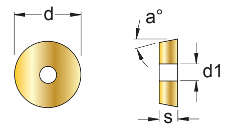
SCELTA VELOCE - QUICK PICK

Tenacità + / Toughness - — Pag. 486

HT: CERMET — HW: NON RIV. CEMENTED CARBIDE GRADES — HC: RIVESTITI COATED GRADES BESCHICHTET RECOUVERTS

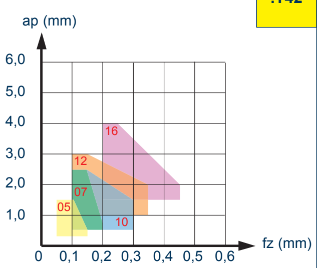
COD.	P F	P M	P HSC	M F	M M	M HSC	K F	K M	K HSC	N F	N M	N HSC	S F	S M	S HSC	H F	H M	H HSC	N3620	F5105	F2331 (NEW)	F2335 (NEW)	l	d	s	d1	r	a°
RDHX 0501 MOE .T42	●	●					●	●								●	●			■			–	5,0	1,51	2,2	–	15
RDHX 07T1 MOT .T42	●	●					●	●								●	●			■			–	7,0	1,98	2,8	–	15
RDHX 0702 MOT .T42	●	●					●	●								●	●			■			–	7,0	2,38	2,8	–	15
RDHX 1003 MOT .T42	●	●					●	●								●	●			■			–	10,0	3,18	3,9	–	15
RDHX 12T3 MOT .T42	●	●					●	●								●	●			■			–	12,0	3,97	3,9	–	15
RDHX 1604 MOT .T42	●	●					●	●								●	●			■			–	16,0	4,76	5,2	–	15
RDET 1003 MOSN .T56	●	●	●	●	●	●															■		–	10,0	3,18	4,4	–	15
	●	●		●	●		○	○					○	○								■						
RDET 12T3 MOSN .T56	●	●		●	●		○	○					○	○								■	–	12,0	3,97	4,4	–	15
RDEX 1604 MOSN .T56	●	●		●	●		○	○					○	○								■	–	16,0	4,76	5,5	–	15
RDEW 1003 MOSN .T56	●	●	●	●	●	●															■		–	10,0	3,18	4,4	–	15
RDEW 12T3 MOSN .T56	●	●	●	●	●	●															■		–	12,0	3,97	4,4	–	15
RDEW 1604 MOSN .T56	●	●	●	●	●	●															■		–	16,0	4,76	5,5	–	15
RDHT 07T1 MO .T57P										●	●								■				–	7,0	1,98	2,8	–	15
RDHT 0702 MO .T57P										●	●								■				–	7,0	2,38	2,8	–	15
RDHT 1003 MO .T57P										●	●								■				–	10,0	3,18	3,9	–	15
RDHT 12T3 MO .T57P										●	●								■				–	12,0	3,97	3,9	–	15
RDHT 1604 MO .T57P										●	●								■				–	16,0	4,76	5,2	–	15

	N3620	F5105	F2331	F2335
CON ADDUZIONE LUBROREFRIGERANTE - WITH COOLANT SUPPLY	○	●	●	●
SENZA ADDUZIONE LUBROREFRIGERANTE - WITHOUT COOLANT SUPPLY	●	●	●	○

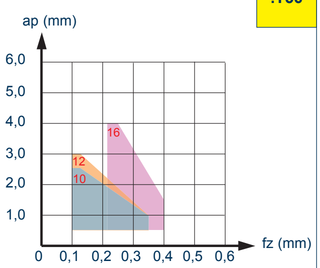


MATERIALI - MATERIALS Pag. 1119		VDI 3323 GR.	HB Rm 1) HRC 2)	Km	F5105 Vc (m/min) F	R	HSC	N3620 Vc (m/min) F	R	HSC	F2331 Vc (m/min) F	R	HSC	F2335 Vc (m/min) F	R	HSC
P	ACCIAIO NON LEGATO - NOT ALLOY STEEL	1---5	125-300	1	260	220	310				280	240		260	220	
P	ACCIAIO POCO LEGATO - LOW ALLOY STEEL	6--9	180-350	0,9	280	270	300				300	260		280	250	
P	ACCIAIO ALTO LEGATO - ALLOY STEEL	10-11	200-325	0,8	230	210	250				240	220		220	200	
P	INOX MARTENS. - STAINLESS STEEL MART	12-13	200-240	1	200	150	180				180	150		180	160	
M	INOX AUST. DUPLEX - STAINLESS STEEL AUST	14.1-14.2	180-230	1							160	120		150	120	
K	GHISA GRIGIA - GREY CAST IRON	15-16	180-260	1	300	260	330							290	250	
K	GHISA SFEROIDALE - SPHEROIDAL GRAPHITE	17-18	160-250	1,1	240	230	280							240	220	
K	GHISA MALLEABILE - MALLEABLE CAST IRON	19-20	130-230	1,2	260	230	280							250	220	
N	ALLUMINIO E SUE LEGHE - ALUMINIUM	21---25	60-130	1,3				430	400	450						
N	RAME E SUE LEGHE - COPPER	26--28	90-110	1,2				280	250	335						
N	NON METALLICI - PLASTICS	29-30	/	1,3				380	350	400						
S	LEGHE RESIST. CALORE - HIG. TEMP. ALLOY	31---35	200-320	0,9										70	40	
S	TITANIO E SUE LEGHE - TITANIUM	36-37	400-1050 1)	0,8										70	40	
H	ACCIAIO TEMPRATO - HARDENED STEEL	38--41	45-60 2)	0,8	120	80	140									

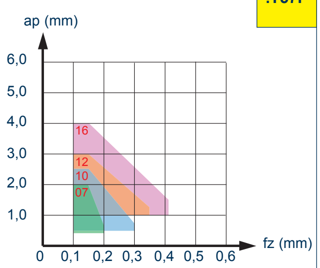
.T42



.T56



.T57P



$$n = \frac{Vc \cdot 1000}{ØD \cdot 3,14} = \text{giri/min } (min^{-1})$$

$$fz = fz0 \cdot Kae \cdot Km = mm$$

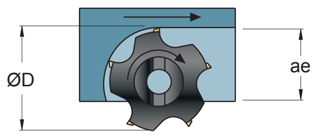
$$fn = fz \cdot z = mm$$

$$Vf = fz \cdot z \cdot n = mm/min$$

ae/D	0,5-1 50-100%	0,2 20%	0,1 10%	0,05 5%	0,02 2%
Kae	1	1,2	1,5	1,8	2

F = FINITURA , LAV. LEGGERA - FINISHING , LIGHT MACHINING
R = SGROSSATURA , LAV. PESANTE - ROUGHING , HEAVY MACHINING
HSC = LAVORAZIONE ALTA VELOCITÀ - HIGH SPEED CUTTING
Km = FATTORE DI AVANZAMENTO PER MATERIALE -FEED FACTOR FOR MATERIAL
Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED

n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REV.
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED
Kae = FATTORE DI CORREZIONE - CORRECTION FACTOR



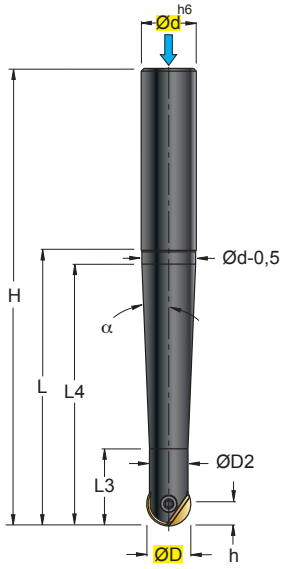
■ DISPONIBILI - IN STOCK - LIEFERBAR - DISPONIBLES / ■ NEW
●● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

□ A RICHIESTA - ON REQUEST - AUF ANFRAGE - SUR DEMANDE / □ NEW
○○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

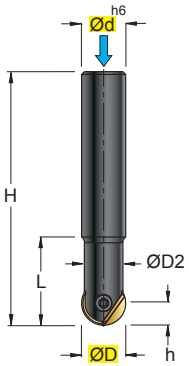
S 926W ..

Ø 8-32

FORM A



FORM B



RA.. .F42	 NEW
RAET.. .F42	 NEW

INSERTI - INSERTS
PAG. 512

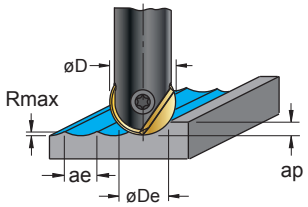
(mm)

ART.	FORM	ØD	Ød	ØD2	H	h	L	L3	L4	α	N	Z	kg	Nm			
S 926W 08 35 12	A	8	12	6,5	92	4	35	19	35	9,8°	1	2	0,062	0,8÷1,0	08	12RA08	5407
S 926W 08 53 12	A	8	12	6,5	110	4	53	19	48	5,0°	1	2	0,072	0,8÷1,0			
S 926W 08 75 12	A	8	12	6,5	132	4	75	19	70	2,8°	1	2	0,083	0,8÷1,0			
S 926W 10 35 12	A	10	12	8	92	5	35	22	35	8,9°	1	2	0,065	1,8÷2,0	10	12RA10	5408
S 926W 10 53 12	A	10	12	8	110	5	53	22	48	3,9°	1	2	0,076	1,8÷2,0			
S 926W 10 75 12	A	10	12	8	132	5	75	22	70	2,1°	1	2	0,088	1,8÷2,0			
S 926W 12 26 12	B	12	12	10	83	6	26	–	–	–	1	2	0,062	2,8÷3,0	12	12RA12	5410
S 926W 12 53 12	B	12	12	10	110	6	53	–	–	–	1	2	0,078	2,8÷3,0			
S 926W 12 85 16	A	12	16	10	145	6	85	22	80	2,8°	1	2	0,167	2,8÷3,0			
S 926W 16 32 16	B	16	16	14	92	8	32	–	–	–	1	2	0,123	4,5÷5,5	16	12RA16	5415
S 926W 16 63 16	B	16	16	14	123	8	63	–	–	–	1	2	0,159	4,5÷5,5			
S 926W 16 100 20	A	16	20	14	166	8	100	28	95	2,4°	1	2	0,312	4,5÷5,5			
S 926W 20 38 20	B	20	20	17	104	10	38	–	–	–	1	2	0,211	5,5÷7,0	20	12RA20	5420
S 926W 20 75 20	B	20	20	17	141	10	75	–	–	–	1	2	0,277	5,5÷7,0			
S 926W 20 115 25	A	20	25	17	191	10	115	34	110	2,8°	1	2	0,553	5,5÷7,0			
S 926W 25 45 25	B	25	25	21	121	12,5	45	–	–	–	1	2	0,379	10÷13	25	12RA25	5430
S 926W 25 90 25	B	25	25	21	166	12,5	90	–	–	–	1	2	0,501	10÷13			
S 926W 25 135 32	A	25	32	21	215	12,5	135	41	130	2,9°	1	2	0,962	10÷13			
S 926W 32 53 32	B	32	32	26	133	16	53	–	–	–	1	2	0,660	24÷30	32	12RA32	5440
S 926W 32 106 32	B	32	32	26	186	16	106	–	–	–	1	2	0,879	24÷30			
S 926W 32 160 32	A	32	32	26	240	16	160	49	155	1,5°	1	2	1,207	24÷30			

$$n = \frac{Vc \cdot 1000}{ØDe \cdot 3,14} = \text{giri/min (min}^{-1}\text{)}$$

$$fz = fz0 \cdot Km = \text{mm}$$

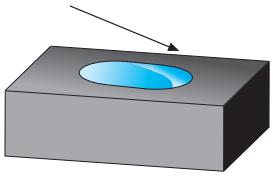
$$Vf = fz0 \cdot Km \cdot z \cdot n = \text{mm/min}$$

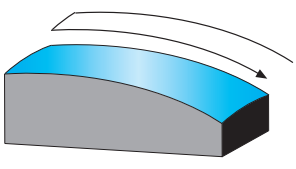


$$ØDe = 2 \cdot \sqrt{D \cdot ap - ap^2} = \text{mm}$$

$$Rmax = 0,5 \cdot \left(ØD - \sqrt{ØD^2 - ae^2} \right) = \text{mm}$$

F = FINITURA , LAV. LEGGERA - FINISHING , LIGHT MACHINING
HSC = LAVORAZIONE ALTA VELOCITÀ - HIGH SPEED CUTTING
Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED
Km = FATTORE DI AVANZAMENTO PER MATERIALE -FEED FACTOR FOR MATERIAL
De = mm DIAMETRO EFFETTIVO - EFFECTIVE DIAMETER
Rmax = mm RUGOSITÀ TEORICA MASSIMA - THEORICAL MAXIMUM ROUGHNESS





N = NUMERO D'INSERTI / INSERT NUMBER / WENDEPLATTENANZAHL / NOMBRE DES PLAQUETTES
Z = NUMERO TAGLIENTI / NUMBER OF CUTTING EDGES / SCHNEIDENANZAHL / NOMBRE DU COUPANTS

SAU QUALITY TOOLS ENGINEERING

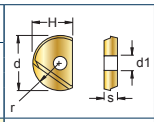
SCELTA VELOCE - QUICK PICK

Tenacità + / Toughness -

Pag. 486

COD.			P		M		K		N		S		H	
			F	HSC	F	HSC	F	HSC	F	HSC	F	HSC	F	HSC
RA	08.04	.F42	●	●	○	○	●	●					●	●
RA	10.04	.F42	●	●	○	○	●	●					●	●
RA	12.04	.F42	●	●	○	○	●	●					●	●
RA	16.04	.F42	●	●	○	○	●	●					●	●
RA	20.04	.F42	●	●	○	○	●	●					●	●
RA	25.04	.F42	●	●	○	○	●	●					●	●
RA	32.04	.F42	●	●	○	○	●	●					●	●
RAET	080006	.F42	●	●	○	○	●	●					●	●
RAET	080010	.F42	●	●	○	○	●	●					●	●
RAET	100005	.F42	●	●	○	○	●	●					●	●
RAET	100008	.F42	●	●	○	○	●	●					●	●
RAET	100010	.F42	●	●	○	○	●	●					●	●
RAET	120005	.F42	●	●	○	○	●	●					●	●
RAET	120010	.F42	●	●	○	○	●	●					●	●
RAET	120020	.F42	●	●	○	○	●	●					●	●
RAET	160010	.F42	●	●	○	○	●	●					●	●
RAET	160030	.F42	●	●	○	○	●	●					●	●
RAET	200010	.F42	●	●	○	○	●	●					●	●
RAET	200040	.F42	●	●	○	○	●	●					●	●
RAET	250010	.F42	●	●	○	○	●	●					●	●
RAET	250050	.F42	●	●	○	○	●	●					●	●

HT	HW	HC												
CERMET	NON RIV. CEMENTED CARBIDE GRADES	RIVESTITI COATED GRADES BESCHICHTET RECOUVERTS												
		NEW	F7810											
			■											



RA			RAET		
l	d	s	d1	H	r
–	8,0	2,4	2,5	7	4
–	10,0	2,6	3,0	8,5	5
–	12,0	3,0	3,5	10	6
–	16,0	4,0	4,0	12	8
–	20,0	5,0	5,0	15	10
–	25,0	6,0	6,0	18,5	12,5
–	32,0	7,0	8,0	23,5	16
✱ 1,6	8,0	2,4	2,5	7,0	0,6
✱ 2,0	8,0	2,4	2,5	7,0	1,0
✱ 1,5	10,0	2,6	3,0	8,5	0,5
✱ 1,8	10,0	2,6	3,0	8,5	0,8
✱ 2,0	10,0	2,6	3,0	8,5	1,0
✱ 1,5	12,0	3,0	3,5	10,0	0,5
✱ 2,0	12,0	3,0	3,5	10,0	1,0
✱ 3,0	12,0	3,0	3,5	10,0	2,0
✱ 2,0	16,0	4,0	4,0	12,0	1,0
✱ 4,0	16,0	4,0	4,0	12,0	3,0
✱ 2,0	20,0	5,0	5,0	15,0	1,0
✱ 5,0	20,0	5,0	5,0	15,0	4,0
✱ 2,0	25,0	6,0	6,0	18,5	1,0
✱ 6,0	25,0	6,0	6,0	18,5	5,0

CON ADDUZIONE LUBROREFRIGERANTE - WITH COOLANT SUPPLY	○	
SENZA ADDUZIONE LUBROREFRIGERANTE - WITHOUT COOLANT SUPPLY	●	

TOLLERANZE TOLLERANCE RANGE	D
RA..	± 0,01
RAET..	± 0,025

MATERIALI - MATERIALS Pag. 1119		VDI 3323 GR.	HB Rm[1] HRC[2]	F7810 Vc (m/min)
P	ACCIAIO NON LEGATO - NOT ALLOY STEEL	1---5	125-300	200-320
	ACCIAIO POCO LEGATO - LOW ALLOY STEEL	6--9	180-350	180-290
	ACCIAIO ALTO LEGATO - ALLOY STEEL	10-11	200-325	160-260
	INOX MARTENS. - STAINLESS STEEL MART	12-13	200-240	130-200
M	INOX AUST. DUPLEX - STAINLESS STEEL AUST	14.1-14.2	180-230	150-250
K	GHISA GRIGIA - GREY CAST IRON	15-16	180-260	250-340
	GHISA SFEROIDALE - SPHEROIDAL GRAPHITE	17-18	160-250	230-310
	GHISA MALLEABILE - MALLEABLE CAST IRON	19-20	130-230	270-380
N	ALLUMINIO E SUE LEGHE - ALUMINIUM	21---25	60-130	
	RAME E SUE LEGHE - COPPER	26--28	90-110	
	NON METALLICI - PLASTICS	29-30	/	
S	LEGHE RESIST. CALORE - HIG. TEMP. ALLOY	31---35	200-320	
	TITANIO E SUE LEGHE - TITANIUM	36-37	400-1050[1]	
H	ACCIAIO TEMPRATO - HARDENED STEEL	38--41	45-60[2]	50-240
G	GRAFITE - GRAPHITE	45	/	
R	RESINA PER MODELLI,LEGNO - RESIN,WOOD	43	/	

RA..

D	fz0 (mm)			D	ap max (mm)		
8	0,10	**0,15**	0,20	8	0,10	**0,15**	0,20
10	0,15	**0,20**	0,25	10	0,12	**0,20**	0,24
12	0,15	**0,25**	0,35	12	0,15	**0,30**	0,40
16	0,20	**0,30**	0,35	16	0,20	**0,35**	0,45
20	0,30	**0,40**	0,45	20	0,25	**0,40**	0,50
25	0,30	**0,40**	0,45	25	0,30	**0,45**	0,55
32	0,40	**0,50**	0,55	32	0,35	**0,50**	0,60

RAET..

D	fz0 (mm)			D	ap max (mm)		
8	0,10	**0,20**	0,30	8	0,10	**0,25**	✱ l [1]
10	0,10	**0,20**	0,30	10	0,10	**0,30**	✱ l [1]
12	0,10	**0,20**	0,35	12	0,10	**0,30**	✱ l [1]
16	0,10	**0,25**	0,40	16	0,15	**0,35**	✱ l [1]
20	0,20	**0,27**	0,45	20	0,20	**0,40**	✱ l [1]
25	0,20	**0,35**	0,50	25	0,20	**0,45**	✱ l [1]

1) l = vedere tabella dimensioni inserti
see insert size table

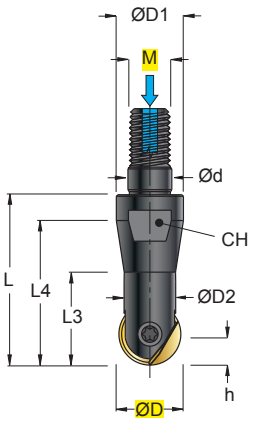
■ DISPONIBILI - IN STOCK - LIEFERBAR - DISPONIBLES / ■ NEW
●● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

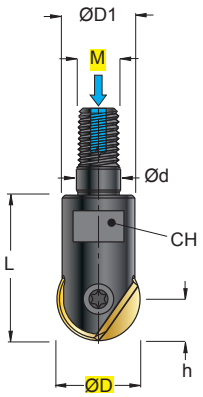
□ A RICHIESTA - ON REQUEST - AUF ANFRAGE - SUR DEMANDE / □ NEW
○○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

S 929W ..

Ø 10-32

FORM A **FORM B**





RA.. .F42 — NEW

RAET.. .F42 — NEW

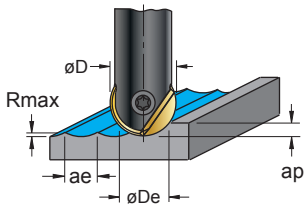
INSERTI - INSERTS PAG. 512

ART.	FORM	(mm) ØD	M	Ød	ØD1	ØD2	h	L	L3	L4	N	Z	CH	kg	Nm			
S 929W 10 33 08	A	10	8	8,5	13	8	5	33	18	28	1	2	10	0,022	1,8÷2,0	10	12RA10	5408
S 929W 12 33 08	A	12	8	8,5	13	10	6	33	18	28	1	2	10	0,026	2,8÷3,0	12	12RA12	5410
S 929W 16 28 08	B	16	8	8,5	14	14	8	28	–	–	1	2	10	0,029	4,5÷5,5	16	12RA16	5415
S 929W 20 28 10	B	20	10	10,5	17	17	10	28	–	–	1	2	15	0,042	5,5÷7,0	20	12RA20	5420
S 929W 25 41 12	B	25	12	12,5	21	21	12,5	41	–	–	1	2	17	0,093	10÷13	25	12RA25	5430
S 929W 32 49 16	B	32	16	17	26	26	16	49	–	–	1	2	24	0,174	24÷30	32	12RA32	5440

$$n = \frac{Vc \cdot 1000}{ØDe \cdot 3,14} \text{ = giri/min (min}^{-1}\text{)}$$

$$fz = fz0 \cdot Km \text{ = mm}$$

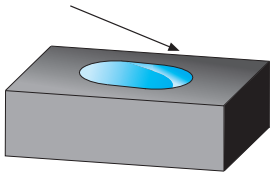
$$Vf = fz0 \cdot Km \cdot z \cdot n \text{ = mm/min}$$

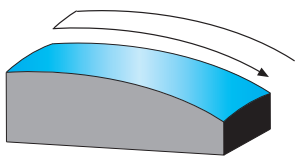


$$ØDe = 2 \cdot \sqrt{D \cdot ap - ap^2} \text{ = mm}$$

$$Rmax = 0,5 \cdot \left(ØD - \sqrt{ØD^2 - ae^2} \right) \text{ = mm}$$

F = FINITURA , LAV. LEGGERA - FINISHING , LIGHT MACHINING
HSC = LAVORAZIONE ALTA VELOCITÀ - HIGH SPEED CUTTING
Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED
Km = FATTORE DI AVANZAMENTO PER MATERIALE -FEED FACTOR FOR MATERIAL
De = mm DIAMETRO EFFETTIVO - EFFECTIVE DIAMETER
Rmax = mm RUGOSITÀ TEORICA MASSIMA - THEORICAL MAXIMUM ROUGHNESS



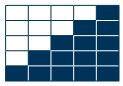


N = NUMERO D'INSERTI / INSERT NUMBER / WENDEPLATTENANZAHL / NOMBRE DES PLAQUETTES
Z = NUMERO TAGLIENTI / NUMBER OF CUTTING EDGES / SCHNEIDENANZAHL / NOMBRE DU COUPANTS

SAU QUALITY TOOLS ENGINEERING

SCELTA VELOCE - QUICK PICK

Tenacità + / Toughness -



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COD.			P		M		K		N		S		H	
			F	HSC	F	HSC	F	HSC	F	HSC	F	HSC	F	HSC
RA	10.04	.F42	●	●	○	○	●	●					●	●
RA	12.04	.F42	●	●	○	○	●	●					●	●
RA	16.04	.F42	●	●	○	○	●	●					●	●
RA	20.04	.F42	●	●	○	○	●	●					●	●
RA	25.04	.F42	●	●	○	○	●	●					●	●
RA	32.04	.F42	●	●	○	○	●	●					●	●
RAET	100005	.F42	●	●	○	○	●	●					●	●
RAET	100008	.F42	●	●	○	○	●	●					●	●
RAET	100010	.F42	●	●	○	○	●	●					●	●
RAET	120005	.F42	●	●	○	○	●	●					●	●
RAET	120010	.F42	●	●	○	○	●	●					●	●
RAET	120020	.F42	●	●	○	○	●	●					●	●
RAET	160010	.F42	●	●	○	○	●	●					●	●
RAET	160030	.F42	●	●	○	○	●	●					●	●
RAET	200010	.F42	●	●	○	○	●	●					●	●
RAET	200040	.F42	●	●	○	○	●	●					●	●
RAET	250010	.F42	●	●	○	○	●	●					●	●
RAET	250050	.F42	●	●	○	○	●	●					●	●

HT	HW	HC												
CERMET	NON RIV. CEMENTED CARBIDE GRADES	RIVESTITI COATED GRADES BESCHICHTET RECOUVERTS												
		NEW	F7810											
			■											
			■											
			■											
			■											
			■											
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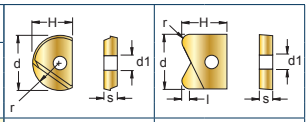


RA						RAET					
l	d	s	d1	H	r	l	d	s	d1	H	r
–	10,0	2,6	3,0	8,5	5						
–	12,0	3,0	3,5	10	6						
–	16,0	4,0	4,0	12	8						
–	20,0	5,0	5,0	15	10						
–	25,0	6,0	6,0	18,5	12,5						
–	32,0	7,0	8,0	23,5	16						
						✱ 1,5	10,0	2,6	3,0	8,5	0,5
						✱ 1,8	10,0	2,6	3,0	8,5	0,8
						✱ 2,0	10,0	2,6	3,0	8,5	1,0
						✱ 1,5	12,0	3,0	3,5	10,0	0,5
						✱ 2,0	12,0	3,0	3,5	10,0	1,0
						✱ 3,0	12,0	3,0	3,5	10,0	2,0
						✱ 2,0	16,0	4,0	4,0	12,0	1,0
						✱ 4,0	16,0	4,0	4,0	12,0	3,0
						✱ 2,0	20,0	5,0	5,0	15,0	1,0
						✱ 5,0	20,0	5,0	5,0	15,0	4,0
						✱ 2,0	25,0	6,0	6,0	18,5	1,0
						✱ 6,0	25,0	6,0	6,0	18,5	5,0

CON ADDUZIONE LUBROREFRIGERANTE - WITH COOLANT SUPPLY	○
SENZA ADDUZIONE LUBROREFRIGERANTE - WITHOUT COOLANT SUPPLY	●

TOLLERANZE TOLLERANCE RANGE	D
RA..	± 0,01
RAET..	± 0,025

MATERIALI - MATERIALS Pag. 1119		VDI 3323 GR.	HB Rm[1] HRC[2]	F7810 Vc (m/min)
P	ACCIAIO NON LEGATO - NOT ALLOY STEEL	1---5	125-300	200-320
	ACCIAIO POCO LEGATO - LOW ALLOY STEEL	6--9	180-350	180-290
	ACCIAIO ALTO LEGATO - ALLOY STEEL	10-11	200-325	160-260
	INOX MARTENS. - STAINLESS STEEL MART	12-13	200-240	130-200
M	INOX AUST. DUPLEX - STAINLESS STEEL AUST	14.1-14.2	180-230	150-250
K	GHISA GRIGIA - GREY CAST IRON	15-16	180-260	250-340
	GHISA SFEROIDALE - SPHEROIDAL GRAPHITE	17-18	160-250	230-310
	GHISA MALLEABILE - MALLEABLE CAST IRON	19-20	130-230	270-380
N	ALLUMINIO E SUE LEGHE - ALUMINIUM	21---25	60-130	
	RAME E SUE LEGHE - COPPER	26--28	90-110	
	NON METALLICI - PLASTICS	29-30	/	
S	LEGHE RESIST. CALORE - HIG. TEMP. ALLOY	31---35	200-320	
	TITANIO E SUE LEGHE - TITANIUM	36-37	400-1050[1]	
H	ACCIAIO TEMPRATO - HARDENED STEEL	38--41	45-60[2]	50-240
G	GRAFITE - GRAPHITE	45	/	
R	RESINA PER MODELLI,LEGNO - RESIN,WOOD	43	/	

RA..

D	fz0 (mm)			D	ap max (mm)		
10	0,15	**0,20**	0,25	10	0,12	**0,20**	0,24
12	0,15	**0,25**	0,35	12	0,15	**0,30**	0,40
16	0,20	**0,30**	0,35	16	0,20	**0,35**	0,45
20	0,30	**0,40**	0,45	20	0,25	**0,40**	0,50
25	0,30	**0,40**	0,45	25	0,30	**0,45**	0,55
32	0,40	**0,50**	0,55	32	0,35	**0,50**	0,60

RAET..

D	fz0 (mm)			D	ap max (mm)		
10	0,10	**0,20**	0,30	10	0,10	**0,30**	✱ l [1]
12	0,10	**0,20**	0,35	12	0,10	**0,30**	✱ l [1]
16	0,10	**0,25**	0,40	16	0,15	**0,35**	✱ l [1]
20	0,20	**0,27**	0,45	20	0,20	**0,40**	✱ l [1]
25	0,20	**0,35**	0,50	25	0,20	**0,45**	✱ l [1]

1) l = vedere tabella dimensioni inserti
see insert size table

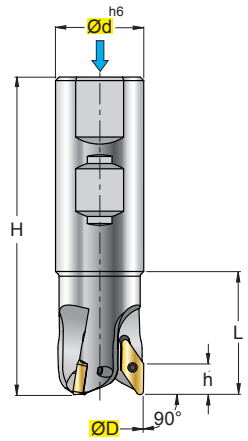
■ DISPONIBILI - IN STOCK - LIEFERBAR - DISPONIBLES / ■ NEW
●● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

□ A RICHIESTA - ON REQUEST - AUF ANFRAGE - SUR DEMANDE / □ NEW
○○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

S 9002-6W...-11

Ø 16-25

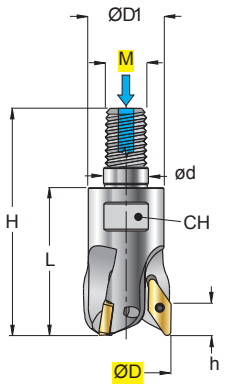
γ_p +10°
γ_f -8°/-11°
γ_o -8°/-11°



S 9002-9W...-11

Ø 16-25

γ_p +10°
γ_f -8°/-11°
γ_o -8°/-11°

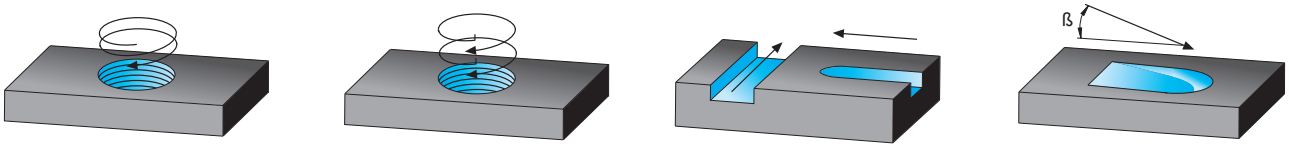


VDKT 11T2.. .K57P

INSERTI - INSERTS **PAG. 519**

(mm)

ART.	ØD	M	Ød	ØD1	H	h	L	ß	Z	⌖	CH	kg	Nm	ISO 6462			
S9002-6W-016-02-11	16	–	16	–	80	8	30	35°	2	–	–	0,10	1÷1,2	–	11T2..	122545	5607
S9002-6W-020-02-11	20	–	20	–	85	8	35	26°	2	–	–	0,15	1÷1,2	–	11T2..	122555PK	5608
S9002-6W-025-03-11	25	–	25	–	90	8	35	19,5°	3	–	–	0,25	1÷1,2	–			
S9002-9W-016-02-11	16	8	8,5	12,7	52	8	35	35°	2	–	10	0,03	1÷1,2	–	11T2..	122545	5607
S9002-9W-020-02-11	20	10	10,5	17,7	54	8	35	26°	2	–	15	0,05	1÷1,2	–	11T2..	122555PK	5608
S9002-9W-025-03-11	25	12	12,5	20,7	57	8	35	19,5°	3	–	17	0,07	1÷1,2	–			



W = FORO PER LIQUIDO REFRIGERANTE - COOLANT BORE - KÜHLMITTELBOHRUNG - TROU DU LIQUIDE D'ARROSAGE

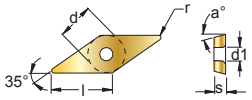
PAG. 1059

SAU QUALITY TOOLS ENGINEERING

SCELTA VELOCE - QUICK PICK

Tenacità / Toughness + -

Pag. 486



COD.	P F	P M	P R	M F	M M	M R	K F	K M	K R	N F	N M	N R	S F	S M	S R	H F	H M	H R	HT CERMET	HW NON RIV. CEMENTED CARBIDE GRADES T110	HC RIVESTITI COATED GRADES BESCHICHTET RECOUVERTS	l	d	s	d1	r	a°
VDKT 11T210 N .K57P										●	●	●								■		11	6,35	2,87	2,8	1	15

CON ADDUZIONE LUBROREFRIGERANTE - WITH COOLANT SUPPLY ●

SENZA ADDUZIONE LUBROREFRIGERANTE - WITHOUT COOLANT SUPPLY ○

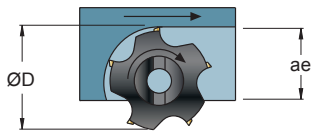
MATERIALI - MATERIALS Pag. 1119		VDI 3323 GR.	HB Rm[1] HRC[2]	fz0 mm F	fz0 mm M	fz0 mm R	Vc m/min Pag. 500 T110
P	ACCIAIO NON LEGATO - NOT ALLOY STEEL	1---5	125-300				
P	ACCIAIO POCO LEGATO - LOW ALLOY STEEL	6--9	180-350				
P	ACCIAIO ALTO LEGATO - ALLOY STEEL	10-11	200-325				
P	INOX MARTENS. - STAINLESS STEEL MART	12-13	200-240				
M	INOX AUST. DUPLEX - STAINLESS STEEL AUST	14.1-14.2	180-230				
K	GHISA GRIGIA - GREY CAST IRON	15-16	180-260				
K	GHISA SFEROIDALE - SPHEROIDAL GRAPHITE	17-18	160-250				
K	GHISA MALLEABILE - MALLEABLE CAST IRON	19-20	130-230				
N	ALLUMINIO E SUE LEGHE - ALUMINIUM	21---25	60-130	0,06	0,15	0,2	950
N	RAME E SUE LEGHE - COPPER	26--28	90-110	0,06	0,12	0,18	400
N	NON METALLICI - PLASTICS	29-30	/	0,06	0,12	0,18	300
S	LEGHE RESIST. CALORE - HIG. TEMP. ALLOY	31---35	200-320				
S	TITANIO E SUE LEGHE - TITANIUM	36-37	400-1050[1]				
H	ACCIAIO TEMPRATO - HARDENED STEEL	38--41	45-60[2]				

$$n = \frac{Vc \cdot 1000}{\varnothing D \cdot 3{,}14} = \text{giri/min (min}^{-1}\text{)}$$

$$fz = fz0 \cdot Kae = \text{mm}$$

$$fn = fz \cdot z = \text{mm}$$

$$Vf = fz \cdot z \cdot n = \text{mm/min}$$



ae/D	0,5-1 50-100%	0,2 20%	0,1 10%	0,05 5%	0,02 2%
Kae	1	1,1	1,2	1,3	1,5

ae/D	0,5-1 50-100%	0,2 20%	0,1 10%	0,05 5%
Vc Pag. 500	Vc (min)---------Vc(max)			

F = FINITURA , LAV. LEGGERA - FINISHING , LIGHT MACHINING
M = LAV. MEDIA , GENERICA - MEDIUM MACHINING , GENERIC
R = SGROSSATURA , LAV. PESANTE - ROUGHING , HEAVY MACHINING

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED
Kae = FATTORE DI CORREZIONE - CORRECTION FACTOR

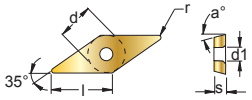
■ DISPONIBILI - IN STOCK - LIEFERBAR - DISPONIBLES / ■ NEW
●● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE
□ A RICHIESTA - ON REQUEST - AUF ANFRAGE - SUR DEMANDE / □ NEW
○○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

SAU QUALITY TOOLS ENGINEERING

SCELTA VELOCE - QUICK PICK

Tenacità / Toughness + -

Pag. 486



COD.	P F	P M	P R	M F	M M	M R	K F	K M	K R	N F	N M	N R	S F	S M	S R	H F	H M	H R	HT CERMET	HW NON RIV. CEMENTED CARBIDE GRADES T110	HC RIVESTITI COATED GRADES BESCHICHTET RECOUVERTS	l	d	s	d1	r	a°
VCKT 220530 .K57P										●	●	●								■		20,1	12,7	5,56	5,6	3,0	7

CON ADDUZIONE LUBROREFRIGERANTE - WITH COOLANT SUPPLY ●

SENZA ADDUZIONE LUBROREFRIGERANTE - WITHOUT COOLANT SUPPLY ○

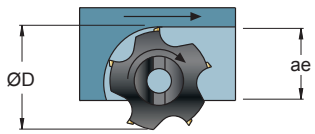
MATERIALI - MATERIALS Pag. 1119		VDI 3323 GR.	HB Rm[1] HRC[2]	fz0 mm F	fz0 mm M	fz0 mm R	Vc m/min Pag. 500 T110
P	ACCIAIO NON LEGATO - NOT ALLOY STEEL	1---5	125-300				
P	ACCIAIO POCO LEGATO - LOW ALLOY STEEL	6--9	180-350				
P	ACCIAIO ALTO LEGATO - ALLOY STEEL	10-11	200-325				
P	INOX MARTENS. - STAINLESS STEEL MART	12-13	200-240				
M	INOX AUST. DUPLEX - STAINLESS STEEL AUST	14.1-14.2	180-230				
K	GHISA GRIGIA - GREY CAST IRON	15-16	180-260				
K	GHISA SFEROIDALE - SPHEROIDAL GRAPHITE	17-18	160-250				
K	GHISA MALLEABILE - MALLEABLE CAST IRON	19-20	130-230				
N	ALLUMINIO E SUE LEGHE - ALUMINIUM	21---25	60-130	0,08	0,2	0,35	950
N	RAME E SUE LEGHE - COPPER	26--28	90-110	0,06	0,18	0,3	400
N	NON METALLICI - PLASTICS	29-30	/	0,06	0,18	0,3	300
S	LEGHE RESIST. CALORE - HIG. TEMP. ALLOY	31---35	200-320				
S	TITANIO E SUE LEGHE - TITANIUM	36-37	400-1050[1]				
H	ACCIAIO TEMPRATO - HARDENED STEEL	38--41	45-60[2]				

$$n = \frac{Vc \cdot 1000}{\O D \cdot 3{,}14} = \text{giri/min (min}^{-1}\text{)}$$

$$fz = fz0 \cdot Kae = \text{mm}$$

$$fn = fz \cdot z = \text{mm}$$

$$Vf = fz \cdot z \cdot n = \text{mm/min}$$



ae/D	0,5-1 50-100%	0,2 20%	0,1 10%	0,05 5%	0,02 2%
Kae	1	1,1	1,2	1,3	1,5

ae/D	0,5-1 50-100%	0,2 20%	0,1 10%	0,05 5%
Vc Pag. 500	Vc (min)---------Vc(max)			

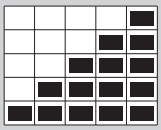
F = FINITURA , LAV. LEGGERA - FINISHING , LIGHT MACHINING
M = LAV. MEDIA , GENERICA - MEDIUM MACHINING , GENERIC
R = SGROSSATURA , LAV. PESANTE - ROUGHING , HEAVY MACHINING

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fz = mm AVANZAMENTO AL DENTE -TOOTH FEED
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED
Kae = FATTORE DI CORREZIONE - CORRECTION FACTOR

■ DISPONIBILI - IN STOCK - LIEFERBAR - DISPONIBLES / ■ NEW
●● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE
□ A RICHIESTA - ON REQUEST - AUF ANFRAGE - SUR DEMANDE / □ NEW
○○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

SCELTA VELOCE
QUICK PICK

Tenacità + / *Toughness* -



METODO PER LA SCELTA VELOCE DEL GRADO DI METALLO DURO PIÙ IDONEO. CONTARE IL NUMERO DI RETTANGOLI COLORATI

METHOD FOR A QUICK CHOICE OF THE MOST SUITABLE SOLID CARBIDE GRADE. COUNT THE NUMBER OF COLORED RECTANGLES

METHODE ZUR RASCHEN AUSWAHL DER GEEIGNETSTEN HARTMETALLSORTE. DIE ANZAHL DER BUNTEN RECH TECKEZAHLEN

METODE POUR CHOISIR RAPIDEMENT LE DEGRÉ LE PLUS APPROPRIÉ DU METAL DUR. COMPTER LES RECTANGLES EN COULEURS

METODO PARA LA ELECCION RAPIDA DE EL GRADO MAS ADECUADO DE METAL DURO. CONTAR LOS NUMEROS DE RECTANGULOS COLORAEDOS

- GRADO MOLTO RESISTENTE ALL'USURA, SOLO PER FINITURA, LAVORAZIONI AD ALTE VELOCITÀ DI TAGLIO E CONDIZIONI MOLTO RIGIDE E STABILI
- GRADE WITH HIGH RESISTANCE TO WEAR; ONLY FOR FINISHING, MACHINING AT HIGH CUTTING SPEEDS, AND VERY RIGID AND STABLE CONDITIONS

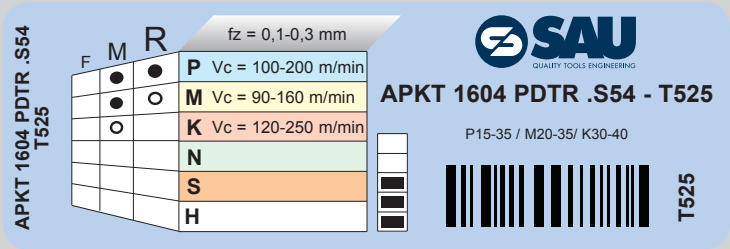
- GRADO CON ALTA RESISTENZA ALL'USURA, DISCRETA TENACITÀ PER LAVORAZIONI A VELOCITÀ MEDIO ALTE ED AVANZAMENTI MEDI, IN CONDIZIONI NORMALI
- GRADE WITH HIGH RESISTANCE TO WEAR, GOOD TOUGHNESS, FOR MEDIUM-HIGH MACHINING AND MEDIUM FEED UNDER NORMAL CONDITIONS

- GRADO CON BUONA RESISTENZA ALL'USURA UNITA A BUONA TENACITÀ, PER LAVORAZIONI GENERICHE IN CONDIZIONI NORMALI
- GRADE WITH GOOD RESISTANCE TO WEAR; COMBINED WITH A GOOD DEGREE OF TOUGHNESS, FOR GENERAL MACHINING UNDER NORMAL CONDITIONS

- GRADO CON OTTIMA TENACITÀ PER LAVORAZIONI MEDIO PESANTI O IN CONDIZIONI POCO STABILI
- GRADE WITH EXCELLENTE TOUGHNESS, FOR MEDIUM HEAVY MACHINING OR MACHINING UNDER CONDITIONS OF LOW STABILITY

- GRADO CON ECCEZIONALE TENACITÀ PER LAVORAZIONI PESANTI CON BASSE VELOCITÀ DI TAGLIO, ALTI AVANZAMENTI O IN CONDIZIONI SFAVOREVOLI
- GRADE WITH EXCELLENTE TOUGHNESS, FOR HEAVY MACHINING WITH LOW CUTTING SPEEDS, HIGH FEED, OR UNDER UNFAVORABLE CONDITIONS

GUIDA FACILE
EASY GUIDE



GUIDA ALL'USO DELL'INSERTO. PRESENTE ANCHE SU OGNI ETICHETTA

GUIDE FOR THE USE OF THE INSERT. ALSO LISTED ON EACH LABEL

LEITFADEN ZUR VERWENDUNG DER WENDEPLATTE, AUCH AUF JEDEM AUFKLEBER VORHANDEN

INSTRUCTIONS POUR L'UTILISATION DE LA PLAQUETTE.SE TROUVANT EGALEMENT SUR CHAQUE ETIQUETTE

GUIA POR EL UTILIZO DE LA PLAQUITA, PRESENTE TAMBIEN EN CADA ETIQUETA

GR. VDI 3323	6	P	= ACCIAIO BASSO LEGATO HB 180	- LOW STEEL ALLOY
	14.1	M	= ACCIAIO INOSSIDABILE AUSTENITICO HB 180	- AUSTENITIC STAINLESS STEELHB 180
	16	K	= GHISA GRIGIA HB 260	- GRAY CAST IRON HB 260
MATERIALI MATERIALS	21	N	= LEGHE DI ALLUMINIO HB 60	- ALUMINUM ALLOYS HB 60
	33	S	= LEGHE RESISTENTI AL CALORE (INCONEL) HB 250	- HEAT RESISTANT ALLOYS (INCONEL) HB 250
Pag. 1119	38	H	= ACCIAIO TEMPRATO HRC 55	- TEMPERED STEEL HRC 55

F	= FINITURA, LAVORAZIONI LEGGERE	- FINISHING, LIGHT MACHINING
M	= LAVORAZIONI MEDIE, IMPIEGO GENERICO	- MEDIUM MACHINING, GENERAL USE
R	= SGROSSATURA, LAVORAZIONI PESANTI	- ROUGHING, HEAVY MACHINING

fn (mm)	= AVANZAMENTO PER TORNITURA	- FEED FOR TOURNING
fz (mm/z)	= AVANZAMENTO PER FRESATURA	- FEED FOR MILLING
Vc (m/min)	= VELOCITÀ DI TAGLIO	- CUTTING SPEED
●	= APPLICAZIONE CONSIGLIATA	- RECOMMENDED APPLICATION
○	= APPLICAZIONE POSSIBILE	- POSSIBLE APPLICATION

INSERTI PER FRESATURA

MILLING INSERTS / WENDEPLATTEN ZUM FRÄSEN
PLAQUÉTTES DE FRAISAGE / PLAQUITAS DE FRESADO

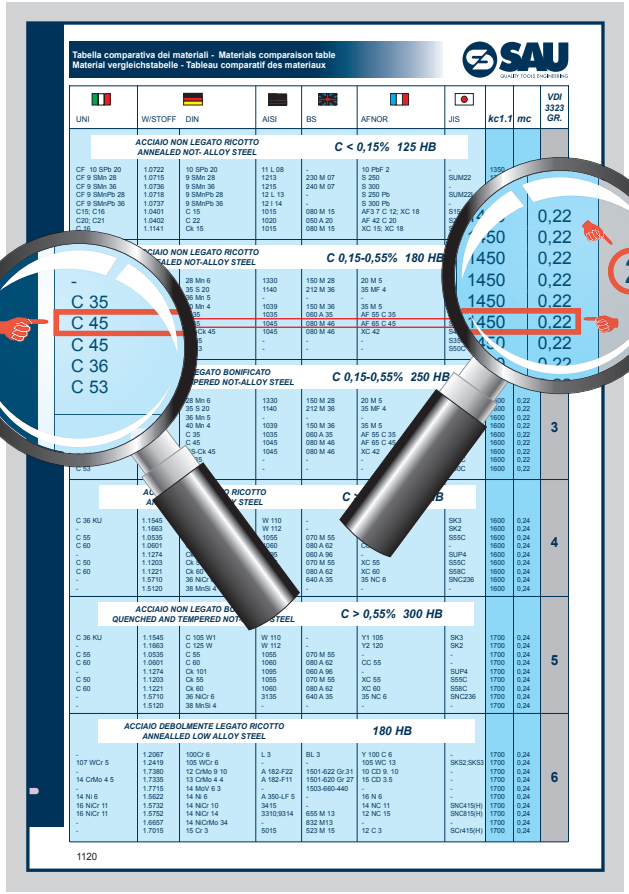
SAU
QUALITY TOOLS ENGINEERING

SAU
QUALITY TOOLS ENGINEERING

INSERTI PER FRESATURA
MILLING INSERTS
WENDEPLATTEN ZUM FRÄSEN
PLAQUÉTTES DE FRAISAGE
PLAQUITAS DE FRESADO

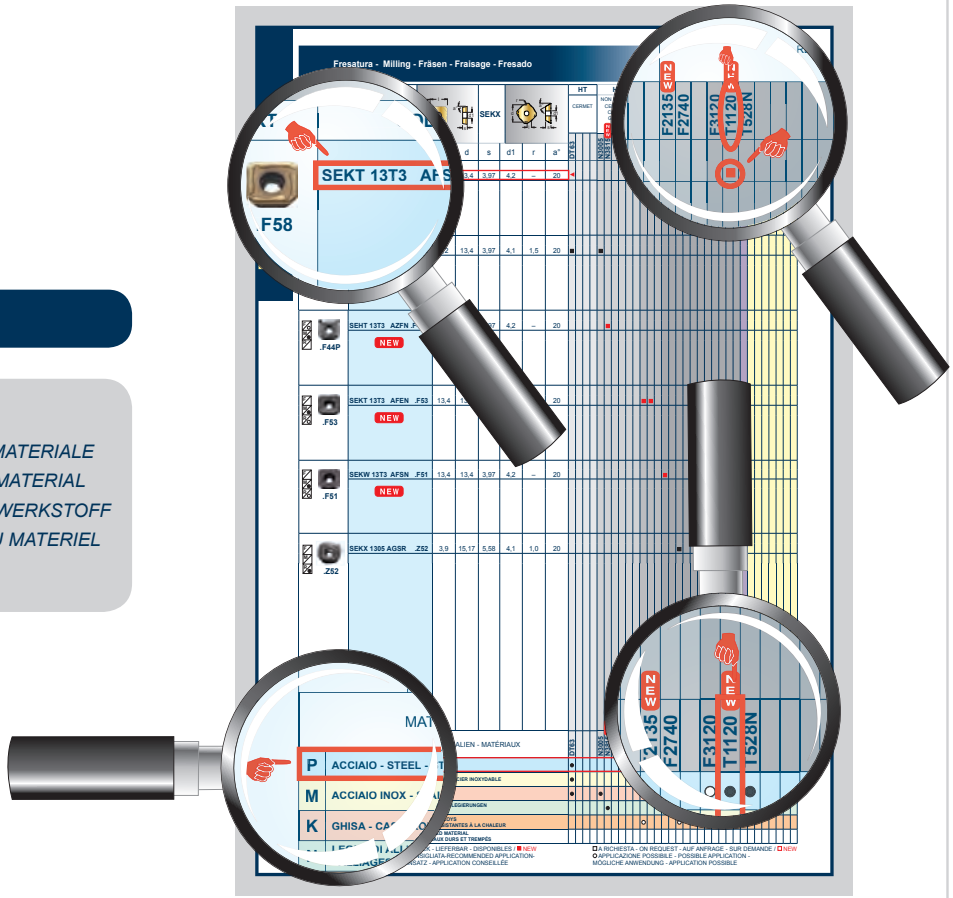
FASE 1 - PHASE 1

SCELTA GR. VDI IN FUNZIONE DEL MATERIALE
CHOICE OF VDI GR. DEPENDING ON MATERIAL
WAHL VDI-SORTE JE NACH WERKSTOFF
CHOIX GR. VDI EN FONCTION DU MATERIEL



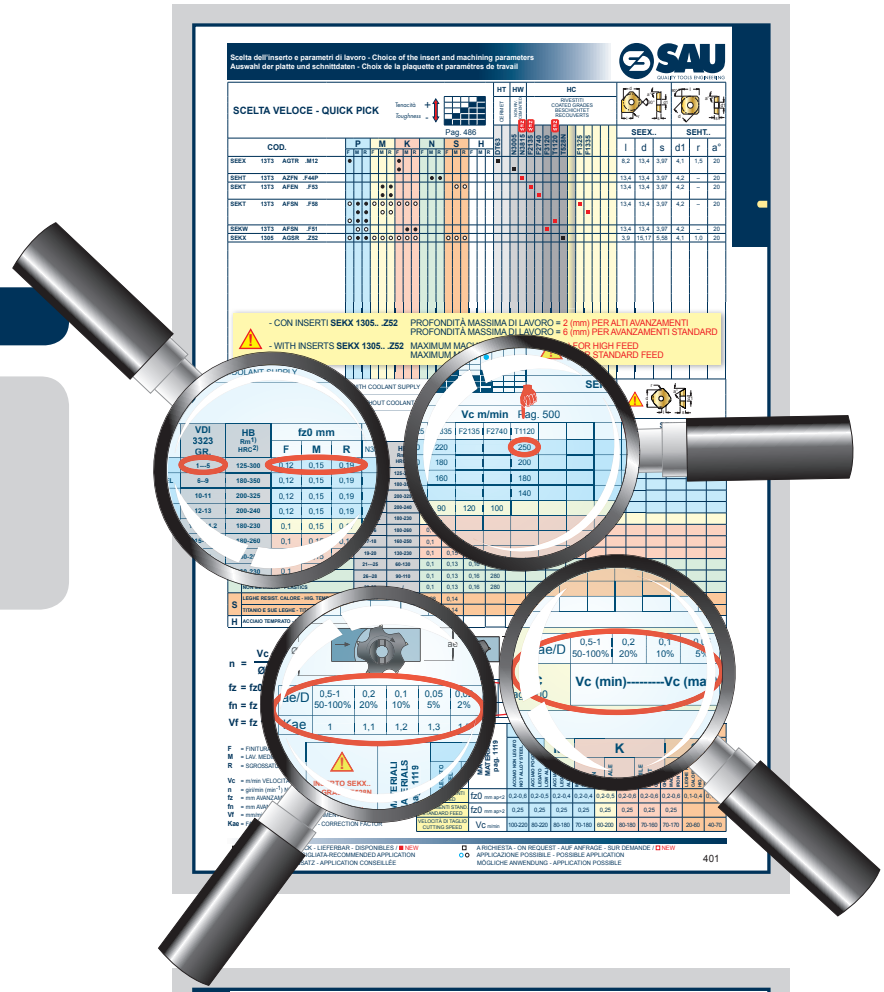
FASE 2 - PHASE 2

SCELTA INSERTO IN FUNZIONE DEL MATERIALE
CHOICE OF INSERT DEPENDING ON MATERIAL
WAHL DER WENDEPLATTE JE NACH WERKSTOFF
CHOIX PLAQUETTE EN FONCTION DU MATERIEL



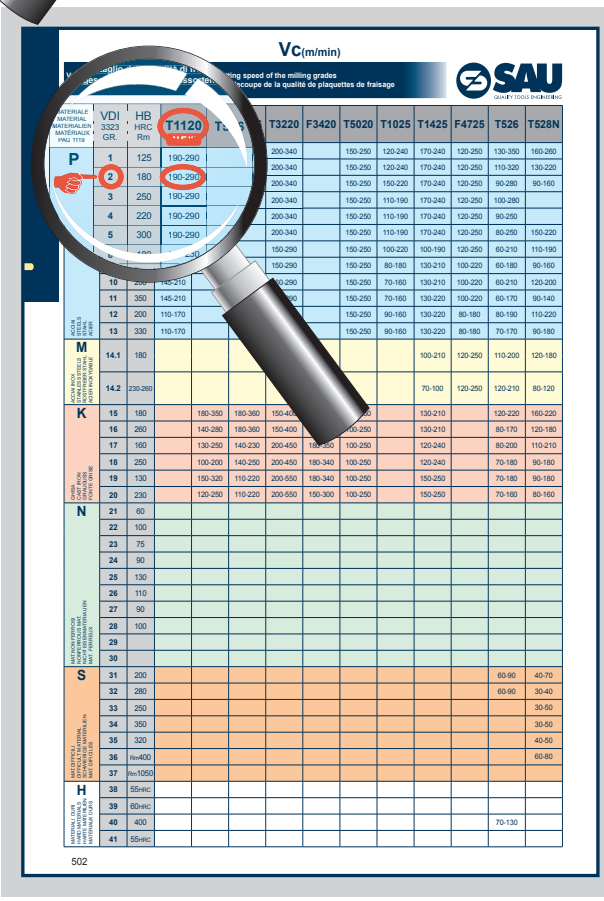
FASE 3 - *PHASE 3*

SCELTA VELOCE DEI PARAMETRI
QUICK CHOICE OF PARAMETERS
SCHNELLWAHL DER PARAMETER
TRIAGE RAPIDE DES PARAMÈTRES



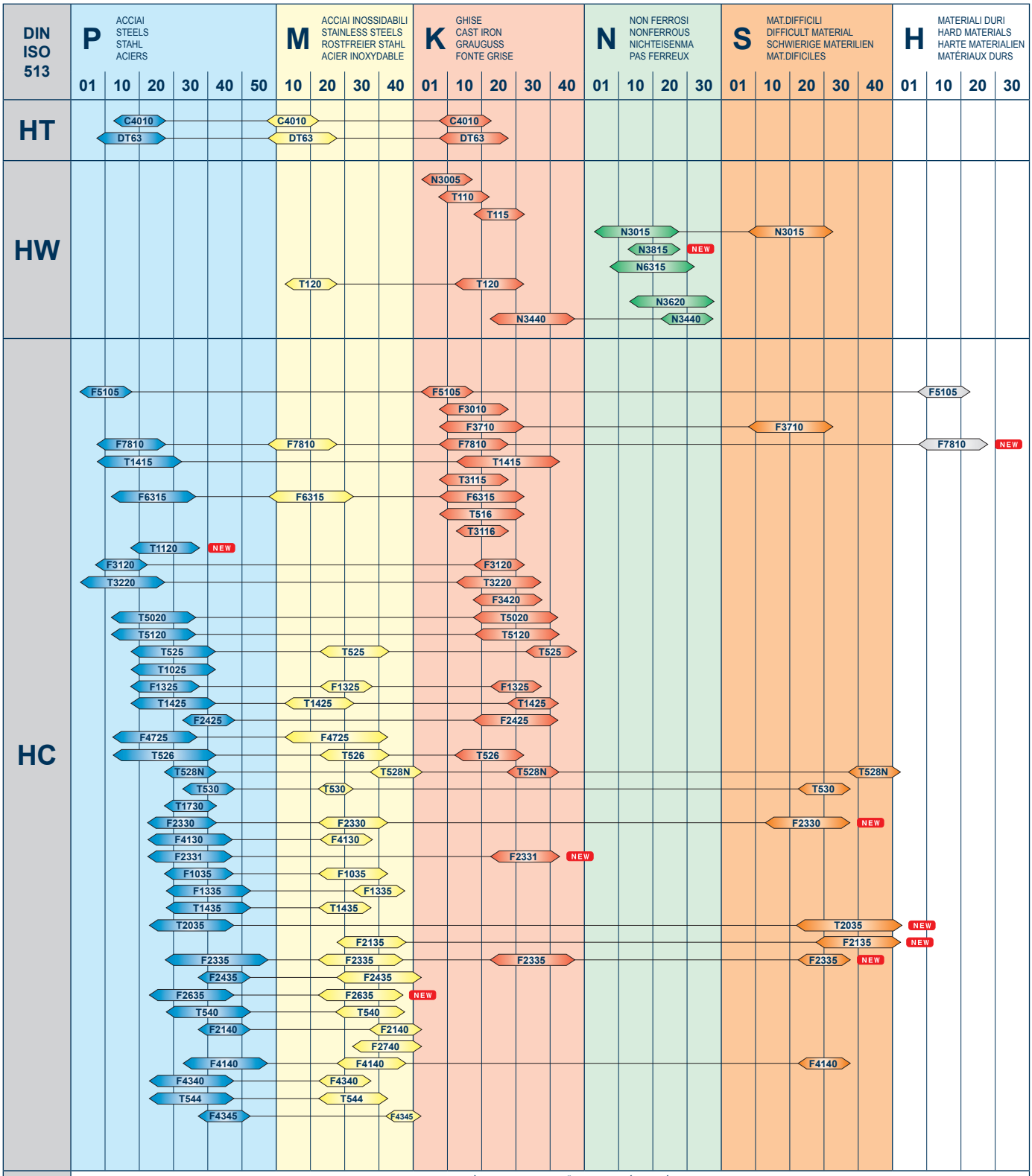
FASE 4 - *PHASE 4*

SCELTA DI VC IN FUNZIONE DEL GR. VDI
CHOICE OF VC DEPENDING ON VDI GR.
WAHL VC JE NACH WERKSTOFF
CHOIX DE VC EN FONCTION DU GR. VDI



SAU
QUALITY TOOLS ENGINEERING

PANORAMICA QUALITÀ DI FRESATURA
GENERAL VIEW OF THE MILLING GRADE
FRÄSSORTEN-ÜBERSICHT
VUE D' ENSEMBLE QUALITÉ DE FRAISAGE
VISTA GENERAL DE LA CALIDAD DE FRESADO



HT CERMET

HW METALLO DURO NON RICOPERTO
UNCOATED CARBIDE
UNBESCHICHTETES HARTMETALL
MÉTAL DUR PAS RECOUVERT

HC METALLO DURO RICOPERTO
COATED CARBIDE
BESCHICHTETES HARTMETALL
MÉTAL DUR RECOUVERT

SAU QUALITY TOOLS ENGINEERING

SAU	DIN ISO 513		MATERIALE - MATERIAL MATERIALIEN - MATÉRIAUX PAG. 1119						QUICK PICK PAG. 486 Tenacità / Toughness + -			INDICAZIONI - USO
			P	M	K	N	S	H				
			ACCIAI STEELS STAHL ACIER	ACCIAI INOX STAINLESS STEELS ROSTFREIER STAHL ACIER INOXYDABLE	GHISA CAST IRON GRAUGUSS FONTE GRISE	MAT.NON FERROSI NONFERROUS MAT. NICHTEISENMATERIALIEN MAT. FERREUX	MAT.DIFFICILI DIFFICULT MATERIAL SCHWERIGE MATERILIEN MAT. DIFICILES	MATERIALI DURI HARD MATERIALS HARTE MATERIALIEN MATERIAUX DURS				
C4010	HT	P10-20 M05-15 K05-15	○	●	○					○	●	- QUALITÀ UNIVERSALE - ALTA RESISTENZA AL CALORE E ALL'USURA, BUONA TENACITÀ - INDICATO PER LE ALTE VELOCITÀ DI TAGLIO
DT63	HT	P05-20 M05-20 K05-20	●	●	●					○	●	- QUALITÀ MICROGRANO MOLTO RESISTENTE ALLA ROTTURA ED ALL'USURA - INDICATO PER MEDIO-ALTE VELOCITÀ DI TAGLIO IN FINITURA.
N3005	HW	K01-10			●					○	●	-QUALITÀ ADATTA ALLA LAVORAZIONE DELLE GHISE IN GENERE -INDICATO PER LAVORAZIONI DI FINITURA A TAGLIO CONTINUO
N3015	HW	N01-20 S05-25				●	○			○	●	- QUALITÀ ADATTA ALLA LAVORAZIONE DI LEGHE IN ALLUMINIO
N3815 NEW	HW	N10-20				●				●	○	- GRADO LUCIDATO NON RIVESTITO SPECIFICO PER LA LAVORAZIONE DELL' ALLUMINIO E DEI MATERIALI NON FERROSI
N6315	HW	N05-25				●				○	●	- QUALITÀ PER LA LAVORAZIONE DI MATERIALI NON FERROSI
N3620	HW	N10-30				●				●	○	- SUBSTRATO IN NANOSTRUTTURA NON RIVESTITO. - INDICATO PER LAVORAZIONI CON SEZIONE DEL TRUCIOLO MEDIO, CON CONDIZIONI DI TAGLIO STABILE.
N3440	HW	K20-40 N20-30			●	●					●	- QUALITÀ UNIVERSALE PER GHISA E MATERIALI NON FERROSI - OTTIME PRESTAZIONI A UMIDO
T110	HW	K05-15			○	●				○	●	- QUALITÀ MICROGRANO CON ALTA RESISTENZA ALL' USURA E OTTIMA STABILITÀ DEI TAGLIENTI - INDICATO PER MEDIE VELOCITÀ DI TAGLIO SU GHISA GRIGIA E ALTE PER MATERIALI NON FERROSI. PER ASPORTAZIONI MEDIE IN SGROSSATURA
T115	HW	K10-25			●	●				○	●	- QUALITÀ MICROGRANO CON ALTA RESISTENZA ALL' USURA E BUONA TENACITÀ - INDICATO PER MEDIO-BASSE VELOCITÀ DI TAGLIO SU GHISA GRIGIA E MEDIO-ALTE PER MATERIALI NON FERROSI. PER ASPOR-TAZIONI MEDIE IN SGROSSATURA
T120	HW	M10-20 K10-25		○	●	●	○			●	●	- QUALITÀ MICROGRANO CON ELEVATA RESISTENZA ALL' USURA E BUONA TENACITÀ - INDICATO PER MEDIO-BASSE VELOCITÀ DI TAGLIO SU ACCIAI INOSSIDABILI AUSTENITICI E MEDIE PER GHISE GRIGIE E MATERIALI NON FERROSI. PER ASPORTAZIONI MEDIE IN SGROSSATURA
F7810 NEW	HC / PVD	P05-20 M05-20 K05-20 H05-20	●	○	●			●		●	○	- RIVESTIMENTO IN PVD PER LA LAVORAZIONE DI ACCIAI CON GAMMA MAX. 58 HRC - QUALITÀ MICROGRANO STANDARD CON RIVESTIMENTO IN PVD MICROCRISTALLINO RESISTENTE ALL'USURA.
F3120	HC / PVD	P05-15 K15-25	○		●					●	○	- RIVESTIMENTO SPESSO INDICATO ALLA LAVORAZIONE DI GHISE ANCHE IN CONDIZIONE DI LUNGHE SPORGENZE. - BUONA LAVORABILITÀ DI ACCIAI DURI.
F2425	HC / PVD	P30-40 M15-35	○	●						○	●	- SUBSTRATO DI CARBURO APPOSITAMENTE SVILUPPATO, RIVESTIMENTO IN PVD INNOVATIVO. - QUALITÀ CON UN'ECCELLENTE ROBUSTEZZA SENZA PREGIUDICARE LA DUREZZA A CALDO E LA RESISTENZA ALL'USURA SIA A BASSE CHE AD ALTE VELOCITÀ DI TAGLIO

● APPLICAZIONE CONSIGLIATA
RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ
APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE
POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG
APPLICATION POSSIBLE

● APPLICAZIONE CONSIGLIATA
RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ
APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE
POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG
APPLICATION POSSIBLE

INDICATIONS - USE	GEBRAUCHSANWEISUNGEN	INDICATION - USAGE
- UNIVERSAL GRADE - HIGH HEAT AND WEAR RESISTANCE, GOOD TOUGHNESS - SUITABLE FOR HIGH CUTTING SPEEDS	- UNIVERSALSORTE - HOHE HITZE- UND VERSCHLEIßBESTÄNDIGKEIT, GUTE ZÄHIGKEIT - FÜR HOHE SCHNITTGESCHWINDIGKEITEN GEEIGNET	- QUALITE UNIVERSELLE - HAUTE RESISTANCE A LA CHALEUR ET A L'USURE, BONNE TENACITE - INDIQUE POUR LES HAUTES VITESSES DE COUPE
-MICROGRAIN GRADE WITH VERY HIGH ULTIMATE STRENGHT AND RESISTANCE TO WEAR -SUITABLE FOR MEDIUM-HIGH CUTTING SPEEDS FOR FINISHING	-MIKROKORNSORTE MIT SEHR HOHER BRUCH – UND VERSCHLEISSFESTIGKEIT -FÜR HOHE SCHNITTGESCHWINDIGKEITEN BEIM SCHLICHTEN GEEIGNET	-QUALITÈ DE MICROGRAIN TRÉS RÉSISTANT À LA RUPTURE ET À L'USURE -INDIQUÉE POUR HAUTE VITESSE DE COUPE EN FINISSAGE
- GRADE SUITABLE FOR CAST IRON IN GENERAL - SUITABLE FOR FINISHING WITH CONTINUOUS CUT	- ALLGEMEINE SORTE ZUR GUSSBEARBEITUNG - ZUM SCHLICHTEN MIT UNUNTERBROCHENEM SCHNITT GEEIGNET	- QUALITÉ INDIQUÉ POUR USINAGE DE LA FONTE EN GENERAL - INDIQUÉE POUR FINISSAGE À COUPE CONTINU
- GRADE SUITABLE FOR ALUMINUM ALLOYS	- SORTE FÜR ALUMINIUMLEGIERUNGEN GEEIGNET	- QUALITÉ INDIQUÉE POUR L'USINAGE DES ALLIAGE D'ALLUMINIUM
- POLISHED UNCOATED GRADE, SPECIALLY DEVELOPED FOR ALUMINIUM AND NON-FERROUS MATERIALS	- UNBESCHICHTETE SORTE, POLIERT UND SPEZIFISCH FÜR ALUMINIUM UND NICHT-EISERNE MATERIALIEN	- NUANCE POLIE NON REVETUE SPECIFIQUE POUR L'USINAGE DE L'ALUMINIUM ET DES MATERIAUX NON FERREUX
- DEGREE FOR NON-FERROUS MATERIALS	- SORTE FÜR NICHTEISENMATERIALIEN	- QUALITÉ POUR L'USINAGE DE MATERIAUX NON FERREUX
- UNCOATED NANOSTRUCTURE SUBSTRATE. - SUITABLE FOR MEDIUM SECTION CHIP MACHINING, UNDER STABLE CUTTING CONDITIONS.	- UNBESCHICHTETES NANOSTRUKTURIERTES SUBSTRAT. - FÜR BEARBEITUNGEN MIT MITTLEREM SPANQUERSCHNITT, UNTER STABILEN SCHNITTBEDINGUNGEN GEEIGNET.	- SUBSTRAT EN NANOSTRUCTURE NON REVETU. - INDIQUE POUR DES USINAGES AVEC SECTION DU COPEAU MOYENNE, AVEC DES CONDITIONS DE COUPE STABLE.
- ALL-PURPOSE QUALITY FOR CAST IRON AND NON-FERROUS MATERIALS - EXCELLENT WET PERFORMANCE	- UNIVERSALE QUALITÄT FÜR GUSS UND NICHTEISENMATERIALIEN - AUSGEZEICHNETE NASSLEISTUNGEN	- QUALITÉ UNIVERSELLE POUR FONTE ET MATÉRIAUX NON FERREUX - PERFORMANCES EXCEPTIONNELLES À L'EAU
-MICROGRAIN GRADE WITH HIGH RESISTANCE TO WEAR AND EXCELLENT STABILITY OF THE CUTTING EDGES -SUITABLE FOR MEDIUM CUTTING SPEEDS ON GRAY IRON AND HIGH CUTTING SPEEDS ON NONFERROUS MATERIALS, FOR ROUGHING WITH MEDIUM REMOVAL OF MATERIAL.	-MIKROKORNSORTE MIT HOHER VERSCHLEISSFESTIGKEIT UND AUSGEZEICHNETER STABILITÄT DER SCHNEIDEN -FÜR MITTLERE SCHNITTGESCHWINDIGKEITEN BEI GRAUGUSS UND FÜR HOHE SCHNITTGESCHWINDIGKEITEN BEI NE- MATERIALIEN FÜR MITTLERE ZERSPANUNG BEIM SCHRUPPEN GEEIGNET.	-QUALITÉ DE MICROGRAIN AVEC HAUTE RÉSISTANCE À L'USURE ET TRES BONNE STABILITÉ DE LES COUPANTS. -INDIQUÉE POUR MOYENNE VITESSE DE COUPE SUR FONTE GRISE ET HAUTE SUR MATERIAL NON FERROUX, POUR MOYEN EMPORTATION EN ÉBAUCHAGE
-MICROGRAIN GRADE WITH HIGH RESISTANCE TO WEAR AND GOOD TOUGHNESS -SUITABLE FOR MEDIUM – LOW CUTTING SPEEDS ON AUSTENITIC STAINLESS STEEL AND MEDIUM-HIGH CUTTING SPEEDS FOR GRAY IRON AND NONFERROUS MATERIALS, FOR ROUGHING WITH MEDIUM REMOVAL OF MATERIAL.	-MIKROKORNSORTE MIT HOHER VERSCHLEISSFESTIGKEIT UND GUTER ZÄHIGKEIT -FÜR MITTEL-NIEDRIGE SCHNITTGESCHWINDIGKEITEN BEI GRAUGUSS UND FÜR MITTEL-HOHE SCHNITTGESCHWINDIGKEITEN BEI NE-MATERIALIEN FÜR MITTLERE ZERSPANUNG BEIM SCHRUPPEN GEEIGNET	-QUALITÉ DE MICROGRAIN AVEC HAUTE RÉSISTANCE À L'USURE ET BONNE TENACITÉ -INDIQUÉE POUR MOYENNE – FAIBLE VITESSE DE COUPE SUR ACIER INOX AUSTÉNITIQUE, MOYENNE-HAUTE POUR FONTE GRISE ET MATERIAL NON FERROUX, POUR MOYEN EMPORTATION EN ÉBAUCHAGE
- MICROGRAIN GRADE WITH HIGH RESISTANCE TO WEAR AND GOOD TOUGHNESS -SUITABLE FOR MEDIUM – LOW CUTTING SPEEDS ON AUSTENITIC STAINLESS STEEL AND MEDIUM CUTTING SPEEDS FOR GRAY IRON AND NONFERROUS MATERIALS, FOR ROUGHING WITH MEDIUM REMOVAL OF MATERIAL.	-MIKROKORNSORTE MIT SEHR HOHER BRUCH UND GUTE ZÄHIGKEIT -SUITABLE FOR MEDIUM – LOW CUTTING SPEEDS ON AUSTENITIC STAINLESS STEEL AND MEDIUM CUTTING SPEEDS FOR GRAY IRON AND NONFERROUS MATERIALS, FOR ROUGHING WITH MEDIUM REMOVAL OF MATERIAL.	-QUALITÉ DE MICROGRAIN AVEC HAUTE RÉSISTANCE À L'USURE ET BONNE TÉNANCITE -QUALITÉ DE MICROGRAIN AVEC HAUTE RÉSISTANCE À L'USURE ET BONNE TÉNANCITÉ
- PVD COATING FOR STEEL WITH MAX. 58 HRC - STANDAD MICROGRAIN GRADE WITH WEAR-RESISTANT MICROCRYSTALLINE PVD COATING	- PVD-BESCHICHTUNG FÜR STAHL MIT MAX. 58 HRC - STANDARD-FEINSTKORN-SORTE MIT VERSCHLEISSFESTER MIKROKRISTALLINER PVD-BESCHICHTUNG	- REVETEMENT EN PVD POUR L'USINAGE D'ACIERS AVEC GAMME MAX. 58 HRC - QUALITE MICROGRAIN STANDARD AVEC REVETEMENT EN PVD MICROCRISTALLIN RESISTANT A L'USURE.
- THIS COATING IS FREQUENTLY USED FOR CAST IRON MACHINING, ALSO WITH LONG PROJECTIONS. - GOOD MACHINABILITY OF HARD STEEL.	- BESCHICHTUNG, DIE HÄUFIG ZUR BEARBEITUNG VON GUSS, AUCH MIT GROSSEM ÜBERSTAND, VERWENDET WIRD. - GUTE BEARBEITBARKEIT VON HARTSTÄHLEN.	- REVÊTEMENT ÉPAIS S'ADAPTANT SOUVENT À L'USINAGE DE FONTES MÊME DANS LE CAS DE LONGUES SAILLIES. - BONNE MANIABILITÉ D'ACIERS DURS.
- SPECIALLY DEVELOPED CARBIDE SUBSTRATE, INNOVATIVE PVD COATING - GRADE WITH EXCELLENT TOUGHNESS WHICH DOES NOT AFFECT RED HARDNESS AND WEAR RESISTANCE, AT BOTH LOW AND HIGH CUTTING SPEEDS	- SPEZIELL ENTWICKELTES KARBIDSUBSTRAT, INNOVATIVE PVD-BESCHICHTUNG. - SORTE MIT HERVORRAGENDER ROBUSTHEIT BEI UNVERÄNDERTER WARMHÄRTE UND VERSCHLEISSBESTÄNDIGKEIT SOWOHL MIT NIEDRIGEN ALS AUCH MIT HOHEN SCHNITTGESCHWINDIGKEITEN	- SUBSTRAT DE CARBURE SPÉCIALEMENT DÉVELOPPÉ, REVÊTEMENT EN PVD INNOVANT. - QUALITÉ AVEC UNE ROBUSTESSE EXCELLENTE SANS PORTER PRÉJUDICE À LA DURETÉ À CHAUD ET À LA RÉSISTANCE À L'USURE À BASSES VITESSES COMME À HAUTES VITESSES DE COUPE

HT CERMET

HW METALLO DURO NON RICOPERTO
UNCOATED CARBIDE
UNBESCHICHTETES HARTMETALL
MÉTAL DUR PAS RECOUVERT

HC METALLO DURO RICOPERTO
COATED CARBIDE
BESCHICHTETES HARTMETALL
MÉTAL DUR RECOUVERT

SAU QUALITY TOOLS ENGINEERING

SAU	DIN ISO 513		MATERIALE - MATERIAL MATERIALIEN - MATÉRIAUX PAG. 1119						QUICK PICK PAG. 486			INDICAZIONI - USO
			P	M	K	N	S	H	Tenacità / Toughness + -			
			ACCIAI STEELS STAHL ACIER	ACCIAI INOX STAINLESS STEELS ROSTFREIER STAHL ACIER INOXYDABLE	GHISA CAST IROIN GRAUGUSS FONTE GRISE	MAT.NON FERROSI NONFERROUS MAT. NICHTEISENMATERIALIEN MAT. FERREUX	MAT.DIFFICILI DIFFICULT MATERIAL SCHWERIGE MATERILIEN MAT. DIFICILES	MATERIALI DURI HARD MATERIALS HARTE MATERIALIEN MATERIAUX DURS				
T2035 NEW	HC / CVD	M20-40 S20-45		●			●			○	●	- PARTICOLARMENTE IDONEO PER LA LAVORAZIONE DI ACCIAI RESISTENTI AL CALORE E LEGHE A BASE DI FERRO
F2135 NEW	HC / PVD	M25-40 S25-40		●			○			●	○	- RIVESTIMENTO IN PVD A GRANA FINE, RESISTENTE ALL'USURA - ADATTO PER LAVORAZIONI DI ACCIAIO INOX
F2435	HC / PVD	P35-45 M25-45	○	●						●	○	- SUBSTRATO DI CARBURO APPOSITAMENTE SVILUPPATO - RIVESTIMENTO IN PVD INNOVATIVO, FORNISCE UN'ECCELLENTE ROBUSTEZZA E OTTIMA TENACITÀ SENZA PREGIUDICARE LA DUREZZA A CALDO SIA A BASSE CHE AD ALTE VELOCITÀ DI TAGLIO
F2635 NEW	HC / PVD	P20-40 M20-40	○	●						●	●	- IDEALE PER LE LAVORAZIONI SU ACCIAIO INOX
F2140	HC / PVD	P35-45 M35-45	○	●			○			●	●	- CON LA SUA STRUTTURA TENACE IN MICROGRANO È INDICATO ALLA LAVORAZIONE DI ACCIAI AUSTENICI. - OTTIMO COMPORTAMENTO ANCHE AD ALTE VELOCITÀ DI TAGLIO DOVE SI CONSIGLIA LA LAVORAZIONE A SECCO.
F2740	HC / PVD	M30-45		●						●		- GRADO IN MICROGRANO MOLTO TENACE, PERFORMANTE IN LAVORAZIONI DI SGROSSATURA A TAGLIO INTERROTTO. - INDICATO PER LA LAVORAZIONE DI ACCIAI INOSSIDABILI AUSTENITICI. - INDICATO PER LAVORAZIONI A UMIDO ANCHE MQL.
F5105	HC / PVD	P01-10 K01-10 H05-15	●	○	○			●		●	●	- SUBSTRATO IN MICROGRANO CON RIVESTIMENTO MULTISTRATO TiAlSin. - INDICATO IN CONDIZIONI DI TAGLIO STABILE PER LAVORAZIONI MEDIE E DI FINITURA.
F3710	HC / PVD	K05-25 S05-25			●		○			○	●	- ALTA RESISTENZA ALL' USURA E BUONA TENACITÀ - INDICATO PER MEDIO-ALTE VELOCITÀ DI TAGLIO IN FINITURA E SGROSSATURA PREVALENTEMENTE SU GHISA GRIGIA
T1415	HC / CVD	P05-25 K10-35	●		○					○	●	- GRADO INSERTO IDEALE PER LA PRODUZIONE AD ALTO VOLUME - BUONA RESISTENZA AL CALORE CHE LO RENDE PERFETTAMENTE ADATTO PER LA LAVORAZIONE A SECCO ANCHE AD ALTE VELOCITÀ DI TAGLIO
T3115	HC / CVD	K05-20			●					○	●	- ALTA RESISTENZA ALL' USURA E BUONA TENACITA' - INDICATO PER MEDIO-ALTE VELOCITA' DI TAGLIO IN FINITURA E SGROSSATURA PREVALENTEMENTE SU GHISA
T516	HC / CVD	K05-25			●					○	●	- ALTA RESISTENZA ALL' USURA E BUONA TENACITÀ - INDICATO PER MEDIO-ALTE VELOCITÀ DI TAGLIO IN FINITURA E SGROSSATURA PREVALENTEMENTE SU GHISA GRIGIA
T3116	HC / CVD	K10-20			●					●	○	- MATERIE PRIME SELEZIONATE, PER GARANTIRE UN SUBSTRATO DURO E RESISTENTE ALL'USURA. - RIVESTIMENTO MULTISTRATO, LE MIGLIORI PRESTAZIONI SI OTTENGONO LAVORANDO A SECCO.
T1120 NEW	HC / CVD	P15-30	●							●	○	- ALTA RESISTENZA ALL'USURA, ADATTO PER LAVORAZIONI DI SPIANATURA IN CONDIZIONI STABILI
T3220	HC / CVD	P01-20 K10-30	○		●					○	●	- GRADO DA TORNITURA PER LA LAVORAZIONE DELLA GHIA GRIGIA E SFEROIDALE

● APPLICAZIONE CONSIGLIATA
RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ
APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE
POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG
APPLICATION POSSIBLE

● APPLICAZIONE CONSIGLIATA
RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ
APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE
POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG
APPLICATION POSSIBLE

SAU QUALITY TOOLS ENGINEERING

INDICATIONS - USE	GEBRAUCHSANWEISUNGEN	INDICATION - USAGE
- SPECIALLY SUITED FOR HEAT RESISTANT STEELS AND IRON-BASED ALLOYS	- BESONDERS GEEIGNET FÜR HITZEBESTÄNDIGE STÄHLE UND EISENBASIERTE LEGIERUNGEN	- PARTICULIEREMENT INDIQUE POUR L'USINAGE D'ACIERS RESISTANTS A LA CHALEUR ET AUX ALLIAGES A BASE DE FER
- FINE-GRAIN PVD COATING, RESISTANT TO WEAR - SUITABLE FOR MACHINING STAINLESS STEEL	- FEINKORN-PVD-BESCHICHTUNG , VERSCHLEISSFEST - FÜR DIE BEARBEITUNG VON INOX-STAHL GEEIGNET	- REVETEMENT EN PVD A GRAIN FIN, RESISTANT A L'USURE - PREVU POUR LES USINAGES D'ACIER INOX
- SPECIALLY DEVELOPED CARBIDE SUBSTRATE - INNOVATIVE PVD COATING PROVIDING EXCELLENT STRENGTH AND VERY GOOD TOUGHNESS WITHOUT AFFECTING RED HARDNESS AT BOTH LOW AND HIGH CUTTING SPEED	- SPEZIELL ENTWICKELTES KARBID-SUBSTRAT - INNOVATIVE PVD-BESCHICHTUNG FÜR EXCELLENTE ROBUSTHEIT UND OPTIMALE ZÄHIGKEIT OHNE BEEINTRÄCHTIGUNG DER WARMHÄRTE BEI SOWOHL HOHEN ALS AUCH NIEDRIGEN SCHNITTGESCHWINDIGKEITEN	- SUBSTRAT DE CARBURE SPECIALEMENT DEVELOPPE - REVETEMENT EN PVD INNOVANT, FOURNIT UNE ROBUSTESSE ET TENACITE EXCELLENTES, SANS POUR AUTANT PORTER PREJUDICE A LA DURETE A CHAUD A DE BASSES COMME A DE HAUTES VITESSES DE COUPE.
- IDEAL SOLUTION FOR STAINLESS STEEL APPLICATIONS	- IDEALE LÖSUNG FÜR INOX-STAHL-ANWENDUNGEN	- PREVU POUR LES USINAGES SUR ACIER INOX
- WITH ITS MICRO GRAIN STRUCTURE IT IS SUITABLE FOR AUSTENITIC STEEL. - EXCELLENT PERFORMANCE ALSO WITH HIGH CUTTING SPEED, WHERE DRY MACHINING IS RECOMMENDED.	- DANK DER ZÄHEN MIKROKORN-STRUKTUR AUCH ZUR BEARBEITUNG VON AUSTENITISCHEN STÄHLEN GEEIGNET. - SEHR GUTES VERHALTEN AUCH BEI HOHEN SCHNITTGESCHWINDIGKEITEN, WO DIE TROCKENBEARBEITUNG EMPFOHLEN IST.	- SA STRUCTURE TENACE EN MICROGRAIN LE REND PARTICULIEREMENT INDIQUE POUR L'USINAGE DES ACIERS AUSTENIQUES - COMPORTEMENT EXCELLENT MEME A DES VITESSES DE COUPE ELEVEES, OU L'USINAGE A SEC EST CONSEILLE.
- VERY TOUGH MICROGRAIN GRADE, PERFORMING IN INTERRUPTED-CUTTING ROUGHING MACHINING. - SUITABLE FOR THE MACHINING OF AUSTENITIC STAINLESS STEEL. - SUITABLE FOR WET GRINDING ALSO MQL.	- SEHR ZÄHE MIKROKORNSORTE MIT HOHER LEISTUNG BEIM SCHRUPPEN IM UNTERBROCHENEN SCHNITT. - GEEIGNET FÜR DIE BEARBEITUNG VON ROSTFREIEN, AUSTENITISCHEN STÄHLEN. - GEEIGNET FÜR NASSBEARBEITUNGEN, AUCH BEI MINIMALSCHMIERUNG MQL.	- DEGRÉ EN MICRO GRAIN TRÈS TENACE, PERFORMANT DANS LES USINAGES DE DÉGROSSISSAGE À COUPE INTERROMPUE. - INDIQUÉ POUR L'USINAGE D'ACIERS INOXYDABLES AUSTÉNITIQUES. - INDIQUÉ POUR LES USINAGES PAR VOIE HUMIDE MÊME MQL.
- MICROGRAIN SUBSTRATE WITH MULTILAYER TiAlSln COATING. - SUITABLE FOR MEDIUM APPLICATIONS AND FINISHING UNDER STABLE CUTTING CONDITIONS.	- MIKORKORNSUBSTRAT MIT MEHRFACH- TiAlSln – BESCHICHTUNG. - FÜR MITTLERE- BIS SCHLICHTBEARBEITUNGEN UNTER STABILEN BEDINGUNGEN GEEIGNET.	- SUBSTRAT EN MICROGRAIN AVEC REVETEMENT MULTICOUCHE TiAlSln. - INDIQUE DANS DES CONDITIONS DE COUPE STABLE POUR USINAGES MOYENS ET DE FINITION.
-HIGH RESISTANCE TO WEAR, GOOD TOUGHNESS -SUITABLE FOR MEDIUM – HIGH CUTTING SPEEDS FOR FINISHING AND ROUGHING MAINLY ON GRAY IRON	-HOHE VERSCHLEISSFESTIGKEIT UND GUTE ZÄHIGKEIT -FÜR MITTEL – HOHE SCHNITTGESCHWINDIGKEITEN BEIM SCHLICHTEN UND SCHRUPPEN, ÜBERWIEGEND BEI GRAUGUSS, GEEIGNET	-HAUTE RESISTANCE À L'USURE ET BONNE TENACITÉ -INDIQUÉE POUR MOYENNE – HAUTE VITESSE DE COUPE EN FINISSAGE ET ÉBAUCHAGE SURTOUT POUR FONTE GRISE
- IDEAL GRADE FOR HIGH VOLUME MACHINING - GOOD HEAT RESISTANCE AND THEREFORE PERFECTLY SUITABLE FOR DRY MACHINING, EVEN AT HICH CUTTING SPEEDS	- IDEALE SORTE FÜR HOCHVOLUMENFERTIGUNG - GUTE HITZEBESTÄNDIGKEIT UND DAHER PERFEKT FÜR DIE TROCKENBEARBEITUNG, AUCH MIT HOHEN SCHNITTGESCHWINDIGEKEITEN	- DEGRÉ PLAQUETTE IDÉAL POUR LA PRODUCTION À HAUT VOLUME - BONNE RÉSISTANCE À LA CHALEUR, QUI LE REND PARFAITEMENT INDIQUÉ POUR L'USINAGE À SEC MEME A DE HAUTES VITESSES DE COUPE
- EXTREMELY TOUGH WITH HIGH WEAR RESISTANCE - IDEAL FOR MEDIUM TO HIGH CUTTING SPEEDS FOR FINISHING AND ROUGHING WORK MAINLY ON CAST IRON	- HOHE VERSCHLEISSFESTIGKEIT UND GUTE ZÄHIGKEIT - GEEIGNET FÜR MITTELHOHE UND HOHE SCHNITTGESCHWINDIGKEIT BEIM SCHLICHTEN UND SCHRUPPEN, ÜBERWIEGEND BEI GUSS	- HAUTE RÉSISTANCE À L'USURE ET BONNE TÉNACITÉ - INDIQUÉ POUR DES VITESSES HAUTES ET MOYENNES DE COUPE EN FINITION ET DÉGROSSISSAGE PRINCIPALEMENT SUR FONTE
-HIGH RESISTANCE TO WEAR, GOOD TOUGHNESS -SUITABLE FOR MEDIUM – HIGH CUTTING SPEEDS FOR FINISHING AND ROUGHING MAINLY ON GRAY IRON	-HOHE VERSCHLEISSFESTIGKEIT UND GUTE ZÄHIGKEIT -FÜR MITTEL – HOHE SCHNITTGESCHWINDIGKEITEN BEIM SCHLICHTEN UND SCHRUPPEN, ÜBERWIEGEND BEI GRAUGUSS, GEEIGNET	-HAUTE RESISTANCE À L'USURE ET BONNE TENACITÉ -INDIQUÉE POUR MOYENNE – HAUTE VITESSE DE COUPE EN FINISSAGE ET ÉBAUCHAGE SURTOUT POUR FONTE GRISE
- CHOICE RAW MATERIALS, TO GUARANTEE A HARD AND WEAR-RESISTANT SUBSTRATE. - MULTILAYER COATING , BEST PERFORMANCE IS ACHIEVED THROUGH DRY-MACHINING.	- AUSGEWÄHLTE ROHSTOFFE, UM EIN HARTES UND VERSCHLEISSFESTES SUBSTRAT ZU GEWÄHRLEISTEN. - MEHRSCHICHT-BESCHICHTUNG, BESTE LEISTUNGEN WERDEN BEI TROCKENBEARBEITUNGEN ERZIELT.	- MATIÈRES PREMIÈRES SÉLECTIONNÉES, AFIN D'ASSURER UN SUBSTRAT DUR ET RÉSISTANT À L'USURE. - REVÊTEMENT MULTICOUCHE, LES MEILLEURES PERFORMANCES SONT OBTENUES, EN TRAVAILLANT À SEC.
- HIGH RESISTANCE TO WEAR, SUITABLE FOR FACING UNDER STABLE CONDITIONS	- HOHER VERSCHLEISSWIDERSTAND, FÜR DIE PLANBEARBEITUNG UNTER STABILEN BEDINGUNGEN GEEIGNET	- HAUTE RESISTANCE A L'USURE, APPROPRIE POUR USINAGES DE PLANAGE DANS UN ETAT STABLE
- GRADO DA TORNITURA PER LA LAVORAZIONE DELLA GHIA GRIGIA E SFEROIDALE	- TURNING GRADE FOR GREY CAST IRON AND NODULAR CAST IRON	- DEGRE DE TOURNAGE POUR L'USINAGE DE LA FONTE GRISE ET SPHEROIDALE

HT CERMET

HW METALLO DURO NON RICOPERTO
UNCOATED CARBIDE
UNBESCHICHTETES HARTMETALL
MÉTAL DUR PAS RECOUVERT

HC METALLO DURO RICOPERTO
COATED CARBIDE
BESCHICHTETES HARTMETALL
MÉTAL DUR RECOUVERT

SAU QUALITY TOOLS ENGINEERING

SAU	DIN ISO 513		MATERIALE - MATERIAL MATERIALIEN - MATÉRIAUX PAG. 1119						QUICK PICK PAG. 486			INDICAZIONI - USO
			P	M	K	N	S	H	Tenacità + / Toughness -			
			ACCIAI STEELS STAHL ACIER	ACCIAI INOX STAINLESS STEELS ROSTFREIER STAHL ACIER INOXYDABLE	GHISA CAST IRON GRAUGUSS FONTE GRISE	MAT.NON FERROSI NONFERROUS MAT. NICHTEISENMATERIALIEN MAT. FERREUX	MAT.DIFFICILI DIFFICULT MATERIAL SCHWERIGE MATERILIEN MAT. DIFICILES	MATERIALI DURI HARD MATERIALS HARTE MATERIALIEN MATERIAUX DURS				
F3420	HC / PVD	K15-30			●					●	●	-QUALITA' CON ALTA RESISTENZA ALL'USURA, INDICATO PER ALTE VELOCITA' DI TAGLIO. -IDEALE PER LA LAVORAZIONIE DI GHISA SFEROIDALE
T5020	HC / CVD	P10-30 K15-35	●		●			○		●	●	- QUALITÀ CON ALTA RESISTENZA ALL' USURA - INDICATO PER SGROSSATURA E MEDIE LAVORAZIONI CON CONDIZIONI STABILI ED ELEVATE VELOCITÀ DI TAGLIO
T1025	HC / CVD	P15-35	●							●	●	-GRADO INSERTO RESISTENTE ALL'USURA -IDEALE CON LAVORAZIONI AD ELEVATE VELOCITA' DI TAGLIO
T1425	HC / CVD	P15-35 M10-25 K25-35	●	○	○					○	●	- VASTA GAMMA DI IMPIEGHI, IDEAELE PER TUTTE LE LEGHE DI ACCIAIO E GHISA, BUONE PRESTAZIONI ANCHE SU INOX
F4725	HC / PVD	P10-30 M10-35	●	●						○	○	- ALTA TENACITÀ E OTTIMA RESISTENZA ALL'USURA TERMICA GRAZIE A UNO SPECIALE RIVESTIMENTO - INDICATO PER MEDIE VELOCITÀ DI TAGLIO IN FINITURA E SGROSSATURA
T526	HC / CVD	P10-35 M20-35 K10-25	●	○	●		○			●	○	- ALTA TENACITÀ , RESISTENZA ALL' USURA E ALLO SHOCK TERMICO - INDICATO PER MEDIO-ALTE VELOCITÀ DI TAGLIO E CON AVANZAMENTI MEDI IN CONDIZIONI NORMALI. OTTIMO SU ACCIAI LEGATI E GHISE SFEROIDALI
T528N	HC / CVD	P25-35 M35-45 K25-35 S35-45	●	●	○		○			●	○	- ALTA TENACITÀ, OTTIMA RESISTENZA ALLO SHOCK TERMICO E ALL'USURA - INDICATO PER MEDIO BASSE VELOCITÀ DI TAGLIO E CON MEDIO ALTI AVANZAMENTI ANCHE IN CONDIZIONI STABILI IN FINITURA E SGROSSATURA
T530	HC / CVD	P30-40 M20-25 S20-30	●	●	○	○	●			○	●	- BUONA TENACITÀ E RESISTENZA ALLA SCHEGGIATURA - INDICATO PER MEDIO-BASSE VELOCITÀ DI TAGLIO E ALTI AVANZAMENTI
T1730	HC / CVD	P25-35	●							●	○	- GRADO UNIVERSALE INDICATO PER SPIANATURA, ESSENDO TENACE GARANTISCE UNA STABILITÀ DI LAVORAZIONE. - MOLTO PERFORMANTE SU ACCIAIO CEMENTATO CON LAVORAZIONE A SECCO, MENTRE SU ACCIAI TENACI È CONSIGLIATO L'USO DELL'E-MULSIONE.
F4130	HC / PVD	P20-40 M20-30	●	●	○			○		●	●	- QUALITÀ ALTAMENTE RESISTENTE ALL'USURA
F4140	HC / PVD	P30-50 M25-40 S20-30	●	●	○	○	●			●	●	- QUALITÀ PER FINITURA E MEDIA SGROSSATURA. PRIMA SCELTA PER OPERAZIONI CON BASSI AVANZAMENTI E/O BASSE VELOCITA DI TAGLIO. - ECCELLENTE PER LAVORAZIONI IN CONDIZIONI POCO STABILI E CON REFRIGERANTE. - CONSIGLIATO PER LAVORARE LE SUPERLEGHE
F4340	HC / PVD	P20-40 M20-30	●	●							●	- PER LA LAVORAZIONE DI ACCIAI E ACCIAI INOSSIDABILI A BASSE VELOCITÀ DI TAGLIO, CON AMPIO CAMPO APPLICATIVO - OTTIME PRESTAZIONI A UMIDO
T1435	HC / CVD	P25-45 M20-30	●	○						●	●	- GRADO INSERTO TENACE, PER LAVORAZIONI DIFFICILI IN CONDIZIONI INSTABILI E A TAGLIO INTERROTTO
F3010	HC / PVD	K05-20			●					●	●	- QUALITÀ PER LA FRESATURA DI GHISE - RIVESTIMENTO ULTRAFINE PER ELEVATE VELOCITÀ DI TAGLIO ADATTO ANCHE IN CONDIZIONI DI TAGLIO INSTABILI

● APPLICAZIONE CONSIGLIATA
RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ
APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE
POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG
APPLICATION POSSIBLE

● APPLICAZIONE CONSIGLIATA
RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ
APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE
POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG
APPLICATION POSSIBLE

INDICATIONS - USE	GEBRAUCHSANWEISUNGEN	INDICATION - USAGE
- DEGREE WITH HIGH RESISTANCE TO WEAR, SUITABLE FOR HIGH CUTTING SPEEDS - IDEAL FOR NODULAR CAST IRON	- SORTE MIT HOHER VERSCHLEISSFESTIGKEIT, FÜR HOHE SCHNITTGESCHWINDIGKEITEN GEEIGNET - IDEAL FÜR DIE BEARBEITUNG VON SPHÄROGUSS	- QUALITE AVEC RESISTANCE ELEVEE A L'USURE, INDIQUE POUR DE HAUTES VITESSES DE COUPE - IDEAL POUR L'USINAGE DE FONTE SPHEROIDALE
- GRADE WITH HIGH RESISTANCE TO WEAR. - SUITABLE FOR ROUGHING AND MEDIUM MACHINING UNDER STABLE CONDITIONS AND AT HIGH CUTTING SPEEDS	- SORTE MIT HOHER VERSCHLEIßBESTÄNDIGKEIT - ZUM SCHRUPPEN UND ZUR MITTLEREN ZERSPANUNG UNTER STABILEN BEDINGUNGEN UND MIT HOHEN SCHNITTGESCHWINDIGKEITEN	- QUALITÉ AVEC HAUTE RÉSISTANCE À L'USURE - INDIQUÉE POUR ÉBAUCHAGE ET USINAGES MOYENS AVEC CONDITIONS STABLES ET ÉLEVÉE VITESSE DE COUPE.
- WEAR RESISTANT QUALITY INSERT - IDEAL FOR HIGH CUTTING SPEED WORK	- VERSCHLEISSFESTE WENDEPLATTE - IDEAL FÜR BEARBEITUNGEN MIT HOHER SCHNITTGESCHWINDIGKEIT	- DEGRÉ PLAQUETTE RÉSISTANT À L'USURE - IDÉAL EN CAS D'USINAGES À DES VITESSES DE COUPE ÉLEVÉES
- WIDE RANGE OF APPLICATIONS, IDEAL FOR ALL STEEL AND CAST IRON ALLOYS, GOOD PERFORMANCE ALSO ON INOX	- HOHE VIELSEITIGKEIT, IDEAL FÜR ALLE STAHL- UND GUSSLEGIERUNGEN, GUTE LEISTUNG AUCH MIT INOXSTAHL	- VASTE GAMME D'EMPLOIS, IDÉAL POUR TOUS LES ALLIAGES EN ACIER ET FONTE, BONNES PERFORMANCES MÊME SUR INOX
- HIGH TOUGHNESS AND EXCELLENT RESISTANCE TO THERMAL WEAR DUE TO THE SPECIAL COATING - SUITABLE FOR FINISHING AND ROUGHING AT MEDIUM CUTTING SPEEDS	- HOHE ZÄHIGKEIT UND SEHR GUTE BESTÄNDIGKEIT GEGEN THERMISCHEN VERSCHLEIß AUFGRUND DER SPEZIALBESCHICHTUNG - FÜR MITTLERE SCHNITTGESCHWINDIGKEITEN ZUM SCHLICHTEN UND SCHRUPPEN GEEIGNET	- HAUTE TÉNACITÉ ET TRÈS BONNE RÉSISTANCE À L'USURE THERMIQUE DÛ À UN SPÉCIAL REVÊTEMENT - INDIQUÉE POUR MOYENNE VITESSE DE COUPE EN FINISSAGE ET ÉBAUCHAGE
-HIGH TOUGHNESS, RESISTANCE TO WEAR AND TO THERMAL SHOCK -SUITABLE FOR MEDIUM – HIGH CUTTING SPEEDS AND WITH MEDIUM FEED UNDER NORMAL CONDITIONS - EXCELLENT ON STEEL ALLOYS AND SPHEROIDAL CAST IRON	-HOHE ZÄHIGKEIT, VERSCHLEISSFESTIGKEIT UND TEMPERATURWECHSELBESTÄNDIGKEIT -FÜR MITTEL-HOHE SCHNITTGESCHWINDIGKEITEN UND BEI MITTLEREN VORSCHÜBEN UNTER NORMALEN BEDINGUNGEN GEEIGNET -FÜR EDELSTAHL UND SPHÄROGUSS OPTIMAL GEEIGNET	-HAUTE TENACITÈ, RÉSISTANCE À L'USURE ET AU SHOCK THERMIQUE -INDIQUÉE POUR MOYENNE – HAUTE VITESSE DE COUPE ET MOYEN DÉPLACEMENT EN CONDITIONS NORMAUX -OPTIMUM SUR ACIER ALLIÉ ET FONTE SPHÉROÏDAL
- HIGH TOUGHNESS,EXCELLENT THERMAL SHOCK AND WEAR RESISTANCE - SUITABLE FOR MEDIUM-LOW CUTTING SPEEDS AND WITH MEDIUM-HIGH FEED FACTORS, ALSO UNDER STABLE MACHINING CONDITIONS FOR FINISHING AND ROUGHING	- HOHE ZÄHIGKEIT, SEHR GUTE TEMPERATURWECHSELBESTÄNDIGKEIT UND VERSCHLEIßFESTIGKEIT - GEEIGNET FÜR MITTLERE BIS GERINGE SCHNITTGESCHWINDIGLEITEN UND MITTLERE UND HOHE VORSCHÜBE, AUCH UNTER STABILEN BEARBEITUNGSBEDINGUNGEN ZUM SCHLICHTEN UND SCHRUPPEN	- HAUTE TENACITÉ, TRÈS BONNE RÉSISTANCE AU CHOC THERMIQUE ET À L'USURE - INDIQUÉE POUR MOYENNE BASSES VITESSE DE COUPE ET AVEC MOYENNES HAUTES AVANCES MÊME AVEC DE CONDITIONS STABLES EN FINISSAGE ET DÉGROSSISSAGE
-GOOD TOUGHNESS AND RESISTANCE TO CHIPPING -SUITABLE FOR MEDIUM-LOW CUTTING SPEEDS AND HIGH FEED	-GUTER ZÄHIGKEIT UND AUSBRUCHFESTIGKEIT -FÜR MITTEL-NIEDRIGE SCHNITTGESCHWINDIGKEITEN UND HOHE VORSCHÜBE GEIGNEET	-BONNE TENACITÉ ET RÉSISTANCE À L'ÉBRÈCHEMENT -INDIQUÉE POUR MOYENNE-FAIBLE VITESSE DE COUPE
- UNIVERSAL GRADE SUITABLE FOR FACE MILLING, ENSURING MACHINING STABILITY GIVEN ITS TOUGHNESS. - HIGHLY PERFORMING ON CASE-HARDENED STEEL WITH DRY-MACHINING, WHILE IT IS ADVISABLE TO USE THE EMULSION ON TOUGH STEELS.	- UNIVERSALE, ZUM PLANFRÄSEN GEEIGNETE SORTE, DIE AUFGRUND IHRER ZÄHHEIT DIE BEARBEITUNGSSTABILITÄT GARANTIERT. - HOHE LEISTUNGEN BEI EINSATZSTAHL MIT TROCKENBEARBEITUNG; BEI ZÄHEN STÄHLEN WIRD HINGEGEN DER GEBRAUCH DER EMULSION EMPFOHLEN.	- DEGRÉ UNIVERSEL INDIQUÉ POUR LE PLANAGE, ÉTANT TENACE IL GARANTIT UNE STABILITÉ D'USINAGE. - TRÈS PERFORMANT SUR ACIER CÉMENTÉ AVEC USINAGE À SEC, TANDIS QUE SUR DES ACIERS TENACES IL EST CONSEILLÉ D'AVOIR RECOURS À L'ÉMULSION.
- HIGH WEAR RESISTANCE QUALITY	- HOCH VERSCHLEISSFESTE QUALITÄT	- QUALITÉ HAUTEMENT RÉSISTANTE À L'USURE
- PREMIUM QUALITY FOR MEDIUM ROUGHING AND FINISHING. FIRST CHOICE FOR SLOW FEED AND/OR SLOW CUTTING SPEEDS - OUTSTANDING FOR WORKING IN UNSTABLE CONDITIONS WITH COOLANT - RECOMMENDED FOR MACHINING SUPER ALLOYS	- QUALITÄT ZUM SCHLICHTEN UND MITTLEREM SCHRUPPEN. ERSTE WAHL FÜR ARBEITSSCHRITTE MIT NIEDRIGEM VORSCHUB U/O NIEDRIGER SCHNITTGESCHWINDIGKEIT. - AUSGEZEICHNET FÜR BEARBEITUNGEN UNTER UNSTABILEN BEDINGUNGEN UND MIT KÜHLMITTEL. - EMPFOHLEN ZUR BEARBEITUNG VON SUPERLEGIERUNGEN	- QUALITÉ POUR FINITION ET DÉGROSSISSAGE MOYEN. PREMIER CHOIX POUR DES OPÉRATIONS AVEC DES AVANCES MODIQUES ET/OU DE FAIBLES VITESSES DE COUPE. - PARFAIT POUR DES USINAGES DANS DES CONDITIONS PEU STABLES ET AVEC RÉFRIGÉRANT. - CONSEILLÉ POUR USINER LES SUPERALLIAGES
- FOR MACHINING STEELS AND STAINLESS STEELS AT SLOW CUTTING SPEEDS FOR A VAST RANGE OF APPLICATIONS - EXCELLENT WET PERFORMANCE	- FÜR DIE BEARBEITUNG VON STAHL UND EDELSTAHL MIT NIEDRIGER SCHNITTGESCHWINDIGKEIT, GROSSER ANWENDUNGSBEREICH - AUSGEZEICHNETE NASSLEISTUNGEN	- POUR L'USINAGE D'ACIERS ET ACIERS INOXYDABLES À DE FAIBLES VITESSES DE COUPE, AVEC AMPLE PLAGE D'APPLICATION - PERFORMANCES EXCEPTIONNELLES À L'EAU
- TOUGH DEGREE FOR DIFFICULT MACHINING UNDER UNSTABLE CONDITIONS AND WITH INTERRUPTED CUT	- ZÄHE SORTE FÜR SCHWERE BEARBEITUNGEN UNTER UNSTABILEN BEDINGUNGEN UND MIT UNTERBROCHENEM SCHNITT	- DEGRÉ PLAQUETTE TENACE POUR USINAGES DIFFICILES DANS DES CONDITIONS INSTABLES ET À COUPE INTERROMPUE
- MILLING GRADE FOR CAST-IRON - ULTRA-FINE COATING FOR HIGH CUTTING SPEEDS, ALSO SUITABLE UNDER UNSTABLE CUTTING CONDITIONS	- SORTE ZUM FRÄSEN VON GUSSEISEN - ULTRAFEINE BESCHICHTUNG FÜR HOHE SCHNITTGESCHWINDIGKEITEN, AUCH UNTER UNSTABILEN SCHNITTBEDINGUNGEN GEEIGNET	- QUALITÉ POUR LE FRAISAGE DES FONTES - REVÊTEMENT TRÈS FINE POUR ÉLEVÉE VITESSE DE COUPE APPROPRIÉ MÊME AVEC CONDITIONS DE COUPE INSTABLES

HT CERMET

HW METALLO DURO NON RICOPERTO
UNCOATED CARBIDE
UNBESCHICHTETES HARTMETALL
MÉTAL DUR PAS RECOUVERT

HC METALLO DURO RICOPERTO
COATED CARBIDE
BESCHICHTETES HARTMETALL
MÉTAL DUR RECOUVERT

SAU QUALITY TOOLS ENGINEERING

SAU	DIN ISO 513		MATERIALE - MATERIAL MATERIALIEN - MATÉRIAUX PAG. 1119						QUICK PICK PAG. 486			INDICAZIONI - USO
			P	M	K	N	S	H	Tenacità / Toughness			
			ACCIAI STEELS STAHL ACIER	ACCIAI INOX STAINLESS STEELS ROSTFREIER STAHL ACIER INOXYDABLE	GHISA CAST IROIN GRAUGUSS FONTE GRISE	MAT.NON FERROSI NONFERROUS MAT. NICHTEISENMATERIALIEN MAT. FERREUX	MAT.DIFFICILI DIFFICULT MATERIAL SCHWERIGE MATERILIEN MAT. DIFICILES	MATERIALI DURI HARD MATERIALS HARTE MATERIALIEN MATÉRIAUX DURS				
F6315	HC / PVD	P10-30 M05-25 K05-25	●	●	●					○	●	- OTTIMA RESISTENZA ALL'USURA - QUALITÀ UNIVERSALE PER VARI TIPI DI MATERIALE - INDICATO PER MEDIE-ALTE VELOCITÀ DI TAGLIO
T5120	HC / CVD	P10-30 K15-35	●		●			○		●	●	- QUALITA PER SGROSSATURA E MEDIA SGROSSATURA CON CONDIZIONI STABILI AD ELEVATE VELOCITA DI TAGLIO. - QUALITA ECCELLENTE PER ACCIAI DURI. OTTIMO COMPORTAMENTO ANCHE NELLA SGROSSATURA DI GHISA GRIGIA E GHISA SFEROIDALE
T525	HC / CVD	P15-35 M20-35 K30-40	●	●	○		○	○		●	●	- OTTIMO EQUILIBRIO TRA TENACITÀ E RESISTENZA ALL' USURA - INDICATO PER MEDIE VELOCITÀ DI TAGLIO E CON AVANZAMENTI MEDIO ALTI IN SGROSSATURA ANCHE IN CONDIZIONI INSTABILI
F1325	HC / PVD	P15-30 M20-30 K20-30	●	○	○					●	○	- LAVORAZIONE GENERICHE DI ACCIAIO, ACCIAIO INOX E ANCHE BUONA LAVORABILITÀ PER GHISA. - CONSIGLIATO PER LA LAVORAZIONE CON VELOCITÀ DI TAGLIO ELEVATE SE IN CONDIZIONI DI LAVORO STABILI.
F2330 NEW	HC / PVD	P20-35 M20-35 S10-30	○	●			○			●	●	- LA SUA STRUTTURA IN MICROGRANO, LA COMPOSIZIONE E IL RIVESTIMENTO, RENDONO QUESTO GRADO MOLTO PERFORMANTE NELLE LAVORAZIONI DI MATERIALI ISO M E S. - INSERTO TENACE CHE PERMETTE LAVORAZIONI MEDIAMENTE INTERROTTE ANCHE DI MATERIALI ISO S.
F2331 NEW	HC / PVD	P20-40 M20-35	●	●						●	●	- SUBSTRATO RESISTENTE ALL'USURA - INSERTO VERSATILE ADATTO SIA PER SGROSSATURA CHE FINITURA ANCHE IN CONDIZIONI SFAVOREVOLI
F1035	HC / PVD	P25-40 M20-35	●	○			○			●	●	- QUALITÀ MOLTO TENACE - OTTIMA RESISTENZA ALL'USURA
F1335	HC / PVD	P25-45 M30-40	●	○						●	○	- LAVORAZIONI DI ACCIAIO GENERICHE - INDICATO PER LAVORAZIONI SUI PIÙ COMUNI ACCIAI A MEDIO BASSE VELOCITÀ DI TAGLIO E IN CONDIZIONI DI INSTABILITÀ.
F2335 NEW	HC / PVD	P25-50 M20-40 K20-40 S20-30	●	●	○		○			○	●	- LA SUA STRUTTURA E IL SUO RIVESTIMENTO RENDE QUESTO GRADO MOLTO TENACE E RESISTENTE ALLE ALTE TEMPERATURE. - PARTICOLARMENTE ADATTO A LAVORAZIONI DI FORTE TAGLIO INTERROTTO E LAVORAZIONI GRAVOSE.
T540	HC / CVD	P25-45 M25-40	●	●		○	○			●	●	- ALTA TENACITÀ , BUONA RESISTENZA ALL' USURA E ALLO SHOCK TERMICO - INDICATO PER BASSE VELOCITÀ DI TAGLIO E ALTI AVANZAMENTI IN SGROSSATURA E SGROSSATURA PESANTE ANCHE IN CONDIZIONI PRECARIE
T544	HC / CVD	P20-40 M20-35	●	●	○	○	●			○	●	- ALTA TENACITÀ MEDIA RESISTENZA ALL' USURA - INDICATO PER MEDIO-BASSE VELOCITÀ DI TAGLIO IN MEDIA SGROSSATURA ANCHE IN CONDIZIONI INSTABILI
F4345	HC / PVD	P35-45 M40-45	●	○						●	○	- GRADO MOLTO TENACE PER LAVORAZIONE DI INSTABILITÀ E LAVORAZIONE A TAGLIO MOLTO INTERROTTO. - INDICATO PER SGROSSATURA DI ACCIAI GENERICI.

● APPLICAZIONE CONSIGLIATA
RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ
APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE
POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG
APPLICATION POSSIBLE

● APPLICAZIONE CONSIGLIATA
RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ
APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE
POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG
APPLICATION POSSIBLE

INDICATIONS - USE	GEBRAUCHSANWEISUNGEN	INDICATION - USAGE
- EXCELLENT RESISTANCE TO WEAR - UNIVERSAL DEGREE FOR DIFFERENT TYPES OF MATERIALS - SUITABLE FOR MEDIUM TO HIGH CUTTING SPEEDS	- SEHR HOHE VERSCHLEISSFESTIGKEIT - UNIVERSALSORTE FÜR VERSCHIEDENE MATERIALIEN - FÜR MITTLERE BIS HOHE SCHNITTGESCHWINDIGKEITEN GEEIGNET	- RESISTANCE EXCELLENTE A L'USURE - QUALITE UNIVERSELLE POUR DIFFERENTS TYPES DE MATERIAU - INDIQUE EN CAS DE VITESSES DE COUPE HAUTES-MOYENNES
- QUALITY FOR ROUGHING AND MEDIUM ROUGHING IN STABLE CONDITIONS WITH HIGH CUTTING SPEEDS - OUTSTANDING QUALITY FOR HARD STEELS. EXCELLENT BEHAVIOUR ALSO IN ROUGHING GREY CAST IRON AND SPHEROIDAL GRAPHITE CAST IRON	- QUALITÄT ZUM SCHRUPPEN UND MITTLEREM SCHRUPPEN UNTER STABILEN BEDINGUNGEN UND BEI HOHER SCHNITTGESCHWINDIGKEIT. - HERVORRAGENDE QUALITÄT FÜR HARTSTAHL. AUSGEZEICHNETES VERHALTEN AUCH BEIM SCHRUPPEN VON GRAUGUSS UND SPHÄROGUSS	- QUALITÉ POUR DÉGROSSISSAGE ET DÉGROSSISSAGE MOYEN DANS DES CONDITIONS STABLES À DES VITESSES DE COUPE ÉLEVÉES. - QUALITÉ EXCELLENTE POUR ACIERS DURS. COMPORTEMENT PARFAIT MÊME DANS LE DÉGROSSISSAGE DE FONTE GRISE ET FONTE SPHÉROÏDALE
-EXCELLENT BALANCE BETWEEN TOUGHNESS AND RESISTANCE TO WEAR -SUITABLE FOR MEDIUM CUTTING SPEEDS AND WITH MEDIUM-HIGH FEED FOR ROUGHINIG UNDER STABLE CONDITIONS	-OPTIMALE AUSGEWOGENHEIT ZWISCHEN ZÄHIGKEIT UND VERSCHLEISSFESTIGKEIT -FÜR MITTEL SCHNITTGESCHWINDIGKEITEN UND BEI MITTEL-GROSSEN VORSCHÜBEN,UNTER STABILEN BEDINGUNGEN, ZUM SCHRUPPEN GEEIGNET	-TRÉS BON ÉQUILIBRE ENTRE TENACITÉ ET RÉSISTANCE À L'USURE -INDIQUÉE POUR MOYENNE VITESSE DE COUPE ET MOYENNE-HAUT DÉPLACEMET POUR ÉBAUCHAGE EN CONDITION STABLE
- GENERAL MACHINING OF STEEL, STAINLESS STEEL AND GOOD MACHINABILITY FOR CAST IRON. - RECOMMENDED FOR HIGH CUTTING SPEED UNDER STABLE MACHINING CONDITIONS.	- ALLGEMEINE BEARBEITUNG VON STAHL, EDELSTAHL UND GUTE BEARBEITBARKEIT VON GUSS. - EMPFOHLEN ZUR BEARBEITUNG MIT HOHEN SCHNITTGESCHWINDIGKEITEN, WENN DIE ARBEITSBEDINGUNGEN STABIL SIND.	- USINAGES GÉNÉRIQUES D'ACIER, ACIER INOX ET ÉGALEMENT BONNE MANIABILITÉ POUR LA FONTE. - CONSEILLÉ POUR L'USINAGE AVEC DES VITESSES DE COUPE ÉLEVÉES, DANS LE CAS DE CONDITIONS DE TRAVAIL STABLES.
- THANKS TO ITS MICROGRAIN STRUCTURE, COMPOSITION AND COATING, THIS GRADE IS HIGHLY PERFORMING IN THE MACHINING OF ISO M E S MATERIALS. - TOUGH INSERT THAT ALLOWS AVERAGE INTERRUPTED MACHINING ALSO OF ISO S MATERIALS.	- AUFGRUND SEINER FEINKÖRNIGEN STRUKTUR, ZUSAMMENSETZUNG UND BESCHICHTUNG IST DIESER TYP BEI DER BEARBEITUNG VON ISO-M- UND S-MATERIALIEN BESONDERS LEISTUNGSFÄHIG. - ZÄHE WENDESCHNEIDPLATTE, DIE AUCH DURCHSCHNITTLICH UNTERBROCHENE BEARBEITUNGEN VON ISO-MATERIALIEN ERMÖGLICHT.	- SA STRUCTURE EN MICROGRAIN, LA COMPOSITION ET LE REVETEMENT RENDENT CE DEGRE TRES PERFORMANT DANS LES USINAGES DE MATERIAUX ISO M E S. - PLAQUETTE A HAUTE RESISTANCE AUTORISANT DES USINAGES MOYENNEMENT INTERROMPUS MEME DE MATERIAUX ISO S.
- WEAR-RESISTANT SUBSTRATE - VERSATILE INSERT, SUITABLE FOR BOTH ROUGHING AND FINISHING, ALSO UNDER UNFAVOURABLE CONDITIONS	- VERSCHLEISSFESTES SUBSTRAT - VIELSEITIGE WENDEPLATTE, SOWOHL ZUM SCHRUPPEN ALS AUCH ZUM SCHLICHTEN GEEIGNET, AUCH UNTER UNGÜNSTIGEN BEDINGUNGEN	- SUBSTRAT RÉSISTANT À L'USURE - PLAQUETTE POLYVALENTE, POUR ÉBAUCHE ET FINITION, MÊME EN CAS DE CONDITIONS DÉFAVORABLES
- VERY TOUGH GRADE - EXCELLENT RESISTANCE TO WEAR	- SEHR ZÄHE SORTE - OPTIMALE VERSCHLEISSFESTIGKEIT	- QUALITÉ TRES TENACE - TRES BONNE RESISTANCE À L'USURE
- GENERAL MACHINING OF STEEL. SPECIALLY - SUITABLE FOR MACHINING THE MOST COMMON STEEL TYPES WITH LOW-MEDIUM CUTTING SPEED UNDER STABLE MACHINING CONDITIONS.	- ALLGEMEINE STAHLBEARBEITUNG - GEEIGNET FÜR DIE BEARBEITUNG DER GÄN-GIGSTEN STAHLSORTEN MIT NIEDRIG-MITTLEREN SCHNITTGESCHWINDIGKEITEN UNTER STABILEN ARBEITSBEDINGUNGEN.	- USINAGES D'ACIER GÉNÉRIQUES - PRÉVU POUR DES USINAGES SUR LES ACIERS LES PLUS COM-MUNS À DES VITESSES DE COUPE BASSES-MOYENNES ET DANS UN ÉTAT D'INSTABILITÉ.
- THIS GRADE'S STRUCTURE AND COATING MAKE IT VERY TOUGH AND HIGH TEMPERATURE-RESISTANT. - ESPECIALLY SUITED FOR STRONG INTERRUPTED-CUTTING MACHINING AND STRENUOUS MACHINING	- AUFGRUND SEINER FEINKÖRNIGEN STRUKTUR, ZUSAMMENSETZUNG UND BESCHICHTUNG IST DIESER TYP BEI DER BEARBEITUNG VON ISO-M- UND S-MATERIALIEN BESONDERS LEISTUNGSFÄHIG. - ZÄHE WENDESCHNEIDPLATTE, DIE AUCH DURCHSCHNITTLICH UNTERBROCHENE BEARBEITUNGEN VON ISO-MATERIALIEN ERMÖGLICHT.	- SA STRUCTURE ET SON REVETEMENT RENDENT CE DEGRE TRES TENACE ET RESISTANT AUX TEMPERATURES ELEVEES. - PARTICULIEREMENT INDIQUE AUX USINAGES D'UNE COUPE FORTE INTERROMPUE ET D'USINAGES PENIBLES.
-HIGH TOUGHNESS, RESISTANCE TO WEAR AND TO THERMAL SHOCK -SUITABLE FOR LOW CUTTING SPEEDS AND HIGH FEED FOR ROUGHING AND HEAVY ROUGHING, EVEN UNDER UNSTABLE CONDITIONS	-FÜR MITTEL-HOHE SCHNITTGESCHWINDIGKEITEN UND BEI MITTLEREN VORSCHÜBEN UNTER NORMALEN BEDINGUNGEN GEEIGNEIT -FÜR NIEDRIGE SCHNITTGESCHWINDIGKEITEN UND GROSSVORSCHÜBE BEIM SCHRUPPEN UND STARKEN SCHRUPPEN, AUCH UNTER UNSTABILEN BEDINGUNGEN, GEEIGNET.	-HAUTE TENACITÈ, RÉSISTANCE À L'USURE ET AU SHOCK THERMIQUE -INDIQUÉE POUR FAIBLE VITESSE DE COUPE ET HAUT DÉPLACEMENT POUR ÉBAUCHAGE ET ÉBAUCHAGE LOURD, MÊME AVEC CONDITIONS INSTABLES.
-HIGH TOUGHNESS, MEDIUM RESISTANCE TO WEAR -SUITABLE FOR MEDIUM – LOW CUTTING SPEEDS FOR MEDIUM ROUGHING, EVEN UNDER UNSTABLE CONDITIONS	-FÜR MITTEL-HOHE SCHNITTGESCHWINDIGKEITEN UND BEI MITTLEREN VORSCHÜBEN -FÜR MITTEL – NIEDRIGE SCHNITTGESCHWINDIGKEITEN BEIM MITTEL – STARKEN SCHRUPPEN, AUCH UNTER UNSTABILEN BEDINGUNGEN, GEEIGNET	-HAUTE TENACITÈ, MOYENNE RÉSISTANCE À L'USURE -INDIQUÉE POUR MOYENNE – FAIBLE VITESSE DE COUPE EN ÉBAUCHAGE MOYEN MÊME AVEC CONDITIONS INSTABLES
- VERY TOUGH GRADE FOR INSTABILITY MACHINING AND VERY INTERRUPTED-CUTTING MACHINING. - SUITABLE FOR ROUGHING OF GENERAL STEELS.	- SEHR ZÄHE SORTE FÜR INSTABILE BEARBEITUNGEN UND BEARBEITUNGEN MIT STARK UNTERBROCHENEM SCHNITT. - GEEIGNET ZUM SCHRUPPEN VON ALLGEMEINEN STÄHLEN.	- DEGRÉ TRÈS TENACE POUR L'USINAGE D'INSTABILITÉ ET L'USI-NAGE À COUPE TRÈS INTERROMPUE. - INDIQUÉ POUR LE DÉGROSSISSAGE D'ACIERS GÉNÉRIQUES.

HT CERMET

HW METALLO DURO NON RICOPERTO
UNCOATED CARBIDE
UNBESCHICHTETES HARTMETALL
MÉTAL DUR PAS RECOUVERT

HC METALLO DURO RICOPERTO
COATED CARBIDE
BESCHICHTETES HARTMETALL
MÉTAL DUR RECOUVERT

Vc(m/min)

Velocità di taglio delle qualità di fresatura - Cutting speed of the milling grades
Schnittgeschwindigkeit der frässorten - Vitesse decoupe de la qualité de plaquettes de fraisage

SAU QUALITY TOOLS ENGINEERING

MATERIALE MATERIAL MATERIALIEN MATÉRIAUX PAG 1119	VDI 3323 GR.	HB HRC Rm	C4010	N3015	N3815 NEW	N6315	N3620	N3440	T110	T115	T120	F7810 NEW	F3120
P ACCIAI STEELS STAHL ACIER	1	125	300-420									220-300	200-300
	2	180	280-350									220-300	200-300
	3	250	220-320									220-300	200-300
	4	220	250-300									220-300	200-300
	5	300	180-260									220-300	200-300
	6	180	140-200									180-250	180-250
	7-8	250-300	160-220									180-250	180-250
	9	350	100-160									180-250	180-250
	10	200	100-160									160-220	160-220
	11	350	240-350									160-220	160-220
	12	200	140-250									120-200	120-180
	13	330	140-250									120-200	120-180
M ACCIAI INOX STAINLESS STEELS ROSTFREIER STAHL ACIER INOXYDABLE	14.1	180	100-280								80-120	80-150	
	14.2	230-260	100-220									80-150	
K GHISA CAST IRON GRAUGUSS FONTE GRISE	15	180	180-400					100-200	90-160	90-160	90-145	180-320	150-320
	16	260	180-400					90-150	80-130	80-130	90-135	180-320	150-320
	17	160	150-250					100-180	90-160	100-160	90-135	180-300	150-320
	18	250	150-300					70-140	70-150	90-150	70-100	180-300	110-180
	19	130	150-300					90-180	90-160	100-160	90-145	180-300	110-180
	20	230	150-300					70-160	70-150	70-150	80-120	180-300	110-180
N MAT.NON FERROSI NONFERROUS MAT. NICHTEISENMATERIALIEN MAT. FERREUX	21	60		200-800	300-950	250-350	400-450	100-800	200-950	200-950	300-950		
	22	100		200-800	300-950	250-350	400-450	80-800	200-950	200-950	300-950		
	23	75		200-800	300-950	250-350	400-450	80-500	200-950	200-950	300-950		
	24	90		200-800	300-950	250-350	400-450	100-450	200-950	200-950	300-800		
	25	130		200-800	300-950	250-350	400-450	100-450	200-950	200-950	300-600		
	26	110		200-300	120-400	250-350	250-335	80-400	200-600	200-600	150-500		
	27	90		200-300	120-400	250-350	250-335	200-600	250-950	250-950	300-600		
	28	100		200-300	120-400	250-350	250-335	100-300	150-600	150-600	150-450		
	29			200-300	120-400	250-350	350-400	80-500	70-500	70-500			
	30			200-300	120-400	250-350	350-400	100-250	80-300	80-300			
S MAT.DIFFICILI DIFFICULT MATERIAL SCHWIERIGE MATERILIEN MAT. DIFICILES	31	200		30-130									
	32	280		30-130					20-30				
	33	250		30-130					16-24		20-25		
	34	350		30-130					13-20		10-20		
	35	320		30-130							10-20		
	36	Rm400		30-130							25-30		
	37	Rm1050		30-130									
H MATERIALI DURI HARD MATERIALS HARTE MATERILIEN MATERIAUX DURS	38	55HRC									25-30	65-145	
	39	60HRC										65-95	
	40	400										65-95	
	41	55HRC										65-95	

Vc(m/min)

Velocità di taglio delle qualità di fresatura - Cutting speed of the milling grades
Schnittgeschwindigkeit der frässorten - Vitesse decoupe de la qualité de plaquettes de fraisage

SAU QUALITY TOOLS ENGINEERING

MATERIALE MATERIAL MATERIALIEN MATÉRIAUX PAG 1119	VDI 3323 GR.	HB HRC Rm	F2425	T2035 NEW	F2135 NEW	F2435	F2635 NEW	F2140	F2740	F5105	F3710	T1415	T3115
P ACCIAI STEELS STAHL ACIER	1	125	130-250			170-190	60-280	100-250		220-310		220-400	
	2	180	130-250			170-190	60-280	100-250		220-310		220-400	
	3	250	130-250			170-190	60-280	100-250		220-310		220-400	
	4	220	130-250			170-190	60-280	100-250		220-310		220-400	
	5	300	130-250			170-190	60-280	100-250		220-310		220-400	
	6	180	130-250			90-150	60-220	80-200		270-300		220-400	
	7-8	250-300	60-180			90-150	60-220	80-200		270-300		200-320	
	9	350	60-180			90-150	60-220	80-200		270-300		200-320	
	10	200	80-200			120-200	60-200	80-150		210-250		180-320	
	11	350	80-200			120-200	60-200	80-150		210-250		180-320	
	12	200	120-250			140-180	60-200	80-150		150-200		200-320	
	13	330	120-250			140-180	60-200	80-150		150-200		200-320	
M ACCIAI INOX STAINLESS STEELS ROSTFREIER STAHL ACIER INOXYDABLE	14.1	180	100-250	60-200	110-180	110-200	60-200	90-170	100-160	100-180			
	14.2	230-260	40-160	60-200	80-130	55-150	60-200	90-170	70-120	100-180			
K GHISA CAST IRON GRAUGUSS FONTE GRISE	15	180								260-330	120-250	140-370	180-350
	16	260								260-330	120-250	140-370	140-250
	17	160								230-280	120-250	190-430	130-250
	18	250								230-280	100-200	190-430	100-200
	19	130								230-280	100-200	180-520	150-320
	20	230								230-280	100-200	180-520	120-250
N MAT.NON FERROSI NONFERROUS MAT. NICHTEISENMATERIALIEN MAT. FERREUX	21	60											
	22	100											
	23	75											
	24	90											
	25	130											
	26	110											
	27	90											
	28	100											
	29												
	30												
S MAT.DIFFICILI DIFFICULT MATERIAL SCHWIERIGE MATERILIEN MAT. DIFICILES	31	200		25-75	30-65			30-70		40-80	30-70		
	32	280		25-75	30-65			30-70		40-80	30-70		
	33	250		25-75	30-65			30-70		40-80	30-70		
	34	350		25-75	30-65			30-70		40-80	30-70		
	35	320		25-75	30-65			30-70		40-80	30-70		
	36	Rm400		25-75	30-65			30-70		40-80	30-70		
	37	Rm1050		25-75	30-65			30-70		40-80	30-70		
H MATERIALI DURI HARD MATERIALS HARTE MATERILIEN MATÉRIAUX DURS	38	55HRC								80-140			
	39	60HRC								80-140			
	40	400								80-140			
	41	55HRC								80-140			

Vc(m/min)

Velocità di taglio delle qualità di fresatura - Cutting speed of the milling grades
Schnittgeschwindigkeit der frässorten - Vitesse decoupe de la qualité de plaquettes de fraisage

SAU QUALITY TOOLS ENGINEERING

MATERIALE MATERIAL MATERIALIEN MATÉRIAUX PAG 1119	VDI 3323 GR.	HB HRC Rm	T516	T3116	T1120 NEW	T3220	F3420	T5020	T1025	T1425	F4725	T526	T528N
P ACCIAI STEELS STAHL ACIER	1	125			190-290	200-340		150-250	120-240	170-240	120-250	130-350	160-260
	2	180			190-290	200-340		150-250	120-240	170-240	120-250	110-320	130-220
	3	250			190-290	200-340		150-250	150-220	170-240	120-250	90-280	90-160
	4	220			190-290	200-340		150-250	110-190	170-240	120-250	100-280	
	5	300			190-290	200-340		150-250	110-190	170-240	120-250	90-250	
	6	180			160-230	200-340		150-250	110-190	170-240	120-250	80-250	150-220
	7-8	250-300			160-230	150-290		150-250	100-220	100-190	120-250	60-210	110-190
	9	350			145-210	150-290		150-250	80-180	130-210	100-220	60-180	90-160
	10	200			145-210	160-290		150-250	70-160	130-210	100-220	60-210	120-200
	11	350			145-210	160-290		150-250	70-160	130-220	100-220	60-170	90-140
	12	200			110-170	160-290		150-250	90-160	130-220	80-180	80-190	110-220
	13	330			110-170	160-290		150-250	90-160	130-220	80-180	70-170	90-180
M ACCIAI INOX STAINLESS STEELS ROSTFREIER STAHL ACIER INOXYDABLE	14.1	180								100-210	120-250	110-200	120-180
	14.2	230-260								70-100	120-250	120-210	80-120
K GHISA CAST IRON GRAUGUSS FONTE GRISE	15	180	180-350	180-360		150-400	200-320	100-250		130-210		120-220	160-220
	16	260	140-280	180-360		150-400	160-250	100-250		130-210		80-170	120-180
	17	160	130-250	140-230		200-450	180-350	100-250		120-240		80-200	110-210
	18	250	100-200	140-250		200-450	180-340	100-250		120-240		70-180	90-180
	19	130	150-320	110-220		200-550	180-340	100-250		150-250		70-180	90-180
	20	230	120-250	110-220		200-550	150-300	100-250		150-250		70-160	80-160
N MAT.NON FERROSI NONFERROUS MAT. NICHTEISENMATERIALIEN MAT. FERREUX	21	60											
	22	100											
	23	75											
	24	90											
	25	130											
	26	110											
	27	90											
	28	100											
	29												
	30												
S MAT.DIFFICILI DIFFICULT MATERIAL SCHWIERIGE MATERILIEN MAT. DIFICILES	31	200										60-90	40-70
	32	280										60-90	30-40
	33	250											30-50
	34	350											30-50
	35	320											40-50
	36	Rm400											60-80
	37	Rm1050											
H MATERIALI DURI HARD MATERIALS HARTE MATERILIEN MATERIAUX DURS	38	55HRC											
	39	60HRC											
	40	400										70-130	
	41	55HRC											

Vc(m/min)

Velocità di taglio delle qualità di fresatura - Cutting speed of the milling grades
Schnittgeschwindigkeit der frässorten - Vitesse decoupe de la qualité de plaquettes de fraisage

SAU QUALITY TOOLS ENGINEERING

MATERIALE MATERIAL MATERIALIEN MATÉRIAUX PAG 1119	VDI 3323 GR.	HB HRC Rm	T530	T1730	F4130	F4140	F4340	T1435	F3010	F6315	T5120	T525	F1325
P ACCIAI STEELS STAHL ACIER	1	125	170-260	150-230	180-300	210-345	150-300	170-190		110-160	200-400	200-400	175-265
	2	180	150-240	150-230	180-300	210-345	100-250	170-190		110-160	200-400	170-320	175-265
	3	250	130-180	150-230	180-300	210-345	100-200	170-190		110-160	200-400	170-280	175-265
	4	220	120-170	150-230	180-300	175-290	100-220	170-190		110-160	200-400	180-280	175-265
	5	300	120-160	130-180	180-300	175-290	70-170	170-190		110-160	190-270	140-230	145-215
	6	180	140-200	130-180	130-250	145-240	100-220	170-190		110-160	190-270	190-310	145-215
	7-8	250-300	120-180	130-180	130-250	145-240	100-180	90-150		110-160	190-270	130-240	145-215
	9	350	100-120	130-180	130-250	145-240	100-160	120-200		110-160	190-270	100-170	145-215
	10	200	110-160	110-160	150-250	125-205	90-150	120-200		110-160	170-240	170-240	130-190
	11	350	80-100	110-160	150-250	125-205	70-150	140-180		110-160	170-240	100-160	130-190
	12	200	120-150	110-160	130-190	105-170	120-250	140-180		110-160	150-220	200-300	130-190
	13	330	80-120	110-160	130-190	105-170	60-120	140-200		110-160	150-220	100-150	130-190
M ACCIAI INOX STAINLESS STEELS ROSTFREIER STAHL ACIER INOXYDABLE	14.1	180	100-150		130-270	110-235	80-160			90-120		160-260	90-150
	14.2	230-260	80-120		100-180	85-150	70-130			90-120		130-220	60-110
K GHISA CAST IRON GRAUGUSS FONTE GRISE	15	180	160-190		120-220	110-180			130-200	80-120	200-280	150-250	140-300
	16	260	100-120		120-220	110-180			130-200	80-120	200-280	150-200	140-300
	17	160	140-180		120-220	95-150			130-200	80-120	190-240	150-220	140-300
	18	250	120-150		120-220	95-150			130-200	80-120	160-230	120-160	140-300
	19	130	140-200		100-170	85-130			100-150	80-120	150-220	150-240	100-160
	20	230	130-165		100-170	85-110			100-150	80-120	150-220	120-180	100-160
N MAT.NON FERROSI NONFERROUS MAT. NICHTEISENMATERIALIEN MAT. FERREUX	21	60	300-1000			500-900							
	22	100	300-1000			500-900							
	23	75	150-1000			500-900							
	24	90	150-1000			500-700							
	25	130	150-700			500-700							
	26	110	100-400			330-550							
	27	90	100-400			330-550							
	28	100	100-400			330-550							
	29					500-900							
	30					500-900							
S MAT.DIFFICILI DIFFICULT MATERIAL SCHWIERIGE MATERILIEN MAT. DIFICILES	31	200				30-50							
	32	280				30-50							
	33	250	40-60			30-50						35-40	
	34	350	30-40			25-50						35-40	
	35	320	40-50			25-50						35-40	
	36	Rm400	40-70			50-80						50-75	
	37	Rm1050	30-50			50-80							
H MATERIALI DURI HARD MATERIALS HARTE MATERILIEN MATÉRIAUX DURS	38	55HRC			40-90	100-140						40-70	
	39	60HRC			30-60	80-110							
	40	400			50-100	100-140							
	41	55HRC			40-90	100-140							

Vc(m/min)

Velocità di taglio delle qualità di fresatura - Cutting speed of the milling grades
Schnittgeschwindigkeit der frässorten - Vitesse decoupe de la qualité de plaquettes de fraisage

SAU QUALITY TOOLS ENGINEERING

MATERIALE MATERIAL MATERIALIEN MATÉRIAUX PAG 1119	VDI 3323 GR.	HB HRC Rm	F2330 NEW	F2331 NEW	F1035	F1335	F2335 NEW	T540	T544	F4345			
P ACCIAI STEELS STAHL ACIER	1	125	220-290	220-300	70-180	150-230	220-280	170-250	170-260	100-220			
	2	180	220-290	220-300	70-180	150-230	220-280	140-200	150-240	100-220			
	3	250	220-290	220-300	70-180	150-230	220-280	120-150	130-180	100-220			
	4	220	220-290	220-300	70-180	150-230	220-280	110-150	120-170	100-220			
	5	300	220-290	220-300	70-170	130-180	220-280	100-120	120-160	140-215			
	6	180	180-240	170-240	70-170	130-180	180-220	140-200	140-200	140-215			
	7-8	250-300	180-240	170-240	70-170	130-180	180-220	100-140	120-180	140-215			
	9	350	180-240	170-240	70-170	130-180	180-220	70-100	100-120	140-215			
	10	200	160-220	140-220	60-140	110-160	140-200	90-130	110-160	130-190			
	11	350	160-220	140-220	60-140	110-160	140-200	60-100	80-100	130-190			
	12	200	140-200	140-220	60-140	110-160	120-180	120-170	120-150	130-190			
	13	330	140-200	140-220	60-140	110-160	120-180	80-130	80-120	130-190			
M ACCIAI INOX STAINLESS STEELS ROSTFREIER STAHL ACIER INOXYDABLE	14.1	180	155-190	120-180	40-140	80-140	135-165	70-180	100-150	70-130			
	14.2	230-260	120-150	100-160	40-140	80-140	100-140	60-130	80-120				
K GHISA CAST IRON GRAUGUSS FONTE GRISE	15	180					215-265		160-190				
	16	260					215-265		100-120				
	17	160					180-240		140-180				
	18	250					180-240		120-150				
	19	130					180-240		140-200				
	20	230					180-240		130-165				
N MAT.NON FERROSI NONFERROUS MAT. NICHTEISENMATERIALIEN MAT. FERREUX	21	60						300-1000	300-1000				
	22	100						300-700	300-1000				
	23	75						300-700	150-1000				
	24	90						300-500	150-1000				
	25	130						250-350	150-700				
	26	110						400-500	100-400				
	27	90						250-350	100-400				
	28	100							100-400				
	29												
	30												
S MAT.DIFFICILI DIFFICULT MATERIAL SCHWIERIGE MATERILIEN MAT. DIFICILES	31	200	40-75				40-65	35-100					
	32	280	40-75				40-65	35-70					
	33	250	40-75				40-65		40-60				
	34	350	40-75				40-65	20-60	30-40				
	35	320	40-75				40-65	40-60	40-50				
	36	Rm400	40-75				40-65	40-60	40-70				
	37	Rm1050	40-75				40-65		30-50				
H MATERIALI DURI HARD MATERIALS HARTE MATERILIEN MATÉRIAUX DURS	38	55HRC											
	39	60HRC											
	40	400											
	41	55HRC											

Vc(m/min)

Velocità di taglio delle qualità di fresatura - Cutting speed of the milling grades
Schnittgeschwindigkeit der frässorten - Vitesse decoupe de la qualité de plaquettes de fraisage

SAU QUALITY TOOLS ENGINEERING

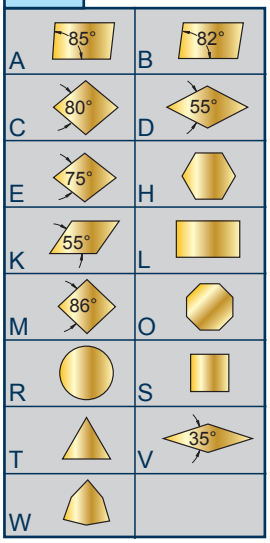
MATERIALE MATERIAL MATERIALIEN MATÉRIAUX PAG 1119	VDI 3323 GR.	HB HRC Rm											
P ACCIAI STEELS STAHL ACIER	1	125											
	2	180											
	3	250											
	4	220											
	5	300											
	6	180											
	7-8	250-300											
	9	350											
	10	200											
	11	350											
	12	200											
	13	330											
M ACCIAI INOX STAINLESS STEELS ROSTFREIER STAHL ACIER INOXYDABLE	14.1	180											
	14.2	230-260											
K GHISA CAST IRON GRAUGUSS FONTE GRISE	15	180											
	16	260											
	17	160											
	18	250											
	19	130											
	20	230											
N MAT.NON FERROSI NONFERROUS MAT. NICHTEISENMATERIALIEN MAT. FERREUX	21	60											
	22	100											
	23	75											
	24	90											
	25	130											
	26	110											
	27	90											
	28	100											
	29												
	30												
S MAT.DIFFICILI DIFFICULT MATERIAL SCHWIERIGE MATERILIEN MAT. DIFICILES	31	200											
	32	280											
	33	250											
	34	350											
	35	320											
	36	Rm400											
	37	Rm1050											
H MATERIALI DURI HARD MATERIALS HARTE MATERILIEN MATÉRIAUX DURS	38	55HRC											
	39	60HRC											
	40	400											
	41	55HRC											

Denominazione degli inserti per fresatura
Inserts designation for milling

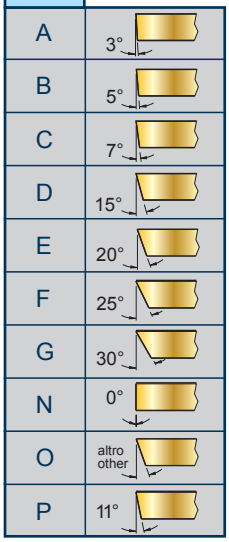
SAU QUALITY TOOLS ENGINEERING

A	P	K	T	10	03	P	D	T	R	.	-	-	-	P
1	2	3	4	5	6	7a/7b		8	9		10	11	12	13

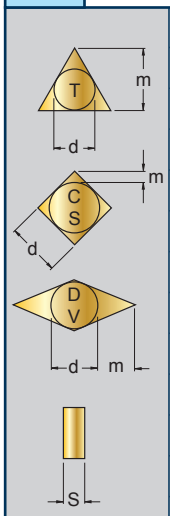
1 FORMA INSERTO / SHAPE OF INSERT



2 SPOGLIA INFER. / RELIEF ANGLE

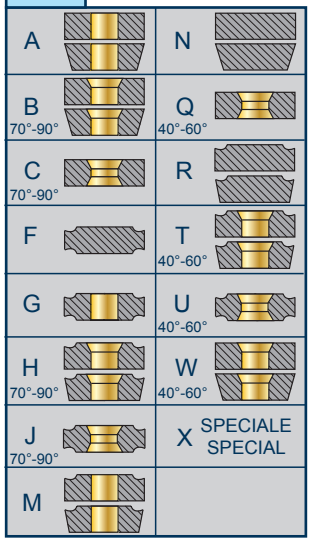


3 TOLLERANZA+/-{mm} / TOLLERANZA+/-{mm}



	m	s	d
A	+/-0,005	+/-0,025	+/-0,025
C	+/-0,013	+/-0,025	+/-0,025
E	+/-0,025	+/-0,025	+/-0,025
F	+/-0,005	+/-0,025	+/-0,013
G	+/-0,025	+/-0,05 +/-0,13	+/-0,025
H	+/-0,013	+/-0,025	+/-0,013
J	+/-0,005	+/-0,025	+/-0,05 +/-0,13
K	+/-0,013	+/-0,025	+/-0,05 +/-0,13
L	+/-0,05	+/-0,013	+/-0,025
M	+/-0,08 +/-0,18	+/-0,13	+/-0,05 +/-0,18
N	+/-0,08 +/-0,18	+/-0,025	+/-0,05 +/-0,13
U	+/-0,13 +/-0,38	+/-0,05 +/-0,13	+/-0,08 +/-0,32

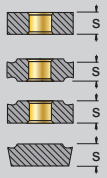
4 TIPO INSERTO / TYPE OF INSERT



5 LUNGHEZZA TAGLIENTE / CUTTING EDGE LENGTH

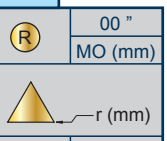
ød CERCHIO INSCRITTO INSCRIBED CIRCLE	A	C	D	E	K	L	M	O	R	S	T	V	W
3,97													02
4,76											08		02-03
5,56		05									09		
6,00													03
6,35		06	07	06			06			06	11	11	04
6,70	10												
7,94										07			
8,00				08									05
9,45	16												
9,52	15-16	09	11	09	16	15	09			09	16	16	06
10,00									10				06
11,00										11			
11,50						12							
12,00									12				07
12,62						18							
12,70		12	15	12		15-20		05		12	22		08
15,87		16								15			
19,05		19								19			

6 SPESSORE / THICKNESS



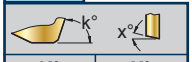
S	mm
01	1,59
T1	1,97
02	2,38
T2	2,78
03	3,18
T3	3,97
04	4,76
05	5,56
06	6,35
07	7,94
08	9,52

7a RAGGIO / RADIUS



02	r=0,2
04	r=0,4
05	r=0,5
06	r=0,6
08	r=0,8
10	r=1,0
12	r=1,2
16	r=1,6

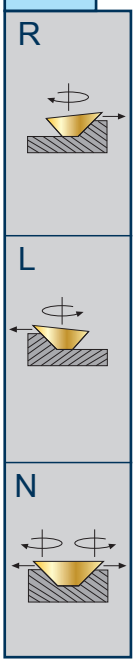
7b SMUSSO / CHAMFER



K°	X°
A=45°	D=15°
D=60°	E=20°
E=75°	F=25°
F=85°	N=0°
P=90°	P=11°
Z=SPEC	Z=SPEC

8

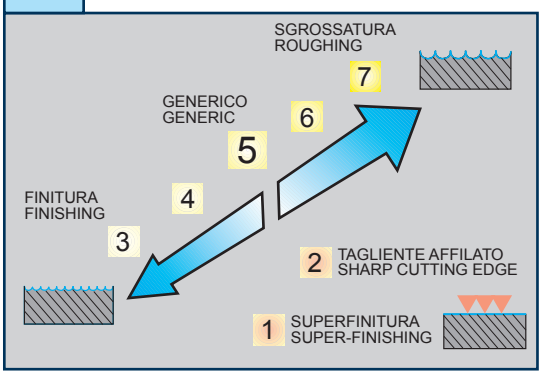
9



10 LETTERA DI IDENTIF. / IDENTIFICATION LETTER

A	M
C	N
D	P
E	R
F	S
G	T
H	U
I	W
J	Y
K	Z
L	

11 CAMPO DI LAVORAZIONE / MACHINING TYPES

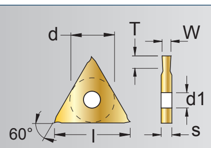


12 PREPARAZIONE TAGLIENTE / CUTTING EDGE PREPARATION

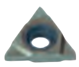
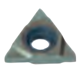
1 =	SPECIFICO PER GHISA / SPECIFIC FOR CAST IRON
3 =	SPECIFICO PER ACCIAIO INOX / SPECIFIC FOR STAINLESS STEEL
7 =	SPECIFICO PER LEGHE DI ALLUMINIO / SPECIFIC FOR ALUMINIUM ALLOYS
9 =	SPECIFICO PER ACCIAIO / SPECIFIC FOR STEEL
2 = 4 = 5 = 6 = 8 =	INTERMEDI DI USO GENERICO / INTERMEDIATE FOR GENERAL USE

13 LUCIDATO / POLISH

156.15..
154.15..



HT: CERMET — HW: NON RIVESTITI / CEMENTED CARBIDE GRADES — HC: RIVESTITI / COATED GRADES / BESCHICHTET / RECOUVERTS

ART.	COD.		l	d	s	d1	W	T	N6315	N3440	F4340	F6315
	TOLLERANZA **W** - **W** TOLERANCE						+0,05 +0,01					
 C54	156.15-16110	.C54	16,0	9,52	3	4,5	1,10	3,0				■
	156.15-16130	.C54	16,0	9,52	3	4,5	1,30	3,0				■
	156.15-16160	.C54	16,0	9,52	3	4,5	1,60	3,0				■
	156.15-16185	.C54	16,0	9,52	3	4,5	1,85	3,0				■
	156.15-16215	.C54	16,0	9,52	3	4,5	2,15	3,0				■
	156.15-16265	.C54	16,0	9,52	3	4,5	2,65	3,0				■
	156.15-16315	.C54	16,0	9,52	3,5	4,5	3,15	3,3				■
	156.15-16415	.C54	16,0	9,52	4,5	4,5	4,15	3,3				■
 C57	156.15-16110	.C57	16,0	9,52	3	4,5	1,10	3,0	■			
	156.15-16130	.C57	16,0	9,52	3	4,5	1,30	3,0	■			
	156.15-16160	.C57	16,0	9,52	3	4,5	1,60	3,0	■			
	156.15-16185	.C57	16,0	9,52	3	4,5	1,85	3,0	■			
	156.15-16215	.C57	16,0	9,52	3	4,5	2,15	3,0	■			
	156.15-16265	.C57	16,0	9,52	3	4,5	2,65	3,0	■			
	156.15-16315	.C57	16,0	9,52	3,5	4,5	3,15	3,3	■			
	156.15-16415	.C57	16,0	9,52	4,5	4,5	4,15	3,3	■			
	TOLLERANZA **W** - **W** TOLERANCE						+0,05 -0,05					
	154.15-16110		16,0	9,52	2,5	4,5	1,25	1,2		■	■	
	154.15-16130		16,0	9,52	2,5	4,5	1,45	1,5		■	■	
	154.15-16160		16,0	9,52	2,5	4,5	1,80	1,8		■	■	
	154.15-16185		16,0	9,52	2,5	4,5	2,00	3		■	■	
	154.15-16215		16,0	9,52	2,8	4,5	2,30	3		■	■	
	154.15-16265		16,0	9,52	3,3	4,5	2,80	3		■	■	
	154.15-16315		16,0	9,52	3,8	4,5	3,35	3		■	■	

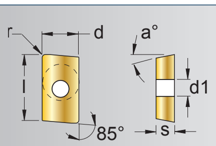
	MATERIALE - MATERIAL - MATERIALIEN - MATÉRIAUX	N6315	N3440	F4340	F6315
P	ACCIAIO - STEEL - STAHL - ACIER			●	●
M	ACCIAIO INOX - STAINLESS STEEL - ROSTFREIER STAHL - ACIER INOXYDABLE			●	●
K	GHISA - CAST IRON - GRAUGUSS - FONTE GRISE		●		●
N	LEGHE DI ALLUMINIO - ALUMINIUM ALLOYS - ALUMINIUM-LEGIERUNGEN - ALLIAGES D'ALUMINIUM	●	●		
S	LEGHE RESISTENTI AL CALORE - HEAT RESISTANT ALLOYS - WÄRMEBESTÄNDIGE LEGIERUNGEN - ALLIAGES RÉSISTANTES À LA CHALEUR				
H	MATERIALI DURI E TEMPRATI - HARD AND HARDENED MATERIAL - HARTE UND GEHÄRTETE MATERIALIEN - MATERIAUX DURS ET TREMPÉS				

■ DISPONIBILI - IN STOCK - LIEFERBAR - DISPONIBLES / ■ NEW
● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION-EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

□ A RICHIESTA - ON REQUEST - AUF ANFRAGE - SUR DEMANDE / □ NEW
O APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION - MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

SAU QUALITY TOOLS ENGINEERING

APHT APKT APKX



HT: CERMET — HW: NON RIVESTITI / CEMENTED CARBIDE GRADES — HC: RIVESTITI / COATED GRADES / BESCHICHTET / RECOUVERTS

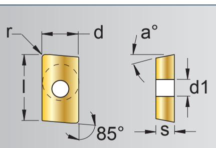
ART.	COD.	l	d	s	d1	r	a°	T120	F2140	T516	T526	T528N	T530	T525	F2330 (NEW)	F1035	F2335 (NEW)
 .I52	APKT 1003 PDR .I52	10,5	6,70	3,5	2,8	0,5	11					■					
 .S52	APKT 1003 PDTR .S52	10,5	6,70	3,5	2,8	0,5	11			■			■				
 .S52	APKX 1003 PDR .S52	10,5	6,70	3,5	2,8	0,5	11							■			
 .Z53	APHT 100312 SR .Z53	10,5	6,70	3,5	2,8	1,2	11		■								
	APHT 100320 SR .Z53	10,5	6,70	3,5	2,8	2,0	11		■								
	IN ESAURIMENTO / END OF STOCK / AUSLAUFEND / EN EPUISEMENT																
 .Z54	APKT 1003 PDER .Z54	10,5	6,70	3,5	2,8	0,5	11									■	
	APKT 1003 PDSR .Z54	10,5	6,70	3,5	2,8	0,5	11				■						
 .T55	APKT 1003 PDER .T55 NEW	11,0	6,70	3,5	2,8	0,5	11								■ (NEW)		■ (NEW)
 .S57	APHT 1003 PDFR .S57	10,5	6,70	3,5	2,8	0,5	11	■									

	MATERIALE - MATERIAL - MATERIALIEN - MATÉRIAUX	T120	F2140	T516	T526	T528N	T530	T525	F2330 (NEW)	F1035	F2335 (NEW)
P	ACCIAIO - STEEL - STAHL - ACIER		○		●	●	●	●	○	●	○
M	ACCIAIO INOX - STAINLESS STEEL - ROSTFREIER STAHL - ACIER INOXYDABLE		●		○	○	●	●	●		●
K	GHISA - CAST IRON - GRAUGUSS - FONTE GRISE	●		●	●	○	○	○			○
N	LEGHE DI ALLUMINIO - ALUMINIUM ALLOYS - ALUMINIUM-LEGIERUNGEN - ALLIAGES D'ALUMINIUM	●					○				
S	LEGHE RESISTENTI AL CALORE - HEAT RESISTANT ALLOYS - WÄRMEBESTÄNDIGE LEGIERUNGEN - ALLIAGES RÉSISTANTES À LA CHALEUR	○	○		○	○	○	○	●		●
H	MATERIALI DURI E TEMPRATI - HARD AND HARDENED MATERIAL - HARTE UND GEHÄRTETE MATERIALIEN - MATERIAUX DURS ET TREMPÉS							○			

■ DISPONIBILI - IN STOCK - LIEFERBAR - DISPONIBLES / ■ NEW
● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION-EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

□ A RICHIESTA - ON REQUEST - AUF ANFRAGE - SUR DEMANDE / □ NEW
○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION - MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

APMT APFT APFX APKT APKX



								HT	HW		HC									
								CERMET	NON RIVESTITI CEMENTED CARBIDE GRADES		RIVESTITI COATED GRADES BESCHICHTET RECOUVERTS							NEW	NEW	
ART.	COD.	l	d	s	d1	r	a°	T110	T120	F4635	T516	T526	T528N	T530	T525	F2330	F2335	T544
F M R  .S51	APKT 1604 PDR .S51	17,0	9,45	5,26	4,4	0,4	11		■									
F M R  .I52	APMT 1604 PDR .I52	17,0	9,45	5,26	4,4	0,8	11						■					
F M R  .S52	APKT 1604 PDTR .S52	17,0	9,45	5,26	4,4	0,8	11				■			■				
F M R  .S52	APFT 1604 PDTR .S52	17,0	9,45	4,76	4,4	0,8	11								■			
F M R  .S52	APKX 1604 PDR .S52	17,0	9,45	5,76	4,4	0,8	11				■				■			■
F M R  .S52	APFX 160416R .S52	17,0	9,45	4,76	4,4	1,6	11								■			
	APFX 160424R .S52	17,0	9,45	4,76	4,4	2,4	11								■			
	APFX 160430R .S52	17,0	9,45	4,76	4,4	3,0	11								■			
	APFX 160440R .S52	17,0	9,45	4,76	4,4	4,0	11								■			
	APFX 160448R .S52	17,0	9,45	4,76	4,4	4,8	11								■			
	APFX 160460R .S52	17,0	9,45	4,76	4,4	6,0	11											■
F M R  .S54	APKT 1604 PDTR .S54	17,0	9,45	5,26	4,4	0,4	11								■			
F M R  .Z54	APKT 1604 PDSR .Z54	17,0	9,45	5,26	4,4	0,8	11					■						
F M R  .T55	APKT 1604 PDR .T55 NEW	17,0	9,45	5,76	4,5	0,8	11									■ (NEW)	■ (NEW)	
F M R  .K57P	APKT 1604 PDFR .K57P	16,4	9,53	4,76	4,4	0,2	11	■										

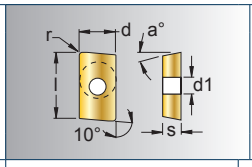
MATERIALE - MATERIAL - MATERIALIEN - MATÉRIAUX		T110	T120	F4635	T516	T526	T528N	T530	T525	F2330 (NEW)	F2335 (NEW)	T544
P	ACCIAIO - STEEL - STAHL - ACIER			●		●	●	●	●	○	○	●
M	ACCIAIO INOX - STAINLESS STEEL - ROSTFREIER STAHL - ACIER INOXYDABLE		○	●		○	○	●	●	●	●	●
K	GHISA - CAST IRON - GRAUGUSS - FONTE GRISE		●	○	●	●	○	○	○		○	○
N	LEGHE DI ALLUMINIO - ALUMINIUM ALLOYS - ALUMINIUM-LEGIERUNGEN - ALLIAGES D'ALUMINIUM	●	○					○				○
S	LEGHE RESISTENTI AL CALORE - HEAT RESISTANT ALLOYS - WÄRMEBESTÄNDIGE LEGIERUNGEN - ALLIAGES RÉSISTANTS À LA CHALEUR		○			○	○	○	○	●	●	○
H	MATERIALI DURI E TEMPRATI - HARD AND HARDENED MATERIAL - HARTE UND GEHÄRTETE MATERIALIEN - MATERIAUX DURS ET TREMPÉS								○			

■ DISPONIBILI - IN STOCK - LIEFERBAR - DISPONIBLES / ■ NEW
● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION-EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

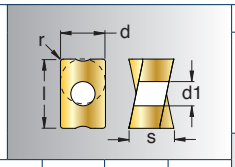
□ A RICHIESTA - ON REQUEST - AUF ANFRAGE - SUR DEMANDE / □ NEW
○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION - MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

SAU QUALITY TOOLS ENGINEERING

BDMT
BDGT



LNMM



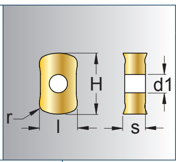
ART	COD.	l	d	s	d1	r	a°	HT CERMET N3015	HW NON RIVESTITI CEMENTED CARBIDE GRADES F3710	T3116	F3120	F3420	F4725	HC RIVESTITI COATED GRADES BESCHICHTET RECOUVERTS F1325	F1335	F4345
.Y57	BDGT 11T302FR .Y57	11,0	6,7	3,8	2,8	0,2	18	□								
	BDGT 11T304FR .Y57	11,0	6,7	3,8	2,8	0,4	18	■								
	BDGT 11T308FR .Y57	11,0	6,7	3,8	2,8	0,8	18	■								
	BDGT 170404FR .Y57	17,0	9,6	4,9	4,4	0,4	18	■								
	BDGT 170408FR .Y57	17,0	9,6	4,9	4,4	0,8	18	■								
	BDGT 170420FR .Y57	17,0	9,6	4,9	4,4	2,0	18	■								
	BDGT 170431FR .Y57	17,0	9,6	4,9	4,4	3,1	18	■								
.Y42	BDMT 070304ER .Y42	6,7	4,6	2,6	2,3	0,4	16		■				■			
	BDMT 11T304ER .Y42	11,0	6,7	3,8	2,8	0,4	18						■			
	BDMT 11T308ER .Y42	11,0	6,7	3,8	2,8	0,8	18						■			
	BDMT 170404ER .Y42	17,0	9,6	4,9	4,4	0,4	18						■			
	BDMT 170408ER .Y42	17,0	9,6	4,9	4,4	0,8	18						■			
.Y52	BDMT 070302ER .Y52	6,7	4,6	2,6	2,3	0,2	16						■			
	BDMT 070304ER .Y52	6,7	4,6	2,6	2,3	0,4	16		■				■			
	BDMT 11T308ER .Y52	11,0	6,7	3,8	2,8	0,8	18		■				■			
	BDMT 11T312ER .Y52	11,0	6,7	3,8	2,8	1,2	18						■			
	BDMT 11T316ER .Y52	11,0	6,7	3,8	2,8	1,6	18						■			
	BDMT 11T320ER .Y52	11,0	6,7	3,8	2,8	2,0	18						■			
	BDMT 11T324ER .Y52	11,0	6,7	3,8	2,8	2,4	18						■			
	BDMT 11T331ER .Y52	11,0	6,7	3,8	2,8	3,1	18						■			
	BDMT 170404ER .Y52	17,0	9,6	4,9	4,4	0,4	18		■							
	BDMT 170408ER .Y52	17,0	9,6	4,9	4,4	0,8	18		■				■			
	BDMT 170412ER .Y52	17,0	9,6	4,9	4,4	1,2	18		■				■			
	BDMT 170416ER .Y52	17,0	9,6	4,9	4,4	1,6	18		■				■			
	BDMT 170420ER .Y52	17,0	9,6	4,9	4,4	2,0	18						■			
	BDMT 170424ER .Y52	17,0	9,6	4,9	4,4	2,4	18						■			
	BDMT 170431ER .Y52	17,0	9,6	4,9	4,4	3,1	18						■			
	BDMT 170440ER .Y52	17,0	9,6	4,9	4,4	4,0	18						■			
.F56	LNMM 100605 .F56	10	6,5	6,5	3,5	0,5	–					■		■	■	■
	LNMM 151008 .F56	15	10	10	4,5	0,8	–					■		■	■	■
.F61	LNMM 100605 .F61	10	6,5	6,5	3,5	0,5	–			■	■					
	LNMM 151008 .F61	15	10	10	4,5	0,8	–			■	■					

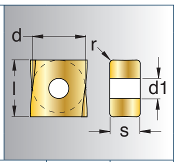
MATERIALE - MATERIAL - MATERIALIEN - MATÉRIAUX		N3015	F3710	T3116	F3120	F3420	F4725	F1325	F1335	F4345
P	ACCIAIO - STEEL - STAHL - ACIER				○		●	●	●	●
M	ACCIAIO INOX - STAINLESS STEEL - ROSTFREIER STAHL - ACIER INOXYDABLE						●	○	○	○
K	GHISA - CAST IRON - GRAUGUSS - FONTE GRISE		●	●	●	●		○		
N	LEGHE DI ALLUMINIO - ALUMINIUM ALLOYS - ALUMINIUM-LEGIERUNGEN - ALLIAGES D'ALUMINIUM	●								
S	LEGHE RESISTENTI AL CALORE - HEAT RESISTANT ALLOYS - WÄRMEBESTÄNDIGE LEGIERUNGEN - ALLIAGES RÉSISTANTES À LA CHALEUR	○	○							
H	MATERIALI DURI E TEMPRATI - HARD AND HARDENED MATERIAL - HARTE UND GEHÄRTETE MATERIALIEN - MATERIAUX DURS ET TREMPÉS									

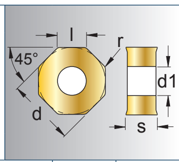
■ DISPONIBILI - IN STOCK - LIEFERBAR - DISPONIBLES / ■ NEW
● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION-EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

□ A RICHIESTA - ON REQUEST - AUF ANFRAGE - SUR DEMANDE / □ NEW
○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION - MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

SAU QUALITY TOOLS ENGINEERING

LNMT 

LNMX 

ONMU 

HT: CERMET — HW: NON RIVESTITI / CEMENTED CARBIDE GRADES — HC: RIVESTITI / COATED GRADES / BESCHICHTET / RECOUVERTS

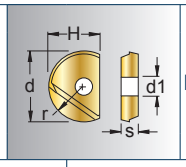
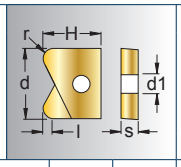
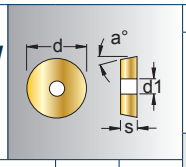
ART	COD.	l	d/H	s	d1	r	a°	F7810 (NEW)	F3120	F2135 (NEW)	F2740	F3120	F4130	T5120	F1325	F1335
F ○ M ● R ●  .X52	LNMT 060312 .X52	6,2	10	3,65	3	1,2	–						■	■		
F ○ M ● R ●  .F58	LNMX 131308 .F58	13	13	7,00	4,6	–	0,8								■	■
F ○ M ● R ●  .F61	LNMX 131308 .F61	13	13	7,00	4,6	–	0,8					■				
F M ● R ●  .F51	ONMU 050608SN .F51 NEW	5,24	12,7	5,8	5,45	0,8	–		■ (NEW)							
F M ● R ●  .F53	ONMU 050608SN .F53 NEW	5,24	12,7	5,8	5,45	0,8	–			■ (NEW)	■ (NEW)					
F M ● R ●  .F55	ONMU 050608SN .F55 NEW	5,24	12,7	5,8	5,45	0,8	–	■ (NEW)								
F M ● R ●  .F58	ONMU 050608SN .F58 NEW	5,24	12,7	5,8	5,45	0,8	–								■ (NEW)	■ (NEW)

MATERIALE - MATERIAL - MATERIALIEN - MATÉRIAUX		F7810 (NEW)	F3120	F2135 (NEW)	F2740	F3120	F4130	T5120	F1325	F1335
P	ACCIAIO - STEEL - STAHL - ACIER	●	○			○	●	●	●	●
M	ACCIAIO INOX - STAINLESS STEEL - ROSTFREIER STAHL - ACIER INOXYDABLE	○		●	●		●		○	○
K	GHISA - CAST IRON - GRAUGUSS - FONTE GRISE	●	●			●	○	●	○	
N	LEGHE DI ALLUMINIO - ALUMINIUM ALLOYS - ALUMINIUM-LEGIERUNGEN - ALLIAGES D'ALUMINIUM									
S	LEGHE RESISTENTI AL CALORE - HEAT RESISTANT ALLOYS - WÄRMEBESTÄNDIGE LEGIERUNGEN - ALLIAGES RÉSISTANTES À LA CHALEUR			○						
H	MATERIALI DURI E TEMPRATI - HARD AND HARDENED MATERIAL - HARTE UND GEHÄRTETE MATERIALIEN - MATERIAUX DURS ET TREMPÉS						○	○		

■ DISPONIBILI - IN STOCK - LIEFERBAR - DISPONIBLES / ■ NEW
● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION-EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

□ A RICHIESTA - ON REQUEST - AUF ANFRAGE - SUR DEMANDE / □ NEW
○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION - MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

SAU QUALITY TOOLS ENGINEERING

RA  RAET  RDET RDEW RDEX RDHT RDHX 

ART	COD.	d	s	d1	H	r	l/a°	HT CERMET	HW NON RIVESTITI CEMENTED CARBIDE GRADES	HC RIVESTITI COATED GRADES BESCHICHTET RECOUVERTS				
									N3620	F5105	F7810 NEW	F2331 NEW	F2335 NEW	
 .F42	RA 08. 04 .F42	8,0	2,4	2,5	7	4	–				■			
	RA 10. 04 .F42	10,0	2,6	3,0	8,5	5	–				■			
	RA 12. 04 .F42	12,0	3,0	3,5	10	6	–				■			
	RA 16. 04 .F42	16,0	4,0	4,0	12	8	–				■			
	RA 20. 04 .F42	20,0	5,0	5,0	15	10	–				■			
	RA 25. 04 .F42	25,0	6,0	6,0	18,5	12,5	–				■			
	RA 32. 04 .F42	32,0	7,0	8,0	23,5	16	–				■			
	NEW													
 .F42	RAET 080006 .F42	8,0	2,4	2,5	7,0	0,6	1,6				■			
	RAET 080010 .F42	8,0	2,4	2,5	7,0	1,0	2,0				■			
	RAET 100005 .F42	10,0	2,6	3,0	8,5	0,5	1,5				■			
	RAET 100008 .F42	10,0	2,6	3,0	8,5	0,8	1,8				■			
	RAET 100010 .F42	10,0	2,6	3,0	8,5	1,0	2,0				■			
	RAET 120005 .F42	12,0	3,0	3,5	10,0	0,5	1,5				■			
	RAET 120010 .F42	12,0	3,0	3,5	10,0	1,0	2,0				■			
	RAET 120020 .F42	12,0	3,0	3,5	10,0	2,0	3,0				■			
	RAET 160010 .F42	16,0	4,0	4,0	12,0	1,0	2,0				■			
	RAET 160030 .F42	16,0	4,0	4,0	12,0	3,0	4,0				■			
	RAET 200010 .F42	20,0	5,0	5,0	15,0	1,0	2,0				■			
	RAET 200040 .F42	20,0	5,0	5,0	15,0	4,0	5,0				■			
	RAET 250010 .F42	25,0	6,0	6,0	18,5	1,0	2,0				■			
	RAET 250050 .F42	25,0	6,0	6,0	18,5	5,0	6,0				■			
	NEW													
 .T42	RDHX 0501 MOE .T42	5,0	1,51	2,2	–	–	15			■				
	RDHX 07T1 MOT .T42	7,0	1,98	2,8	–	–	15			■				
	RDHX 0702 MOT .T42	7,0	2,38	2,8	–	–	15			■				
	RDHX 1003 MOT .T42	10,0	3,18	3,9	–	–	15			■				
	RDHX 12T3 MOT .T42	12,0	3,97	3,9	–	–	15			■				
	RDHX 1604 MOT .T42	16,0	4,76	5,2	–	–	15			■				
 .T56	RDET 1003 MOSN .T56	10,0	3,18	4,4	–	–	15					■	■	
	RDET 12T3 MOSN .T56	12,0	3,97	4,4	–	–	15						■	
 .T56	RDEX 1604 MOSN .T56	16,0	4,76	5,5	–	–	15						■	
 .T56	RDEW 1003 MOSN .T56	10,0	3,18	4,4	–	–	15					■		
	RDEW 12T3 MOSN .T56	12,0	3,97	4,4	–	–	15					■		
	RDEW 1604 MOSN .T56	16,0	4,76	5,5	–	–	15					■		
 .T57P	RDHT 07T1 MO .T57P	7,0	1,98	2,8	–	–	15		■					
	RDHT 0702 MO .T57P	7,0	2,38	2,8	–	–	15		■					
	RDHT 1003 MO .T57P	10,0	3,18	3,9	–	–	15		■					
	RDHT 12T3 MO .T57P	12,0	3,97	3,9	–	–	15		■					
	RDHT 1604 MO .T57P	16,0	4,76	5,2	–	–	15		■					

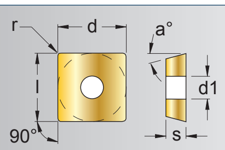
MATERIALE - MATERIAL - MATERIALIEN - MATÉRIAUX		N3620	F5105	F7810 NEW	F2331 NEW	F2335 NEW
P	ACCIAIO - STEEL - STAHL - ACIER		●	●	●	○
M	ACCIAIO INOX - STAINLESS STEEL - ROSTFREIER STAHL - ACIER INOXYDABLE			○	●	●
K	GHISA - CAST IRON - GRAUGUSS - FONTE GRISE		●	●		○
N	LEGHE DI ALLUMINIO - ALUMINIUM ALLOYS - ALUMINIUM-LEGIERUNGEN - ALLIAGES D'ALUMINIUM	●				
S	LEGHE RESISTENTI AL CALORE - HEAT RESISTANT ALLOYS - WÄRMEBESTÄNDIGE LEGIERUNGEN - ALLIAGES RÉSISTANTES À LA CHALEUR					●
H	MATERIALI DURI E TEMPRATI - HARD AND HARDENED MATERIAL - HARTE UND GEHÄRTETE MATERIALIEN - MATERIAUX DURS ET TREMPÉS		●	●		

■ DISPONIBILI - IN STOCK - LIEFERBAR - DISPONIBLES / ■ NEW
● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION-EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

□ A RICHIESTA - ON REQUEST - AUF ANFRAGE - SUR DEMANDE / □ NEW
○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION - MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

SAU QUALITY TOOLS ENGINEERING

SCMX
SDMT



	HT	HW	HC
	CERMET	NON RIVESTITI CEMENTED CARBIDE GRADES	RIVESTITI COATED GRADES BESCHICHTET RECOUVERTS

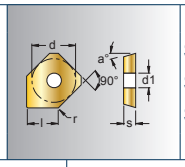
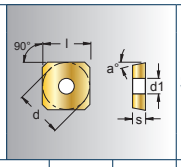
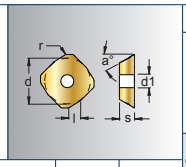
ART.		COD.	l	d	s	d1	r	a°	T1730	F4140	F1335
F, M ●, R	 .S52	SCMX 120408 ZN .S52	12,7	12,7	4,76	5,3	0,8	7		■	
F ○, M ●, R ●	 .F58	SDMT 1205 PDSR .F58 NEW	12,7	12,7	5,0	5,5	0,8	15	■		■

	MATERIALE - MATERIAL - MATERIALIEN - MATÉRIAUX	T1730	F4140	F1335
P	ACCIAIO - STEEL - STAHL - ACIER	●	●	●
M	ACCIAIO INOX - STAINLESS STEEL - ROSTFREIER STAHL - ACIER INOXYDABLE		●	○
K	GHISA - CAST IRON - GRAUGUSS - FONTE GRISE		●	
N	LEGHE DI ALLUMINIO - ALUMINIUM ALLOYS - ALUMINIUM-LEGIERUNGEN - ALLIAGES D'ALUMINIUM		○	
S	LEGHE RESISTENTI AL CALORE - HEAT RESISTANT ALLOYS - WÄRMEBESTÄNDIGE LEGIERUNGEN - ALLIAGES RÉSISTANTES À LA CHALEUR		●	
H	MATERIALI DURI E TEMPRATI - HARD AND HARDENED MATERIAL - HARTE UND GEHÄRTETE MATERIALIEN - MATERIAUX DURS ET TREMPÉS			

■ DISPONIBILI - IN STOCK - LIEFERBAR - DISPONIBLES / ■ NEW
● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION-EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

□ A RICHIESTA - ON REQUEST - AUF ANFRAGE - SUR DEMANDE / □ NEW
○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION - MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

SAU QUALITY TOOLS ENGINEERING

SEEX	SEHT SEKT SEKW	SEKX
		

ART	COD.	l	d	s	d1	r	a°	HT CERMET DT63	HW NON RIVESTITI CEMENTED CARBIDE GRADES N3005	HW NEW N3815	HC RIVESTITI COATED GRADES BESCHICHTET RECOUVERTS F2135	HC NEW F2135	HC F2740	HC F3120	HC NEW T1120	HC T528N	HC F1325	HC F1335
F M R .M12	SEEX 13T3 AGTR .M12	8,2	13,4	3,97	4,1	1,5	20	■	■									
F M R .F44P	SEHT 13T3 AZFN .F44P NEW	13,4	13,4	3,97	4,2	–	20			■								
F M R .F53	SEKT 13T3 AFEN .F53 NEW	13,4	13,4	3,97	4,2	–	20					■	■					
F M R .F58	SEKT 13T3 AFSN .F58 NEW	13,4	13,4	3,97	4,2	–	20								■		■	■
F M R .F51	SEKW 13T3 AFSN .F51 NEW	13,4	13,4	3,97	4,2	–	20							■				
F M R .Z52	SEKX 1305 AGSR .Z52	3,9	15,17	5,58	4,1	1,0	20									■		

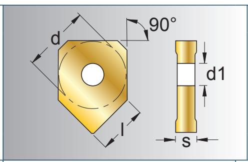
MATERIALE - MATERIAL - MATERIALIEN - MATÉRIAUX	DT63	N3005	N3815	F2135	F2740	F3120	T1120	T528N	F1325	F1335
P ACCIAIO - STEEL - STAHL - ACIER	●					○	●	●	●	●
M ACCIAIO INOX - STAINLESS STEEL - ROSTFREIER STAHL - ACIER INOXYDABLE	●			●	●			●	○	○
K GHISA - CAST IRON - GRAUGUSS - FONTE GRISE	●	●				●		○	○	
N LEGHE DI ALLUMINIO - ALUMINIUM ALLOYS - ALUMINIUM-LEGIERUNGEN - ALLIAGES D'ALUMINIUM			●							
S LEGHE RESISTENTI AL CALORE - HEAT RESISTANT ALLOYS - WÄRMEBESTÄNDIGE LEGIERUNGEN - ALLIAGES RÉSISTANTES À LA CHALEUR				○				○		
H MATERIALI DURI E TEMPRATI - HARD AND HARDENED MATERIAL - HARTE UND GEHÄRTETE MATERIALIEN - MATERIAUX DURS ET TREMPÉS										

■ DISPONIBILI - IN STOCK - LIEFERBAR - DISPONIBLES / ■ NEW
● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION-EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

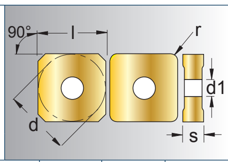
□ A RICHIESTA - ON REQUEST - AUF ANFRAGE - SUR DEMANDE / □ NEW
○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION - MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

SAU QUALITY TOOLS ENGINEERING

SNEX



SNCX SNMX



HT: CERMET — HW: NON RIVESTITI / CEMENTED CARBIDE GRADES — HC: RIVESTITI / COATED GRADES / BESCHICHTET / RECOUVERTS

ART	COD.	l	d	s	d1	r	a°	N3815 (NEW)	F2740	T3116	F3120	F3420	T1025	T1730	F3010	F1335
F M R .K11	SNEX 1206NN .K11	8,5	12,7	6,35	4,5	–	–								■	
F M R .F57P	SNCX 1206ANFN .F57P NEW	12,7	12,7	6,35	5,4	–	–	■ (NEW)								
F M R .F51	SNMX 1206NN .F51	12,7	12,7	6,35	5,4	–	–			■	■					
F M R .F52	SNMX 1206NN .F52	12,7	12,7	6,35	5,4	–	–						■			
F M R .F53	SNMX 1206NN .F53	12,7	12,7	6,35	5,4	–	–		■							
F M R .F56	SNMX 1206NN .F56	12,7	12,7	6,35	5,4	–	–					■				
F M R .F58	SNMX 1206NN .F58	12,7	12,7	6,35	5,4	–	–							■		■
F M R .F51	SNMX 1206QNN .F51	12,7	12,7	6,35	5,4	0,8	–			■	■					
F M R .F53	SNMX 1206QNN .F53	12,7	12,7	6,35	5,4	0,8	–		■							
F M R .F58	SNMX 1206QNN .F58	12,7	12,7	6,35	5,4	0,8	–							■		■
F M R .F51	SNMX 120612 .F51	12,7	12,7	6,35	5,4	1,2	–			■						
F M R .F58	SNMX 120612 .F58	12,7	12,7	6,35	5,4	1,2	–							■		■

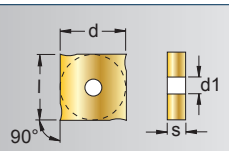
	MATERIALE - MATERIAL - MATERIALIEN - MATÉRIAUX	N3815 (NEW)	F2740	T3116	F3120	F3420	T1025	T1730	F3010	F1335
P	ACCIAIO - STEEL - STAHL - ACIER				○		●	●		●
M	ACCIAIO INOX - STAINLESS STEEL - ROSTFREIER STAHL - ACIER INOXYDABLE		●							○
K	GHISA - CAST IRON - GRAUGUSS - FONTE GRISE			●	●	●			●	
N	LEGHE DI ALLUMINIO - ALUMINIUM ALLOYS - ALUMINIUM-LEGIERUNGEN - ALLIAGES D'ALUMINIUM	●								
S	LEGHE RESISTENTI AL CALORE - HEAT RESISTANT ALLOYS - WÄRMEBESTÄNDIGE LEGIERUNGEN - ALLIAGES RÉSISTANTES À LA CHALEUR									
H	MATERIALI DURI E TEMPRATI - HARD AND HARDENED MATERIAL - HARTE UND GEHÄRTETE MATERIALIEN - MATERIAUX DURS ET TREMPÉS									

■ DISPONIBILI - IN STOCK - LIEFERBAR - DISPONIBLES / ■ NEW
● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION-EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

□ A RICHIESTA - ON REQUEST - AUF ANFRAGE - SUR DEMANDE / □ NEW
○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION - MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

SAU QUALITY TOOLS ENGINEERING

SNHX



ART.	COD.	l	d	s	d1	r	a°	HT CERMET T115	HW NON RIVESTITI CEMENTED CARBIDE GRADES T115	HC RIVESTITI COATED GRADES BESCHICHTET RECOUVERTS T5020	HC T528N	HC F1035
F M R	 .Z47											
	SNHX 1102 .Z47	11,0	11,0	2,3	4,4	–	–		■			
	SNHX 1103 .Z47	11,0	11,0	2,7	4,4	–	–		■			
	SNHX 1203 .Z47	12,7	12,7	3,2	5,0	–	–		■			
	SNHX 1204 .Z47	12,7	12,7	4,0	5,0	–	–		■			
	SNHX 12045 .Z47	12,7	12,7	4,5	5,0	–	–		■			
	SNHX 1205 .Z47	12,7	12,7	5,4	5,0	–	–		■			
	SNHX 1207 .Z47	12,7	12,7	7,0	5,0	–	–		■			
F M R	 .Z52											
	SNHX 1102 .Z52	11,0	11,0	2,3	4,4	–	–			■	■	
	SNHX 1103 .Z52	11,0	11,0	2,7	4,4	–	–			■	■	
	SNHX 1203 .Z52	12,7	12,7	3,2	5,0	–	–			■	■	
	SNHX 1204 .Z52	12,7	12,7	4,0	5,0	–	–			■	■	
	SNHX 12045 .Z52	12,7	12,7	4,5	5,0	–	–			■	■	
	SNHX 1205 .Z52	12,7	12,7	5,4	5,0	–	–			■	■	
	SNHX 1207 .Z52	12,7	12,7	7,0	5,0	–	–			■	■	
F M R	 .Z62											
	SNHX 1102 .Z62	11,0	11,0	2,3	4,4	–	–					■
	SNHX 1103 .Z62	11,0	11,0	2,7	4,4	–	–					■
	SNHX 1203 .Z62	12,7	12,7	3,2	5,0	–	–					■
	SNHX 1204 .Z62	12,7	12,7	4,0	5,0	–	–					■
	SNHX 12045 .Z62	12,7	12,7	4,5	5,0	–	–					■
	SNHX 1205 .Z62	12,7	12,7	5,4	5,0	–	–					■
	SNHX 1207 .Z62	12,7	12,7	7,0	5,0	–	–					■

MATERIALE - MATERIAL - MATERIALIEN - MATÉRIAUX

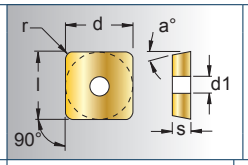
		T115	T5020	T528N	F1035
P	ACCIAIO - STEEL - STAHL - ACIER		●	○	●
M	ACCIAIO INOX - STAINLESS STEEL - ROSTFREIER STAHL - ACIER INOXYDABLE			●	
K	GHISA - CAST IRON - GRAUGUSS - FONTE GRISE	●	●		
N	LEGHE DI ALLUMINIO - ALUMINIUM ALLOYS - ALUMINIUM-LEGIERUNGEN - ALLIAGES D'ALUMINIUM	●			
S	LEGHE RESISTENTI AL CALORE - HEAT RESISTANT ALLOYS - WÄRMEBESTÄNDIGE LEGIERUNGEN - ALLIAGES RÉSISTANTES À LA CHALEUR			○	
H	MATERIALI DURI E TEMPRATI - HARD AND HARDENED MATERIAL - HARTE UND GEHÄRTETE MATERIALIEN - MATERIAUX DURS ET TREMPÉS				

■ DISPONIBILI - IN STOCK - LIEFERBAR - DISPONIBLES / ■ NEW
● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION-EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

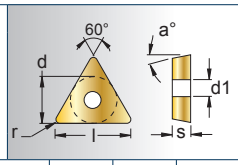
□ A RICHIESTA - ON REQUEST - AUF ANFRAGE - SUR DEMANDE / □ NEW
○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION - MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

SAU QUALITY TOOLS ENGINEERING

SPMT SPMW



TCMT TCMX



ART.	COD.	l	d	s	d1	r	a°	HT CERMET C4010	HW NON RIVESTITI CEMENTED CARBIDE GRADES T120	HC RIVESTITI COATED GRADES BESCHICHTET RECOUVERTS F2425	F2435	T1415	T3115	T3220	T1425	T528N	F4140	T1435	T540
.N54	SPMT 060304 .N54	6,35	6,35	3,18	2,8	0,4	11									■				
	SPMT 09T308 .N54	9,52	9,52	3,97	4,5	0,8	11									■				
	SPMT 120408 .N54	12,7	12,7	4,76	5,5	0,8	11									■				
.N51	SPMW 060304 .N51	6,35	6,35	3,18	2,8	0,4	11						■							
	SPMW 09T308 .N51	9,52	9,52	3,97	4,5	0,8	11						■							
	SPMW 120408 .N51	12,7	12,7	4,76	5,5	0,8	11						■							
.N59	SPMW 060304 .N59	6,35	6,35	3,18	2,8	0,4	11									■				
	SPMW 09T308 .N59	9,52	9,52	3,97	4,5	0,8	11									■				
	SPMW 120408 .N59	12,7	12,7	4,76	5,5	0,8	11									■				
.G39	TCMT 110204 .G39	11,0	6,35	2,38	2,8	0,4	11	■												
.S42	TCMT 110202 .S42	11,0	6,35	2,38	2,8	0,2	7												■	
	TCMT 110204 .S42	11,0	6,35	2,38	2,8	0,4	7		■										■	
	TCMT 16T304 .S42	16,5	9,52	3,97	4,4	0,4	7		■											
	TCMT 16T308 .S42	16,5	9,52	3,97	4,4	0,8	7		■										■	
	TCMT 220404 .S42	22,0	12,7	4,76	5,6	0,4	7		■											
.G52	TCMT 110204 .G52	11,0	6,35	2,38	2,8	0,4	7			■	■	■		■	■	■			■	
	TCMT 110208 .G52	11,0	6,35	2,38	2,8	0,8	7			■	■			■	■				■	
	TCMT 16T304 .G52	16,5	9,52	3,97	4,4	0,4	7			■				■	■				■	
	TCMT 16T308 .G52	16,5	9,52	3,97	4,4	0,8	7			■				■	■				■	
	TCMT 16T312 .G52	16,5	9,52	3,97	4,4	1,5	7			■					■					
.Z52	TCMT 220408 EN .Z52	22,0	12,7	4,76	5,6	0,8	7												■	
.S52	TCMX 16T308ZN .S52	16,5	9,52	3,97	4,4	0,8	7											■		

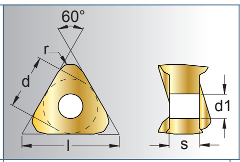
MATERIALE - MATERIAL - MATERIALIEN - MATÉRIAUX

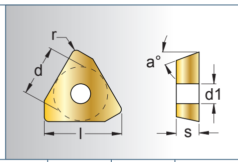
		C4010	T120	F2425	F2435	T1415	T3115	T3220	T1425	T528N	F4140	T1435	T540
P	ACCIAIO - STEEL - STAHL - ACIER	○		○	○	●		○	●	●	●	●	●
M	ACCIAIO INOX - STAINLESS STEEL - ROSTFREIER STAHL - ACIER INOXYDABLE	●	○	●	●				○	●	●	○	●
K	GHISA - CAST IRON - GRAUGUSS - FONTE GRISE	○	●			○	●	●	○				
N	LEGHE DI ALLUMINIO - ALUMINIUM ALLOYS - ALUMINIUM-LEGIERUNGEN - ALLIAGES D'ALUMINIUM		○										○
S	LEGHE RESISTENTI AL CALORE - HEAT RESISTANT ALLOYS - WÄRMEBESTÄNDIGE LEGIERUNGEN - ALLIAGES RÉSISTANTES À LA CHALEUR		○							○	●		○
H	MATERIALI DURI E TEMPRATI - HARD AND HARDENED MATERIAL - HARTE UND GEHÄRTETE MATERIALIEN - MATERIAUX DURS ET TREMPÉS												

■ DISPONIBILI - IN STOCK - LIEFERBAR - DISPONIBLES / ■ NEW
● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION-EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

☐ A RICHIESTA - ON REQUEST - AUF ANFRAGE - SUR DEMANDE / ☐ NEW
○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION - MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

SAU QUALITY TOOLS ENGINEERING

TNGX


TOKX


HT: CERMET — HW: NON RIVESTITI / CEMENTED CARBIDE GRADES — HC: RIVESTITI / COATED GRADES / BESCHICHTET / RECOUVERTS

ART.	COD.	l	d	s	d1	r	a°	T2035 (NEW)	F2635 (NEW)	F4635	F5105	T5130	F2330 (NEW)	F2335 (NEW)
 .X42 (F M● R) NEW	TNGX 060404 .X42	11	6,35	3,42	2,8	0,4	–				■		■	■
	TNGX 060408 .X42	11	6,35	3,42	2,8	0,8	–				■		■	■
 .X54 (F M● R) NEW	TNGX 060404 .X54	11	6,35	3,42	2,8	0,4	–				■		■	■
	TNGX 060408 .X54	11	6,35	3,42	2,8	0,8	–				■		■	■
 .G52 (F M● R) NEW	TOKX 09T308PDER .G52	13	9,58	3,85	3,35	0,8	12			■		■		
	TOKX 09T316PDER .G52	13	9,58	3,85	3,35	1,6	12			■		■		
 .G53 (F M● R) NEW	TOKX 09T308PDER .G53	13	9,58	3,85	3,35	0,8	12	■	■					
	TOKX 09T316PDER .G53	13	9,58	3,85	3,35	1,6	12	■	■					

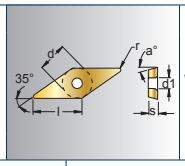
	MATERIALE - MATERIAL - MATERIALIEN - MATÉRIAUX	T2035 (NEW)	F2635 (NEW)	F4635	F5105	T5130	F2330 (NEW)	F2335 (NEW)
P	ACCIAIO - STEEL - STAHL - ACIER		○	●	●	●	○	○
M	ACCIAIO INOX - STAINLESS STEEL - ROSTFREIER STAHL - ACIER INOXYDABLE	●	●	○	○	○	●	●
K	GHISA - CAST IRON - GRAUGUSS - FONTE GRISE			○	○	○		○
N	LEGHE DI ALLUMINIO - ALUMINIUM ALLOYS - ALUMINIUM-LEGIERUNGEN - ALLIAGES D'ALUMINIUM							
S	LEGHE RESISTENTI AL CALORE - HEAT RESISTANT ALLOYS - WÄRMEBESTÄNDIGE LEGIERUNGEN - ALLIAGES RÉSISTANTES À LA CHALEUR	●			○		○	○
H	MATERIALI DURI E TEMPRATI - HARD AND HARDENED MATERIAL - HARTE UND GEHÄRTETE MATERIALIEN - MATERIAUX DURS ET TREMPÉS							

■ DISPONIBILI - IN STOCK - LIEFERBAR - DISPONIBLES / ■ NEW
● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION-EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

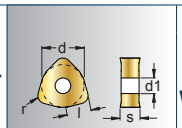
□ A RICHIESTA - ON REQUEST - AUF ANFRAGE - SUR DEMANDE / □ NEW
○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION - MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

SAU QUALITY TOOLS ENGINEERING

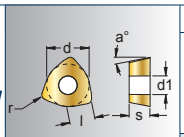
VDKT VCKT



WNMT



WPMT WPMW



ART	COD.	l	d	s	d1	r	a°	HT CERMET T110	HW NON RIVESTITI CEMENTED CARBIDE GRADES T110	HC RIVESTITI COATED GRADES BESCHICHTET RECOUVERTS F4130	HC F4140	HC T5120
F M R .K57P	VDKT 11T210 N .K57P	11	6,35	2,87	2,8	1	7		■			
F M R .K57P	VCKT 220530 .K57P	20,1	12,7	5,56	5,6	3,0	15		■			
F M R .X52	WNMT 140525 .X52	7	13,7	5,5	4,9	2,5	–			■		■
F M R ○ .N42	WPMT 06X415 ZSR .N42	6	9,52	4,20	4,3	1,5	11				■	
F M R ○ .N42	WPMT 080615 ZSR .N42	8	12,7	6,35	5,4	1,5	11				■	
F M R .N52	WPMW 06X415 ZSR.N52	6	9,52	4,20	4,3	1,5	11				■	■
F M R .N52	WPMW 080615 ZSR.N52	8	12,7	6,35	5,4	1,5	11				■	■

MATERIALE - MATERIAL - MATERIALIEN - MATÉRIAUX

		T110	T110	F4130	F4140	T5120
P	ACCIAIO - STEEL - STAHL - ACIER			●	●	●
M	ACCIAIO INOX - STAINLESS STEEL - ROSTFREIER STAHL - ACIER INOXYDABLE			●	●	
K	GHISA - CAST IRON - GRAUGUSS - FONTE GRISE		○	○	○	●
N	LEGHE DI ALLUMINIO - ALUMINIUM ALLOYS - ALUMINIUM-LEGIERUNGEN - ALLIAGES D'ALUMINIUM		●			
S	LEGHE RESISTENTI AL CALORE - HEAT RESISTANT ALLOYS - WÄRMEBESTÄNDIGE LEGIERUNGEN - ALLIAGES RÉSISTANTES À LA CHALEUR				○	
H	MATERIALI DURI E TEMPRATI - HARD AND HARDENED MATERIAL - HARTE UND GEHÄRTETE MATERIALIEN - MATERIAUX DURS ET TREMPÉS			○		○

■ DISPONIBILI - IN STOCK - LIEFERBAR - DISPONIBLES / ■ NEW
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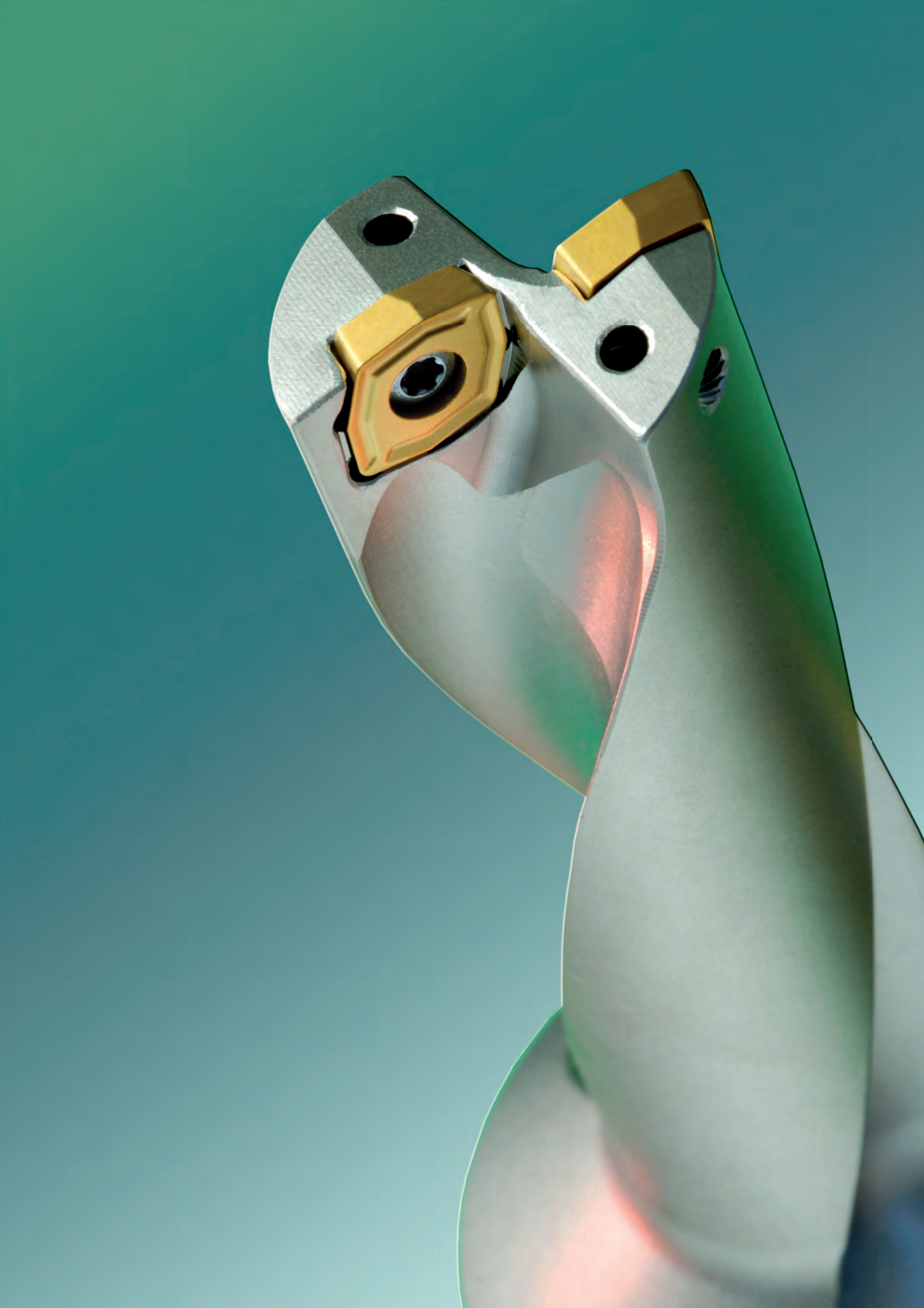
□ A RICHIESTA - ON REQUEST - AUF ANFRAGE - SUR DEMANDE / □ NEW
○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION - MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

FORATURA
LAVORAZIONE FORI

DRILLING - MACHINING OF BORES / BOHREN - BEARBEITUNG VON BOHRUNGEN /
PERÇAGE - USINAGE DES TROUS / TALADRAR - TRABAJO DE LOS AGUJEROS

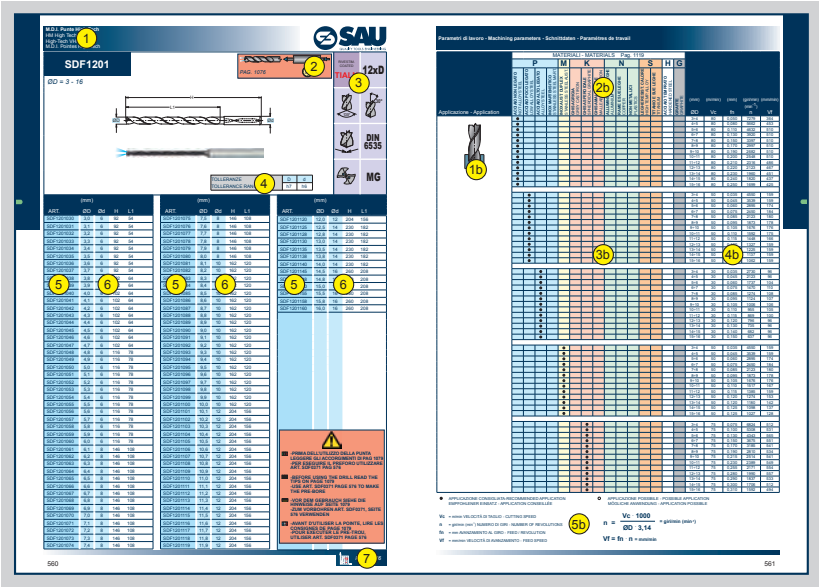
SAU
QUALITY TOOLS ENGINEERING

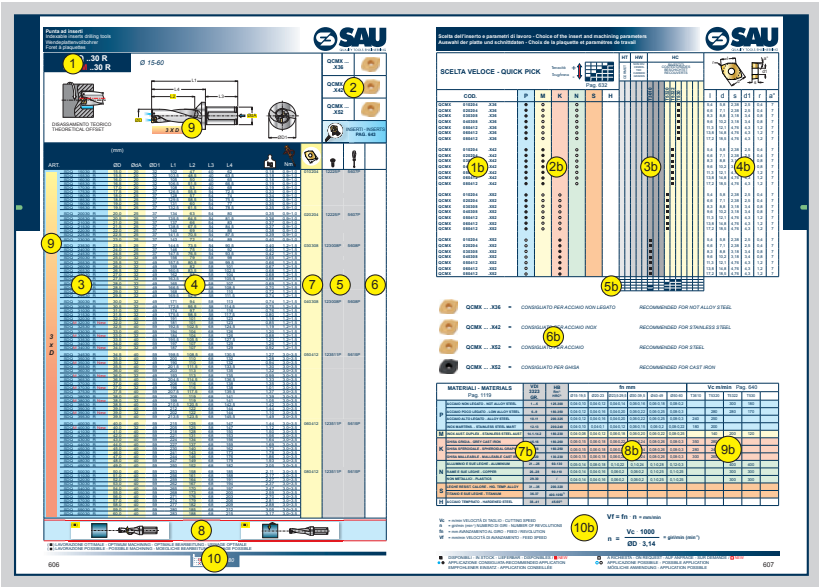


SAU
QUALITY TOOLS ENGINEERING

FORATURA - LAVORAZIONE FORI
DRILLING - MACHINING OF BORES
BOHREN - BEARBEITUNG VON BOHRUNGEN
PERÇAGE - USINAGE DES TROUS
TALADRAR - TRABAJO DE AGUJEROS

INDICAZIONI DI LETTURA
READING INSTRUCTIONS
HINWEISE ZUR ABLESUNG
INDICATIONS DE LÉCTURE





1 = DESCRIZIONE ARTICOLO
2 = PRESSIONE/VOLUME DEL REFRIGERANTE PER PUNTE FORATE
3 = CARATTERISTICHE TECNICHE (PAG. 527)
4 = TOLLERANZE COSTRUTTIVE
5 = ELENCO ARTICOLI
6 = MISURE E DATI
7 = ULTERIORI DATI TECNICI E CONSIGLIO D'USO

1B = LAVORAZIONI ESEGUIBILI
2B = GRUPPI MATERIALI
3B = INDICAZIONE MATERIALI LAVORABILI E CAMPI D'IMPIEGO
4B = PARAMETRI DI LAVORO
5B = FORMULE E PARAMETRI

1 = ITEM DESCRIPTION
2 = COOLANT PRESSURE/VOLUME FOR DRILLS WITH COOLANT BORE
3 = TECHNICAL FEATURES (PAG. 527)
4 = CONSTRUCTIVES TOLERANCE
5 = ITEM
6 = MEASURES AND DATA
7 = FURTHER TECHNICAL DATA AND SUGGESTIONS

1B = POSSIBLE MACHINING OPERATIONS
2B = MATERIAL GROUPS
3B = INFORMATION ON WORKABLE MATERIALS AND FIELDS OF APPLICATION
4B = MACHINING PARAMETERS
5B = FORMULAS AND PARAMETERS

1 = ARTIKELBESCHREIBUNG
2 = SCHMIERSTOFFDRUCK-/-VOLUMEN FÜR KÜHLKANALBOHRER
3 = TECHNISCHE HAUPTMERKMALE (PAG. 527)
4 = KONSTRUKTIONSTOLERANZEN
5 = ARTIKEL
6 = ABMESSUNGEN UND DATEN
7 = WEITERE TECHNISCHE DATEN UND TIPPS

1B = MÖGLICHE BEARBEITUNGEN
2B = MATERIALGRUPPEN
3B = ANGABE DER BEARBEITBAREN MATERIALIEN UND ANWENDUNGSGEBIETE
4B = SCHNITTDATEN
5B = FORMELN UND PARAMETER

1 = DESCRIPTION ARTICLES
2 = PRESSION/VOLUME DU RÉFRIGÉRANT POUR FORETS AVEC TROUS D'ARROSAGE
3 = CARACTERISTIQUES TECHNIQUES (PAG. 527)
4 = TOLÉRANCE CONSTRUCTIVES
5 = ARTICLES
6 = DIMENSIONES ET DONNÉES
7 = ULTÉRIEURES DONNÉES TECHNIQUE ET CONSEILLE D'USAGE

1B = USINAGES A EXECUTER
2B = GROUPES DE MATERIAUX
3B = INDICATION MATERIAUX A USINER ET PLAGES D'APPLICATION
4B = PARAMÉTRES DE TRAVAIL
5B = FORMULES ET PARAMÈTRES

1 = ARTICOLO + GAMMA DIAMETRI
2 = INSERTI CONSIGLIATI
3 = ELENCO ARTICOLI
4 = MISURE, DATI, INDICAZIONI
5 = ACCESSORI IN DOTAZIONE
6 = ACCESSORI E RICAMBI OPZIONALI A RICHIESTA
7 = GRANDEZZA INSERTO
8 = LAVORAZIONI POSSIBILI
9 = PROFONDITÀ DI FORATURA L2/D
10 = DATI TECNICI E CONSIGLI D'USO

1B = ELENCO INSERTI
2B = INDICAZIONE MATERIALI LAVORABILI
3B = DISPONIBILITÀ GRADI
4B = MISURE E DATI
5B = SCELTA DEL GRADO (QUICK PICK)
6B = SCELTA DELL'INSERTO
7B = GRUPPI MATERIALI
8B = AVANZAMENTO AL GIRO fn
9B = VELOCITÀ DI TAGLIO Vc
10B = FORMULE E PARAMETRI

1 = ITEM + DIAMETER RANGE
2 = RECOMMENDED INSERTS
3 = ITEMS
4 = MEASURES,DATA,INDICATIONS
5 = ACCESSORIES EQUIPMENT
6 = OPZIONAL ACCESORIES AND SPARE PARTS ON REQUEST
7 = INSERT SIZE
8 = POSSIBLE TYPES OF MACHINING
9 = DRILLING DEPTH L2/D
10 = TECHNICAL DATA AND SUGGESTIONS

1B = AVAILABLE INSERTS
2B = RECOMMENDED MACHINING MATERIALS
3B = AVAILABLE GRADES
4B = MEASURES AND DATA
5B = GRADE CHOICE(QUICK PICK)
6B = INSERT CHOICE
7B = MATERIAL GROUPS
8B = fn FEED/REVOLUTION
9B = CUTTING SPEED Vc
10B = FORMULAS AND PARAMETERS

1 = ARTIKEL + DURCHMESSERBEREICH
2 = EMPFOHLENE WENDESCHNEIDPLATTEN
3 = ARTKEL
4 = ABMESSUNGEN,DATEN,HINWEISE
5 = ZUBEHÖRAUSSTATTUNG
6 = OPTIONALZUBEHÖR UND ERSATZTEILE AUF ANFRAGE
7 = WENDEPLATTENGRÖSSE
8 = MÖGLICHE BEARBEITUNGSARTEN
9 = BOHRTIEFE L2/D
10 = TECHNISCHE DATEN UND TIPPS

1B = LIEFERBARE WENDEPLATTEN
2B = EMPFOHLENE WERKMATERIALIEN
3B = LIEFERBARE HM-QUALITÄTEN
4B = ABMESSUNGEN UND DATEN
5B = SORTENAUSWAHL(QUICK PICK)
6B = WAHL DER PLATTE
7B = MATERIALGRUPPEN
8B = VORSCHUB/UMDREHUNG
9B = SCHNITTGESCHWINDIGKEIT Vc
10B = FORMELN UND PARAMETER

1 = ARTICLE + GAMME DE DIAMÈTRES
2 = PLAQUETTES CONSEILLÈES
3 = ARTICLES
4 =DIMENSIONES,DONNÉES,INDICATIONS
5 = ACCESOIRES EN DOTATION
6 = ACCESOIRES ET RECHANGE OPTIONNEL SUR DEMANDE
7 = DIMENSION DE LA PLAQUETTE
8 = USINAGES POSSIBLES
9 = PROFONDEUR DE PERÇAGE L2/D
10 = DONNÉES TECHNIQUES ET CONSEILLES D'USAGE

1B = PLAQUETTES DISPONIBLES
2B = INDICATIONS SUR LES MATERIAUX USINABLE
3B = DISPONIBILITÉ DE DEGRÉS
4B = DIMENSIONES ET DONNÉES
5B = CHOIX DU DEGRÉ(QUICK PICK)
6B = CHOIX DE LA PLAQUETTE
7B = GROUPES DE MATERIAUX
8B = DÉPLACEMENT PAR TOUR fn
9B = VITESSE DE COUPE Vc
10B = FORMULES ET PARAMÈTRES

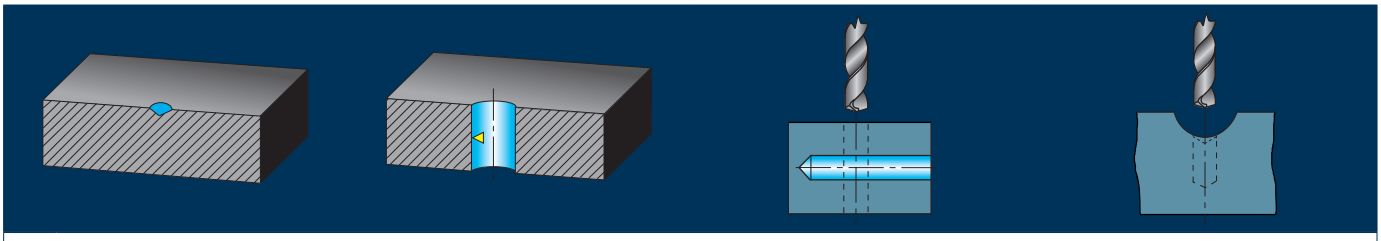
SAU
QUALITY TOOLS ENGINEERING

PUNTE INTEGRALI IN METALLO DURO
SOLID CARBIDE DRILLS
HM VOLLBOHRER
FORETS EN CARBURE MONOBLOC
PUNTAS INTEGRALES EN METAL DURO

		ART.	LUNGHEZZA ELICA / LENGTH FLUTES	ØD	z	MATERIALE / MATERIAL	Materiali - Materials Pag. 1119 P	M	K	N	S	H	G	Pag.
MICROPUNTE - MICRO-DRILLS														
TiALN		SDM0301	3xD	0,4-2,9	2	MG	●	●	●	●	○	○	○	530
		SDMN0301	3xD	0,4-2,9	2	MG	●	○	●	●			○	532
TiALN		SDM0501	5xD	0,7-2,9	2	MG	●	●	●	●	○	○	○	534
		SDMN0501	5xD	0,7-2,9	2	MG	●	○	●	●			○	536
TiALN		SDM0310	3xD	0,5-2,9	2	MG	●	●	●	●	○	○	○	538
		SDMN0310	3xD	0,5-2,9	2	MG	●	○	●	●			○	540
TiALN		SDM0510	5xD	0,5-2,9	2	MG	●	●	●	●	○	○	○	542
		SDMN0510	5xD	0,5-2,9	2	MG	●	○	●	●			○	544
PUNTE INTEGRALI IN HM - SOLID CARBIDE DRILLS														
TiALN		SDR0341	3xD	3-12	2	MG	●		○	○			○	548
TiALN		SDR0302	3xD	3-20	2	MG	●	○	●				○	550
TiALN		SDF0302	3xD	3-20	2	MG	●	●	●		○		○	552
TiALN		SDR0502	5xD	3-20	2	MG	●	○	○				○	554
TiALN		SDF0502	5xD	3-20	2	MG	●	○	○		○		○	556
TiALN		SDF0802	8xD	3-16	2	MG	●	●	●				○	558
TiALN		SDF1201	12xD	3-16	2	MG	●	●	●				○	560

● APPLICAZIONE CONSIGLIATA - RECOMMENDED APPLICATION
EMPFOHLENEREINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE



			ART.	ANGOLO ELICA ANGLE FLUTES	ØD	z	MATERIALE MATERIAL	Materiali - Materials Pag. 1119 P	M	K	N	S	H	G	Pag.
PUNTE A GRADINO - STEP DRILLS															
		TiALN		SDN0102	30°	3,4-11	2	MG	●		●					564
		TiALN		SDR0102	30°	2,5-14	2	MG	●		●					566
PUNTE A CENTRARE – PUNTA PILOTA - CENTER DRILLS – PILOT DRILL															
		TiALN		SCR0184	30°	3-20	2	MG	●	○	●	○				570
		TiALN		SCR0185	30°	6-20	2	MG	●	○	●	○				572
		TiALN		SCR0186	30°	6-20	2	MG	●	○	●	○				574
		TiALN		SDF0371	30°	2-12	2	MG	●	●	●					576
PUNTE FORALESA - REAMER-DRILLS															
		TiALN		SPFAR3	30°	2,97-20,02	2	MG	●		●					580
		TiALN		SPFAR5	30°	2,97-20,02	2	MG	●		●					582
ALESATORI - REAMERS															
				SAN0508	6°	3-18	4/8	MG	●	●	●	●				586
				SAN0509	6°	2,97-18,20	4/8	MG	●	●	●	●				588
				SAN0708	6°	1-20,2	4/8	MG	●	●	●	●				590
				SAN0709	6°	0,90-20,20	4/8	MG	●	●	●	●				592
				SAN0808	6°	1,5-12,2	4/6	MG	●	●	●	●				594
				SAN0809	6°	2,00-12,20	4/6	MG	●	●	●	●				596
	NEW			SAN0208	6°	1-35,2	4/10	HSSE	●	●	●	●				598
	NEW			SAN0209	6°	0,70-35,20	4/10	HSSE	●	●	●	●				600

● APPLICAZIONE CONSIGLIATA - RECOMMENDED APPLICATION
EMPFOHLENEREINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

SIMBOLOGIA - SYMBOL - SYMBOLE - SYMBOLES

RIVESTIMENTI - COATED - BESCHICHTUNG - RECOUVREMENT

RIVESTIM. COATED **TIALN**	TiAlN: Elevata durezza e resistenza al calore, basso coefficiente di attrito, si può usare con refrigerante oppure a secco con aria. *TiAlN: High degree of hardness and heat resistance, low friction coefficient; it can be used with coolant or with air and no coolant*

AFFILATURA TESTA - HEAD SHARPENING - KOPFSCHLIFF - AFFUTAGE TETE

	- Autocentrante - Tipo S - Self centering - S Type - Selbstzentrierend - Type S - A centrage automatique - Type S		- Autocentrante - Tipo 4F - Self centering - 4F Type - Selbstzentrierend - Type 4F - A centrage automatique - Type 4F		- Autocentrante - refrigerata - Tipo 4F - Self centering - with coolant - 4F Type - Selbstzentrierend - gekühlt - Type 4F - A centrage automatique-refrigere - Type 4F
	- Doppio pattino - Tipo 4F - Double ski drills - 4F Type - Doppel-Ski-Bohrer - Type 4F - Double de ski perceuses - Type 4F		- Doppio pattino - refrigerata - Tipo 4F - Double ski drills - with coolant - 4F Type - Doppel-Ski-Bohrer - gekühlt - Type 4F - Double de ski perceuses - refrigere - Type 4F		- Punte a centrare - Center drills - Zentrierbohrer - Pointes a centrer
	- Punte Foralesa - Reamer-Drills - Reibahlen-Bohrer - Forets de perçage et alésage				

ANGOLO ELICA - FLUTES DEGREES - SPIRALWINKEL - ANGLE HELICE

	■ 30°		■ 6°

ANGOLO DI TESTA - HEAD ANGLE - KOPFKEGELWINKEL - ANGLE DE TETE

	■ 90°		■ 118°		■ 120°
	■ 135°		■ 140°		■ 142°
	■ 145°				

NORME - STANDARDS - NORMEN - NORMES

DIN 338	■ DIN 338	**DIN 1897**	■ DIN 1897	**DIN 6535**	■ DIN 6535
DIN 6537	■ DIN 6537	**DIN 6539**	■ DIN 6539		

LUNGHEZZA PUNTA - DRILL LENGHT - BOHRERLÄNGE - LONGUEUR POINTE

3xD	- 3 volte il diametro - Three times the diameter - Dreimal den durchmesser - 3 fois le diametre	**5xD**	- 5 volte il diametro - Five times the diameter - Fünfmal den durchmesser - 5 fois le diametre	**8xD**	- 8 volte il diametro - Eight times the diameter - Achtmal den durchmesser - 8 fois le diametre	**12xD**	- 12 volte il diametro - Twelve times the diameter - Zwölfmal den durchmesser - 12 fois le diametre

SIMBOLI GENERALI - GENERAL SYMBOLS - ALLGEMEINE SYMBOLE - SYMBOLES GÉNÉRAUX

	- Punta autocentrante - Self-centering drill - Selbstzentrierender bohrer - Pointe a centrage automatique	**MG**	- Micrograno 0,7 µm (K 20) - Micrograin 0,7 µm (K 20) - Feinstkorn 0,7 µm (K 20) - Microgrenu 0,7 µm (K 20)	**HSSE**	- Acciaio rapido al Cobalto - Cobalt high speed steel - Kobaltschnellstahl - Acier rapide au cobalt

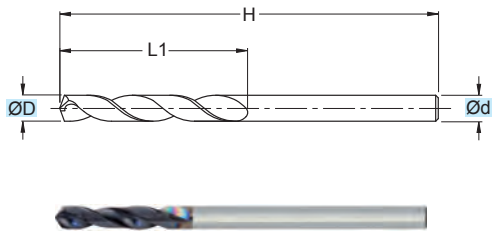
MICROPUNTE

MICRO-DRILLS / MIKROBOHRER / MICRO-FORETS / MICROBROCAS

SAU
QUALITY TOOLS ENGINEERING

SDM0301

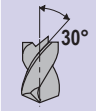
ØD = 0,4 - 2,9



TOLLERANZE	D	d
TOLLERANCE RANGE	h7	h7

RIVESTIM. COATED
TIALN

3xD



DIN 6539

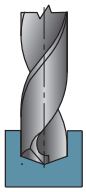
MG

(mm)

ART.	ØD	Ød	H	L1
SDM0301004	0,4	0,4	26	6
SDM0301005	0,5	0,5	26	6
SDM0301006	0,6	0,6	26	6
SDM0301007	0,7	0,7	26	6
SDM0301008	0,8	0,8	26	6
SDM0301009	0,9	0,9	26	6
SDM0301010	1,0	1,0	26	6
SDM0301011	1,1	1,1	28	7
SDM0301012	1,2	1,2	30	8
SDM0301013	1,3	1,3	30	8
SDM0301014	1,4	1,4	32	9
SDM0301015	1,5	1,5	32	9
SDM0301016	1,6	1,6	34	10
SDM0301017	1,7	1,7	34	10
SDM0301018	1,8	1,8	36	11
SDM0301019	1,9	1,9	36	11
SDM0301020	2,0	2,0	38	12
SDM0301021	2,1	2,1	38	12
SDM0301022	2,2	2,2	40	13
SDM0301023	2,3	2,3	40	13
SDM0301024	2,4	2,4	43	14
SDM0301025	2,5	2,5	43	14
SDM0301026	2,6	2,6	43	14
SDM0301027	2,7	2,7	46	16
SDM0301028	2,8	2,8	46	16
SDM0301029	2,9	2,9	46	16

PAG. 1076

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm)	(m/min)	(mm)	(giri/min) (min^{-1})	(mm/min)
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO E SUE LEGHE ALUMINIUM	RAME E SUE LEGHE COPPER	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE	ØD	Vc	fn	n	Vf
		●														0,4÷0,8	50	0,07	–	–
		●														0,8÷1,2	50	0,07	–	–
		●														1,2÷1,6	50	0,10	–	–
		●														1,6÷2,0	50	0,10	–	–
		●														2,0÷2,4	50	0,12	–	–
		●														2,4÷2,9	50	0,14	–	–
			●													0,4÷0,8	40	0,07	–	–
			●													0,8÷1,2	40	0,07	–	–
			●													1,2÷1,6	40	0,10	–	–
			●													1,6÷2,0	40	0,10	–	–
			●													2,0÷2,4	40	0,12	–	–
			●													2,4÷2,9	40	0,14	–	–
					●											0,4÷0,8	30	0,04	–	–
					●											0,8÷1,2	30	0,04	–	–
					●											1,2÷1,6	30	0,06	–	–
					●											1,6÷2,0	30	0,06	–	–
					●											2,0÷2,4	30	0,07	–	–
					●											2,4÷2,9	30	0,08	–	–
							●									0,4÷0,8	65	0,07	–	–
							●									0,8÷1,2	65	0,07	–	–
							●									1,2÷1,6	65	0,10	–	–
							●									1,6÷2,0	65	0,10	–	–
							●									2,0÷2,4	65	0,12	–	–
							●									2,4÷2,9	65	0,14	–	–
									●							0,4÷0,8	115	0,07	–	–
									●							0,8÷1,2	115	0,07	–	–
									●							1,2÷1,6	115	0,10	–	–
									●							1,6÷2,0	115	0,10	–	–
									●							2,0÷2,4	115	0,12	–	–
									●							2,4÷2,9	115	0,14	–	–
												○				0,4÷0,8	15	0,03	–	–
												○				0,8÷1,2	15	0,03	–	–
												○				1,2÷1,6	15	0,04	–	–
												○				1,6÷2,0	15	0,04	–	–
												○				2,0÷2,4	15	0,05	–	–
												○				2,4÷2,9	15	0,06	–	–
													○			0,4÷0,8	15	0,025	–	–
													○			0,8÷1,2	15	0,025	–	–
													○			1,2÷1,6	15	0,025	–	–
													○			1,6÷2,0	15	0,025	–	–
													○			2,0÷2,4	15	0,035	–	–
													○			2,4÷2,9	15	0,035	–	–
														○		0,4÷0,8	15	0,015	–	–
														○		0,8÷1,2	15	0,015	–	–
														○		1,2÷1,6	15	0,015	–	–
														○		1,6÷2,0	15	0,015	–	–
														○		2,0÷2,4	15	0,025	–	–
														○		2,4÷2,9	15	0,025	–	–

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

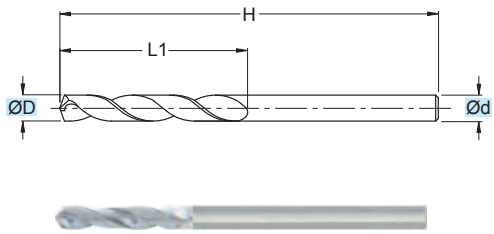
Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

$$n = \frac{Vc \cdot 1000}{ØD \cdot 3,14} = \text{giri/min } (min^{-1})$$

$$Vf = fn \cdot n = \text{mm/min}$$

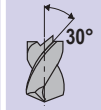
SDMN0301

ØD = 0,4 - 2,9



TOLLERANZE	D	d
TOLLERANCE RANGE	h7	h7

3xD



DIN 6539

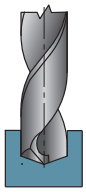
MG

(mm)

ART.	ØD	Ød	H	L1
SDMN0301004	0,4	0,4	26	6
SDMN0301005	0,5	0,5	26	6
SDMN0301006	0,6	0,6	26	6
SDMN0301007	0,7	0,7	26	6
SDMN0301008	0,8	0,8	26	6
SDMN0301009	0,9	0,9	26	6
SDMN0301010	1,0	1,0	26	6
SDMN0301011	1,1	1,1	28	7
SDMN0301012	1,2	1,2	30	8
SDMN0301013	1,3	1,3	30	8
SDMN0301014	1,4	1,4	32	9
SDMN0301015	1,5	1,5	32	9
SDMN0301016	1,6	1,6	34	10
SDMN0301017	1,7	1,7	34	10
SDMN0301018	1,8	1,8	36	11
SDMN0301019	1,9	1,9	36	11
SDMN0301020	2,0	2,0	38	12
SDMN0301021	2,1	2,1	38	12
SDMN0301022	2,2	2,2	40	13
SDMN0301023	2,3	2,3	40	13
SDMN0301024	2,4	2,4	43	14
SDMN0301025	2,5	2,5	43	14
SDMN0301026	2,6	2,6	43	14
SDMN0301027	2,7	2,7	46	16
SDMN0301028	2,8	2,8	46	16
SDMN0301029	2,9	2,9	46	16

PAG. 1076

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm)	(m/min)	(mm)	(giri/min) (min^{-1})	(mm/min)
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO E SUE LEGHE ALUMINIUM	RAME E SUE LEGHE COPPER	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE	ØD	Vc	fn	n	Vf
		●														0,4÷0,8	40	0,04	–	–
		●														0,8÷1,2	40	0,04	–	–
		●														1,2÷1,6	40	0,06	–	–
		●														1,6÷2,0	40	0,06	–	–
		●														2,0÷2,4	40	0,08	–	–
		●														2,4÷2,9	40	0,08	–	–
			●													0,4÷0,8	30	0,04	–	–
			●													0,8÷1,2	30	0,04	–	–
			●													1,2÷1,6	30	0,06	–	–
			●													1,6÷2,0	30	0,06	–	–
			●													2,0÷2,4	30	0,08	–	–
			●													2,4÷2,9	30	0,08	–	–
					○											0,4÷0,8	20	0,03	–	–
					○											0,8÷1,2	20	0,03	–	–
					○											1,2÷1,6	20	0,04	–	–
					○											1,6÷2,0	20	0,04	–	–
					○											2,0÷2,4	20	0,05	–	–
					○											2,4÷2,9	20	0,05	–	–
							●									0,4÷0,8	50	0,03	–	–
							●									0,8÷1,2	50	0,03	–	–
							●									1,2÷1,6	50	0,04	–	–
							●									1,6÷2,0	50	0,04	–	–
							●									2,0÷2,4	50	0,05	–	–
							●									2,4÷2,9	50	0,05	–	–
									●							0,4÷0,8	80	0,04	–	–
									●							0,8÷1,2	80	0,04	–	–
									●							1,2÷1,6	80	0,06	–	–
									●							1,6÷2,0	80	0,06	–	–
									●							2,0÷2,4	80	0,08	–	–
									●							2,4÷2,9	80	0,08	–	–

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

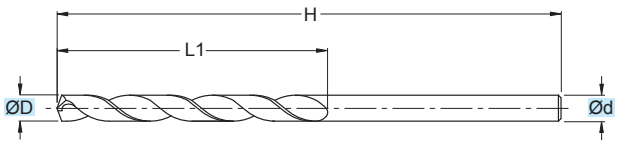
Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

$$n = \frac{Vc \cdot 1000}{ØD \cdot 3{,}14} = \text{giri/min } (min^{-1})$$

$$Vf = fn \cdot n = \text{mm/min}$$

SDM0501

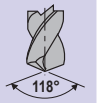
ØD = 0,7 - 2,9

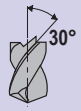


TOLLERANZE	D	d
TOLLERANCE RANGE	h7	h7

RIVESTIM. COATED
TIALN

5xD





DIN 338

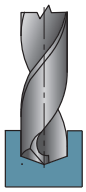
MG

(mm)

ART.	ØD	Ød	H	L1
SDM0501007	0,7	0,7	28	9
SDM0501008	0,8	0,8	30	10
SDM0501009	0,9	0,9	32	11
SDM0501010	1,0	1,0	34	12
SDM0501011	1,1	1,1	36	14
SDM0501012	1,2	1,2	38	16
SDM0501013	1,3	1,3	38	16
SDM0501014	1,4	1,4	40	18
SDM0501015	1,5	1,5	40	18
SDM0501016	1,6	1,6	43	20
SDM0501017	1,7	1,7	43	20
SDM0501018	1,8	1,8	46	22
SDM0501019	1,9	1,9	46	22
SDM0501020	2,0	2,0	49	24
SDM0501021	2,1	2,1	49	24
SDM0501022	2,2	2,2	53	27
SDM0501023	2,3	2,3	53	27
SDM0501024	2,4	2,4	57	30
SDM0501025	2,5	2,5	57	30
SDM0501026	2,6	2,6	57	30
SDM0501027	2,7	2,7	61	33
SDM0501028	2,8	2,8	61	33
SDM0501029	2,9	2,9	61	33

PAG. 1076

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm)	(m/min)	(mm)	(giri/min) (min^{-1})	(mm/min)
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO E SUE LEGHE ALUMINIUM	RAME E SUE LEGHE COPPER	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE	ØD	Vc	fn	n	Vf
		●														0,4÷0,8	50	0,07	–	–
		●														0,8÷1,2	50	0,07	–	–
		●														1,2÷1,6	50	0,10	–	–
		●														1,6÷2,0	50	0,10	–	–
		●														2,0÷2,4	50	0,12	–	–
		●														2,4÷2,9	50	0,14	–	–
			●													0,4÷0,8	40	0,07	–	–
			●													0,8÷1,2	40	0,07	–	–
			●													1,2÷1,6	40	0,10	–	–
			●													1,6÷2,0	40	0,10	–	–
			●													2,0÷2,4	40	0,12	–	–
			●													2,4÷2,9	40	0,14	–	–
					●											0,4÷0,8	30	0,04	–	–
					●											0,8÷1,2	30	0,04	–	–
					●											1,2÷1,6	30	0,06	–	–
					●											1,6÷2,0	30	0,06	–	–
					●											2,0÷2,4	30	0,07	–	–
					●											2,4÷2,9	30	0,08	–	–
							●									0,4÷0,8	65	0,07	–	–
							●									0,8÷1,2	65	0,07	–	–
							●									1,2÷1,6	65	0,10	–	–
							●									1,6÷2,0	65	0,10	–	–
							●									2,0÷2,4	65	0,12	–	–
							●									2,4÷2,9	65	0,14	–	–
									●							0,4÷0,8	115	0,07	–	–
									●							0,8÷1,2	115	0,07	–	–
									●							1,2÷1,6	115	0,10	–	–
									●							1,6÷2,0	115	0,10	–	–
									●							2,0÷2,4	115	0,12	–	–
									●							2,4÷2,9	115	0,14	–	–
												○				0,4÷0,8	15	0,03	–	–
												○				0,8÷1,2	15	0,03	–	–
												○				1,2÷1,6	15	0,04	–	–
												○				1,6÷2,0	15	0,04	–	–
												○				2,0÷2,4	15	0,05	–	–
												○				2,4÷2,9	15	0,06	–	–
													○			0,4÷0,8	15	0,025	–	–
													○			0,8÷1,2	15	0,025	–	–
													○			1,2÷1,6	15	0,025	–	–
													○			1,6÷2,0	15	0,025	–	–
													○			2,0÷2,4	15	0,035	–	–
													○			2,4÷2,9	15	0,035	–	–
														○		0,4÷0,8	15	0,015	–	–
														○		0,8÷1,2	15	0,015	–	–
														○		1,2÷1,6	15	0,015	–	–
														○		1,6÷2,0	15	0,015	–	–
														○		2,0÷2,4	15	0,025	–	–
														○		2,4÷2,9	15	0,025	–	–

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED

n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS

fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION

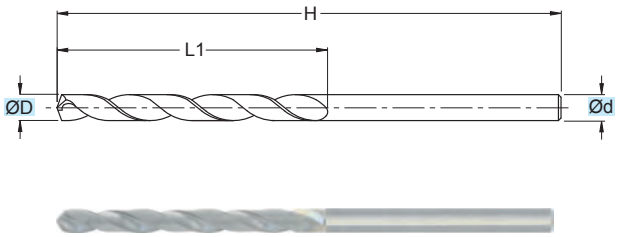
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

$$n = \frac{Vc \cdot 1000}{ØD \cdot 3{,}14} = \text{giri/min } (min^{-1})$$

$$Vf = fn \cdot n = \text{mm/min}$$

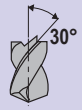
SDMN0501

ØD = 0,7 - 2,9



TOLLERANZE	D	d
TOLLERANCE RANGE	h7	h7

5xD



DIN 338

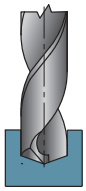
MG

(mm)

ART.	ØD	Ød	H	L1
SDMN0501007	0,7	0,7	28	9
SDMN0501008	0,8	0,8	30	10
SDMN0501009	0,9	0,9	32	11
SDMN0501010	1,0	1,0	34	12
SDMN0501011	1,1	1,1	36	14
SDMN0501012	1,2	1,2	38	16
SDMN0501013	1,3	1,3	38	16
SDMN0501014	1,4	1,4	40	18
SDMN0501015	1,5	1,5	40	18
SDMN0501016	1,6	1,6	43	20
SDMN0501017	1,7	1,7	43	20
SDMN0501018	1,8	1,8	46	22
SDMN0501019	1,9	1,9	46	22
SDMN0501020	2,0	2,0	49	24
SDMN0501021	2,1	2,1	49	24
SDMN0501022	2,2	2,2	53	27
SDMN0501023	2,3	2,3	53	27
SDMN0501024	2,4	2,4	57	30
SDMN0501025	2,5	2,5	57	30
SDMN0501026	2,6	2,6	57	30
SDMN0501027	2,7	2,7	61	33
SDMN0501028	2,8	2,8	61	33
SDMN0501029	2,9	2,9	61	33

PAG. 1076

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm)	(m/min)	(mm)	(giri/min) (min^{-1})	(mm/min)
	ACCIAIO NON LEGATO NOT ALLOY STEEL	**ACCIAIO POCO LEGATO** LOW ALLOY STEEL	**ACCIAIO ALTO LEGATO** ALLOY STEEL	**INOX MARTENSITICO** STAINLESS STEEL MART.	**INOX AUST. DUPLEX** STAINLESS STEEL AUST.	**GHISA GRIGIA** GREY CAST IRON	**GHISA SFEROIDALE** SPHEROIDAL GRAPHITE	**GHISA MALLEABILE** MALLEABLE CAST IRON	**ALLUMINIO E SUE LEGHE** ALUMINIUM	**RAME E SUE LEGHE** COPPER	**NON METALLICI** PLASTICS	**LEGHE RESIST. CALORE** HIGH TEMP. ALLOY	**TITANIO E SUE LEGHE** TITANIUM	**ACCIAIO TEMPRATO** HARDENED STEEL	**GRAFITE** GRAPHITE	ØD	Vc	fn	n	Vf
		●														0,4÷0,8	40	0,04	–	–
		●														0,8÷1,2	40	0,04	–	–
		●														1,2÷1,6	40	0,06	–	–
		●														1,6÷2,0	40	0,06	–	–
		●														2,0÷2,4	40	0,08	–	–
		●														2,4÷2,9	40	0,08	–	–
			●													0,4÷0,8	30	0,04	–	–
			●													0,8÷1,2	30	0,04	–	–
			●													1,2÷1,6	30	0,06	–	–
			●													1,6÷2,0	30	0,06	–	–
			●													2,0÷2,4	30	0,08	–	–
			●													2,4÷2,9	30	0,08	–	–
					○											0,4÷0,8	20	0,03	–	–
					○											0,8÷1,2	20	0,03	–	–
					○											1,2÷1,6	20	0,04	–	–
					○											1,6÷2,0	20	0,04	–	–
					○											2,0÷2,4	20	0,05	–	–
					○											2,4÷2,9	20	0,05	–	–
							●									0,4÷0,8	50	0,03	–	–
							●									0,8÷1,2	50	0,03	–	–
							●									1,2÷1,6	50	0,04	–	–
							●									1,6÷2,0	50	0,04	–	–
							●									2,0÷2,4	50	0,05	–	–
							●									2,4÷2,9	50	0,05	–	–
									●							0,4÷0,8	80	0,04	–	–
									●							0,8÷1,2	80	0,04	–	–
									●							1,2÷1,6	80	0,06	–	–
									●							1,6÷2,0	80	0,06	–	–
									●							2,0÷2,4	80	0,08	–	–
									●							2,4÷2,9	80	0,08	–	–

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED

n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS

fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION

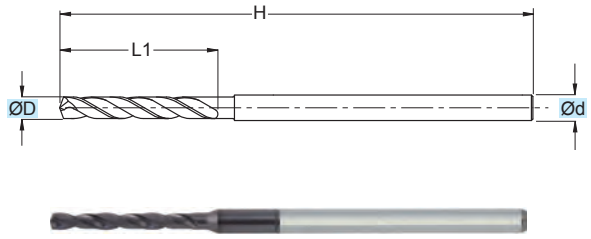
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

$$n = \frac{Vc \cdot 1000}{ØD \cdot 3{,}14} = \text{giri/min } (min^{-1})$$

$$Vf = fn \cdot n = \text{mm/min}$$

SDM0310

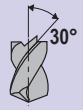
ØD = 0,5 - 2,9



TOLLERANZE	D	d
TOLLERANCE RANGE	h7	h7

RIVESTIM. COATED
TIALN

3xD



DIN 6537

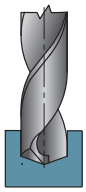
MG

(mm)

ART.	ØD	Ød	H	L1
SDM0310005	0,5	3	38	6
SDM0310006	0,6	3	38	6
SDM0310007	0,7	3	38	6
SDM0310008	0,8	3	38	6
SDM0310009	0,9	3	38	6
SDM0310010	1,0	3	38	6
SDM0310011	1,1	3	38	12
SDM0310012	1,2	3	38	12
SDM0310013	1,3	3	38	12
SDM0310014	1,4	3	38	12
SDM0310015	1,5	3	50	12
SDM0310016	1,6	3	50	12
SDM0310017	1,7	3	50	12
SDM0310018	1,8	3	50	12
SDM0310019	1,9	3	50	12
SDM0310020	2,0	3	50	12
SDM0310021	2,1	3	60	18
SDM0310022	2,2	3	60	18
SDM0310023	2,3	3	60	18
SDM0310024	2,4	3	60	18
SDM0310025	2,5	3	60	18
SDM0310026	2,6	3	60	18
SDM0310027	2,7	3	60	18
SDM0310028	2,8	3	60	18
SDM0310029	2,9	3	60	18

PAG. 1076

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm)	(m/min)	(mm)	(giri/min) (min^{-1})	(mm/min)
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO E SUE LEGHE ALUMINIUM	RAME E SUE LEGHE COPPER	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE	ØD	Vc	fn	n	Vf
		●														0,5÷1,0	50	0,07	–	–
		●														1,0÷1,5	50	0,10	–	–
		●														1,5÷2,0	50	0,10	–	–
		●														2,0÷2,5	50	0,12	–	–
		●														2,5÷2,9	50	0,14	–	–
			●													0,5÷1,0	40	0,07	–	–
			●													1,0÷1,5	40	0,10	–	–
			●													1,5÷2,0	40	0,10	–	–
			●													2,0÷2,5	40	0,12	–	–
			●													2,5÷2,9	40	0,14	–	–
					●											0,5÷1,0	30	0,04	–	–
					●											1,0÷1,5	30	0,06	–	–
					●											1,5÷2,0	30	0,06	–	–
					●											2,0÷2,5	30	0,07	–	–
					●											2,5÷2,9	30	0,08	–	–
							●									0,5÷1,0	65	0,07	–	–
							●									1,0÷1,5	65	0,10	–	–
							●									1,5÷2,0	65	0,10	–	–
							●									2,0÷2,5	65	0,12	–	–
							●									2,5÷2,9	65	0,14	–	–
									●							0,5÷1,0	115	0,07	–	–
									●							1,0÷1,5	115	0,10	–	–
									●							1,5÷2,0	115	0,10	–	–
									●							2,0÷2,5	115	0,12	–	–
									●							2,5÷2,9	115	0,14	–	–
												○				0,5÷1,0	15	0,03	–	–
												○				1,0÷1,5	15	0,04	–	–
												○				1,5÷2,0	15	0,04	–	–
												○				2,0÷2,5	15	0,05	–	–
												○				2,5÷2,9	15	0,06	–	–
													○			0,5÷1,0	15	0,025	–	–
													○			1,0÷1,5	15	0,025	–	–
													○			1,5÷2,0	15	0,025	–	–
													○			2,0÷2,5	15	0,035	–	–
													○			2,5÷2,9	15	0,035	–	–
														○		0,5÷1,0	15	0,015	–	–
														○		1,0÷1,5	15	0,015	–	–
														○		1,5÷2,0	15	0,015	–	–
														○		2,0÷2,5	15	0,025	–	–
														○		2,5÷2,9	15	0,025	–	–

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED

n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS

fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION

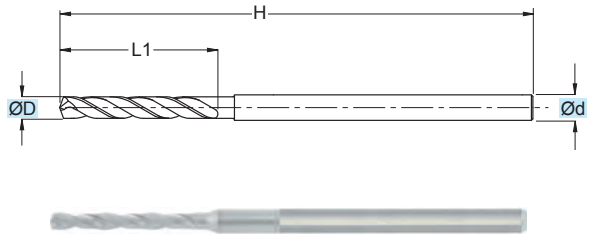
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

$$n = \frac{Vc \cdot 1000}{ØD \cdot 3,14} = \text{giri/min } (min^{-1})$$

$$Vf = fn \cdot n = \text{mm/min}$$

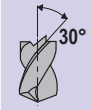
SDMN0310

ØD = 0,5 - 2,9



TOLLERANZE	D	d
TOLLERANCE RANGE	h7	h7

3xD



DIN 6537

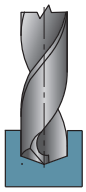
MG

(mm)

ART.	ØD	Ød	H	L1
SDMN0310005	0,5	3	38	6
SDMN0310006	0,6	3	38	6
SDMN0310007	0,7	3	38	6
SDMN0310008	0,8	3	38	6
SDMN0310009	0,9	3	38	6
SDMN0310010	1,0	3	38	6
SDMN0310011	1,1	3	38	12
SDMN0310012	1,2	3	38	12
SDMN0310013	1,3	3	38	12
SDMN0310014	1,4	3	38	12
SDMN0310015	1,5	3	50	12
SDMN0310016	1,6	3	50	12
SDMN0310017	1,7	3	50	12
SDMN0310018	1,8	3	50	12
SDMN0310019	1,9	3	50	12
SDMN0310020	2,0	3	50	12
SDMN0310021	2,1	3	60	18
SDMN0310022	2,2	3	60	18
SDMN0310023	2,3	3	60	18
SDMN0310024	2,4	3	60	18
SDMN0310025	2,5	3	60	18
SDMN0310026	2,6	3	60	18
SDMN0310027	2,7	3	60	18
SDMN0310028	2,8	3	60	18
SDMN0310029	2,9	3	60	18

PAG. 1076

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm)	(m/min)	(mm)	(giri/min) (min^{-1})	(mm/min)
	ACCIAIO NON LEGATO NOT ALLOY STEEL	**ACCIAIO POCO LEGATO** LOW ALLOY STEEL	**ACCIAIO ALTO LEGATO** ALLOY STEEL	**INOX MARTENSITICO** STAINLESS STEEL MART.	**INOX AUST. DUPLEX** STAINLESS STEEL AUST.	**GHISA GRIGIA** GREY CAST IRON	**GHISA SFEROIDALE** SPHEROIDAL GRAPHITE	**GHISA MALLEABILE** MALLEABLE CAST IRON	**ALLUMINIO E SUE LEGHE** ALUMINIUM	**RAME E SUE LEGHE** COPPER	**NON METALLICI** PLASTICS	**LEGHE RESIST. CALORE** HIGH TEMP. ALLOY	**TITANIO E SUE LEGHE** TITANIUM	**ACCIAIO TEMPRATO** HARDENED STEEL	**GRAFITE** GRAPHITE	ØD	Vc	fn	n	Vf
		●														0,5÷1,0	40	0,04	–	–
		●														1,0÷1,5	40	0,04	–	–
		●														1,5÷2,0	40	0,06	–	–
		●														2,0÷2,5	40	0,06	–	–
		●														2,5÷2,9	40	0,08	–	–
			●													0,5÷1,0	30	0,04	–	–
			●													1,0÷1,5	30	0,04	–	–
			●													1,5÷2,0	30	0,06	–	–
			●													2,0÷2,5	30	0,06	–	–
			●													2,5÷2,9	30	0,08	–	–
					○											0,5÷1,0	20	0,03	–	–
					○											1,0÷1,5	20	0,03	–	–
					○											1,5÷2,0	20	0,04	–	–
					○											2,0÷2,5	20	0,04	–	–
					○											2,5÷2,9	20	0,05	–	–
							●									0,5÷1,0	50	0,03	–	–
							●									1,0÷1,5	50	0,03	–	–
							●									1,5÷2,0	50	0,04	–	–
							●									2,0÷2,5	50	0,04	–	–
							●									2,5÷2,9	50	0,05	–	–
									●							0,5÷1,0	80	0,04	–	–
									●							1,0÷1,5	80	0,04	–	–
									●							1,5÷2,0	80	0,06	–	–
									●							2,0÷2,5	80	0,06	–	–
									●							2,5÷2,9	80	0,08	–	–

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED

n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS

fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION

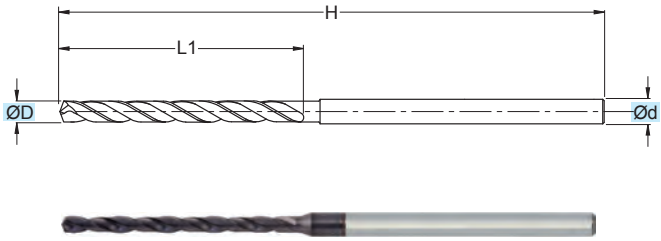
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

$$n = \frac{Vc \cdot 1000}{ØD \cdot 3{,}14} = \text{giri/min } (min^{-1})$$

$$Vf = fn \cdot n = \text{mm/min}$$

SDM0510

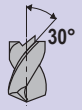
ØD = 0,5 - 2,9



TOLLERANZE	D	d
TOLLERANCE RANGE	h7	h7

RIVESTIM. COATED **TIALN**

5xD



DIN 6537

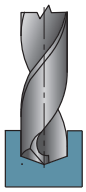
MG

(mm)

ART.	ØD	Ød	H	L1
SDM0510005	0,5	3	50	10
SDM0510006	0,6	3	50	10
SDM0510007	0,7	3	50	10
SDM0510008	0,8	3	50	10
SDM0510009	0,9	3	50	10
SDM0510010	1,0	3	50	10
SDM0510011	1,1	3	60	20
SDM0510012	1,2	3	60	20
SDM0510013	1,3	3	60	20
SDM0510014	1,4	3	60	20
SDM0510015	1,5	3	60	20
SDM0510016	1,6	3	60	20
SDM0510017	1,7	3	60	20
SDM0510018	1,8	3	60	20
SDM0510019	1,9	3	60	20
SDM0510020	2,0	3	60	20
SDM0510021	2,1	3	66	28
SDM0510022	2,2	3	66	28
SDM0510023	2,3	3	66	28
SDM0510024	2,4	3	66	28
SDM0510025	2,5	3	66	28
SDM0510026	2,6	3	66	28
SDM0510027	2,7	3	66	28
SDM0510028	2,8	3	66	28
SDM0510029	2,9	3	66	28

PAG. 1076

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm)	(m/min)	(mm)	(giri/min) (min^{-1})	(mm/min)
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO E SUE LEGHE ALUMINIUM	RAME E SUE LEGHE COPPER	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE	ØD	Vc	fn	n	Vf
		●														0,5÷1,0	50	0,07	–	–
		●														1,0÷1,5	50	0,10	–	–
		●														1,5÷2,0	50	0,10	–	–
		●														2,0÷2,5	50	0,12	–	–
		●														2,5÷2,9	50	0,14	–	–
			●													0,5÷1,0	40	0,07	–	–
			●													1,0÷1,5	40	0,10	–	–
			●													1,5÷2,0	40	0,10	–	–
			●													2,0÷2,5	40	0,12	–	–
			●													2,5÷2,9	40	0,14	–	–
					●											0,5÷1,0	30	0,04	–	–
					●											1,0÷1,5	30	0,06	–	–
					●											1,5÷2,0	30	0,06	–	–
					●											2,0÷2,5	30	0,07	–	–
					●											2,5÷2,9	30	0,08	–	–
							●									0,5÷1,0	65	0,07	–	–
							●									1,0÷1,5	65	0,10	–	–
							●									1,5÷2,0	65	0,10	–	–
							●									2,0÷2,5	65	0,12	–	–
							●									2,5÷2,9	65	0,14	–	–
									●							0,5÷1,0	115	0,07	–	–
									●							1,0÷1,5	115	0,10	–	–
									●							1,5÷2,0	115	0,10	–	–
									●							2,0÷2,5	115	0,12	–	–
									●							2,5÷2,9	115	0,14	–	–
												○				0,5÷1,0	15	0,03	–	–
												○				1,0÷1,5	15	0,04	–	–
												○				1,5÷2,0	15	0,04	–	–
												○				2,0÷2,5	15	0,05	–	–
												○				2,5÷2,9	15	0,06	–	–
													○			0,5÷1,0	15	0,025	–	–
													○			1,0÷1,5	15	0,025	–	–
													○			1,5÷2,0	15	0,025	–	–
													○			2,0÷2,5	15	0,035	–	–
													○			2,5÷2,9	15	0,035	–	–
														○		0,5÷1,0	15	0,015	–	–
														○		1,0÷1,5	15	0,015	–	–
														○		1,5÷2,0	15	0,015	–	–
														○		2,0÷2,5	15	0,025	–	–
														○		2,5÷2,9	15	0,025	–	–

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

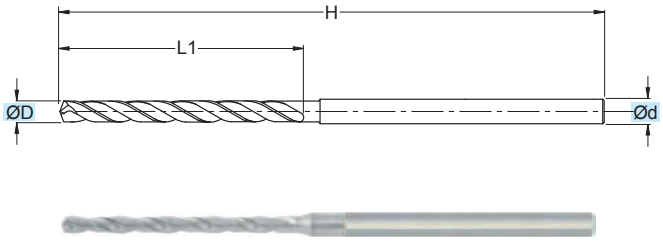
Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

$$n = \frac{Vc \cdot 1000}{ØD \cdot 3,14} = \text{giri/min } (min^{-1})$$

$$Vf = fn \cdot n = \text{mm/min}$$

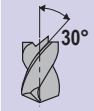
SDMN0510

ØD = 0,5 - 2,9



TOLLERANZE	D	d
TOLLERANCE RANGE	h7	h7

5xD



DIN 6537

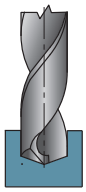
MG

(mm)

ART.	ØD	Ød	H	L1
SDMN0510005	0,5	3	50	10
SDMN0510006	0,6	3	50	10
SDMN0510007	0,7	3	50	10
SDMN0510008	0,8	3	50	10
SDMN0510009	0,9	3	50	10
SDMN0510010	1,0	3	50	10
SDMN0510011	1,1	3	60	20
SDMN0510012	1,2	3	60	20
SDMN0510013	1,3	3	60	20
SDMN0510014	1,4	3	60	20
SDMN0510015	1,5	3	60	20
SDMN0510016	1,6	3	60	20
SDMN0510017	1,7	3	60	20
SDMN0510018	1,8	3	60	20
SDMN0510019	1,9	3	60	20
SDMN0510020	2,0	3	60	20
SDMN0510021	2,1	3	66	28
SDMN0510022	2,2	3	66	28
SDMN0510023	2,3	3	66	28
SDMN0510024	2,4	3	66	28
SDMN0510025	2,5	3	66	28
SDMN0510026	2,6	3	66	28
SDMN0510027	2,7	3	66	28
SDMN0510028	2,8	3	66	28
SDMN0510029	2,9	3	66	28

PAG. 1076

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm)	(m/min)	(mm)	(giri/min) (min^{-1})	(mm/min)
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO E SUE LEGHE ALUMINIUM	RAME E SUE LEGHE COPPER	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE	ØD	Vc	fn	n	Vf
		●														0,5÷1,0	40	0,04	–	–
		●														1,0÷1,5	40	0,04	–	–
		●														1,5÷2,0	40	0,06	–	–
		●														2,0÷2,5	40	0,06	–	–
		●														2,5÷2,9	40	0,08	–	–
			●													0,5÷1,0	30	0,04	–	–
			●													1,0÷1,5	30	0,04	–	–
			●													1,5÷2,0	30	0,06	–	–
			●													2,0÷2,5	30	0,06	–	–
			●													2,5÷2,9	30	0,08	–	–
					○											0,5÷1,0	20	0,03	–	–
					○											1,0÷1,5	20	0,03	–	–
					○											1,5÷2,0	20	0,04	–	–
					○											2,0÷2,5	20	0,04	–	–
					○											2,5÷2,9	20	0,05	–	–
							●									0,5÷1,0	50	0,03	–	–
							●									1,0÷1,5	50	0,03	–	–
							●									1,5÷2,0	50	0,04	–	–
							●									2,0÷2,5	50	0,04	–	–
							●									2,5÷2,9	50	0,05	–	–
									●							0,5÷1,0	80	0,04	–	–
									●							1,0÷1,5	80	0,04	–	–
									●							1,5÷2,0	80	0,06	–	–
									●							2,0÷2,5	80	0,06	–	–
									●							2,5÷2,9	80	0,08	–	–

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED

n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS

fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION

Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

$$n = \frac{Vc \cdot 1000}{ØD \cdot 3{,}14} = \text{giri/min } (min^{-1})$$

$$Vf = fn \cdot n = \text{mm/min}$$

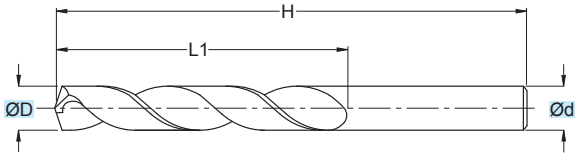
PUNTE INTEGRALI IN HM

SOLID CARBIDE DRILLS / HM VOLLBOHRER /
FORETS EN CARBURE MONOBLOC / PUNTAS INTEGRALES EN METAL DURO

SAU
QUALITY TOOLS ENGINEERING

SDR0341

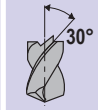
ØD = 3 - 12



TOLLERANZE TOLLERANCE RANGE	D h7	d h7

RIVESTIM. COATED
TIALN

3xD



DIN 1897

MG

(mm)

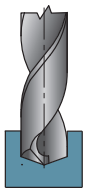
ART.	ØD	Ød	H	L1
SDR0341030	3,0	3,0	46	16
SDR0341031	3,1	3,1	49	18
SDR0341032	3,2	3,2	49	18
SDR0341033	3,3	3,3	49	18
SDR0341034	3,4	3,4	52	20
SDR0341035	3,5	3,5	52	20
SDR0341036	3,6	3,6	52	20
SDR0341037	3,7	3,7	52	20
SDR0341038	3,8	3,8	55	22
SDR0341039	3,9	3,9	55	22
SDR0341040	4,0	4,0	55	22
SDR0341041	4,1	4,1	55	22
SDR0341042	4,2	4,2	55	22
SDR0341043	4,3	4,3	58	24
SDR0341044	4,4	4,4	58	24
SDR0341045	4,5	4,5	58	24
SDR0341046	4,6	4,6	58	24
SDR0341047	4,7	4,7	58	24
SDR0341048	4,8	4,8	62	26
SDR0341049	4,9	4,9	62	26
SDR0341050	5,0	5,0	62	26
SDR0341051	5,1	5,1	62	26
SDR0341052	5,2	5,2	62	26
SDR0341053	5,3	5,3	62	26
SDR0341054	5,4	5,4	66	28
SDR0341055	5,5	5,5	66	28
SDR0341056	5,6	5,6	66	28
SDR0341057	5,7	5,7	66	28
SDR0341058	5,8	5,8	66	28
SDR0341059	5,9	5,9	66	28
SDR0341060	6,0	6,0	66	28
SDR0341061	6,1	6,1	70	31
SDR0341062	6,2	6,2	70	31
SDR0341063	6,3	6,3	70	31
SDR0341064	6,4	6,4	70	31
SDR0341065	6,5	6,5	70	31
SDR0341066	6,6	6,6	70	31
SDR0341067	6,7	6,7	70	31
SDR0341068	6,8	6,8	74	34
SDR0341069	6,9	6,9	74	34
SDR0341070	7,0	7,0	74	34
SDR0341071	7,1	7,1	74	34
SDR0341072	7,2	7,2	74	34
SDR0341073	7,3	7,3	74	34
SDR0341074	7,4	7,4	74	34

(mm)

ART.	ØD	Ød	H	L1
SDR0341075	7,5	7,5	74	34
SDR0341076	7,6	7,6	79	37
SDR0341077	7,7	7,7	79	37
SDR0341078	7,8	7,8	79	37
SDR0341079	7,9	7,9	79	37
SDR0341080	8,0	8,0	79	37
SDR0341081	8,1	8,1	79	37
SDR0341082	8,2	8,2	79	37
SDR0341083	8,3	8,3	79	37
SDR0341084	8,4	8,4	79	37
SDR0341085	8,5	8,5	79	37
SDR0341086	8,6	8,6	84	40
SDR0341087	8,7	8,7	84	40
SDR0341088	8,8	8,8	84	40
SDR0341089	8,9	8,9	84	40
SDR0341090	9,0	9,0	84	40
SDR0341091	9,1	9,1	84	40
SDR0341092	9,2	9,2	84	40
SDR0341093	9,3	9,3	84	40
SDR0341094	9,4	9,4	84	40
SDR0341095	9,5	9,5	84	40
SDR0341096	9,6	9,6	89	43
SDR0341097	9,7	9,7	89	43
SDR0341098	9,8	9,8	89	43
SDR0341099	9,9	9,9	89	43
SDR0341100	10,0	10,0	89	43
SDR0341102	10,2	10,2	89	43
SDR0341105	10,5	10,5	89	43
SDR0341110	11,0	11,0	95	47
SDR0341115	11,5	11,5	95	47
SDR0341120	12,0	12,0	102	51

PAG. 1076

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm)	(m/min)	(mm)	(giri/min) (min^{-1})	(mm/min)
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO E SUE LEGHE ALUMINIUM	RAME E SUE LEGHE COPPER	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE	ØD	Vc	fn	n	Vf
	●															3÷4	80	0,040	7279	291
	●															4÷5	80	0,050	5662	283
	●															5÷6	80	0,075	4632	347
	●															6÷7	80	0,090	3920	353
	●															7÷8	80	0,110	3397	374
	●															8÷9	80	0,125	2997	375
	●															9÷10	80	0,135	2682	362
	●															10÷12	80	0,150	2316	347
		●														3÷4	60	0,040	5460	218
		●														4÷5	60	0,050	4246	212
		●														5÷6	60	0,075	3474	261
		●														6÷7	60	0,090	2940	265
		●														7÷8	60	0,110	2548	280
		●														8÷9	60	0,125	2248	281
		●														9÷10	60	0,135	2011	272
		●														10÷12	60	0,150	1737	261
						○										3÷4	84	0,045	7643	344
						○										4÷5	84	0,070	5945	416
						○										5÷6	84	0,090	4864	438
						○										6÷7	84	0,110	4116	453
						○										7÷8	84	0,130	3567	464
						○										8÷9	84	0,145	3147	456
						○										9÷10	84	0,155	2816	436
						○										10÷12	84	0,170	2432	413
							○									3÷4	70	0,045	6369	287
							○									4÷5	70	0,070	4954	347
							○									5÷6	70	0,090	4053	365
							○									6÷7	70	0,110	3430	377
							○									7÷8	70	0,130	2972	386
							○									8÷9	70	0,145	2623	380
							○									9÷10	70	0,155	2347	364
							○									10÷12	70	0,170	2027	345
									○							3÷4	130	0,014	11829	166
									○							4÷5	130	0,018	9200	166
									○							5÷6	130	0,025	7528	188
									○							6÷7	130	0,045	6369	287
									○							7÷8	130	0,055	5520	304
									○							8÷9	130	0,065	4871	317
									○							9÷10	130	0,075	4358	327
									○							10÷12	130	0,090	3764	339
										○						3÷4	100	0,006	9099	55
										○						4÷5	100	0,012	7077	85
										○						5÷6	100	0,016	5790	93
										○						6÷7	100	0,025	4900	122
										○						7÷8	100	0,040	4246	170
										○						8÷9	100	0,055	3747	206
										○						9÷10	100	0,065	3352	218
										○						10÷12	100	0,085	2895	246

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED

n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS

fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION

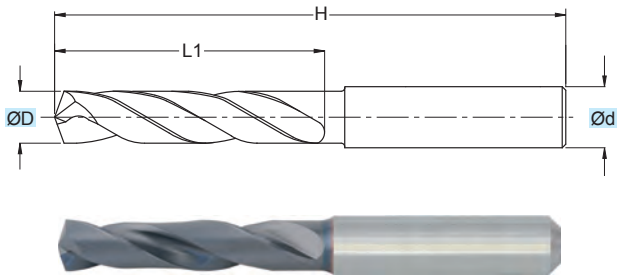
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

$$n = \frac{Vc \cdot 1000}{ØD \cdot 3{,}14} = \text{giri/min } (min^{-1})$$

$$Vf = fn \cdot n = \text{mm/min}$$

SDR0302

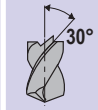
ØD = 3 - 20



TOLLERANZE TOLLERANCE RANGE	D m7	d h6

RIVESTIM. COATED **TIALN**

3xD



DIN 6535

MG

(mm)

ART.	ØD	Ød	H	L1
SDR0302030	3,0	6	62	20
SDR0302031	3,1	6	62	20
SDR0302032	3,2	6	62	20
SDR0302033	3,3	6	62	20
SDR0302034	3,4	6	62	20
SDR0302035	3,5	6	62	20
SDR0302036	3,6	6	62	20
SDR0302037	3,7	6	62	20
SDR0302038	3,8	6	66	24
SDR0302039	3,9	6	66	24
SDR0302040	4,0	6	66	24
SDR0302041	4,1	6	66	24
SDR0302042	4,2	6	66	24
SDR0302043	4,3	6	66	24
SDR0302044	4,4	6	66	24
SDR0302045	4,5	6	66	24
SDR0302046	4,6	6	66	24
SDR0302047	4,7	6	66	24
SDR0302048	4,8	6	66	28
SDR0302049	4,9	6	66	28
SDR0302050	5,0	6	66	28
SDR0302051	5,1	6	66	28
SDR0302052	5,2	6	66	28
SDR0302053	5,3	6	66	28
SDR0302054	5,4	6	66	28
SDR0302055	5,5	6	66	28
SDR0302056	5,6	6	66	28
SDR0302057	5,7	6	66	28
SDR0302058	5,8	6	66	28
SDR0302059	5,9	6	66	28
* SDR0302060	6,0	6	66	28
SDR0302061	6,1	8	79	34
SDR0302062	6,2	8	79	34
SDR0302063	6,3	8	79	34
SDR0302064	6,4	8	79	34
SDR0302065	6,5	8	79	34
SDR0302066	6,6	8	79	34
SDR0302067	6,7	8	79	34
SDR0302068	6,8	8	79	34
SDR0302069	6,9	8	79	34
SDR0302070	7,0	8	79	34
SDR0302071	7,1	8	79	41
SDR0302072	7,2	8	79	41
SDR0302073	7,3	8	79	41
SDR0302074	7,4	8	79	41

(mm)

ART.	ØD	Ød	H	L1
SDR0302075	7,5	8	79	41
SDR0302076	7,6	8	79	41
SDR0302077	7,7	8	79	41
SDR0302078	7,8	8	79	41
SDR0302079	7,9	8	79	41
* SDR0302080	8,0	8	79	41
SDR0302081	8,1	10	89	47
SDR0302082	8,2	10	89	47
SDR0302083	8,3	10	89	47
SDR0302084	8,4	10	89	47
SDR0302085	8,5	10	89	47
SDR0302086	8,6	10	89	47
SDR0302087	8,7	10	89	47
SDR0302088	8,8	10	89	47
SDR0302089	8,9	10	89	47
SDR0302090	9,0	10	89	47
SDR0302091	9,1	10	89	47
SDR0302092	9,2	10	89	47
SDR0302093	9,3	10	89	47
SDR0302094	9,4	10	89	47
SDR0302095	9,5	10	89	47
SDR0302096	9,6	10	89	47
SDR0302097	9,7	10	89	47
SDR0302098	9,8	10	89	47
SDR0302099	9,9	10	89	47
* SDR0302100	10,0	10	89	47
SDR0302102	10,2	12	102	55
SDR0302105	10,5	12	102	55
SDR0302108	10,8	12	102	55
SDR0302110	11,0	12	102	55
SDR0302112	11,2	12	102	55
SDR0302115	11,5	12	102	55
SDR0302118	11,8	12	102	55
* SDR0302120	12,0	12	102	55
SDR0302122	12,2	14	107	60
SDR0302125	12,5	14	107	60
SDR0302128	12,8	14	107	60
SDR0302130	13,0	14	107	60
SDR0302135	13,5	14	107	60
SDR0302138	13,8	14	107	60
* SDR0302140	14,0	14	107	60
SDR0302142	14,2	16	115	65
SDR0302145	14,5	16	115	65
SDR0302148	14,8	16	115	65
SDR0302150	15,0	16	115	65

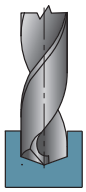
(mm)

ART.	ØD	Ød	H	L1
SDR0302152	15,2	16	115	65
SDR0302155	15,5	16	115	65
SDR0302158	15,8	16	115	65
* SDR0302160	16,0	16	115	65
SDR0302165	16,5	18	123	73
SDR0302168	16,8	18	123	73
SDR0302170	17,0	18	123	73
SDR0302175	17,5	18	123	73
* SDR0302180	18,0	18	123	73
SDR0302185	18,5	20	131	79
SDR0302188	18,8	20	131	79
SDR0302190	19,0	20	131	79
SDR0302195	19,5	20	131	79
* SDR0302200	20,0	20	131	79

* = COSTRUITI IN TOLLERANZA h7
* = MADE WITH h7 TOLERANCE
* = GEBAUT MIT TOLERANZ h7
* = RÉALISÉS EN TOLÉRANCE h7

PAG. 1076

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm)	(m/min)	(mm)	(giri/min) (min^{-1})	(mm/min)
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO E SUE LEGHE ALUMINIUM	RAME E SUE LEGHE COPPER	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE	ØD	Vc	fn	n	Vf
		●														3÷4	90	0,035	8189	287
		●														4÷5	90	0,045	6369	287
		●														5÷6	90	0,060	5211	313
		●														6÷7	90	0,070	4410	309
		●														7÷8	90	0,080	3822	306
		●														8÷9	90	0,100	3372	337
		●														9÷10	90	0,110	3017	332
		●														10÷12	90	0,120	2606	313
		●														12÷14	90	0,130	2205	287
		●														14÷16	90	0,165	1911	315
		●														16÷18	90	0,190	1686	320
		●														18÷20	90	0,210	1509	317
			●													3÷4	80	0,035	7279	255
			●													4÷5	80	0,045	5662	255
			●													5÷6	80	0,060	4632	278
			●													6÷7	80	0,070	3920	274
			●													7÷8	80	0,080	3397	272
			●													8÷9	80	0,100	2997	300
			●													9÷10	80	0,110	2682	295
			●													10÷12	80	0,120	2316	278
			●													12÷14	80	0,130	1960	255
			●													14÷16	80	0,165	1699	280
			●													16÷18	80	0,190	1499	285
			●													18÷20	80	0,210	1341	282
					○											3÷4	40	0,080	3640	291
					○											4÷5	40	0,080	2831	226
					○											5÷6	40	0,120	2316	278
					○											6÷7	40	0,120	1960	235
					○											7÷8	40	0,120	1699	204
					○											8÷9	40	0,150	1499	225
					○											9÷10	40	0,150	1341	201
					○											10÷12	40	0,150	1158	174
					○											12÷14	40	0,200	980	196
					○											14÷16	40	0,200	849	170
					○											16÷18	40	0,250	749	187
					○											18÷20	40	0,250	670	168
						●										3÷4	110	0,090	10009	901
						●										4÷5	110	0,120	7785	934
						●										5÷6	110	0,150	6369	955
						●										6÷7	110	0,170	5390	916
						●										7÷8	110	0,190	4671	887
						●										8÷9	110	0,210	4121	865
						●										9÷10	110	0,230	3688	848
						●										10÷12	110	0,260	3185	828
						●										12÷14	110	0,300	2695	808
						●										14÷16	110	0,340	2335	794
						●										16÷18	110	0,370	2061	762
						●										18÷20	110	0,410	1844	756
							●									3÷4	90	0,090	8189	737
							●									4÷5	90	0,120	6369	764
							●									5÷6	90	0,150	5211	782
							●									6÷7	90	0,170	4410	750
							●									7÷8	90	0,190	3822	726
							●									8÷9	90	0,210	3372	708
							●									9÷10	90	0,230	3017	694
							●									10÷12	90	0,260	2606	677
							●									12÷14	90	0,300	2205	661
							●									14÷16	90	0,340	1911	650
							●									16÷18	90	0,370	1686	624
							●									18÷20	90	0,410	1509	619

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED

n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS

fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION

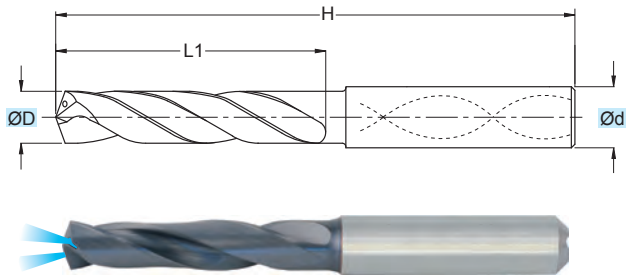
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

$$n = \frac{Vc \cdot 1000}{ØD \cdot 3,14} = \text{giri/min } (min^{-1})$$

$$Vf = fn \cdot n = \text{mm/min}$$

SDF0302

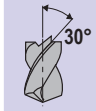
ØD = 3 - 20



TOLLERANZE	D	d
TOLLERANCE RANGE	m7	h6

RIVESTIM. COATED **TIALN**

3xD



DIN 6535

MG

(mm)

ART.	ØD	Ød	H	L1
SDF0302030	3,0	6,0	62,0	20,0
SDF0302031	3,1	6,0	62,0	20,0
SDF0302032	3,2	6,0	62,0	20,0
SDF0302033	3,3	6,0	62,0	20,0
SDF0302034	3,4	6,0	62,0	20,0
SDF0302035	3,5	6,0	62,0	20,0
SDF0302036	3,6	6,0	62,0	20,0
SDF0302037	3,7	6,0	62,0	20,0
SDF0302038	3,8	6,0	66,0	24,0
SDF0302039	3,9	6,0	66,0	24,0
SDF0302040	4,0	6,0	66,0	24,0
SDF0302041	4,1	6,0	66,0	24,0
SDF0302042	4,2	6,0	66,0	24,0
SDF0302043	4,3	6,0	66,0	24,0
SDF0302044	4,4	6,0	66,0	24,0
SDF0302045	4,5	6,0	66,0	24,0
SDF0302046	4,6	6,0	66,0	24,0
SDF0302047	4,7	6,0	66,0	24,0
SDF0302048	4,8	6,0	66,0	28,0
SDF0302049	4,9	6,0	66,0	28,0
SDF0302050	5,0	6,0	66,0	28,0
SDF0302051	5,1	6,0	66,0	28,0
SDF0302052	5,2	6,0	66,0	28,0
SDF0302053	5,3	6,0	66,0	28,0
SDF0302054	5,4	6,0	66,0	28,0
SDF0302055	5,5	6,0	66,0	28,0
SDF0302056	5,6	6,0	66,0	28,0
SDF0302057	5,7	6,0	66,0	28,0
SDF0302058	5,8	6,0	66,0	28,0
SDF0302059	5,9	6,0	66,0	28,0
* SDF0302060	6,0	6,0	66,0	28,0
SDF0302061	6,1	8,0	79,0	34,0
SDF0302062	6,2	8,0	79,0	34,0
SDF0302063	6,3	8,0	79,0	34,0
SDF0302064	6,4	8,0	79,0	34,0
SDF0302065	6,5	8,0	79,0	34,0
SDF0302066	6,6	8,0	79,0	34,0
SDF0302067	6,7	8,0	79,0	34,0
SDF0302068	6,8	8,0	79,0	34,0
SDF0302069	6,9	8,0	79,0	34,0
SDF0302070	7,0	8,0	79,0	34,0
SDF0302071	7,1	8,0	79,0	41,0
SDF0302072	7,2	8,0	79,0	41,0
SDF0302073	7,3	8,0	79,0	41,0
SDF0302074	7,4	8,0	79,0	41,0

(mm)

ART.	ØD	Ød	H	L1
SDF0302075	7,5	8,0	79,0	41,0
SDF0302076	7,6	8,0	79,0	41,0
SDF0302077	7,7	8,0	79,0	41,0
SDF0302078	7,8	8,0	79,0	41,0
SDF0302079	7,9	8,0	79,0	41,0
* SDF0302080	8,0	8,0	79,0	41,0
SDF0302081	8,1	10,0	89,0	47,0
SDF0302082	8,2	10,0	89,0	47,0
SDF0302083	8,3	10,0	89,0	47,0
SDF0302084	8,4	10,0	89,0	47,0
SDF0302085	8,5	10,0	89,0	47,0
SDF0302086	8,6	10,0	89,0	47,0
SDF0302087	8,7	10,0	89,0	47,0
SDF0302088	8,8	10,0	89,0	47,0
SDF0302089	8,9	10,0	89,0	47,0
SDF0302090	9,0	10,0	89,0	47,0
SDF0302091	9,1	10,0	89,0	47,0
SDF0302092	9,2	10,0	89,0	47,0
SDF0302093	9,3	10,0	89,0	47,0
SDF0302094	9,4	10,0	89,0	47,0
SDF0302095	9,5	10,0	89,0	47,0
SDF0302096	9,6	10,0	89,0	47,0
SDF0302097	9,7	10,0	89,0	47,0
SDF0302098	9,8	10,0	89,0	47,0
SDF0302099	9,9	10,0	89,0	47,0
* SDF0302100	10,0	10,0	89,0	47,0
SDF0302102	10,2	12,0	102,0	55,0
SDF0302105	10,5	12,0	102,0	55,0
SDF0302108	10,8	12,0	102,0	55,0
SDF0302110	11,0	12,0	102,0	55,0
SDF0302112	11,2	12,0	102,0	55,0
SDF0302115	11,5	12,0	102,0	55,0
SDF0302118	11,8	12,0	102,0	55,0
* SDF0302120	12,0	12,0	102,0	55,0
SDF0302122	12,2	14,0	107,0	60,0
SDF0302125	12,5	14,0	107,0	60,0
SDF0302128	12,8	14,0	107,0	60,0
SDF0302130	13,0	14,0	107,0	60,0
SDF0302135	13,5	14,0	107,0	60,0
SDF0302138	13,8	14,0	107,0	60,0
* SDF0302140	14,0	14,0	107,0	60,0
SDF0302142	14,2	16,0	115,0	65,0
SDF0302145	14,5	16,0	115,0	65,0
SDF0302148	14,8	16,0	115,0	65,0
SDF0302150	15,0	16,0	115,0	65,0

(mm)

ART.	ØD	Ød	H	L1
SDF0302152	15,2	16,0	115,0	65,0
SDF0302155	15,5	16,0	115,0	65,0
SDF0302158	15,8	16,0	115,0	65,0
* SDF0302160	16,0	16,0	115,0	65,0
SDF0302165	16,5	18,0	123,0	73,0
SDF0302170	17,0	18,0	123,0	73,0
SDF0302175	17,5	18,0	123,0	73,0
* SDF0302180	18,0	18,0	123,0	73,0
SDF0302185	18,5	20,0	131,0	79,0
SDF0302190	19,0	20,0	131,0	79,0
SDF0302195	19,5	20,0	131,0	79,0
* SDF0302200	20,0	20,0	131,0	79,0

* = COSTRUITI IN TOLLERANZA h7
* = MADE WITH h7 TOLERANCE
* = GEBAUT MIT TOLERANZ h7
* = RÉALISÉS EN TOLÉRANCE h7

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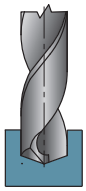
MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm)	(m/min)	(mm)	(giri/min) (min^{-1})	(mm/min)
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO E SUE LEGHE ALUMINIUM	RAME E SUE LEGHE COPPER	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE	ØD	Vc	fn	n	Vf
	●															3÷4	120	0,160	10919	1747
	●															4÷5	120	0,160	8493	1359
	●															5÷6	120	0,220	6948	1529
	●															6÷7	120	0,220	5879	1293
	●															7÷8	120	0,220	5096	1121
	●															8÷9	120	0,280	4496	1259
	●															9÷10	120	0,280	4023	1126
	●															10÷12	120	0,280	3474	973
	●															12÷14	120	0,340	2940	1000
	●															14÷16	120	0,340	2548	866
	●															16÷18	120	0,380	2248	854
	●															18÷20	120	0,380	2011	764
		●														3÷4	110	0,080	10009	801
		●														4÷5	110	0,080	7785	623
		●														5÷6	110	0,120	6369	764
		●														6÷7	110	0,120	5390	647
		●														7÷8	110	0,120	4671	561
		●														8÷9	110	0,150	4121	618
		●														9÷10	110	0,150	3688	553
		●														10÷12	110	0,150	3185	478
		●														12÷14	110	0,200	2695	539
		●														14÷16	110	0,200	2335	467
		●														16÷18	110	0,250	2061	515
		●														18÷20	110	0,250	1844	461
			●													3÷4	70	0,080	6369	510
			●													4÷5	70	0,080	4954	396
			●													5÷6	70	0,120	4053	486
			●													6÷7	70	0,120	3430	412
			●													7÷8	70	0,120	2972	357
			●													8÷9	70	0,150	2623	393
			●													9÷10	70	0,150	2347	352
			●													10÷12	70	0,150	2027	304
			●													12÷14	70	0,200	1715	343
			●													14÷16	70	0,200	1486	297
			●													16÷18	70	0,250	1311	328
			●													18÷20	70	0,250	1173	293
					●											3÷4	45	0,080	4095	328
					●											4÷5	45	0,080	3185	255
					●											5÷6	45	0,120	2606	313
					●											6÷7	45	0,120	2205	265
					●											7÷8	45	0,120	1911	229
					●											8÷9	45	0,150	1686	253
					●											9÷10	45	0,150	1509	226
					●											10÷12	45	0,150	1303	195
					●											12÷14	45	0,200	1102	220
					●											14÷16	45	0,200	955	191
					●											16÷18	45	0,250	843	211
					●											18÷20	45	0,250	754	189
							●									3÷4	110	0,125	10009	1251
							●									4÷5	110	0,125	7785	973
							●									5÷6	110	0,175	6369	1115
							●									6÷7	110	0,175	5390	943
							●									7÷8	110	0,175	4671	817
							●									8÷9	110	0,225	4121	927
							●									9÷10	110	0,225	3688	830
							●									10÷12	110	0,225	3185	717
							●									12÷14	110	0,300	2695	808
							●									14÷16	110	0,300	2335	701
							●									16÷18	110	0,375	2061	773
							●									18÷20	110	0,375	1844	691
													○			3÷4	30	0,040	2730	109
													○			4÷5	30	0,040	2123	85
													○			5÷6	30	0,080	1737	139
													○			6÷7	30	0,080	1470	118
													○			7÷8	30	0,080	1274	102
													○			8÷9	30	0,120	1124	135
													○			9÷10	30	0,120	1006	121
													○			10÷12	30	0,120	869	104
													○			12÷14	30	0,160	735	118
													○			14÷16	30	0,160	637	102
													○			16÷18	30	0,200	562	112
													○			18÷20	30	0,200	503	101

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

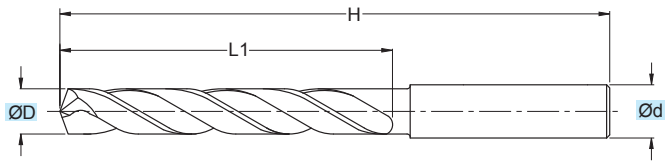
Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

$$n = \frac{Vc \cdot 1000}{ØD \cdot 3{,}14} = \text{giri/min } (min^{-1})$$

$$Vf = fn \cdot n = \text{mm/min}$$

SDR0502

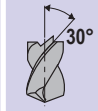
ØD = 3 - 20



TOLLERANZE TOLLERANCE RANGE	D m7	d h6

RIVESTIM. COATED
TIALN

5xD



DIN 6535

MG

(mm)

ART.	ØD	Ød	H	L1
SDR0502030	3,0	6,0	66,0	28,0
SDR0502031	3,1	6,0	66,0	28,0
SDR0502032	3,2	6,0	66,0	28,0
SDR0502033	3,3	6,0	66,0	28,0
SDR0502034	3,4	6,0	66,0	28,0
SDR0502035	3,5	6,0	66,0	28,0
SDR0502036	3,6	6,0	66,0	28,0
SDR0502037	3,7	6,0	66,0	28,0
SDR0502038	3,8	6,0	74,0	36,0
SDR0502039	3,9	6,0	74,0	36,0
SDR0502040	4,0	6,0	74,0	36,0
SDR0502041	4,1	6,0	74,0	36,0
SDR0502042	4,2	6,0	74,0	36,0
SDR0502043	4,3	6,0	74,0	36,0
SDR0502044	4,4	6,0	74,0	36,0
SDR0502045	4,5	6,0	74,0	36,0
SDR0502046	4,6	6,0	74,0	36,0
SDR0502047	4,7	6,0	74,0	36,0
SDR0502048	4,8	6,0	82,0	44,0
SDR0502049	4,9	6,0	82,0	44,0
SDR0502050	5,0	6,0	82,0	44,0
SDR0502051	5,1	6,0	82,0	44,0
SDR0502052	5,2	6,0	82,0	44,0
SDR0502053	5,3	6,0	82,0	44,0
SDR0502054	5,4	6,0	82,0	44,0
SDR0502055	5,5	6,0	82,0	44,0
SDR0502056	5,6	6,0	82,0	44,0
SDR0502057	5,7	6,0	82,0	44,0
SDR0502058	5,8	6,0	82,0	44,0
SDR0502059	5,9	6,0	82,0	44,0
* SDR0502060	6,0	6,0	82,0	44,0
SDR0502061	6,1	8,0	91,0	53,0
SDR0502062	6,2	8,0	91,0	53,0
SDR0502063	6,3	8,0	91,0	53,0
SDR0502064	6,4	8,0	91,0	53,0
SDR0502065	6,5	8,0	91,0	53,0
SDR0502066	6,6	8,0	91,0	53,0
SDR0502067	6,7	8,0	91,0	53,0
SDR0502068	6,8	8,0	91,0	53,0
SDR0502069	6,9	8,0	91,0	53,0
SDR0502070	7,0	8,0	91,0	53,0
SDR0502071	7,1	8,0	91,0	53,0
SDR0502072	7,2	8,0	91,0	53,0
SDR0502073	7,3	8,0	91,0	53,0
SDR0502074	7,4	8,0	91,0	53,0

(mm)

ART.	ØD	Ød	H	L1
SDR0502075	7,5	8,0	91,0	53,0
SDR0502076	7,6	8,0	91,0	53,0
SDR0502077	7,7	8,0	91,0	53,0
SDR0502078	7,8	8,0	91,0	53,0
SDR0502079	7,9	8,0	91,0	53,0
* SDR0502080	8,0	8,0	91,0	53,0
SDR0502081	8,1	10,0	103,0	61,0
SDR0502082	8,2	10,0	103,0	61,0
SDR0502083	8,3	10,0	103,0	61,0
SDR0502084	8,4	10,0	103,0	61,0
SDR0502085	8,5	10,0	103,0	61,0
SDR0502086	8,6	10,0	103,0	61,0
SDR0502087	8,7	10,0	103,0	61,0
SDR0502088	8,8	10,0	103,0	61,0
SDR0502089	8,9	10,0	103,0	61,0
SDR0502090	9,0	10,0	103,0	61,0
SDR0502091	9,1	10,0	103,0	61,0
SDR0502092	9,2	10,0	103,0	61,0
SDR0502093	9,3	10,0	103,0	61,0
SDR0502094	9,4	10,0	103,0	61,0
SDR0502095	9,5	10,0	103,0	61,0
SDR0502096	9,6	10,0	103,0	61,0
SDR0502097	9,7	10,0	103,0	61,0
SDR0502098	9,8	10,0	103,0	61,0
SDR0502099	9,9	10,0	103,0	61,0
* SDR0502100	10,0	10,0	103,0	61,0
SDR0502102	10,2	12,0	118,0	71,0
SDR0502105	10,5	12,0	118,0	71,0
SDR0502108	10,8	12,0	118,0	71,0
SDR0502110	11,0	12,0	118,0	71,0
SDR0502112	11,2	12,0	118,0	71,0
SDR0502115	11,5	12,0	118,0	71,0
SDR0502118	11,8	12,0	118,0	71,0
* SDR0502120	12,0	12,0	118,0	71,0
SDR0502122	12,2	14,0	124,0	77,0
SDR0502125	12,5	14,0	124,0	77,0
SDR0502128	12,8	14,0	124,0	77,0
SDR0502130	13,0	14,0	124,0	77,0
SDR0502132	13,2	14,0	124,0	77,0
SDR0502135	13,5	14,0	124,0	77,0
SDR0502138	13,8	14,0	124,0	77,0
* SDR0502140	14,0	14,0	124,0	77,0
SDR0502142	14,2	16,0	133,0	83,0
SDR0502145	14,5	16,0	133,0	83,0
SDR0502148	14,8	16,0	133,0	83,0

(mm)

ART.	ØD	Ød	H	L1
SDR0502150	15,0	16,0	133,0	83,0
SDR0502152	15,2	16,0	133,0	83,0
SDR0502155	15,5	16,0	133,0	83,0
SDR0502158	15,8	16,0	133,0	83,0
* SDR0502160	16,0	16,0	133,0	83,0
SDR0502165	16,5	18,0	143,0	93,0
SDR0502170	17,0	18,0	143,0	93,0
SDR0502175	17,5	18,0	143,0	93,0
* SDR0502180	18,0	18,0	143,0	93,0
SDR0502185	18,5	20,0	153,0	101,0
SDR0502190	19,0	20,0	153,0	101,0
SDR0502195	19,5	20,0	153,0	101,0
* SDR0502200	20,0	20,0	153,0	101,0

* = COSTRUITI IN TOLLERANZA h7
* = MADE WITH h7 TOLERANCE
* = GEBAUT MIT TOLERANZ h7
* = RÉALISÉS EN TOLÉRANCE h7

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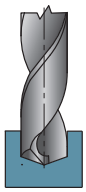
MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm)	(m/min)	(mm)	(giri/min) (min^{-1})	(mm/min)
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO E SUE LEGHE ALUMINIUM	RAME E SUE LEGHE COPPER	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE	ØD	Vc	fn	n	Vf
		●														3÷4	90	0,035	8189	287
		●														4÷5	90	0,045	6369	287
		●														5÷6	90	0,060	5211	313
		●														6÷7	90	0,070	4410	309
		●														7÷8	90	0,080	3822	306
		●														8÷9	90	0,100	3372	337
		●														9÷10	90	0,110	3017	332
		●														10÷12	90	0,120	2606	313
		●														12÷14	90	0,130	2205	287
		●														14÷16	90	0,165	1911	315
		●														16÷18	90	0,190	1686	320
		●														18÷20	90	0,210	1509	317
			●													3÷4	80	0,035	7279	255
			●													4÷5	80	0,045	5662	255
			●													5÷6	80	0,060	4632	278
			●													6÷7	80	0,070	3920	274
			●													7÷8	80	0,080	3397	272
			●													8÷9	80	0,100	2997	300
			●													9÷10	80	0,110	2682	295
			●													10÷12	80	0,120	2316	278
			●													12÷14	80	0,130	1960	255
			●													14÷16	80	0,165	1699	280
			●													16÷18	80	0,190	1499	285
			●													18÷20	80	0,210	1341	282
					○											3÷4	40	0,080	3640	291
					○											4÷5	40	0,080	2831	226
					○											5÷6	40	0,120	2316	278
					○											6÷7	40	0,120	1960	235
					○											7÷8	40	0,120	1699	204
					○											8÷9	40	0,150	1499	225
					○											9÷10	40	0,150	1341	201
					○											10÷12	40	0,150	1158	174
					○											12÷14	40	0,200	980	196
					○											14÷16	40	0,200	849	170
					○											16÷18	40	0,250	749	187
					○											18÷20	40	0,250	670	168
						○										3÷4	110	0,090	10009	901
						○										4÷5	110	0,120	7785	934
						○										5÷6	110	0,150	6369	955
						○										6÷7	110	0,170	5390	916
						○										7÷8	110	0,190	4671	887
						○										8÷9	110	0,210	4121	865
						○										9÷10	110	0,230	3688	848
						○										10÷12	110	0,260	3185	828
						○										12÷14	110	0,300	2695	808
						○										14÷16	110	0,340	2335	794
						○										16÷18	110	0,370	2061	762
						○										18÷20	110	0,410	1844	756
							○									3÷4	90	0,090	8189	737
							○									4÷5	90	0,120	6369	764
							○									5÷6	90	0,150	5211	782
							○									6÷7	90	0,170	4410	750
							○									7÷8	90	0,190	3822	726
							○									8÷9	90	0,210	3372	708
							○									9÷10	90	0,230	3017	694
							○									10÷12	90	0,260	2606	677
							○									12÷14	90	0,300	2205	661
							○									14÷16	90	0,340	1911	650
							○									16÷18	90	0,370	1686	624
							○									18÷20	90	0,410	1509	619

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED

n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS

fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION

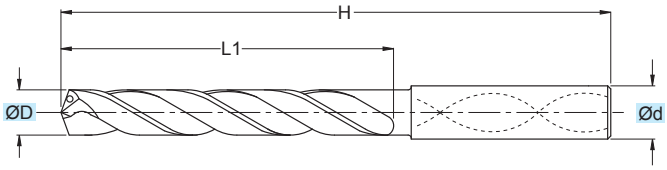
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

$$n = \frac{Vc \cdot 1000}{ØD \cdot 3,14} = \text{giri/min } (min^{-1})$$

$$Vf = fn \cdot n = \text{mm/min}$$

SDF0502

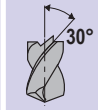
ØD = 3 - 20



TOLLERANZE TOLLERANCE RANGE	D m7	d h6

RIVESTIM. COATED
TIALN

5xD



DIN 6535

MG

(mm)

ART.	ØD	Ød	H	L1
SDF0502030	3,0	6	66	28
SDF0502031	3,1	6	66	28
SDF0502032	3,2	6	66	28
SDF0502033	3,3	6	66	28
SDF0502034	3,4	6	66	28
SDF0502035	3,5	6	66	28
SDF0502036	3,6	6	66	28
SDF0502037	3,7	6	66	28
SDF0502038	3,8	6	74	36
SDF0502039	3,9	6	74	36
SDF0502040	4,0	6	74	36
SDF0502041	4,1	6	74	36
SDF0502042	4,2	6	74	36
SDF0502043	4,3	6	74	36
SDF0502044	4,4	6	74	36
SDF0502045	4,5	6	74	36
SDF0502046	4,6	6	74	36
SDF0502047	4,7	6	74	36
SDF0502048	4,8	6	82	44
SDF0502049	4,9	6	82	44
SDF0502050	5,0	6	82	44
SDF0502051	5,1	6	82	44
SDF0502052	5,2	6	82	44
SDF0502053	5,3	6	82	44
SDF0502054	5,4	6	82	44
SDF0502055	5,5	6	82	44
SDF0502056	5,6	6	82	44
SDF0502057	5,7	6	82	44
SDF0502058	5,8	6	82	44
SDF0502059	5,9	6	82	44
*SDF0502060	6,0	6	82	44
SDF0502061	6,1	8	91	53
SDF0502062	6,2	8	91	53
SDF0502063	6,3	8	91	53
SDF0502064	6,4	8	91	53
SDF0502065	6,5	8	91	53
SDF0502066	6,6	8	91	53
SDF0502067	6,7	8	91	53
SDF0502068	6,8	8	91	53
SDF0502069	6,9	8	91	53
SDF0502070	7,0	8	91	53
SDF0502071	7,1	8	91	53
SDF0502072	7,2	8	91	53
SDF0502073	7,3	8	91	53
SDF0502074	7,4	8	91	53
SDF0502075	7,5	8	91	53
SDF0502076	7,6	8	91	53
SDF0502077	7,7	8	91	53

(mm)

ART.	ØD	Ød	H	L1
SDF0502078	7,8	8	91	53
SDF0502079	7,9	8	91	53
*SDF0502080	8,0	8	91	53
SDF0502081	8,1	10	103	61
SDF0502082	8,2	10	103	61
SDF0502083	8,3	10	103	61
SDF0502084	8,4	10	103	61
SDF0502085	8,5	10	103	61
SDF0502086	8,6	10	103	61
SDF0502087	8,7	10	103	61
SDF0502088	8,8	10	103	61
SDF0502089	8,9	10	103	61
SDF0502090	9,0	10	103	61
SDF0502091	9,1	10	103	61
SDF0502092	9,2	10	103	61
SDF0502093	9,3	10	103	61
SDF0502094	9,4	10	103	61
SDF0502095	9,5	10	103	61
SDF0502096	9,6	10	103	61
SDF0502097	9,7	10	103	61
SDF0502098	9,8	10	103	61
SDF0502099	9,9	10	103	61
*SDF0502100	10,0	10	103	61
SDF0502101 New	10,1	12	118	71
SDF0502102	10,2	12	118	71
SDF0502103	10,3	12	118	71
SDF0502104 New	10,4	12	118	71
SDF0502105	10,5	12	118	71
SDF0502106 New	10,6	12	118	71
SDF0502107 New	10,7	12	118	71
SDF0502108	10,8	12	118	71
SDF0502109 New	10,9	12	118	71
SDF0502110	11,0	12	118	71
SDF0502111 New	11,1	12	118	71
SDF0502112	11,2	12	118	71
SDF0502113 New	11,3	12	118	71
SDF0502114 New	11,4	12	118	71
SDF0502115	11,5	12	118	71
SDF0502116 New	11,6	12	118	71
SDF0502117 New	11,7	12	118	71
SDF0502118	11,8	12	118	71
SDF0502119 New	11,9	12	118	71
*SDF0502120	12,0	12	118	71
SDF0502121 New	12,1	14	124	77
SDF0502122	12,2	14	124	77
SDF0502123 New	12,3	14	124	77
SDF0502124 New	12,4	14	124	77
SDF0502125	12,5	14	124	77

(mm)

ART.	ØD	Ød	H	L1
SDF0502126 New	12,6	14	124	77
SDF0502127 New	12,7	14	124	77
SDF0502128	12,8	14	124	77
SDF0502129 New	12,9	14	124	77
SDF0502130	13,0	14	124	77
SDF0502131 New	13,1	14	124	77
SDF0502132	13,2	14	124	77
SDF0502133 New	13,3	14	124	77
SDF0502134 New	13,4	14	124	77
SDF0502135	13,5	14	124	77
SDF0502136 New	13,6	14	124	77
SDF0502137 New	13,7	14	124	77
SDF0502138	13,8	14	124	77
SDF0502139 New	13,9	14	124	77
*SDF0502140	14,0	14	124	77
SDF0502141 New	14,1	16	133	83
SDF0502142	14,2	16	133	83
SDF0502143 New	14,3	16	133	83
SDF0502144 New	14,4	16	133	83
SDF0502145	14,5	16	133	83
SDF0502146 New	14,6	16	133	83
SDF0502147 New	14,7	16	133	83
SDF0502148	14,8	16	133	83
SDF0502149 New	14,9	16	133	83
SDF0502150	15,0	16	133	83
SDF0502151 New	15,1	16	133	83
SDF0502152	15,2	16	133	83
SDF0502153 New	15,3	16	133	83
SDF0502154 New	15,4	16	133	83
SDF0502155	15,5	16	133	83
SDF0502156 New	15,6	16	133	83
SDF0502157 New	15,7	16	133	83
SDF0502158	15,8	16	133	83
SDF0502159 New	15,9	16	133	83
*SDF0502160	16,0	16	133	83
SDF0502165	16,5	18	143	93
SDF0502170	17,0	18	143	93
SDF0502175	17,5	18	143	93
*SDF0502180	18,0	18	143	93
SDF0502185	18,5	20	153	101
SDF0502190	19,0	20	153	101
SDF0502195	19,5	20	153	101
*SDF0502200	20,0	20	153	101

* = COSTRUITI IN TOLLERANZA h7
* = MADE WITH h7 TOLERANCE
* = GEBAUT MIT TOLERANZ h7
* = RÉALISÉS EN TOLÉRANCE h7

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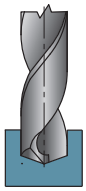
MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm)	(m/min)	(mm)	(giri/min) (min^{-1})	(mm/min)
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO E SUE LEGHE ALUMINIUM	RAME E SUE LEGHE COPPER	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE	ØD	Vc	fn	n	Vf
	●															3÷4	120	0,160	10919	1747
	●															4÷5	120	0,160	8493	1359
	●															5÷6	120	0,220	6948	1529
	●															6÷7	120	0,220	5879	1293
	●															7÷8	120	0,220	5096	1121
	●															8÷9	120	0,280	4496	1259
	●															9÷10	120	0,280	4023	1126
	●															10÷12	120	0,280	3474	973
	●															12÷14	120	0,340	2940	1000
	●															14÷16	120	0,340	2548	866
	●															16÷18	120	0,380	2248	854
	●															18÷20	120	0,380	2011	764
		●														3÷4	110	0,080	10009	801
		●														4÷5	110	0,080	7785	623
		●														5÷6	110	0,120	6369	764
		●														6÷7	110	0,120	5390	647
		●														7÷8	110	0,120	4671	561
		●														8÷9	110	0,150	4121	618
		●														9÷10	110	0,150	3688	553
		●														10÷12	110	0,150	3185	478
		●														12÷14	110	0,200	2695	539
		●														14÷16	110	0,200	2335	467
		●														16÷18	110	0,250	2061	515
		●														18÷20	110	0,250	1844	461
			●													3÷4	70	0,080	6369	510
			●													4÷5	70	0,080	4954	396
			●													5÷6	70	0,120	4053	486
			●													6÷7	70	0,120	3430	412
			●													7÷8	70	0,120	2972	357
			●													8÷9	70	0,150	2623	393
			●													9÷10	70	0,150	2347	352
			●													10÷12	70	0,150	2027	304
			●													12÷14	70	0,200	1715	343
			●													14÷16	70	0,200	1486	297
			●													16÷18	70	0,250	1311	328
			●													18÷20	70	0,250	1173	293
					○											3÷4	45	0,080	4095	328
					○											4÷5	45	0,080	3185	255
					○											5÷6	45	0,120	2606	313
					○											6÷7	45	0,120	2205	265
					○											7÷8	45	0,120	1911	229
					○											8÷9	45	0,150	1686	253
					○											9÷10	45	0,150	1509	226
					○											10÷12	45	0,150	1303	195
					○											12÷14	45	0,200	1102	220
					○											14÷16	45	0,200	955	191
					○											16÷18	45	0,250	843	211
					○											18÷20	45	0,250	754	189
							○									3÷4	110	0,125	10009	1251
							○									4÷5	110	0,125	7785	973
							○									5÷6	110	0,175	6369	1115
							○									6÷7	110	0,175	5390	943
							○									7÷8	110	0,175	4671	817
							○									8÷9	110	0,225	4121	927
							○									9÷10	110	0,225	3688	830
							○									10÷12	110	0,225	3185	717
							○									12÷14	110	0,300	2695	808
							○									14÷16	110	0,300	2335	701
							○									16÷18	110	0,375	2061	773
							○									18÷20	110	0,375	1844	691
													○			3÷4	30	0,040	2730	109
													○			4÷5	30	0,040	2123	85
													○			5÷6	30	0,080	1737	139
													○			6÷7	30	0,080	1470	118
													○			7÷8	30	0,080	1274	102
													○			8÷9	30	0,120	1124	135
													○			9÷10	30	0,120	1006	121
													○			10÷12	30	0,120	869	104
													○			12÷14	30	0,160	735	118
													○			14÷16	30	0,160	637	102
													○			16÷18	30	0,200	562	112
													○			18÷20	30	0,200	503	101

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

$$n = \frac{Vc \cdot 1000}{ØD \cdot 3{,}14} \text{ = giri/min } (min^{-1})$$

$$Vf = fn \cdot n \text{ = mm/min}$$

SDF0802

ØD = 3 - 16

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RIVESTIM. COATED
TIALN

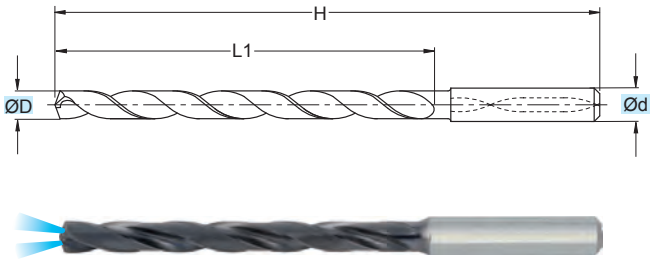
8xD

135°

30°

DIN 6535

MG



TOLLERANZE / TOLLERANCE RANGE	D	d
	m7	h6

(mm)

ART.	ØD	Ød	H	L1
SDF0802030	3,0	6	74	34
SDF0802031	3,1	6	74	34
SDF0802032	3,2	6	74	34
SDF0802033	3,3	6	74	34
SDF0802034	3,4	6	74	34
SDF0802035	3,5	6	74	34
SDF0802036	3,6	6	74	34
SDF0802037	3,7	6	74	34
SDF0802038	3,8	6	85	45
SDF0802039	3,9	6	85	45
SDF0802040	4,0	6	85	45
SDF0802041	4,1	6	85	45
SDF0802042	4,2	6	85	45
SDF0802043	4,3	6	85	45
SDF0802044	4,4	6	85	45
SDF0802045	4,5	6	85	45
SDF0802046	4,6	6	85	45
SDF0802047	4,7	6	85	45
SDF0802048	4,8	6	97	57
SDF0802049	4,9	6	97	57
SDF0802050	5,0	6	97	57
SDF0802051	5,1	6	97	57
SDF0802052	5,2	6	97	57
SDF0802053	5,3	6	97	57
SDF0802054	5,4	6	97	57
SDF0802055	5,5	6	97	57
SDF0802056	5,6	6	97	57
SDF0802057	5,7	6	97	57
SDF0802058	5,8	6	97	57
SDF0802059	5,9	6	97	57
* SDF0802060	6,0	6	97	57
SDF0802061	6,1	8	106	66
SDF0802062	6,2	8	106	66
SDF0802063	6,3	8	106	66
SDF0802064	6,4	8	106	66
SDF0802065	6,5	8	106	66
SDF0802066	6,6	8	106	66
SDF0802067	6,7	8	106	66
SDF0802068	6,8	8	106	66
SDF0802069	6,9	8	106	66
SDF0802070	7,0	8	106	66
SDF0802071	7,1	8	116	76
SDF0802072	7,2	8	116	76
SDF0802073	7,3	8	116	76
SDF0802074	7,4	8	116	76

(mm)

ART.	ØD	Ød	H	L1
SDF0802075	7,5	8	116	76
SDF0802076	7,6	8	116	76
SDF0802077	7,7	8	116	76
SDF0802078	7,8	8	116	76
SDF0802079	7,9	8	116	76
* SDF0802080	8,0	8	116	76
SDF0802081	8,1	10	139	95
SDF0802082	8,2	10	139	95
SDF0802083	8,3	10	139	95
SDF0802084	8,4	10	139	95
SDF0802085	8,5	10	139	95
SDF0802086	8,6	10	139	95
SDF0802087	8,7	10	139	95
SDF0802088	8,8	10	139	95
SDF0802089	8,9	10	139	95
SDF0802090	9,0	10	139	95
SDF0802091	9,1	10	139	95
SDF0802092	9,2	10	139	95
SDF0802093	9,3	10	139	95
SDF0802094	9,4	10	139	95
SDF0802095	9,5	10	139	95
SDF0802096	9,6	10	139	95
SDF0802097	9,7	10	139	95
SDF0802098	9,8	10	139	95
SDF0802099	9,9	10	139	95
* SDF0802100	10,0	10	139	95
SDF0802101	10,1	12	163	114
SDF0802102	10,2	12	163	114
SDF0802103	10,3	12	163	114
SDF0802104	10,4	12	163	114
SDF0802105	10,5	12	163	114
SDF0802106	10,6	12	163	114
SDF0802107	10,7	12	163	114
SDF0802108	10,8	12	163	114
SDF0802109	10,9	12	163	114
SDF0802110	11,0	12	163	114
SDF0802111	11,1	12	163	114
SDF0802112	11,2	12	163	114
SDF0802113	11,3	12	163	114
SDF0802114	11,4	12	163	114
SDF0802115	11,5	12	163	114
SDF0802116	11,6	12	163	114
SDF0802117	11,7	12	163	114
SDF0802118	11,8	12	163	114
SDF0802119	11,9	12	163	114

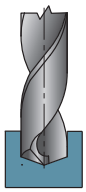
(mm)

ART.	ØD	Ød	H	L1
* SDF0802120	12,0	12	163	114
SDF0802125	12,5	14	182	133
SDF0802128	12,8	14	182	133
SDF0802130	13,0	14	182	133
SDF0802135	13,5	14	182	133
SDF0802138	13,8	14	182	133
* SDF0802140	14,0	14	182	133
SDF0802145	14,5	16	204	152
SDF0802148	14,8	16	204	152
SDF0802150	15,0	16	204	152
SDF0802155	15,5	16	204	152
SDF0802158	15,8	16	204	152
* SDF0802160	16,0	16	204	152

* = COSTRUITI IN TOLLERANZA h7
* = MADE WITH h7 TOLERANCE
* = GEBAUT MIT TOLERANZ h7
* = RÉALISÉS EN TOLÉRANCE h7

PAG. 1076

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm)	(m/min)	(mm)	(giri/min) (min^{-1})	(mm/min)
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO E SUE LEGHE ALUMINIUM	RAME E SUE LEGHE COPPER	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE	ØD	Vc	fn	n	Vf
	●															3÷4	85	0,050	7734	387
	●															4÷5	85	0,080	6016	481
	●															5÷6	85	0,110	4922	541
	●															6÷7	85	0,130	4165	541
	●															7÷8	85	0,150	3609	541
	●															8÷9	85	0,170	3185	541
	●															9÷10	85	0,190	2849	541
	●															10÷11	85	0,200	2707	541
	●															11÷12	85	0,210	2461	517
	●															12÷13	85	0,220	2256	496
	●															13÷14	85	0,230	2082	479
	●															14÷15	85	0,240	1934	464
	●															15÷16	85	0,250	1805	451
		●														3÷4	75	0,035	6824	239
		●														4÷5	75	0,045	5308	239
		●														5÷6	75	0,060	4343	261
		●														6÷7	75	0,075	3675	276
		●														7÷8	75	0,085	3185	271
		●														8÷9	75	0,095	2810	267
		●														9÷10	75	0,105	2514	264
		●														10÷11	75	0,110	2275	250
		●														11÷12	75	0,115	2077	239
		●														12÷13	75	0,120	1911	229
		●														13÷14	75	0,130	1769	230
		●														14÷15	75	0,140	1647	231
		●														15÷16	75	0,150	1541	231
			●													3÷4	55	0,035	5005	175
			●													4÷5	55	0,045	3892	175
			●													5÷6	55	0,060	3185	191
			●													6÷7	55	0,075	2695	202
			●													7÷8	55	0,085	2335	199
			●													8÷9	55	0,095	2061	196
			●													9÷10	55	0,105	1844	194
			●													10÷11	55	0,110	1668	184
			●													11÷12	55	0,115	1523	175
			●													12÷13	55	0,120	1401	168
			●													13÷14	55	0,130	1297	169
			●													14÷15	55	0,140	1208	169
			●													15÷16	55	0,150	1130	170
					●											3÷4	50	0,035	4550	159
					●											4÷5	50	0,045	3539	159
					●											5÷6	50	0,060	2895	174
					●											6÷7	50	0,075	2450	184
					●											7÷8	50	0,085	2123	180
					●											8÷9	50	0,095	1873	178
					●											9÷10	50	0,105	1676	176
					●											10÷11	50	0,110	1517	167
					●											11÷12	50	0,115	1385	159
					●											12÷13	50	0,120	1274	153
					●											13÷14	50	0,120	1180	142
					●											14÷15	50	0,125	1098	137
					●											15÷16	50	0,125	1027	128
							●									3÷4	80	0,075	7279	546
							●									4÷5	80	0,100	5662	566
							●									5÷6	80	0,130	4632	602
							●									6÷7	80	0,150	3920	588
							●									7÷8	80	0,170	3397	577
							●									8÷9	80	0,190	2997	570
							●									9÷10	80	0,215	2682	577
							●									10÷11	80	0,230	2548	586
							●									11÷12	80	0,255	2316	591
							●									12÷13	80	0,280	2123	594
							●									13÷14	80	0,290	1960	568
							●									14÷15	80	0,300	1820	546
							●									15÷16	80	0,310	1699	527

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED

n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS

fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION

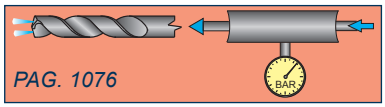
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

$$n = \frac{Vc \cdot 1000}{ØD \cdot 3{,}14} = \text{giri/min } (min^{-1})$$

$$Vf = fn \cdot n = \text{mm/min}$$

SDF1201

ØD = 3 - 16



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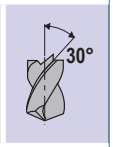
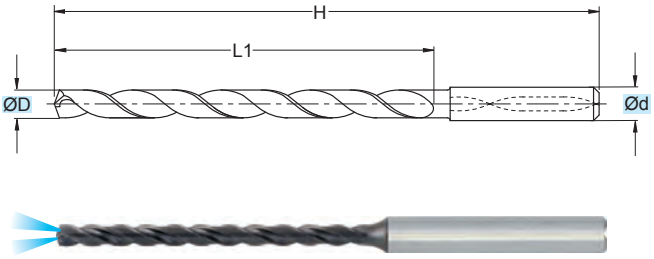
RIVESTIM. COATED **TIALN**

12xD



DIN 6535

MG



TOLLERANZE	D	d
TOLLERANCE RANGE	h7	h6

(mm)

ART.	ØD	Ød	H	L1
SDF1201030	3,0	6	92	54
SDF1201031	3,1	6	92	54
SDF1201032	3,2	6	92	54
SDF1201033	3,3	6	92	54
SDF1201034	3,4	6	92	54
SDF1201035	3,5	6	92	54
SDF1201036	3,6	6	92	54
SDF1201037	3,7	6	92	54
SDF1201038	3,8	6	102	64
SDF1201039	3,9	6	102	64
SDF1201040	4,0	6	102	64
SDF1201041	4,1	6	102	64
SDF1201042	4,2	6	102	64
SDF1201043	4,3	6	102	64
SDF1201044	4,4	6	102	64
SDF1201045	4,5	6	102	64
SDF1201046	4,6	6	102	64
SDF1201047	4,7	6	102	64
SDF1201048	4,8	6	116	78
SDF1201049	4,9	6	116	78
SDF1201050	5,0	6	116	78
SDF1201051	5,1	6	116	78
SDF1201052	5,2	6	116	78
SDF1201053	5,3	6	116	78
SDF1201054	5,4	6	116	78
SDF1201055	5,5	6	116	78
SDF1201056	5,6	6	116	78
SDF1201057	5,7	6	116	78
SDF1201058	5,8	6	116	78
SDF1201059	5,9	6	116	78
SDF1201060	6,0	6	116	78
SDF1201061	6,1	8	146	108
SDF1201062	6,2	8	146	108
SDF1201063	6,3	8	146	108
SDF1201064	6,4	8	146	108
SDF1201065	6,5	8	146	108
SDF1201066	6,6	8	146	108
SDF1201067	6,7	8	146	108
SDF1201068	6,8	8	146	108
SDF1201069	6,9	8	146	108
SDF1201070	7,0	8	146	108
SDF1201071	7,1	8	146	108
SDF1201072	7,2	8	146	108
SDF1201073	7,3	8	146	108
SDF1201074	7,4	8	146	108

(mm)

ART.	ØD	Ød	H	L1
SDF1201075	7,5	8	146	108
SDF1201076	7,6	8	146	108
SDF1201077	7,7	8	146	108
SDF1201078	7,8	8	146	108
SDF1201079	7,9	8	146	108
SDF1201080	8,0	8	146	108
SDF1201081	8,1	10	162	120
SDF1201082	8,2	10	162	120
SDF1201083	8,3	10	162	120
SDF1201084	8,4	10	162	120
SDF1201085	8,5	10	162	120
SDF1201086	8,6	10	162	120
SDF1201087	8,7	10	162	120
SDF1201088	8,8	10	162	120
SDF1201089	8,9	10	162	120
SDF1201090	9,0	10	162	120
SDF1201091	9,1	10	162	120
SDF1201092	9,2	10	162	120
SDF1201093	9,3	10	162	120
SDF1201094	9,4	10	162	120
SDF1201095	9,5	10	162	120
SDF1201096	9,6	10	162	120
SDF1201097	9,7	10	162	120
SDF1201098	9,8	10	162	120
SDF1201099	9,9	10	162	120
SDF1201100	10,0	10	162	120
SDF1201101	10,1	12	204	156
SDF1201102	10,2	12	204	156
SDF1201103	10,3	12	204	156
SDF1201104	10,4	12	204	156
SDF1201105	10,5	12	204	156
SDF1201106	10,6	12	204	156
SDF1201107	10,7	12	204	156
SDF1201108	10,8	12	204	156
SDF1201109	10,9	12	204	156
SDF1201110	11,0	12	204	156
SDF1201111	11,1	12	204	156
SDF1201112	11,2	12	204	156
SDF1201113	11,3	12	204	156
SDF1201114	11,4	12	204	156
SDF1201115	11,5	12	204	156
SDF1201116	11,6	12	204	156
SDF1201117	11,7	12	204	156
SDF1201118	11,8	12	204	156
SDF1201119	11,9	12	204	156

(mm)

ART.	ØD	Ød	H	L1
SDF1201120	12,0	12	204	156
SDF1201125	12,5	14	230	182
SDF1201128	12,8	14	230	182
SDF1201130	13,0	14	230	182
SDF1201135	13,5	14	230	182
SDF1201138	13,8	14	230	182
SDF1201140	14,0	14	230	182
SDF1201145	14,5	16	260	208
SDF1201148	14,8	16	260	208
SDF1201150	15,0	16	260	208
SDF1201155	15,5	16	260	208
SDF1201158	15,8	16	260	208
SDF1201160	16,0	16	260	208

-PRIMA DELL'UTILIZZO DELLA PUNTA LEGGERE GLI ACCORGIMENTI DI PAG 1079
-PER ESEGUIRE IL PREFORO UTILIZZARE ART. SDF0371 PAG 576

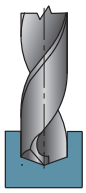
-BEFORE USING THE DRILL READ THE TIPS ON PAGE 1079
-USE ART. SDF0371 PAGE 576 TO MAKE THE PRE-BORE

-VOR DEM GEBRAUCH SIEHE DIE HINWEISE AUF SEITE 1079
-ZUM VORBOHREN ART. SDF0371, SEITE 576 VERWENDEN

-AVANT D'UTILISER LA POINTE, LIRE LES CONSIGNES DE PAGE 1079
-POUR EXECUTER LE PRE-TROU, UTILISER ART. SDF0371 PAGE 576

PAG. 1076

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm)	(m/min)	(mm)	(giri/min) (min^{-1})	(mm/min)
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO E SUE LEGHE ALUMINIUM	RAME E SUE LEGHE COPPER	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE	ØD	Vc	fn	n	Vf
	●															3÷4	80	0,050	7279	364
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	●															5÷6	80	0,110	4632	510
	●															6÷7	80	0,130	3920	510
	●															7÷8	80	0,150	3397	510
	●															8÷9	80	0,170	2997	510
	●															9÷10	80	0,190	2682	510
	●															10÷11	80	0,200	2548	510
	●															11÷12	80	0,210	2316	486
	●															12÷13	80	0,220	2123	467
	●															13÷14	80	0,230	1960	451
	●															14÷15	80	0,240	1820	437
	●															15÷16	80	0,250	1699	425
		●														3÷4	50	0,035	4550	159
		●														4÷5	50	0,045	3539	159
		●														5÷6	50	0,060	2895	174
		●														6÷7	50	0,075	2450	184
		●														7÷8	50	0,085	2123	180
		●														8÷9	50	0,095	1873	178
		●														9÷10	50	0,105	1676	176
		●														10÷11	50	0,110	1592	175
		●														11÷12	50	0,115	1448	166
		●														12÷13	50	0,120	1327	159
		●														13÷14	50	0,130	1225	159
		●														14÷15	50	0,140	1137	159
		●														15÷16	50	0,150	1062	159
			●													3÷4	30	0,035	2730	96
			●													4÷5	30	0,045	2123	96
			●													5÷6	30	0,060	1737	104
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			●													14÷15	30	0,140	682	96
			●													15÷16	30	0,150	637	96
					●											3÷4	50	0,035	4550	159
					●											4÷5	50	0,045	3539	159
					●											5÷6	50	0,060	2895	174
					●											6÷7	50	0,075	2450	184
					●											7÷8	50	0,085	2123	180
					●											8÷9	50	0,095	1873	178
					●											9÷10	50	0,105	1676	176
					●											10÷11	50	0,110	1517	167
					●											11÷12	50	0,115	1385	159
					●											12÷13	50	0,120	1274	153
					●											13÷14	50	0,120	1180	142
					●											14÷15	50	0,125	1098	137
					●											15÷16	50	0,125	1027	128
							●									3÷4	75	0,075	6824	512
							●									4÷5	75	0,100	5308	531
							●									5÷6	75	0,130	4343	565
							●									6÷7	75	0,150	3675	551
							●									7÷8	75	0,170	3185	541
							●									8÷9	75	0,190	2810	534
							●									9÷10	75	0,215	2514	541
							●									10÷11	75	0,230	2389	549
							●									11÷12	75	0,255	2171	554
							●									12÷13	75	0,280	1990	557
							●									13÷14	75	0,290	1837	533
							●									14÷15	75	0,300	1706	512
							●									15÷16	75	0,310	1592	494

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED

n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS

fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION

Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

$$n = \frac{Vc \cdot 1000}{ØD \cdot 3{,}14} = \text{giri/min } (min^{-1})$$

$$Vf = fn \cdot n = \text{mm/min}$$

PUNTE A GRADINO

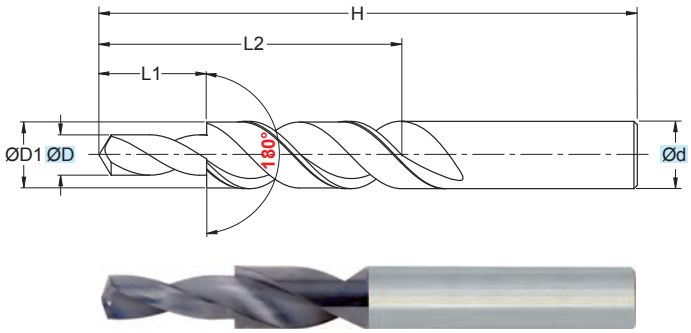
STEP DRILLS / STUFENBOHRER / POINTES A GRADIN / PUNTAS ESCALÓN

SAU
QUALITY TOOLS ENGINEERING

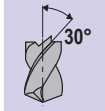
SDN0102

GENERICO / *ALL PURPOSE*

ØD = 3,4 - 11



RIVESTIM. COATED
TIALN



MG

> ANGOLO DI SVASATURA 180°
> PER ALLOGGIAMENTI TESTE VITI SECONDO DIN 84-912-6912-7513-7984

> COUNTER SINK 180°
> SFOR HEAD SCREW DIN 84-912-6912-7513-7984

(mm)

ART.	ØD	Ød	ØD1	H	L1	L2
SDN0102030	3,4	6	6	66	9	28
SDN0102040	4,5	8	8	80	11	37
SDN0102050	5,5	10	10	89	13	43
SDN0102060	6,6	12	11	95	15	47
SDN0102080	9,0	16	15	110	19	56
SDN0102100	11,0	18	18	123	23	62

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm)	(m/min)	(mm)	(giri/min) (min^{-1})	(mm/min)
	ACCIAIO NON LEGATO NOT ALLOY STEEL	**ACCIAIO POCO LEGATO** LOW ALLOY STEEL	**ACCIAIO ALTO LEGATO** ALLOY STEEL	**INOX MARTENSITICO** STAINLESS STEEL MART.	**INOX AUST. DUPLEX** STAINLESS STEEL AUST.	**GHISA GRIGIA** GREY CAST IRON	**GHISA SFEROIDALE** SPHEROIDAL GRAPHITE	**GHISA MALLEABILE** MALLEABLE CAST IRON	**ALLUMINIO E SUE LEGHE** ALUMINIUM	**RAME E SUE LEGHE** COPPER	**NON METALLICI** PLASTICS	**LEGHE RESIST. CALORE** HIGH TEMP. ALLOY	**TITANIO E SUE LEGHE** TITANIUM	**ACCIAIO TEMPRATO** HARDENED STEEL	**GRAFITE** GRAPHITE	ØD	Vc	fn	n	Vf
	●															3,4	80	0,180	7493	1349
	●															4,5	80	0,180	5662	1019
	●															5,5	80	0,240	4632	1112
	●															6,6	80	0,240	3860	926
	●															9,0	80	0,300	2831	849
	●															11,0	80	0,300	2316	695
		●														3,4	50	0,150	4683	703
		●														4,5	50	0,150	3539	531
		●														5,5	50	0,210	2895	608
		●														6,6	50	0,210	2413	507
		●														9,0	50	0,270	1769	478
		●														11,0	50	0,270	1448	391
						●										3,4	75	0,230	7025	1616
						●										4,5	75	0,230	5308	1221
						●										5,5	75	0,335	4343	1455
						●										6,6	75	0,335	3619	1212
						●										9,0	75	0,425	2654	1128
						●										11,0	75	0,425	2171	923
							●									3,4	75	0,200	7025	1405
							●									4,5	75	0,200	5308	1062
							●									5,5	75	0,250	4343	1086
							●									6,6	75	0,250	3619	905
							●									9,0	75	0,350	2654	929
							●									11,0	75	0,350	2171	760

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED

n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS

fz = mm AVANZAMENTO AL DENTE -TOOTH FEED

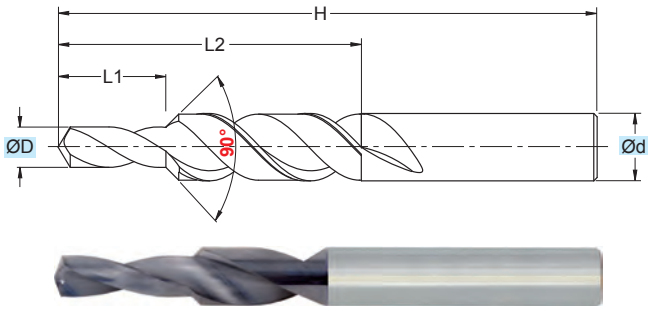
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION

Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

SDR0102

GENERICO / *ALL PURPOSE*

ØD = 2,5 - 14



RIVESTIM. COATED
TIALN

140°

30°

MG

> ANGOLO DI SVASATURA 90°
> RIVESTIMENTO TIALN

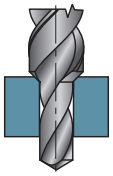
> CHAMFER 90°
> TIALN COATED

(mm)

ART.	ØD	Ød	H	L1	L2
SDR0102030	2,5	6	66	8,8	20
SDR0102040	3,3	6	66	11,4	24
SDR0102050	4,2	6	66	13,6	28
SDR0102060	5,0	8	79	16,5	34
SDR0102080	6,8	10	89	21,0	47
SDR0102100	8,5	12	102	25,5	55
SDR0102120	10,2	14	107	30,0	60
SDR0102140	12,0	16	115	34,5	65
SDR0102160	14,0	18	123	38,5	73

PAG. 1076

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm)	(m/min)	(mm)	(giri/min) (min^{-1})	(mm/min)
	ACCIAIO NON LEGATO NOT ALLOY STEEL	**ACCIAIO POCO LEGATO** LOW ALLOY STEEL	**ACCIAIO ALTO LEGATO** ALLOY STEEL	**INOX MARTENSITICO** STAINLESS STEEL MART.	**INOX AUST. DUPLEX** STAINLESS STEEL AUST.	**GHISA GRIGIA** GREY CAST IRON	**GHISA SFEROIDALE** SPHEROIDAL GRAPHITE	**GHISA MALLEABILE** MALLEABLE CAST IRON	**ALLUMINIO E SUE LEGHE** ALUMINIUM	**RAME E SUE LEGHE** COPPER	**NON METALLICI** PLASTICS	**LEGHE RESIST. CALORE** HIGH TEMP. ALLOY	**TITANIO E SUE LEGHE** TITANIUM	**ACCIAIO TEMPRATO** HARDENED STEEL	**GRAFITE** GRAPHITE	ØD	Vc	fn	n	Vf
	●															2,5	80	0,100	10191	1019
	●															3,3	80	0,180	7721	1390
	●															4,2	80	0,180	6066	1092
	●															5,0	80	0,240	5096	1223
	●															6,8	80	0,240	3747	899
	●															8,5	80	0,300	2997	899
	●															10,2	80	0,300	2498	749
	●															12,0	80	0,350	2123	743
	●															14,0	80	0,350	1820	637
		●														2,5	50	0,080	6369	510
		●														3,3	50	0,150	4825	724
		●														4,2	50	0,150	3791	569
		●														5,0	50	0,210	3185	669
		●														6,8	50	0,210	2342	492
		●														8,5	50	0,270	1873	506
		●														10,2	50	0,270	1561	422
		●														12,0	50	0,320	1327	425
		●														14,0	50	0,320	1137	364
						●										2,5	75	0,150	9554	1433
						●										3,3	75	0,230	7238	1665
						●										4,2	75	0,230	5687	1308
						●										5,0	75	0,335	4777	1600
						●										6,8	75	0,335	3513	1177
						●										8,5	75	0,425	2810	1194
						●										10,2	75	0,425	2342	995
						●										12,0	75	0,520	1990	1035
						●										14,0	75	0,520	1706	887
							●									2,5	75	0,125	9554	1194
							●									3,3	75	0,200	7238	1448
							●									4,2	75	0,200	5687	1137
							●									5,0	75	0,250	4777	1194
							●									6,8	75	0,250	3513	878
							●									8,5	75	0,350	2810	984
							●									10,2	75	0,350	2342	820
							●									12,0	75	0,400	1990	796
							●									14,0	75	0,400	1706	682

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED

n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS

fz = mm AVANZAMENTO AL DENTE -TOOTH FEED

fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION

Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

PUNTE A CENTRARE
PUNTA PILOTA

CENTER DRILLS - PILOT DRILL / ZENTRIERBOHRER - PILOTBOHRER /
POINTES A CENTRER - POINTE PILOTE / BROCAS CENTRADORAS - BROCA PILOTO

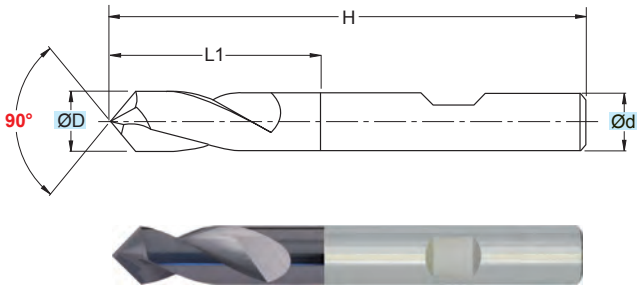
SAU
QUALITY TOOLS ENGINEERING

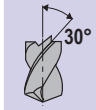
SCR0184

GENERICO / *ALL PURPOSE*

RIVESTIM. COATED
TIALN

ØD = 3 - 20





MG

> PUNTA A CENTRARE PER MACCHINE CN
> ANGOLO DI TESTA 90°
> ATTACCO DIN 6535 HB

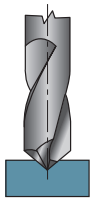
> CENTER DRILL ON NC-AND DRILLING MACHINES
> HEAD ANGLE 90°
> SHANK DIN 6535 HB

(mm)

ART.	ØD	Ød	H	L1	Z
SCR0184030	3	3	38	8	2
SCR0184040	4	4	50	10	2
SCR0184050	5	5	50	13	2
SCR0184060	6	6	57	13	2
SCR0184080	8	8	63	19	2
SCR0184100	10	10	66	20	2
SCR0184120	12	12	73	22	2
SCR0184160	16	16	82	24	2
SCR0184200	20	20	92	30	2

PAG. 1076

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm)	(m/min)	(mm)	(giri/min) (min^{-1})	(mm/min)
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO E SUE LEGHE ALUMINIUM	RAME E SUE LEGHE COPPER	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE	ØD	Vc	fn	n	Vf
	●															3	80	0,100	8493	849
	●															4	80	0,140	6369	892
	●															5	80	0,140	5096	713
	●															6	80	0,200	4246	849
	●															8	80	0,200	3185	637
	●															10	80	0,275	2548	701
	●															12	80	0,275	2123	584
	●															16	80	0,350	1592	557
	●															20	80	0,450	1274	573
		●														3	50	0,075	5308	398
		●														4	50	0,100	3981	398
		●														5	50	0,100	3185	318
		●														6	50	0,150	2654	398
		●														8	50	0,150	1990	299
		●														10	50	0,200	1592	318
		●														12	50	0,200	1327	265
		●														16	50	0,260	995	259
		●														20	50	0,325	796	259
						●										3	70	0,075	7431	557
						●										4	70	0,125	5573	697
						●										5	70	0,125	4459	557
						●										6	70	0,175	3715	650
						●										8	70	0,175	2787	488
						●										10	70	0,225	2229	502
						●										12	70	0,225	1858	418
						●										16	70	0,300	1393	418
						●										20	70	0,375	1115	418
							●									3	70	0,075	7431	557
							●									4	70	0,100	5573	557
							●									5	70	0,100	4459	446
							●									6	70	0,150	3715	557
							●									8	70	0,150	2787	418
							●									10	70	0,200	2229	446
							●									12	70	0,200	1858	372
							●									16	70	0,260	1393	362
							●									20	70	0,325	1115	362
									○							3	200	0,020	21231	425
									○							4	200	0,030	15924	478
									○							5	200	0,030	12739	382
									○							6	200	0,070	10616	743
									○							8	200	0,070	7962	557
									○							10	200	0,110	6369	701
									○							12	200	0,110	5308	584
									○							16	200	0,150	3981	597
									○							20	200	0,200	3185	637

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED

n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS

fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION

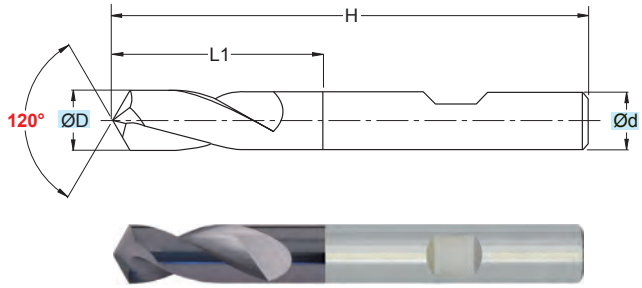
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

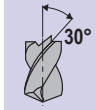
SCR0185

GENERICO / *ALL PURPOSE*

RIVESTIM. COATED
TIALN

ØD = 6 - 20





MG

> PUNTA A CENTRARE PER MACCHINE CN
> ANGOLO DI TESTA 120°
> ATTACCO DIN 6535 HB

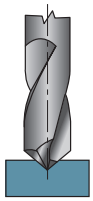
> CENTER DRILL ON NC-AND DRILLING MACHINES
> HEAD ANGLE 120°
> SHANK DIN 6535 HB

(mm)

ART.	ØD	Ød	H	L1	Z
SCR0185060	6	6	57	13	2
SCR0185080	8	8	63	19	2
SCR0185100	10	10	66	20	2
SCR0185120	12	12	73	22	2
SCR0185160	16	16	82	24	2
SCR0185200	20	20	92	30	2

PAG. 1076

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm)	(m/min)	(mm)	(giri/min) (min^{-1})	(mm/min)
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO E SUE LEGHE ALUMINIUM	RAME E SUE LEGHE COPPER	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE	ØD	Vc	fn	n	Vf
	●															6	50	0,035	2654	186
	●															8	50	0,040	1990	159
	●															10	50	0,045	1592	143
	●															12	50	0,050	1327	133
	●															16	50	0,055	995	109
	●															20	50	0,060	796	96
		●														6	25	0,020	1327	53
		●														8	25	0,030	995	60
		●														10	25	0,035	796	56
		●														12	25	0,040	663	53
		●														16	25	0,045	498	45
		●														20	25	0,050	398	40
						●										6	72	0,045	3822	172
						●										8	72	0,060	2866	172
						●										10	72	0,065	2293	149
						●										12	72	0,070	1911	134
						●										16	72	0,075	1433	107
						●										20	72	0,080	1146	92
							●									6	60	0,045	3185	287
							●									8	60	0,060	2389	287
							●									10	60	0,065	1911	248
							●									12	60	0,070	1592	223
							●									16	60	0,075	1194	179
							●									20	60	0,080	955	153
									○							6	150	0,050	7962	796
									○							8	150	0,060	5971	717
									○							10	150	0,070	4777	669
									○							12	150	0,080	3981	637
									○							16	150	0,090	2986	537
									○							20	150	0,100	2389	478

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED

n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS

fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION

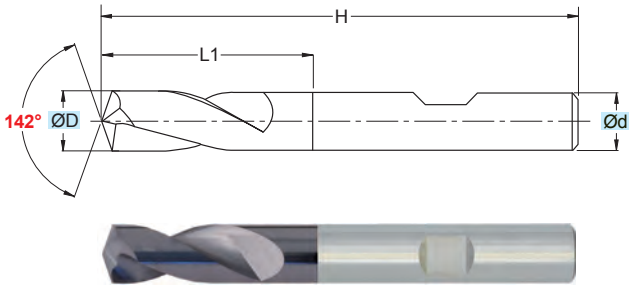
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

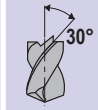
SCR0186

GENERICO / *ALL PURPOSE*

RIVESTIM. COATED
TIALN

ØD = 6 - 20





MG

> PUNTA A CENTRARE PER MACCHINE CN
> ANGOLO DI TESTA 142°
> ATTACCO DIN 6535 HB

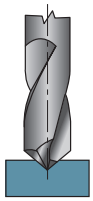
> CENTER DRILL ON NC-AND DRILLING MACHINES
> HEAD ANGLE 142°
> SHANK DIN 6535 HB

(mm)

ART.	ØD	Ød	H	L1	Z
SCR0186060	6	6	57	11	2
SCR0186080	8	8	63	19	2
SCR0186100	10	10	66	20	2
SCR0186120	12	12	73	22	2
SCR0186160	16	16	82	24	2
SCR0186200	20	20	92	30	2

PAG. 1076

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm)	(m/min)	(mm)	(giri/min) (min^{-1})	(mm/min)
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO E SUE LEGHE ALUMINIUM	RAME E SUE LEGHE COPPER	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE	ØD	Vc	fn	n	Vf
	●															6	80	0,200	4246	849
	●															8	80	0,200	3185	637
	●															10	80	0,275	2548	701
	●															12	80	0,275	2123	584
	●															16	80	0,350	1592	557
	●															20	80	0,450	1274	573
		●														6	50	0,150	2654	398
		●														8	50	0,150	1990	299
		●														10	50	0,200	1592	318
		●														12	50	0,200	1327	265
		●														16	50	0,260	995	259
		●														20	50	0,325	796	259
						●										6	70	0,175	3715	650
						●										8	70	0,175	2787	488
						●										10	70	0,225	2229	502
						●										12	70	0,225	1858	418
						●										16	70	0,300	1393	418
						●										20	70	0,375	1115	418
							●									6	70	0,150	3715	557
							●									8	70	0,150	2787	418
							●									10	70	0,200	2229	446
							●									12	70	0,200	1858	372
							●									16	70	0,260	1393	362
							●									20	70	0,325	1115	362
									○							6	200	0,070	10616	743
									○							8	200	0,070	7962	557
									○							10	200	0,110	6369	701
									○							12	200	0,110	5308	584
									○							16	200	0,150	3981	597
									○							20	200	0,200	3185	637

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED

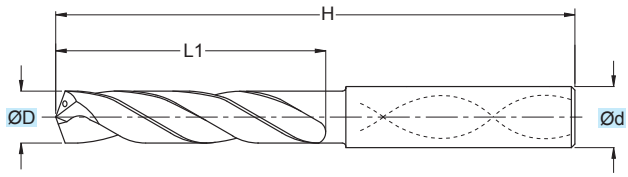
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS

fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION

Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

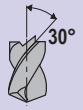
SDF0371

ØD = 2 - 12



RIVESTIM. COATED
TIALN

3xD



DIN 6535

MG

PER PREPARAZIONE FORI ≥ 12xD
FOR THE PREPARATION OF BORES ≥ 12xD
ZUR VORBEREITUNG VON BOHRUNGEN ≥ 12xD
POUR LA PRÉPARATION DE TROUS ≥ 12xD

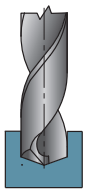
TOLLERANZE / TOLLERANCE RANGE	D	d
	+0,030 +0,005	h6

(mm)

ART.	ØD	Ød	H	L1
SDF0371020	2,0	4	50,0	12,0
SDF0371022	2,2	4	50,0	12,0
SDF0371023	2,3	4	50,0	12,0
SDF0371024	2,4	4	50,0	12,0
SDF0371025	2,5	4	50,0	12,0
SDF0371027	2,7	4	50,0	12,0
SDF0371028	2,8	4	50,0	12,0
SDF0371030	3,0	6	62,0	20,0
SDF0371032	3,2	6	62,0	20,0
SDF0371033	3,3	6	62,0	20,0
SDF0371035	3,5	6	62,0	20,0
SDF0371038	3,8	6	66,0	24,0
SDF0371040	4,0	6	66,0	24,0
SDF0371042	4,2	6	66,0	24,0
SDF0371045	4,5	6	66,0	24,0
SDF0371048	4,8	6	66,0	28,0
SDF0371050	5,0	6	66,0	28,0
SDF0371055	5,5	6	66,0	28,0
SDF0371058	5,8	6	66,0	28,0
SDF0371060	6,0	6	66,0	28,0
SDF0371065	6,5	8	79,0	34,0
SDF0371068	6,8	8	79,0	34,0
SDF0371070	7,0	8	79,0	34,0
SDF0371075	7,5	8	79,0	41,0
SDF0371078	7,8	8	79,0	41,0
SDF0371080	8,0	8	79,0	41,0
SDF0371085	8,5	10	89,0	47,0
SDF0371088	8,8	10	89,0	47,0
SDF0371090	9,0	10	89,0	47,0
SDF0371098	9,8	10	89,0	47,0
SDF0371100	10,0	10	89,0	47,0
SDF0371102	10,2	12	102,0	55,0
SDF0371108	10,8	12	102,0	55,0
SDF0371118	11,8	12	102,0	55,0
SDF0371120	12,0	12	102,0	55,0

PAG. 1076

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm)	(m/min)	(mm)	(giri/min) (min^{-1})	(mm/min)
	ACCIAIO NON LEGATO NOT ALLOY STEEL	**ACCIAIO POCO LEGATO** LOW ALLOY STEEL	**ACCIAIO ALTO LEGATO** ALLOY STEEL	**INOX MARTENSITICO** STAINLESS STEEL MART.	**INOX AUST. DUPLEX** STAINLESS STEEL AUST.	**GHISA GRIGIA** GREY CAST IRON	**GHISA SFEROIDALE** SPHEROIDAL GRAPHITE	**GHISA MALLEABILE** MALLEABLE CAST IRON	**ALLUMINIO E SUE LEGHE** ALUMINIUM	**RAME E SUE LEGHE** COPPER	**NON METALLICI** PLASTICS	**LEGHE RESIST. CALORE** HIGH TEMP. ALLOY	**TITANIO E SUE LEGHE** TITANIUM	**ACCIAIO TEMPRATO** HARDENED STEEL	**GRAFITE** GRAPHITE	ØD	Vc	fn	n	Vf
	●															2÷3	120	0,130	15287	1987
	●															3÷4	120	0,150	10919	1638
	●															4÷5	120	0,170	8493	1444
	●															5÷6	120	0,200	6948	1390
	●															6÷7	120	0,230	5879	1352
	●															7÷8	120	0,260	5096	1325
	●															8÷9	120	0,300	4496	1349
	●															9÷10	120	0,330	4023	1328
	●															10÷11	120	0,350	3640	1274
	●															11÷12	120	0,380	3323	1263
		●														2÷3	110	0,130	14013	1822
		●														3÷4	110	0,150	10009	1501
		●														4÷5	110	0,170	7785	1323
		●														5÷6	110	0,200	6369	1274
		●														6÷7	110	0,230	5390	1240
		●														7÷8	110	0,260	4671	1214
		●														8÷9	110	0,300	4121	1236
		●														9÷10	110	0,330	3688	1217
		●														10÷11	110	0,350	3336	1168
		●														11÷12	110	0,380	3046	1158
					●											2÷3	45	0,100	5732	573
					●											3÷4	45	0,110	4095	450
					●											4÷5	45	0,130	3185	414
					●											5÷6	45	0,150	2606	391
					●											6÷7	45	0,170	2205	375
					●											7÷8	45	0,200	1911	382
					●											8÷9	45	0,220	1686	371
					●											9÷10	45	0,250	1509	377
					●											10÷11	45	0,270	1365	369
					●											11÷12	45	0,280	1246	349
						●										2÷3	120	0,130	15287	1987
						●										3÷4	120	0,150	10919	1638
						●										4÷5	120	0,170	8493	1444
						●										5÷6	120	0,200	6948	1390
						●										6÷7	120	0,230	5879	1352
						●										7÷8	120	0,260	5096	1325
						●										8÷9	120	0,300	4496	1349
						●										9÷10	120	0,330	4023	1328
						●										10÷11	120	0,350	3640	1274
						●										11÷12	120	0,380	3323	1263
							●									2÷3	110	0,100	14013	1401
							●									3÷4	110	0,110	10009	1101
							●									4÷5	110	0,130	7785	1012
							●									5÷6	110	0,150	6369	955
							●									6÷7	110	0,170	5390	916
							●									7÷8	110	0,200	4671	934
							●									8÷9	110	0,220	4121	907
							●									9÷10	110	0,250	3688	922
							●									10÷11	110	0,270	3336	901
							●									11÷12	110	0,280	3046	853

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED

n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS

fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION

Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

PUNTE FORALESA

REAMER-DRILLS / REIBAHLEN-BOHRER / FORETS DE PERÇAGE ET ALÉSAGE / BROCAS ESCARIADORAS

SAU
QUALITY TOOLS ENGINEERING

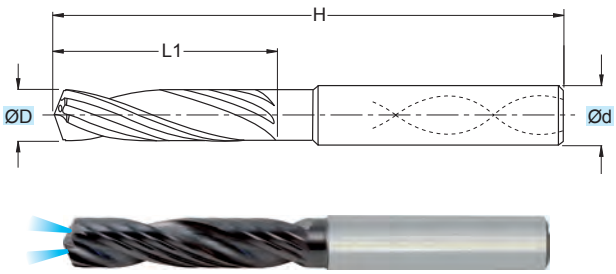
SPFAR3

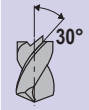
GENERICO / *ALL PURPOSE*

RIVESTIM. COATED
TIALN

3xD

ØD = 2,97 - 20,02





MG

TOLLERANZE	D	d
TOLLERANCE RANGE	±0,003	h6

(mm)				
ART.	ØD	Ød	H	L1
SPFAR3 2.97	2,97	6,0	62	20
SPFAR3 2.98	2,98	6,0	62	20
SPFAR3 2.99	2,99	6,0	62	20
SPFAR3 3.00	3,00	6,0	62	20
*SPFAR3 3.01	3,01	6,0	62	20
SPFAR3 3.02	3,02	6,0	62	20
SPFAR3 3.97	3,97	6,0	66	24
SPFAR3 3.98	3,98	6,0	66	24
SPFAR3 3.99	3,99	6,0	66	24
SPFAR3 4.00	4,00	6,0	66	24
*SPFAR3 4.01	4,01	6,0	66	24
SPFAR3 4.02	4,02	6,0	66	24
SPFAR3 4.97	4,97	6,0	66	28
SPFAR3 4.98	4,98	6,0	66	28
SPFAR3 4.99	4,99	6,0	66	28
SPFAR3 5.00	5,00	6,0	66	28
*SPFAR3 5.01	5,01	6,0	66	28
SPFAR3 5.02	5,02	6,0	66	28
SPFAR3 5.97	5,97	6,0	66	28
SPFAR3 5.98	5,98	6,0	66	28
SPFAR3 5.99	5,99	6,0	66	28
SPFAR3 6.00	6,00	6,0	66	28
*SPFAR3 6.01	6,01	6,0	66	28
SPFAR3 6.02	6,02	6,0	66	28
SPFAR3 6.97	6,97	8,0	79	34
SPFAR3 6.98	6,98	8,0	79	34
SPFAR3 6.99	6,99	8,0	79	34
SPFAR3 7.00	7,00	8,0	79	34
*SPFAR3 7.01	7,01	8,0	79	34
SPFAR3 7.02	7,02	8,0	79	34
SPFAR3 7.97	7,97	8,0	79	34
SPFAR3 7.98	7,98	8,0	79	34
SPFAR3 7.99	7,99	8,0	79	34
SPFAR3 8.00	8,00	8,0	79	34
*SPFAR3 8.01	8,01	8,0	79	34
SPFAR3 8.02	8,02	8,0	79	34
SPFAR3 8.97	8,97	10,0	89	47
SPFAR3 8.98	8,98	10,0	89	47
SPFAR3 8.99	8,99	10,0	89	47
SPFAR3 9.00	9,00	10,0	89	47
*SPFAR3 9.01	9,01	10,0	89	47
SPFAR3 9.02	9,02	10,0	89	47
SPFAR3 9.97	9,97	10,0	89	47
SPFAR3 9.98	9,98	10,0	89	47
SPFAR3 9.99	9,99	10,0	89	47

(mm)				
ART.	ØD	Ød	H	L1
SPFAR3 10.00	10,00	10,0	89	47
*SPFAR3 10.01	10,01	10,0	89	47
SPFAR3 10.02	10,02	10,0	89	47
SPFAR3 10.97	10,97	12,0	102	55
SPFAR3 10.98	10,98	12,0	102	55
SPFAR3 10.99	10,99	12,0	102	55
SPFAR3 11.00	11,00	12,0	102	55
*SPFAR3 11.01	11,01	12,0	102	55
SPFAR3 11.02	11,02	12,0	102	55
SPFAR3 11.97	11,97	12,0	102	55
SPFAR3 11.98	11,98	12,0	102	55
SPFAR3 11.99	11,99	12,0	102	55
SPFAR3 12.00	12,00	12,0	102	55
*SPFAR3 12.01	12,01	12,0	102	55
SPFAR3 12.02	12,02	12,0	102	55
SPFAR3 12.97	12,97	14,0	107	60
SPFAR3 12.98	12,98	14,0	107	60
SPFAR3 12.99	12,99	14,0	107	60
SPFAR3 13.00	13,00	14,0	107	60
*SPFAR3 13.01	13,01	14,0	107	60
SPFAR3 13.02	13,02	14,0	107	60
SPFAR3 13.97	13,97	14,0	107	60
SPFAR3 13.98	13,98	14,0	107	60
SPFAR3 13.99	13,99	14,0	107	60
SPFAR3 14.00	14,00	14,0	107	60
*SPFAR3 14.01	14,01	14,0	107	60
SPFAR3 14.02	14,02	14,0	107	60
SPFAR3 14.97	14,97	16,0	115	65
SPFAR3 14.98	14,98	16,0	115	65
SPFAR3 14.99	14,99	16,0	115	65
SPFAR3 15.00	15,00	16,0	115	65
*SPFAR3 15.01	15,01	16,0	115	65
SPFAR3 15.02	15,02	16,0	115	65
SPFAR3 15.97	15,97	16,0	115	65
SPFAR3 15.98	15,98	16,0	115	65
SPFAR3 15.99	15,99	16,0	115	65
SPFAR3 16.00	16,00	16,0	115	65
*SPFAR3 16.01	16,01	16,0	115	65
SPFAR3 16.02	16,02	16,0	115	65
SPFAR3 16.97	16,97	18,0	123	73
SPFAR3 16.98	16,98	18,0	123	73
SPFAR3 16.99	16,99	18,0	123	73
SPFAR3 17.00	17,00	18,0	123	73
*SPFAR3 17.01	17,01	18,0	123	73
SPFAR3 17.02	17,02	18,0	123	73

(mm)				
ART.	ØD	Ød	H	L1
SPFAR3 17.97	17,97	18,0	123	73
SPFAR3 17.98	17,98	18,0	123	73
SPFAR3 17.99	17,99	18,0	123	73
SPFAR3 18.00	18,00	18,0	123	73
*SPFAR3 18.01	18,01	18,0	123	73
SPFAR3 18.02	18,02	18,0	123	73
SPFAR3 18.97	18,97	20,0	131	79
SPFAR3 18.98	18,98	20,0	131	79
SPFAR3 18.99	18,99	20,0	131	79
SPFAR3 19.00	19,00	20,0	131	79
*SPFAR3 19.01	19,01	20,0	131	79
SPFAR3 19.02	19,02	20,0	131	79
SPFAR3 19.97	19,97	20,0	131	79
SPFAR3 19.98	19,98	20,0	131	79
SPFAR3 19.99	19,99	20,0	131	79
SPFAR3 20.00	20,00	20,0	131	79
*SPFAR3 20.01	20,01	20,0	131	79
SPFAR3 20.02	20,02	20,0	131	79

* = PER OTTENERE FORI IN TOLLERANZA H7

* = TO OBTAIN BORES IN H7 TOLERANCE

* = UM BOHRUNGEN IN H7-TOLERANZ ZU ERHALTEN

* = POUR OBTENIR DES TROUS DANS LA TOLÉRANCE H7

PAG. 1076

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm)	(m/min)	(mm)	(giri/min) (min^{-1})	(mm/min)
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO E SUE LEGHE ALUMINIUM	RAME E SUE LEGHE COPPER	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE	ØD	Vc	fn	n	Vf
		●														3÷5	80	0,14	6369	892
		●														5÷8	80	0,20	3920	784
		●														8÷12	80	0,24	2548	611
		●														12÷16	80	0,28	1820	510
		●														16÷20	80	0,28	1415	396
			●													3÷5	50	0,12	3981	478
			●													5÷8	50	0,16	2450	392
			●													8÷12	50	0,19	1592	302
			●													12÷16	50	0,19	1137	216
			●													16÷20	50	0,23	885	204
				●												3÷5	45	0,12	3583	430
				●												5÷8	45	0,16	2205	353
				●												8÷12	45	0,19	1433	272
				●												12÷16	45	0,19	1024	194
				●												16÷20	45	0,23	796	183
						●										3÷5	70	0,20	5573	1115
						●										5÷8	70	0,28	3430	960
						●										8÷12	70	0,35	2229	780
						●										12÷16	70	0,40	1592	637
						●										16÷20	70	0,40	1238	495
							●									3÷5	60	0,14	4777	669
							●									5÷8	60	0,20	2940	588
							●									8÷12	60	0,24	1911	459
							●									12÷16	60	0,28	1365	382
							●									16÷20	60	0,28	1061	297
								●								3÷5	50	0,15	3981	597
								●								5÷8	50	0,22	2450	539
								●								8÷12	50	0,27	1592	430
								●								12÷16	50	0,29	1137	330
								●								16÷20	50	0,29	885	257

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED

n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS

fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION

Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

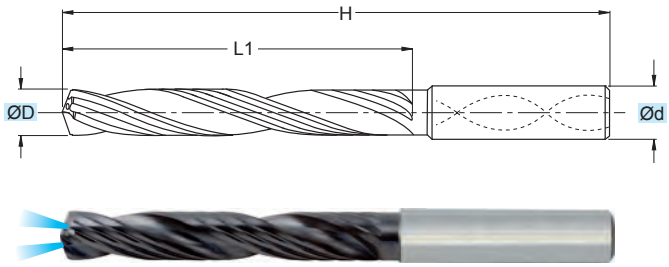
SPFAR5

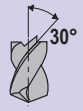
GENERICO / *ALL PURPOSE*

RIVESTIM. COATED
TIALN

5xD

ØD = 2,97 - 20,02





MG

TOLLERANZE	D	d
TOLLERANCE RANGE	±0,003	h6

(mm)

ART.	ØD	Ød	H	L1
SPFAR5 2.97	2,97	6,0	66	28
SPFAR5 2.98	2,98	6,0	66	28
SPFAR5 2.99	2,99	6,0	66	28
SPFAR5 3.00	3,00	6,0	66	28
*SPFAR5 3.01	3,01	6,0	66	28
SPFAR5 3.02	3,02	6,0	66	28
SPFAR5 3.97	3,97	6,0	74	36
SPFAR5 3.98	3,98	6,0	74	36
SPFAR5 3.99	3,99	6,0	74	36
SPFAR5 4.00	4,00	6,0	74	36
*SPFAR5 4.01	4,01	6,0	74	36
SPFAR5 4.02	4,02	6,0	74	36
SPFAR5 4.97	4,97	6,0	82	44
SPFAR5 4.98	4,98	6,0	82	44
SPFAR5 4.99	4,99	6,0	82	44
SPFAR5 5.00	5,00	6,0	82	44
*SPFAR5 5.01	5,01	6,0	82	44
SPFAR5 5.02	5,02	6,0	82	44
SPFAR5 5.97	5,97	6,0	82	44
SPFAR5 5.98	5,98	6,0	82	44
SPFAR5 5.99	5,99	6,0	82	44
SPFAR5 6.00	6,00	6,0	82	44
*SPFAR5 6.01	6,01	6,0	82	44
SPFAR5 6.02	6,02	6,0	82	44
SPFAR5 6.97	6,97	8,0	91	53
SPFAR5 6.98	6,98	8,0	91	53
SPFAR5 6.99	6,99	8,0	91	53
SPFAR5 7.00	7,00	8,0	91	53
*SPFAR5 7.01	7,01	8,0	91	53
SPFAR5 7.02	7,02	8,0	91	53
SPFAR5 7.97	7,97	8,0	91	53
SPFAR5 7.98	7,98	8,0	91	53
SPFAR5 7.99	7,99	8,0	91	53
SPFAR5 8.00	8,00	8,0	91	53
*SPFAR5 8.01	8,01	8,0	91	53
SPFAR5 8.02	8,02	8,0	91	53
SPFAR5 8.97	8,97	10,0	103	61
SPFAR5 8.98	8,98	10,0	103	61
SPFAR5 8.99	8,99	10,0	103	61
SPFAR5 9.00	9,00	10,0	103	61
*SPFAR5 9.01	9,01	10,0	103	61
SPFAR5 9.02	9,02	10,0	103	61
SPFAR5 9.97	9,97	10,0	103	61
SPFAR5 9.98	9,98	10,0	103	61
SPFAR5 9.99	9,99	10,0	103	61

(mm)

ART.	ØD	Ød	H	L1
SPFAR5 10.00	10,00	10,0	103	61
*SPFAR5 10.01	10,01	10,0	103	61
SPFAR5 10.02	10,02	10,0	103	61
SPFAR5 10.97	10,97	12,0	118	71
SPFAR5 10.98	10,98	12,0	118	71
SPFAR5 10.99	10,99	12,0	118	71
SPFAR5 11.00	11,00	12,0	118	71
*SPFAR5 11.01	11,01	12,0	118	71
SPFAR5 11.02	11,02	12,0	118	71
SPFAR5 11.97	11,97	12,0	118	71
SPFAR5 11.98	11,98	12,0	118	71
SPFAR5 11.99	11,99	12,0	118	71
SPFAR5 12.00	12,00	12,0	118	71
*SPFAR5 12.01	12,01	12,0	118	71
SPFAR5 12.02	12,02	12,0	118	71
SPFAR5 12.97	12,97	14,0	124	77
SPFAR5 12.98	12,98	14,0	124	77
SPFAR5 12.99	12,99	14,0	124	77
SPFAR5 13.00	13,00	14,0	124	77
*SPFAR5 13.01	13,01	14,0	124	77
SPFAR5 13.02	13,02	14,0	124	77
SPFAR5 13.97	13,97	14,0	124	77
SPFAR5 13.98	13,98	14,0	124	77
SPFAR5 13.99	13,99	14,0	124	77
SPFAR5 14.00	14,00	14,0	124	77
*SPFAR5 14.01	14,01	14,0	124	77
SPFAR5 14.02	14,02	14,0	124	77
SPFAR5 14.97	14,97	16,0	133	83
SPFAR5 14.98	14,98	16,0	133	83
SPFAR5 14.99	14,99	16,0	133	83
SPFAR5 15.00	15,00	16,0	133	83
*SPFAR5 15.01	15,01	16,0	133	83
SPFAR5 15.02	15,02	16,0	133	83
SPFAR5 15.97	15,97	16,0	133	83
SPFAR5 15.98	15,98	16,0	133	83
SPFAR5 15.99	15,99	16,0	133	83
SPFAR5 16.00	16,00	16,0	133	83
*SPFAR5 16.01	16,01	16,0	133	83
SPFAR5 16.02	16,02	16,0	133	83
SPFAR5 16.97	16,97	18,0	143	93
SPFAR5 16.98	16,98	18,0	143	93
SPFAR5 16.99	16,99	18,0	143	93
SPFAR5 17.00	17,00	18,0	143	93
*SPFAR5 17.01	17,01	18,0	143	93
SPFAR5 17.02	17,02	18,0	143	93

(mm)

ART.	ØD	Ød	H	L1
SPFAR5 17.97	17,97	18,0	143	93
SPFAR5 17.98	17,98	18,0	143	93
SPFAR5 17.99	17,99	18,0	143	93
SPFAR5 18.00	18,00	18,0	143	93
*SPFAR5 18.01	18,01	18,0	143	93
SPFAR5 18.02	18,02	18,0	143	93
SPFAR5 18.97	18,97	20,0	153	101
SPFAR5 18.98	18,98	20,0	153	101
SPFAR5 18.99	18,99	20,0	153	101
SPFAR5 19.00	19,00	20,0	153	101
*SPFAR5 19.01	19,01	20,0	153	101
SPFAR5 19.02	19,02	20,0	153	101
SPFAR5 19.97	19,97	20,0	153	101
SPFAR5 19.98	19,98	20,0	153	101
SPFAR5 19.99	19,99	20,0	153	101
SPFAR5 20.00	20,00	20,0	153	101
*SPFAR5 20.01	20,01	20,0	153	101
SPFAR5 20.02	20,02	20,0	153	101

* = PER OTTENERE FORI IN TOLLERANZA H7

* = TO OBTAIN BORES IN H7 TOLERANCE

* = UM BOHRUNGEN IN H7-TOLERANZ ZU ERHALTEN

* = POUR OBTENIR DES TROUS DANS LA TOLÉRANCE H7

PAG. 1076

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm)	(m/min)	(mm)	(giri/min) (min^{-1})	(mm/min)
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO E SUE LEGHE ALUMINIUM	RAME E SUE LEGHE COPPER	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE	ØD	Vc	fn	n	Vf
		●														3÷5	80	0,11	6369	700
		●														5÷8	80	0,16	3920	627
		●														8÷12	80	0,19	2548	484
		●														12÷16	80	0,22	1820	400
		●														16÷20	80	0,22	1415	311
			●													3÷5	50	0,10	3981	398
			●													5÷8	50	0,13	2450	318
			●													8÷12	50	0,16	1592	255
			●													12÷16	50	0,16	1137	182
			●													16÷20	50	0,18	885	159
				●												3÷5	45	0,10	3583	358
				●												5÷8	45	0,13	2205	287
				●												8÷12	45	0,16	1433	229
				●												12÷16	45	0,16	1024	164
				●												16÷20	45	0,18	796	143
						●										3÷5	70	0,16	5573	892
						●										5÷8	70	0,22	3430	755
						●										8÷12	70	0,28	2229	624
						●										12÷16	70	0,32	1592	509
						●										16÷20	70	0,32	1238	396
							●									3÷5	60	0,11	4777	525
							●									5÷8	60	0,16	2940	470
							●									8÷12	60	0,19	1911	363
							●									12÷16	60	0,22	1365	300
							●									16÷20	60	0,22	1061	233
								●								3÷5	50	0,12	3981	478
								●								5÷8	50	0,17	2450	416
								●								8÷12	50	0,21	1592	334
								●								12÷16	50	0,23	1137	261
								●								16÷20	50	0,23	885	203

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED

n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS

fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION

Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

ALESATORI

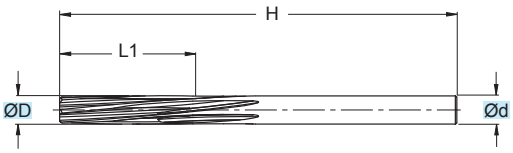
REAMERS / REIBAHLEN / ALESOIRS / ESCARIADORES

SAU
QUALITY TOOLS ENGINEERING

SAN0508

* RIVESTIMENTO A RICHIESTA
COATING ON REQUEST

ØD = 3 - 18

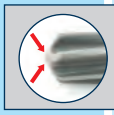


TOLLERANZE	D	d
TOLLERANCE RANGE	H7	h8

MG

(mm)

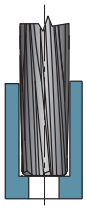
ART.	ØD	Ød	H	L1	Z
*SAN0508030 New	3,0	3,0	56	16	4
*SAN0508035 New	3,5	3,0	56	18	4
*SAN0508040	4,0	3,5	56	20	6
*SAN0508045	4,5	4,0	63	22	6
*SAN0508050	5,0	4,0	63	22	6
*SAN0508055	5,5	5,0	63	22	6
SAN0508060	6,0	5,0	63	22	6
SAN0508065	6,5	5,0	63	22	6
SAN0508070	7,0	6,0	71	25	6
SAN0508075	7,5	6,0	71	25	6
SAN0508080	8,0	6,0	71	25	6
SAN0508085	8,5	6,0	71	25	6
SAN0508090	9,0	8,0	71	25	6
SAN0508095	9,5	8,0	71	25	6
SAN0508100	10,0	8,0	71	25	6
SAN0508105	10,5	8,0	80	28	6
SAN0508110	11,0	10,0	80	28	6
SAN0508115	11,5	10,0	80	28	6
SAN0508120	12,0	10,0	80	28	6
SAN0508130	13,0	10,0	80	28	6
SAN0508140	14,0	12,0	90	32	6
SAN0508150	15,0	12,0	90	32	8
SAN0508160	16,0	14,0	90	32	8
SAN0508170	17,0	14,0	90	32	8
SAN0508180	18,0	16,0	100	36	8



* CON CENTRINO ESTERNO
* WITH EXTERNAL CENTERING POINT
* MIT AUSSENZENTRIERPUNKT
* AVEC POINT CENTRAL EXTERNE

ESEGUE FORI CON TOLLERANZA H7
FOR BORES WITH H7 TOLERANCE
FÜHRT BOHRUNGEN MIT TOLERANZ H7 AUS
M.D.I. ALESOIR DECIMAL H7

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm)	(m/min)	(mm)	(giri/min) (min^{-1})	(mm/min)
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO E SUE LEGHE ALUMINIUM	RAME E SUE LEGHE COPPER	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE	ØD	Vc	fn	n	Vf
	●															1÷5	20-30	0,15	–	–
	●															5÷10	20-30	0,25	–	–
	●															10÷20	20-30	0,40	–	–
		●														1÷5	10-15	0,12	–	–
		●														5÷10	10-15	0,20	–	–
		●														10÷20	10-15	0,30	–	–
			●													1÷5	5-10	0,08	–	–
			●													5÷10	5-10	0,15	–	–
			●													10÷20	5-10	0,25	–	–
					●											1÷5	10-15	0,08	–	–
					●											5÷10	10-15	0,15	–	–
					●											10÷20	10-15	0,20	–	–
						●										1÷5	10-12	0,15	–	–
						●										5÷10	10-12	0,30	–	–
						●										10÷20	10-12	0,50	–	–
							●									1÷5	10-12	0,15	–	–
							●									5÷10	10-12	0,30	–	–
							●									10÷20	10-12	0,50	–	–
									●							1÷5	25-35	0,15	–	–
									●							5÷10	25-35	0,25	–	–
									●							10÷20	25-35	0,40	–	–
										●						1÷5	25-35	0,20	–	–
										●						5÷10	25-35	0,25	–	–
										●						10÷20	25-35	0,40	–	–
											●					1÷5	25-30	0,15	–	–
											●					5÷10	25-30	0,25	–	–
											●					10÷20	25-30	0,45	–	–

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED

n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS

fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION

Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

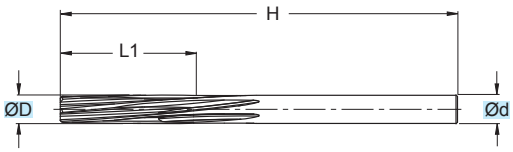
$$n = \frac{Vc \cdot 1000}{ØD \cdot 3{,}14} = \text{giri/min } (min^{-1})$$

$$Vf = fn \cdot n = \text{mm/min}$$

SAN0509

* RIVESTIMENTO A RICHIESTA
COATING ON REQUEST

ØD = 2,97 - 18,20



TOLLERANZE	D	d
TOLLERANCE RANGE	-0/+0,004	h8

MG

(mm)

ART.	ØD	Ød	H	L1	Z
*SAN0509 ... New	2,97-3,10	3,0	56	16	4
*SAN0509 ... New	3,11-3,60	3,0	56	18	4
*SAN0509 ... New	3,61-4,10	3,5	56	20	6
*SAN0509 ...	4,11-4,60	4,0	63	22	6
*SAN0509 ...	4,61-5,10	4,0	63	22	6
*SAN0509 ...	5,11-5,60	5,0	63	22	6
SAN0509 ...	5,61-6,15	5,0	63	22	6
SAN0509 ...	6,16-6,65	5,0	63	22	6
SAN0509 ...	6,66-7,15	6,0	71	25	6
SAN0509 ...	7,16-7,65	6,0	71	25	6
SAN0509 ...	7,66-8,15	6,0	71	25	6
SAN0509 ...	8,16-8,65	6,0	71	25	6
SAN0509 ...	8,66-9,20	8,0	71	25	6
SAN0509 ...	9,21-9,70	8,0	71	25	6
SAN0509 ...	9,71-10,20	8,0	71	25	6
SAN0509 ...	10,21-10,70	8,0	80	28	6
SAN0509 ...	10,71-11,20	10,0	80	28	6
SAN0509 ...	11,21-11,70	10,0	80	28	6
SAN0509 ...	11,71-12,20	10,0	80	28	6
SAN0509 ...	12,21-13,20	10,0	80	28	6
SAN0509 ...	13,21-14,20	12,0	90	32	6
SAN0509 ...	14,21-15,20	12,0	90	32	8
SAN0509 ...	15,21-16,20	14,0	90	32	8
SAN0509 ...	16,21-17,20	14,0	90	32	8
SAN0509 ...	17,21-18,20	16,0	100	36	8

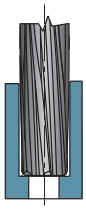
* CON CENTRINO ESTERNO
* WITH EXTERNAL CENTERING POINT
* MIT AUSSENZENTRIERPUNKT
* AVEC POINT CENTRAL EXTERNE

ESEGUE FORI CON TOLLERANZA -0/+0,004
FOR BORES WITH -0/+0,004 TOLERANCE
FÜHRT BOHRUNGEN MIT -0/+0,004 TOLERANZ AUS
EXECUTE TROUS AVEC TOLERANCE -0/+0,004

* Nell'ordine inserire sempre il "Ø" scelto dopo il codice dell'alesatore
* When ordering always indicate the chosen diameter after the reamer code
* Bei der Bestellung bitte immer den gewählten "Ø" hinter dem Reibahlencode angeben
* Entrer toujours dans la commande le "Ø" choisi après le code de l'alesoir

EX. Ø = 13,21 COD. = **SAN0509**1321
EX. Ø = 3,80 COD. = **SAN0509**0380

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm)	(m/min)	(mm)	(giri/min) (min^{-1})	(mm/min)
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO E SUE LEGHE ALUMINIUM	RAME E SUE LEGHE COPPER	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE	ØD	Vc	fn	n	Vf
	●															1÷5	20-30	0,15	–	–
	●															5÷10	20-30	0,25	–	–
	●															10÷20	20-30	0,40	–	–
		●														1÷5	10-15	0,12	–	–
		●														5÷10	10-15	0,20	–	–
		●														10÷20	10-15	0,30	–	–
			●													1÷5	5-10	0,08	–	–
			●													5÷10	5-10	0,15	–	–
			●													10÷20	5-10	0,25	–	–
					●											1÷5	10-15	0,08	–	–
					●											5÷10	10-15	0,15	–	–
					●											10÷20	10-15	0,20	–	–
						●										1÷5	10-12	0,15	–	–
						●										5÷10	10-12	0,30	–	–
						●										10÷20	10-12	0,50	–	–
							●									1÷5	10-12	0,15	–	–
							●									5÷10	10-12	0,30	–	–
							●									10÷20	10-12	0,50	–	–
									●							1÷5	25-35	0,15	–	–
									●							5÷10	25-35	0,25	–	–
									●							10÷20	25-35	0,40	–	–
										●						1÷5	25-35	0,20	–	–
										●						5÷10	25-35	0,25	–	–
										●						10÷20	25-35	0,40	–	–
											●					1÷5	25-30	0,15	–	–
											●					5÷10	25-30	0,25	–	–
											●					10÷20	25-30	0,45	–	–

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED

n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS

fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION

Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

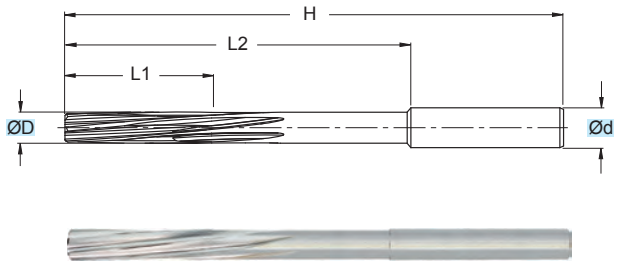
$$n = \frac{Vc \cdot 1000}{ØD \cdot 3,14} = \text{giri/min } (min^{-1})$$

$$Vf = fn \cdot n = \text{mm/min}$$

SAN0708

*** RIVESTIMENTO A RICHIESTA**
**** COATING ON REQUEST***

ØD = 1,0 - 20,2



TOLLERANZE	D	d
TOLLERANCE RANGE	H7	h8

MG

(mm)

ART.	ØD	Ød	H	L1	L2	Z
*SAN07080010	1,0	1,0	40	8	–	4
*SAN0708 ...	1,1-1,4	–	40	8	–	4
*SAN07080015	1,5	1,5	40	8	–	4
*SAN0708 ...	1,6-1,9	–	43	9	–	4
*SAN07080020	2,0	2,0	49	11	–	4
*SAN07080021	2,1	2,0	49	11	–	4
*SAN0708 ...	2,2-2,3	2,0	53	12	–	4
*SAN07080024	2,4	2,3	57	14	–	4
*SAN07080025	2,5	2,5	57	14	–	4
*SAN07080026	2,6	2,5	57	14	–	4
*SAN0708 ...	2,7-2,9	2,5	61	15	–	4
*SAN07080030	3,0	3,0	65	16	–	4
*SAN0708 ...	3,1-3,3	3,0	65	16	–	4
*SAN07080034	3,4	3,5	70	18	45	4
*SAN07080035	3,5	3,5	70	18	45	4
*SAN0708 ...	3,6-3,7	3,5	70	18	45	4
*SAN0708 ...	3,8-3,9	4,0	75	19	47	6
*SAN07080040	4,0	4,0	75	19	47	6
*SAN0708 ...	4,1-4,2	4,0	75	19	47	6
*SAN0708 ...	4,3-4,4	4,5	80	21	51	6
*SAN07080045	4,5	4,5	80	21	51	6
*SAN0708 ...	4,6-4,7	4,5	80	21	51	6
*SAN0708 ...	4,8-4,9	5,0	86	23	56	6
*SAN07080050	5,0	5,0	86	23	56	6
*SAN07080051	5,1	5,0	86	23	56	6
SAN0708 ...	5,2-5,4	5,0	93	26	58	6
SAN07080055	5,5	5,0	93	26	58	6
SAN07080056	5,6	5,0	93	26	58	6
SAN0708 ...	5,7-5,9	6,0	93	26	58	6
SAN07080060	6,0	6,0	93	26	58	6
SAN07080061	6,1	6,0	93	26	58	6
SAN0708 ...	6,2-6,4	6,0	101	28	63	6
SAN07080065	6,5	6,0	101	28	63	6
SAN0708 ...	6,6-6,7	6,0	101	28	63	6
SAN0708 ...	6,8-6,9	7,0	109	31	71	6
SAN07080070	7,0	7,0	109	31	71	6
SAN0708 ...	7,1-7,4	7,0	109	31	71	6
SAN07080075	7,5	7,0	109	31	71	6
SAN07080076	7,6	7,0	109	31	71	6
SAN0708 ...	7,7-7,9	8,0	117	33	77	6
SAN07080080	8,0	8,0	117	33	77	6
SAN0708 ...	8,1-8,4	8,0	117	33	77	6
SAN07080085	8,5	8,0	117	33	77	6
SAN07080086	8,6	8,0	117	33	77	6

(mm)

ART.	ØD	Ød	H	L1	L2	Z
SAN0708 ...	8,7-8,9	9,0	125	36	80	6
SAN07080090	9,0	9,0	125	36	80	6
SAN0708 ...	9,1-9,4	9,0	125	36	80	6
SAN07080095	9,5	9,0	125	36	80	6
SAN07080096	9,6	9,0	125	36	80	6
SAN0708 ...	9,7-9,9	10,0	133	38	85	6
SAN07080100	10,0	10,0	133	38	85	6
SAN0708 ...	10,1-10,4	10,0	133	38	85	6
SAN07080105	10,5	10,0	133	38	85	6
SAN07080106	10,6	10,0	133	38	85	6
SAN0708 ...	10,7-10,9	10,0	142	41	92	6
SAN07080110	11,0	10,0	142	41	92	6
SAN0708 ...	11,1-11,4	10,0	142	41	92	6
SAN07080115	11,5	10,0	142	41	92	6
SAN07080116	11,6	10,0	142	41	92	6
SAN0708 ...	11,7-11,9	12,0	151	44	99	6
SAN07080120	12,0	12,0	151	44	99	6
SAN0708 ...	12,1-12,2	12,0	151	44	99	6
SAN0708 ...	12,3-12,4	12,0	151	44	99	6
SAN07080125	12,5	12,0	151	44	99	6
SAN0708 ...	12,6-12,9	12,0	151	44	99	6
SAN07080130	13,0	12,0	151	44	99	6
SAN0708 ...	13,1-13,6	12,0	151	44	99	6
SAN0708 ...	13,7-13,9	14,0	160	47	105	6
SAN07080140	14,0	14,0	160	47	105	6
SAN0708 ...	14,1-14,2	14,0	160	47	105	6
SAN0708 ...	14,3-14,9	14,0	162	50	107	8
SAN07080150	15,0	14,0	162	50	107	8
SAN0708 ...	15,1-15,6	14,0	162	50	107	8
SAN0708 ...	15,7-15,9	16,0	170	52	115	8
SAN07080160	16,0	16,0	170	52	115	8
SAN0708 ...	16,1-16,2	16,0	170	52	115	8
SAN0708 ...	16,3-16,9	16,0	170	52	115	8
SAN07080170	17,0	16,0	170	52	115	8
SAN0708 ...	17,1-17,2	16,0	170	52	115	8
SAN0708 ...	17,3-17,9	16,0	170	52	115	8
SAN07080180	18,0	16,0	170	52	115	8
SAN0708 ...	18,1-18,2	16,0	170	52	115	8
SAN0708 ... New	18,3-18,9	18,0	170	52	115	8
SAN07080190 New	19,0	18,0	170	52	115	8
SAN0708 ... New	19,1-19,2	18,0	170	52	115	8
SAN0708 ... New	19,3-19,9	20,0	170	52	115	8
SAN07080200 New	20,0	20,0	170	52	115	8
SAN0708 ... New	20,1-20,2	20,0	170	52	115	8

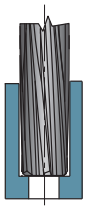
*** CON CENTRINO ESTERNO**
*** WITH EXTERNAL CENTERING POINT**
*** MIT AUSSENZENTRIERPUNKT**
*** AVEC POINT CENTRAL EXTERNE**

ESEGUE FORI CON TOLLERANZA H7
FOR BORES WITH H7 TOLERANCE
FÜHRT BOHRUNGEN MIT TOLERANZ H7 AUS
M.D.I. ALESOIR DECIMAL H7

* Nell'ordine inserire sempre il "Ø" scelto dopo il codice dell'alesatore
* When ordering always indicate the chosen diameter after the reamer code
* Bei der Bestellung bitte immer den gewählten "Ø" hinter dem Reibahlencode angeben
* Entrer toujours dans la commande le "Ø" choisi après le code de l'alesoir

EX. Ø = 12,3 COD. = **SAN07080123**
EX. Ø = 3,1 COD. = **SAN07080031**

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm)	(m/min)	(mm)	(giri/min) (min^{-1})	(mm/min)
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO E SUE LEGHE ALUMINIUM	RAME E SUE LEGHE COPPER	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE	ØD	Vc	fn	n	Vf
	●															1÷5	20-30	0,15	–	–
	●															5÷10	20-30	0,25	–	–
	●															10÷20,2	20-30	0,40	–	–
		●														1÷5	10-15	0,12	–	–
		●														5÷10	10-15	0,20	–	–
		●														10÷20,2	10-15	0,30	–	–
			●													1÷5	5-10	0,08	–	–
			●													5÷10	5-10	0,15	–	–
			●													10÷20,2	5-10	0,25	–	–
					●											1÷5	10-15	0,08	–	–
					●											5÷10	10-15	0,15	–	–
					●											10÷20,2	10-15	0,20	–	–
						●										1÷5	10-12	0,15	–	–
						●										5÷10	10-12	0,30	–	–
						●										10÷20,2	10-12	0,50	–	–
							●									1÷5	10-12	0,15	–	–
							●									5÷10	10-12	0,30	–	–
							●									10÷20,2	10-12	0,50	–	–
									●							1÷5	25-35	0,15	–	–
									●							5÷10	25-35	0,25	–	–
									●							10÷20,2	25-35	0,40	–	–
										●						1÷5	25-35	0,20	–	–
										●						5÷10	25-35	0,25	–	–
										●						10÷20,2	25-35	0,40	–	–
											●					1÷5	25-30	0,15	–	–
											●					5÷10	25-30	0,25	–	–
											●					10÷20,2	25-30	0,45	–	–

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED

n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS

fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION

Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

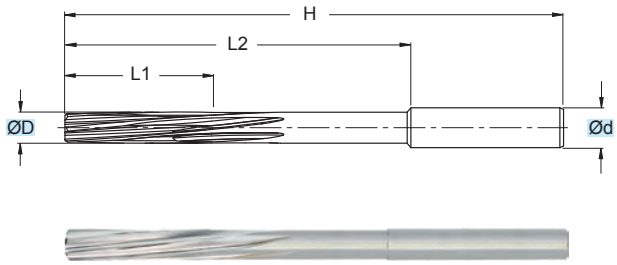
$$n = \frac{Vc \cdot 1000}{ØD \cdot 3,14} = \text{giri/min } (min^{-1})$$

$$Vf = fn \cdot n = \text{mm/min}$$

SAN0709

* RIVESTIMENTO A RICHIESTA
** COATING ON REQUEST*

ØD = 0,90 - 20,20

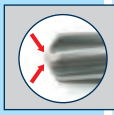


TOLLERANZE	D	d
TOLLERANCE RANGE	-0/+0,004	h8

MG

(mm)

ART.	ØD	Ød	H	L1	L2	Z
*SAN0709 ... New	0,90-0,99	–	40	8	–	4
*SAN0709 ...	1,00-1,50	–	40	8	–	4
*SAN0709 ...	1,51-1,90	–	43	9	–	4
*SAN0709 ...	1,91-2,12	2,0	49	11	26	4
*SAN0709 ...	2,13-2,36	2,0	53	12	–	4
*SAN0709 ...	2,37-2,48	2,3	57	14	–	4
*SAN0709 ...	2,49-2,65	2,5	57	14	–	4
*SAN0709 ...	2,66-2,96	2,5	61	15	–	4
*SAN0709 ...	2,97-3,35	3,0	65	16	40	4
*SAN0709 ...	3,36-3,75	3,5	70	18	45	4
*SAN0709 ...	3,76-4,25	4,0	75	19	47	6
*SAN0709 ...	4,26-4,75	4,5	80	21	51	6
*SAN0709 ...	4,76-5,15	5,0	86	23	56	6
*SAN0709 ...	5,16-5,65	5,0	93	26	58	6
SAN0709 ...	5,66-6,15	6,0	93	26	58	6
SAN0709 ...	6,16-6,70	6,0	101	28	63	6
SAN0709 ...	6,71-7,65	7,0	109	31	71	6
SAN0709 ...	7,66-8,65	8,0	117	33	77	6
SAN0709 ...	8,66-9,65	9,0	125	36	80	6
SAN0709 ...	9,66-10,65	10,0	133	38	85	6
SAN0709 ...	10,66-11,65	10,0	142	41	92	6
SAN0709 ...	11,66-12,20	12,0	151	44	99	6
SAN0709 ...	12,21-13,65	12,0	151	44	99	6
SAN0709 ...	13,66-14,20	14,0	160	47	105	6
SAN0709 ...	14,21-15,65	14,0	162	50	107	8
SAN0709 ...	15,66-16,20	16,0	170	52	115	8
SAN0709 ...	16,21-17,20	16,0	170	52	115	8
SAN0709 ...	17,21-18,20	16,0	170	52	115	8
SAN0709 ... New	18,21-19,20	18,0	170	52	115	8
SAN0709 ... New	19,21-20,20	20,0	170	52	115	8



* CON CENTRINO ESTERNO
* WITH EXTERNAL CENTERING POINT
* MIT AUSSENZENTRIERPUNKT
* AVEC POINT CENTRAL EXTERNE

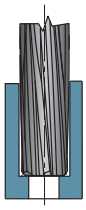
ESEGUE FORI CON TOLLERANZA -0/+0,004
FOR BORES WITH -0/+0,004 TOLERANCE
FÜHRT BOHRUNGEN MIT -0/+0,004 TOLERANZ AUS
EXECUTE TROUS AVEC TOLERANCE -0/+0,004

* Nell'ordine inserire sempre il "Ø" scelto dopo il codice dell'alesatore
* When ordering always indicate the chosen diameter after the reamer code
* Bei der Bestellung bitte immer den gewählten "Ø" hinter dem Reibahlencode angeben
* Entrer toujours dans la commande le "Ø" choisi après le code de l'alesoir

EX. Ø = 10,66 COD. = **SAN0709**1066
EX. Ø = 1,00 COD. = **SAN0709**0100

PAG. 1076

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm)	(m/min)	(mm)	(giri/min) (min^{-1})	(mm/min)
	ACCIAIO NON LEGATO NOT ALLOY STEEL	**ACCIAIO POCO LEGATO** LOW ALLOY STEEL	**ACCIAIO ALTO LEGATO** ALLOY STEEL	**INOX MARTENSITICO** STAINLESS STEEL MART.	**INOX AUST. DUPLEX** STAINLESS STEEL AUST.	**GHISA GRIGIA** GREY CAST IRON	**GHISA SFEROIDALE** SPHEROIDAL GRAPHITE	**GHISA MALLEABILE** MALLEABLE CAST IRON	**ALLUMINIO E SUE LEGHE** ALUMINUM	**RAME E SUE LEGHE** COPPER	**NON METALLICI** PLASTICS	**LEGHE RESIST. CALORE** HIGH TEMP. ALLOY	**TITANIO E SUE LEGHE** TITANIUM	**ACCIAIO TEMPRATO** HARDENED STEEL	**GRAFITE** GRAPHITE	ØD	Vc	fn	n	Vf
	●															0,90÷5	20-30	0,15	–	–
	●															5÷10	20-30	0,25	–	–
	●															10÷20,2	20-30	0,40	–	–
		●														0,90÷5	10-15	0,12	–	–
		●														5÷10	10-15	0,20	–	–
		●														10÷20,2	10-15	0,30	–	–
			●													0,90÷5	5-10	0,08	–	–
			●													5÷10	5-10	0,15	–	–
			●													10÷20,2	5-10	0,25	–	–
					●											0,90÷5	10-15	0,08	–	–
					●											5÷10	10-15	0,15	–	–
					●											10÷20,2	10-15	0,20	–	–
						●										0,90÷5	10-12	0,15	–	–
						●										5÷10	10-12	0,30	–	–
						●										10÷20,2	10-12	0,50	–	–
							●									0,90÷5	10-12	0,15	–	–
							●									5÷10	10-12	0,30	–	–
							●									10÷20,2	10-12	0,50	–	–
									●							0,90÷5	25-35	0,15	–	–
									●							5÷10	25-35	0,25	–	–
									●							10÷20,2	25-35	0,40	–	–
										●						0,90÷5	25-35	0,20	–	–
										●						5÷10	25-35	0,25	–	–
										●						10÷20,2	25-35	0,40	–	–
											●					0,90÷5	25-30	0,15	–	–
											●					5÷10	25-30	0,25	–	–
											●					10÷20,2	25-30	0,45	–	–

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED

n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS

fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION

Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

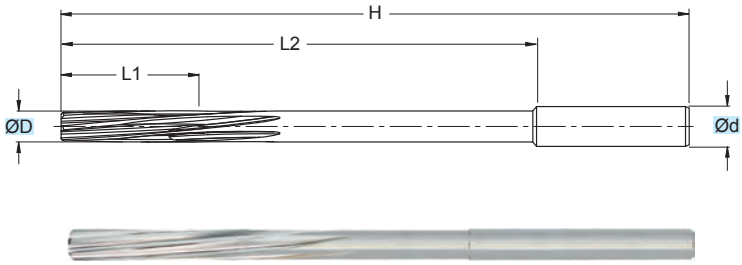
$$n = \frac{Vc \cdot 1000}{ØD \cdot 3{,}14} = \text{giri/min } (min^{-1})$$

$$Vf = fn \cdot n = \text{mm/min}$$

SAN0808

* RIVESTIMENTO A RICHIESTA
** COATING ON REQUEST*

ØD = 1,5 - 12,2



TOLLERANZE	D	d
TOLLERANCE RANGE	H7	h8

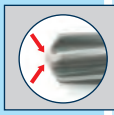
MG

(mm)

ART.	ØD	Ød	H	L1	L2	Z
*SAN08080015	1,5	1,5	110	18	65	4
*SAN08080020	2,0	2,0	110	18	65	4
*SAN0808 ...	2,1-2,3	2,0	110	18	65	4
*SAN08080024	2,4	2,3	120	20	65	4
*SAN08080025	2,5	2,5	120	20	65	4
*SAN0808 ...	2,6-2,9	2,5	120	20	65	4
*SAN08080030	3,0	3,0	120	20	65	4
*SAN08080031	3,1	3,0	120	20	65	4
*SAN0808 ...	3,2-3,3	3,0	150	30	90	4
*SAN08080034	3,4	3,5	150	30	90	4
*SAN08080035	3,5	3,5	150	30	90	4
*SAN0808 ...	3,6-3,9	3,5	150	30	90	4
*SAN08080040	4,0	4,0	150	30	90	6
*SAN0808 ...	4,1-4,2	4,0	150	30	90	6
*SAN0808 ...	4,3-4,4	4,0	180	35	115	6
*SAN08080045	4,5	4,0	180	35	115	6
*SAN0808 ...	4,6-4,9	4,0	180	35	115	6
*SAN08080050	5,0	5,0	180	35	115	6
*SAN08080051	5,1	5,0	180	35	115	6
*SAN0808 ...	5,2-5,4	5,0	200	40	130	6
*SAN08080055	5,5	5,0	200	40	130	6
*SAN0808 ...	5,6-5,9	5,0	200	40	130	6
*SAN08080060	6,0	6,0	200	40	130	6
*SAN08080061	6,1	6,0	200	40	130	6
*SAN0808 ...	6,2-6,4	6,0	200	45	130	6
*SAN08080065	6,5	6,0	200	45	130	6
*SAN0808 ...	6,6-6,9	6,0	200	45	130	6
*SAN08080070	7,0	7,0	200	45	130	6
*SAN08080071	7,1	7,0	200	45	130	6
*SAN0808 ...	7,2-7,4	7,0	200	45	130	6
*SAN08080075	7,5	7,0	200	45	130	6
*SAN0808 ...	7,6-7,9	7,0	200	45	130	6
*SAN08080080	8,0	8,0	200	45	130	6
SAN08080081	8,1	8,0	200	45	130	6

(mm)

ART.	ØD	Ød	H	L1	L2	Z
SAN0808 ...	8,2-8,4	8,0	220	50	145	6
SAN08080085	8,5	8,0	220	50	145	6
SAN0808 ...	8,6-8,9	8,0	220	50	145	6
SAN08080090	9,0	9,0	220	50	145	6
SAN08080091	9,1	9,0	220	50	145	6
SAN0808 ...	9,2-9,4	9,0	220	50	145	6
SAN08080095	9,5	9,0	220	50	145	6
SAN0808 ...	9,6-9,9	9,0	220	50	145	6
SAN08080100	10,0	10,0	220	50	145	6
SAN0808 ...	10,1-10,2	10,0	220	50	145	6
SAN0808 ...	10,3-10,4	10,0	250	55	170	6
SAN08080105	10,5	10,0	250	55	170	6
SAN0808 ...	10,6-10,7	10,0	250	55	170	6
SAN0808 ...	10,8-10,9	11,0	250	55	170	6
SAN08080110	11,0	11,0	250	55	170	6
SAN0808 ...	11,1-11,2	11,0	250	55	170	6
SAN0808 ...	11,3-11,4	11,0	250	55	170	6
SAN08080115	11,5	11,0	250	55	170	6
SAN0808 ...	11,6-11,7	11,0	250	55	170	6
SAN0808 ...	11,8-11,9	12,0	250	55	170	6
SAN08080120	12,0	12,0	250	55	170	6
SAN0808 ...	12,1-12,2	12,0	250	55	170	6



* CON CENTRINO ESTERNO
* WITH EXTERNAL CENTERING POINT
* MIT AUSSENZENTRIERPUNKT
* AVEC POINT CENTRAL EXTERNE

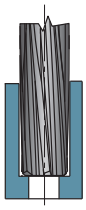
ESEGUE FORI CON TOLLERANZA H7
FOR BORES WITH H7 TOLERANCE
FÜHRT BOHRUNGEN MIT TOLERANZ H7 AUS
M.D.I. ALESOIR DECIMAL H7

* Nell'ordine inserire sempre il "Ø" scelto dopo il codice dell'alesatore
* When ordering always indicate the chosen diameter after the reamer code
* Bei der Bestellung bitte immer den gewählten "Ø" hinter dem Reibahlencode angeben
* Entrer toujours dans la commande le "Ø" choisi après le code de l'alesoir

EX. Ø = 11,3 COD. = **SAN08080113**
EX. Ø = 2,6 COD. = **SAN08080026**

PAG. 1076

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm)	(m/min)	(mm)	(giri/min) (min^{-1})	(mm/min)
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO E SUE LEGHE ALUMINIUM	RAME E SUE LEGHE COPPER	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE	ØD	Vc	fn	n	Vf
	●															1÷5	20-30	0,15	–	–
	●															5÷10	20-30	0,25	–	–
	●															10÷20	20-30	0,40	–	–
		●														1÷5	10-15	0,12	–	–
		●														5÷10	10-15	0,20	–	–
		●														10÷20	10-15	0,30	–	–
			●													1÷5	5-10	0,08	–	–
			●													5÷10	5-10	0,15	–	–
			●													10÷20	5-10	0,25	–	–
					●											1÷5	10-15	0,08	–	–
					●											5÷10	10-15	0,15	–	–
					●											10÷20	10-15	0,20	–	–
						●										1÷5	10-12	0,15	–	–
						●										5÷10	10-12	0,30	–	–
						●										10÷20	10-12	0,50	–	–
							●									1÷5	10-12	0,15	–	–
							●									5÷10	10-12	0,30	–	–
							●									10÷20	10-12	0,50	–	–
									●							1÷5	25-35	0,15	–	–
									●							5÷10	25-35	0,25	–	–
									●							10÷20	25-35	0,40	–	–
										●						1÷5	25-35	0,20	–	–
										●						5÷10	25-35	0,25	–	–
										●						10÷20	25-35	0,40	–	–
											●					1÷5	25-30	0,15	–	–
											●					5÷10	25-30	0,25	–	–
											●					10÷20	25-30	0,45	–	–

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

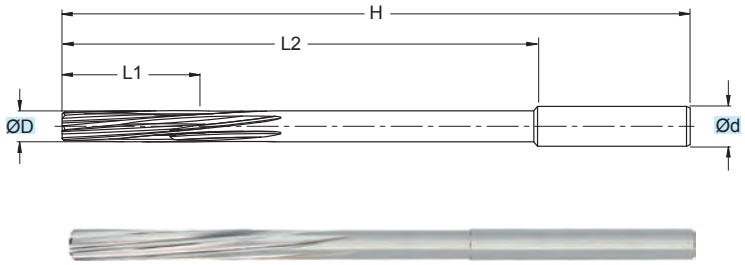
$$n = \frac{Vc \cdot 1000}{ØD \cdot 3{,}14} = \text{giri/min } (min^{-1})$$

$$Vf = fn \cdot n = \text{mm/min}$$

SAN0809

* RIVESTIMENTO A RICHIESTA
COATING ON REQUEST

ØD = 2,00 - 12,20



TOLLERANZE	D	d
TOLLERANCE RANGE	-0/+0,004	h8

MG

(mm)

ART.	ØD	Ød	H	L1	L2	Z
*SAN0809 ...	2,00-2,31	2,0	110	18	65	4
*SAN0809 ...	2,32-2,41	2,3	120	20	65	4
*SAN0809 ...	2,42-2,91	2,5	120	20	65	4
*SAN0809 ...	2,92-3,11	3,0	120	20	65	4
*SAN0809 ...	3,12-3,31	3,0	150	30	90	4
*SAN0809 ...	3,32-3,91	3,5	150	30	90	4
*SAN0809 ...	3,92-4,24	4,0	150	30	90	6
*SAN0809 ...	4,25-4,91	4,0	180	35	115	6
*SAN0809 ...	4,92-5,11	5,0	180	35	115	6
*SAN0809 ...	5,12-5,91	5,0	200	40	130	6
*SAN0809 ...	5,92-6,11	6,0	200	40	130	6
*SAN0809 ...	6,12-6,91	6,0	200	45	130	6
*SAN0809 ...	6,92-7,11	7,0	200	45	130	6
*SAN0809 ...	7,12-7,91	7,0	200	45	130	6
*SAN0809 ...	7,92-8,11	8,0	200	45	130	6
*SAN0809 ...	8,12-8,91	8,0	220	50	145	6
*SAN0809 ...	8,92-9,11	9,0	220	50	145	6
*SAN0809 ...	9,12-9,91	9,0	220	50	145	6
SAN0809 ...	9,92-10,20	10,0	220	50	145	6
SAN0809 ...	10,21-10,80	10,0	250	55	170	6
SAN0809 ...	10,81-11,20	11,0	250	55	170	6
SAN0809 ...	11,21-11,80	11,0	250	55	170	6
SAN0809 ...	11,81-12,20	12,0	250	55	170	6

* CON CENTRINO ESTERNO
* WITH EXTERNAL CENTERING POINT
* MIT AUSSENZENTRIERPUNKT
* AVEC POINT CENTRAL EXTERNE

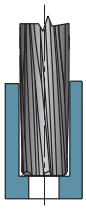
ESEGUE FORI CON TOLLERANZA -0/+0,004
FOR BORES WITH -0/+0,004 TOLERANCE
FÜHRT BOHRUNGEN MIT -0/+0,004 TOLERANZ AUS
EXECUTE TROUS AVEC TOLERANCE -0/+0,004

* Nell'ordine inserire sempre il "Ø" scelto dopo il codice dell'alesatore
* When ordering always indicate the chosen diameter after the reamer code
* Bei der Bestellung bitte immer den gewählten "Ø" hinter dem Reibahlencode angeben
* Entrer toujours dans la commande le "Ø" choisi après le code de l'alesoir

EX. Ø = 10,21 COD. = **SAN0809**1021
EX. Ø = 2,00 COD. = **SAN0809**0200

PAG. 1076

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm)	(m/min)	(mm)	(giri/min) (min^{-1})	(mm/min)
	ACCIAIO NON LEGATO NOT ALLOY STEEL	**ACCIAIO POCO LEGATO** LOW ALLOY STEEL	**ACCIAIO ALTO LEGATO** ALLOY STEEL	**INOX MARTENSITICO** STAINLESS STEEL MART.	**INOX AUST. DUPLEX** STAINLESS STEEL AUST.	**GHISA GRIGIA** GREY CAST IRON	**GHISA SFEROIDALE** SPHEROIDAL GRAPHITE	**GHISA MALLEABILE** MALLEABLE CAST IRON	**ALLUMINIO E SUE LEGHE** ALUMINIUM	**RAME E SUE LEGHE** COPPER	**NON METALLICI** PLASTICS	**LEGHE RESIST. CALORE** HIGH TEMP. ALLOY	**TITANIO E SUE LEGHE** TITANIUM	**ACCIAIO TEMPRATO** HARDENED STEEL	**GRAFITE** GRAPHITE	ØD	Vc	fn	n	Vf
	●															1÷5	20-30	0,15	–	–
	●															5÷10	20-30	0,25	–	–
	●															10÷20	20-30	0,40	–	–
		●														1÷5	10-15	0,12	–	–
		●														5÷10	10-15	0,20	–	–
		●														10÷20	10-15	0,30	–	–
			●													1÷5	5-10	0,08	–	–
			●													5÷10	5-10	0,15	–	–
			●													10÷20	5-10	0,25	–	–
					●											1÷5	10-15	0,08	–	–
					●											5÷10	10-15	0,15	–	–
					●											10÷20	10-15	0,20	–	–
						●										1÷5	10-12	0,15	–	–
						●										5÷10	10-12	0,30	–	–
						●										10÷20	10-12	0,50	–	–
							●									1÷5	10-12	0,15	–	–
							●									5÷10	10-12	0,30	–	–
							●									10÷20	10-12	0,50	–	–
									●							1÷5	25-35	0,15	–	–
									●							5÷10	25-35	0,25	–	–
									●							10÷20	25-35	0,40	–	–
										●						1÷5	25-35	0,20	–	–
										●						5÷10	25-35	0,25	–	–
										●						10÷20	25-35	0,40	–	–
											●					1÷5	25-30	0,15	–	–
											●					5÷10	25-30	0,25	–	–
											●					10÷20	25-30	0,45	–	–

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED

n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS

fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION

Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

$$n = \frac{Vc \cdot 1000}{ØD \cdot 3{,}14} = \text{giri/min } (min^{-1})$$

$$Vf = fn \cdot n = \text{mm/min}$$

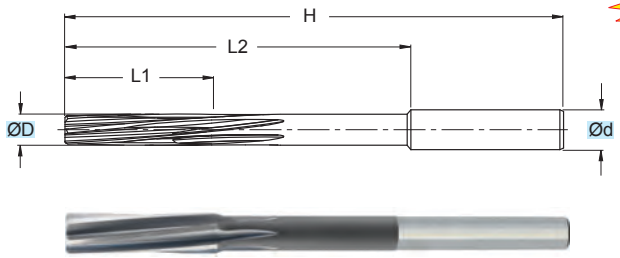
SAN0208

ØD = 1 - 35,2

NEW

* RIVESTIMENTO A RICHIESTA
COATING ON REQUEST

HSSE



ESEGUE FORI CON TOLLERANZA H7
FOR BORES WITH H7 TOLERANCE
FÜHRT BOHRUNGEN MIT TOLERANZ H7 AUS
M.D.I. ALESOIR DECIMAL H7

TOLLERANZE / TOLLERANCE RANGE	D	d
	H7	h8

(mm)

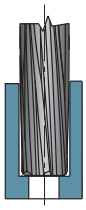
ART.	ØD	Ød	H	L1	L2	Z
SAN0208 ...	1,0	1,0	40	8	–	4
SAN0208 ...	1,1-1,4	–	40	8	–	4
SAN0208 ...	1,5	1,5	40	8	–	4
SAN0208 ...	1,6-1,9	–	43	9	–	4
SAN0208 ...	2,0	2,0	49	11	–	4
SAN0208 ...	2,1	2,0	49	11	26	4
SAN0208 ...	2,2-2,3	2,0	53	12	–	4
SAN0208 ...	2,4	2,3	57	14	–	4
SAN0208 ...	2,5	2,5	57	14	–	4
SAN0208 ...	2,6	2,5	57	14	–	4
SAN0208 ...	2,7-2,9	2,5	61	15	–	4
SAN0208 ...	3,0	3,0	65	16	–	4
SAN0208 ...	3,1-3,3	3,0	65	16	40	4
SAN0208 ...	3,4	3,5	70	18	45	4
SAN0208 ...	3,5	3,5	70	18	45	4
SAN0208 ...	3,6-3,7	3,5	70	18	45	4
SAN0208 ...	3,8-3,9	4,0	75	19	47	4
SAN0208 ...	4,0	4,0	75	19	47	6
SAN0208 ...	4,1-4,2	4,0	75	19	47	6
SAN0208 ...	4,3-4,4	4,5	80	21	51	6
SAN0208 ...	4,5	4,5	80	21	51	6
SAN0208 ...	4,6-4,7	4,5	80	21	51	6
SAN0208 ...	4,8-4,9	5,0	86	23	56	6
SAN0208 ...	5,0	5,0	86	23	56	6
SAN0208 ...	5,1	5,0	86	23	56	6
SAN0208 ...	5,2-5,4	5,0	93	26	58	6
SAN0208 ...	5,5	5,0	93	26	58	6
SAN0208 ...	5,6	5,0	93	26	58	6
SAN0208 ...	5,7-5,9	6,0	93	26	58	6
SAN0208 ...	6,0	6,0	93	26	58	6
SAN0208 ...	6,1	6,0	93	26	58	6
SAN0208 ...	6,2-6,4	6,0	101	28	63	6
SAN0208 ...	6,5	6,0	101	28	63	6
SAN0208 ...	6,6-6,7	6,0	101	28	63	6
SAN0208 ...	6,8-6,9	7,0	109	31	71	6
SAN0208 ...	7,0	7,0	109	31	71	6
SAN0208 ...	7,1-7,4	7,0	109	31	71	6
SAN0208 ...	7,5	7,0	109	31	71	6
SAN0208 ...	7,6	7,0	109	31	71	6
SAN0208 ...	7,7-7,9	8,0	117	33	77	6
SAN0208 ...	8,0	8,0	117	33	77	6
SAN0208 ...	8,1-8,4	8,0	117	33	77	6
SAN0208 ...	8,5	8,0	117	33	77	6
SAN0208 ...	8,6	8,0	117	33	77	6
SAN0208 ...	8,7-8,9	9,0	125	36	80	6
SAN0208 ...	9,0	9,0	125	36	80	6
SAN0208 ...	9,1-9,4	9,0	125	36	80	6
SAN0208 ...	9,5	9,0	125	36	80	6
SAN0208 ...	9,6	9,0	125	36	80	6
SAN0208 ...	9,7-9,9	10,0	133	38	85	6
SAN0208 ...	10,0	10,0	133	38	85	6
SAN0208 ...	10,1-10,4	10,0	133	38	85	6
SAN0208 ...	10,5	10,0	133	38	85	6
SAN0208 ...	10,6	10,0	133	38	85	6
SAN0208 ...	10,7-10,9	10,0	142	41	92	6
SAN0208 ...	11,0	10,0	142	41	92	6
SAN0208 ...	11,1-11,4	10,0	142	41	92	6
SAN0208 ...	11,5	10,0	142	41	92	6
SAN0208 ...	11,6-11,8	10,0	142	41	92	6
SAN0208 ...	11,9	10,0	151	44	99	6
SAN0208 ...	12,0	10,0	151	44	99	6
SAN0208 ...	12,1-12,4	10,0	151	44	99	6
SAN0208 ...	12,5	10,0	151	44	99	6
SAN0208 ...	12,6-12,9	10,0	151	44	99	6
SAN0208 ...	13,0	10,0	151	44	99	6

(mm)

ART.	ØD	Ød	H	L1	L2	Z
SAN0208 ...	13,1-13,2	10,0	151	44	99	6
SAN0208 ...	13,3-13,4	12,5	160	47	105	6
SAN0208 ...	13,5	12,5	160	47	105	6
SAN0208 ...	13,6-13,9	12,5	160	47	105	6
SAN0208 ...	14,0	12,5	160	47	105	6
SAN0208 ...	14,1	12,5	160	47	105	6
SAN0208 ...	14,2-14,4	12,5	162	50	107	6
SAN0208 ...	14,5	12,5	162	50	107	8
SAN0208 ...	14,6-14,9	12,5	162	50	107	8
SAN0208 ...	15,0	12,5	162	50	107	8
SAN0208 ...	15,1	12,5	162	50	107	8
SAN0208 ...	15,2-15,4	12,5	170	52	115	8
SAN0208 ...	15,5	12,5	170	52	115	8
SAN0208 ...	15,6-15,9	12,5	170	52	115	8
SAN0208 ...	16,0	12,5	170	52	115	8
SAN0208 ...	16,1	12,5	170	52	115	8
SAN0208 ...	16,2-16,4	14,0	175	54	119	8
SAN0208 ...	16,5	14,0	175	54	119	8
SAN0208 ...	16,6-16,9	14,0	175	54	119	8
SAN0208 ...	17,0	14,0	175	54	119	8
SAN0208 ...	17,1	14,0	175	54	119	8
SAN0208 ...	17,2-17,4	14,0	182	56	122	8
SAN0208 ...	17,5	14,0	182	56	122	8
SAN0208 ...	17,6-17,9	14,0	182	56	122	8
SAN0208 ...	18,0	14,0	182	56	122	8
SAN0208 ...	18,1	14,0	182	56	122	8
SAN0208 ...	18,2-18,4	16,0	189	58	127	8
SAN0208 ...	18,5	16,0	189	58	127	8
SAN0208 ...	18,6-18,9	16,0	189	58	127	8
SAN0208 ...	19,0	16,0	189	58	127	8
SAN0208 ...	19,1	16,0	189	58	127	8
SAN0208 ...	19,2-19,4	16,0	195	60	130	8
SAN0208 ...	19,5	16,0	195	60	130	8
SAN0208 ...	19,6-19,9	16,0	195	60	130	8
SAN0208 ...	20,0	16,0	195	60	130	8
SAN0208 ...	20,1	16,0	195	60	130	8
SAN0208 ...	20,2-21,2	16,0	195	60	130	8
SAN0208 ...	21,3-21,9	16,0	200	65	134	8
SAN0208 ...	21,9	16,0	200	65	134	8
SAN0208 ...	22,0	16,0	200	65	134	8
SAN0208 ...	22,1-22,2	16,0	200	65	134	8
SAN0208 ...	22,3-23,9	20,0	200	65	134	10
SAN0208 ...	24,0	20,0	200	65	134	10
SAN0208 ...	24,1-24,2	20,0	200	65	134	10
SAN0208 ...	24,3-24,9	20,0	200	65	134	10
SAN0208 ...	25,0	20,0	200	65	134	10
SAN0208 ...	25,1-25,2	20,0	200	65	134	10
SAN0208 ...	25,3-25,9	20,0	205	70	139	10
SAN0208 ...	26,0	20,0	205	70	139	10
SAN0208 ...	26,1-26,2	20,0	205	70	139	10
SAN0208 ...	26,3-27,9	25,0	205	70	139	10
SAN0208 ...	28,0	25,0	205	70	139	10
SAN0208 ...	28,1-28,2	25,0	205	70	139	10
SAN0208 ...	28,3-29,9	25,0	205	70	139	10
SAN0208 ...	30,0	25,0	205	70	139	10
SAN0208 ...	30,1-30,2	25,0	205	70	139	10
SAN0208 ...	30,3-31,9	25,0	205	70	139	10
SAN0208 ...	32,0	25,0	205	70	139	10
SAN0208 ...	32,1-32,2	25,0	205	70	139	10
SAN0208 ...	32,3-33,9	25,0	205	70	139	10
SAN0208 ...	34,0	25,0	205	70	139	10
SAN0208 ...	34,1-34,9	25,0	205	70	139	10
SAN0208 ...	35,0	25,0	205	70	139	10
SAN0208 ...	35,1-35,2	25,0	205	70	139	10
SAN0208 ...						

PAG. 1076

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm)	(m/min)	(mm)	(giri/min) (min^{-1})	(mm/min)
	ACCIAIO NON LEGATO NOT ALLOY STEEL	**ACCIAIO POCO LEGATO** LOW ALLOY STEEL	**ACCIAIO ALTO LEGATO** ALLOY STEEL	**INOX MARTENSITICO** STAINLESS STEEL MART.	**INOX AUST. DUPLEX** STAINLESS STEEL AUST.	**GHISA GRIGIA** GREY CAST IRON	**GHISA SFEROIDALE** SPHEROIDAL GRAPHITE	**GHISA MALLEABILE** MALLEABLE CAST IRON	**ALLUMINIO E SUE LEGHE** ALUMINIUM	**RAME E SUE LEGHE** COPPER	**NON METALLICI** PLASTICS	**LEGHE RESIST. CALORE** HIGH TEMP. ALLOY	**TITANIO E SUE LEGHE** TITANIUM	**ACCIAIO TEMPRATO** HARDENED STEEL	**GRAFITE** GRAPHITE	ØD	Vc	fn	n	Vf
	●															1÷5	10-12	0,10	–	–
	●															5÷10	10-12	0,15	–	–
	●															10÷20	10-12	0,25	–	–
	●															20÷35,2	10-12	0,30	–	–
		●														1÷5	8-10	0,10	–	–
		●														5÷10	8-10	0,15	–	–
		●														10÷20	8-10	0,25	–	–
		●														20÷35,2	8-10	0,30	–	–
			●													1÷5	4-6	0,08	–	–
			●													5÷10	4-6	0,10	–	–
			●													10÷20	4-6	0,20	–	–
			●													20÷35,2	4-6	0,30	–	–
					●											1÷5	3-5	0,10	–	–
					●											5÷10	3-5	0,15	–	–
					●											10÷20	3-5	0,20	–	–
					●											20÷35,2	3-5	0,30	–	–
						●										1÷5	8-10	0,18	–	–
						●										5÷10	8-10	0,23	–	–
						●										10÷20	8-10	0,30	–	–
						●										20÷35,2	8-10	0,35	–	–
							●									1÷5	4-6	0,12	–	–
							●									5÷10	4-6	0,17	–	–
							●									10÷20	4-6	0,25	–	–
							●									20÷35,2	4-6	0,30	–	–
									●							1÷5	18-20	0,15	–	–
									●							5÷10	18-20	0,20	–	–
									●							10÷20	18-20	0,30	–	–
									●							20÷35,2	18-20	0,35	–	–
										●						1÷5	10-15	0,20	–	–
										●						5÷10	10-15	0,30	–	–
										●						10÷20	10-15	0,40	–	–
										●						20÷35,2	10-15	0,45	–	–
											●					1÷5	4-6	0,20	–	–
											●					5÷10	4-6	0,30	–	–
											●					10÷20	4-6	0,40	–	–
											●					20÷35,2	4-6	0,45	–	–

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED

n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS

fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION

Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

$$n = \frac{Vc \cdot 1000}{ØD \cdot 3,14} = \text{giri/min } (min^{-1})$$

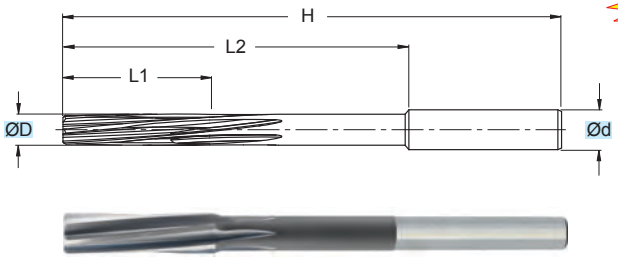
$$Vf = fn \cdot n = \text{mm/min}$$

SAN0209

ØD = 0,70 - 35,20 **NEW**

* RIVESTIMENTO A RICHIESTA
COATING ON REQUEST

HSSE



HSSE

TOLLERANZE	D	d
TOLLERANCE RANGE	-0/+0,004	h8

(mm)

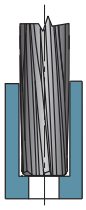
ART.	ØD	Ød	H	L1	L2	Z
SAN0209 ...	0,70-0,79	–	40	8	–	4
SAN0209 ...	0,80-0,89	–	40	8	–	4
SAN0209 ...	0,90-0,96	–	40	8	–	4
SAN0209 ...	0,97-1,50	–	40	8	–	4
SAN0209 ...	1,51-1,93	–	43	9	–	4
SAN0209 ...	1,94-2,12	2,0	49	11	26	4
SAN0209 ...	2,13-2,36	2,0	53	12	–	4
SAN0209 ...	2,37-2,48	2,3	57	14	–	4
SAN0209 ...	2,49-2,65	2,5	57	14	–	4
SAN0209 ...	2,66-2,96	2,5	61	15	–	4
SAN0209 ...	2,97-3,35	3,0	65	16	40	4
SAN0209 ...	3,36-3,75	3,5	70	18	45	4
SAN0209 ...	3,76-4,25	4,0	75	19	47	6
SAN0209 ...	4,26-4,75	4,5	80	21	51	6
SAN0209 ...	4,76-5,15	5,0	86	23	56	6
SAN0209 ...	5,16-5,65	5,0	93	26	58	6
SAN0209 ...	5,66-6,15	6,0	93	26	58	6
SAN0209 ...	6,16-6,71	6,0	101	28	63	6
SAN0209 ...	6,72-7,65	7,0	109	31	71	6
SAN0209 ...	7,66-8,65	8,0	117	33	77	6
SAN0209 ...	8,66-9,65	9,0	125	36	80	6
SAN0209 ...	9,66-10,60	10,0	133	38	85	6
SAN0209 ...	10,61-11,80	10,0	142	41	92	6
SAN0209 ...	11,81-12,20	10,0	151	44	99	6
SAN0209 ...	12,21-13,20	10,0	151	44	99	6
SAN0209 ...	13,21-14,15	12,5	160	47	105	6
SAN0209 ...	14,16-15,15	12,5	162	50	107	6
SAN0209 ...	15,16-16,15	12,5	170	52	115	8
SAN0209 ...	16,16-17,15	14,0	175	54	119	8
SAN0209 ...	17,16-18,15	14,0	182	56	122	8
SAN0209 ...	18,16-19,15	16,0	189	58	127	8
SAN0209 ...	19,16-20,15	16,0	195	60	130	8
SAN0209 ...	20,16-21,20	16,0	195	60	130	8
SAN0209 ...	21,21-22,20	16,0	200	65	134	8
SAN0209 ...	22,21-24,20	20,0	200	65	134	10
SAN0209 ...	24,21-25,20	20,0	200	65	134	10
SAN0209 ...	25,21-26,20	20,0	200	65	134	10
SAN0209 ...	26,21-28,20	25,0	205	70	139	10
SAN0209 ...	28,21-30,20	25,0	205	70	139	10
SAN0209 ...	30,21-32,20	25,0	205	70	139	10
SAN0209 ...	32,21-35,20	25,0	205	70	139	10

* Nell'ordine inserire sempre il "Ø" scelto dopo il codice dell'alesatore
* When ordering always indicate the chosen diameter after the reamer code
* Bei der Bestellung bitte immer den gewählten "Ø" hinter dem Reibahlencode angeben
* Entrer toujours dans la commande le "Ø" choisi après le code de l'alesoir

EX. Ø = 13,21 COD. = **SAN02091321**
EX. Ø = 3,80 COD. = **SAN02090380**

ESEGUE FORI CON TOLLERANZA -0/+0,004
FOR BORES WITH -0/+0,004 TOLERANCE
FÜHRT BOHRUNGEN MIT -0/+0,004 TOLERANZ AUS
EXECUTE TROUS AVEC TOLERANCE -0/+0,004

MATERIALI - MATERIALS Pag. 1119

Applicazione - Application	P				M	K			N			S		H	G	(mm)	(m/min)	(mm)	(giri/min) (min^{-1})	(mm/min)
	ACCIAIO NON LEGATO NOT ALLOY STEEL	ACCIAIO POCO LEGATO LOW ALLOY STEEL	ACCIAIO ALTO LEGATO ALLOY STEEL	INOX MARTENSITICO STAINLESS STEEL MART.	INOX AUST. DUPLEX STAINLESS STEEL AUST.	GHISA GRIGIA GREY CAST IRON	GHISA SFEROIDALE SPHEROIDAL GRAPHITE	GHISA MALLEABILE MALLEABLE CAST IRON	ALLUMINIO E SUE LEGHE ALUMINIUM	RAME E SUE LEGHE COPPER	NON METALLICI PLASTICS	LEGHE RESIST. CALORE HIGH TEMP. ALLOY	TITANIO E SUE LEGHE TITANIUM	ACCIAIO TEMPRATO HARDENED STEEL	GRAFITE GRAPHITE	ØD	Vc	fn	n	Vf
	●															0,7÷5	10-12	0,10	–	–
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	●															20÷35,2	10-12	0,30	–	–
		●														0,7÷5	8-10	0,10	–	–
		●														5÷10	8-10	0,15	–	–
		●														10÷20	8-10	0,25	–	–
		●														20÷35,2	8-10	0,30	–	–
			●													0,7÷5	4-6	0,08	–	–
			●													5÷10	4-6	0,10	–	–
			●													10÷20	4-6	0,20	–	–
			●													20÷35,2	4-6	0,30	–	–
					●											0,7÷5	3-5	0,10	–	–
					●											5÷10	3-5	0,15	–	–
					●											10÷20	3-5	0,20	–	–
					●											20÷35,2	3-5	0,30	–	–
						●										0,7÷5	8-10	0,18	–	–
						●										5÷10	8-10	0,23	–	–
						●										10÷20	8-10	0,30	–	–
						●										20÷35,2	8-10	0,35	–	–
							●									0,7÷5	4-6	0,12	–	–
							●									5÷10	4-6	0,17	–	–
							●									10÷20	4-6	0,25	–	–
							●									20÷35,2	4-6	0,30	–	–
									●							0,7÷5	18-20	0,15	–	–
									●							5÷10	18-20	0,20	–	–
									●							10÷20	18-20	0,30	–	–
									●							20÷35,2	18-20	0,35	–	–
										●						0,7÷5	10-15	0,20	–	–
										●						5÷10	10-15	0,30	–	–
										●						10÷20	10-15	0,40	–	–
										●						20÷35,2	10-15	0,45	–	–
											●					0,7÷5	4-6	0,20	–	–
											●					5÷10	4-6	0,30	–	–
											●					10÷20	4-6	0,40	–	–
											●					20÷35,2	4-6	0,45	–	–

● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED

n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS

fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION

Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

$$n = \frac{Vc \cdot 1000}{ØD \cdot 3,14} = \text{giri/min } (min^{-1})$$

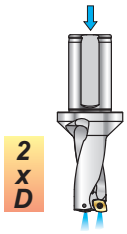
$$Vf = fn \cdot n = \text{mm/min}$$

SAU
QUALITY TOOLS ENGINEERING

PUNTE AD INSERTI
INDEXABLE INSERT DRILLING TOOLS
WENDEPLATTEN VOLLBOHRER
FORETS À PLAQUETTES
BROCAS CON PLAQUITAS

SDQ...20

Pag. 604



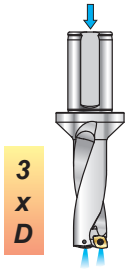
SDQ..20 R - SDQM..20 R

ØD = 15 - 40

QCMX
010204
020204
030308
040308
050412
060412

SDQ...30

Pag. 606



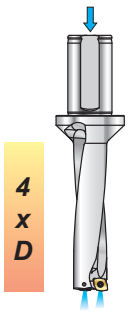
SDQ..30 R - SDQM..30 R

ØD = 15 - 60

QCMX
010204
020204
030308
040308
050412
060412
080412

SDQ...40

Pag. 608



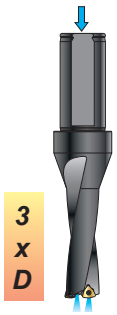
SDQ..40 R

ØD = 15 - 50

QCMX
010204
020204
030308
040308
050412
060412
080412

TDC...30

Pag. 610



TDC..30 R/L

ØD = 17,5 - 59

WCMX
06T308
080412

TDC...40

Pag. 612

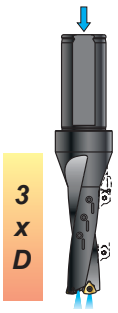
TDC..40 R/L

ØD = 17,5 - 50

WCMX
030208
040208
050308
06T308
080412

TDCS...30

Pag. 614



TDCS.. R/L

ØD = 17,5 - 40

WCMX
030208
040208
050308
06T308

SPU...

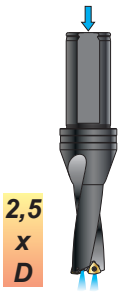
Pag. 615

SPU 1840-07

SM0702
-30
-45
-55

TDBC...25

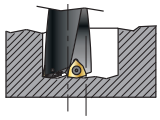
Pag. 616

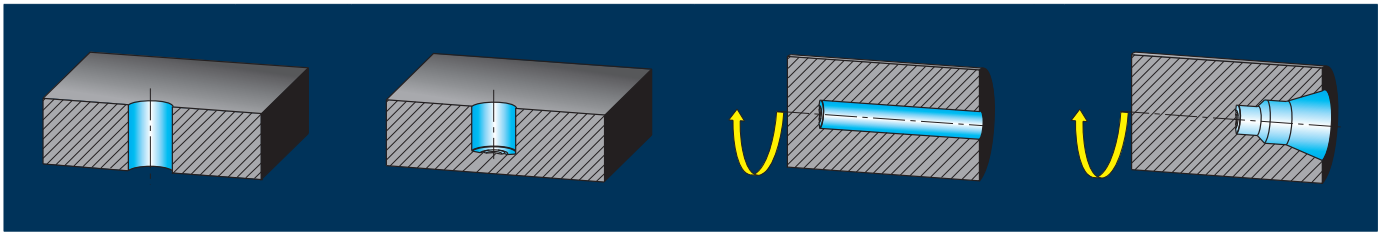


TDBC..25 R/L

ØD = 19 - 54

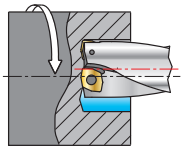
WCMX
040208
050308
06T308
080412



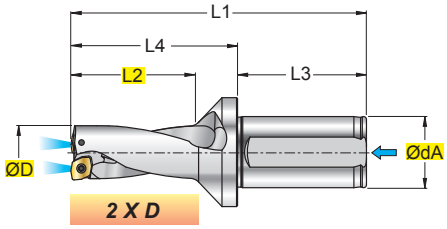


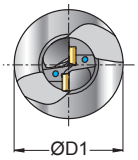
SDQ ..20 R
SDQM ..20 R

Ø 15-40



DISASSAMENTO TEORICO
THEORETICAL OFFSET



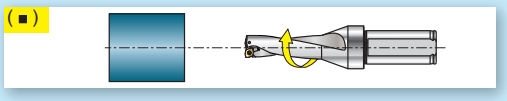


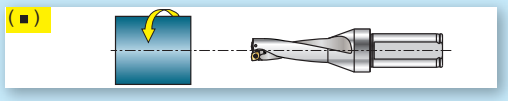
QCMX X36	
QCMX X42	
QCMX X52	


INSERTI - INSERTS
PAG. 643

ART.	(mm) ØD	ØdA	ØD1	L1	L2	L3	L4	kg	Nm			
SDQ 15020 R	15,0	20	32	90	35	40	50	0,18	0,9÷1,0	010204	12225P	5607P
SDQ 15520 R	15,5	20	32	91	36	40	51	0,18	0,9÷1,0			
SDQ 16020 R	16,0	20	32	92	37	40	52	0,18	0,9÷1,0			
SDQ 16520 R	16,5	20	32	93	38	40	53	0,19	0,9÷1,0			
SDQ 17020 R	17,0	20	32	94	39	40	54	0,19	0,9÷1,0			
SDQ 17520 R	17,5	25	37	112	41	54	58	0,33	0,9÷1,0			
SDQ 18020 R	18,0	25	37	113	42	54	59	0,33	0,9÷1,0			
SDQ 18520 R	18,5	25	37	114	43	54	60	0,34	0,9÷1,0			
SDQ 19020 R	19,0	25	37	115	44	54	61	0,34	0,9÷1,0			
SDQ 19520 R	19,5	25	37	116	45	54	62	0,34	0,9÷1,0			
SDQ 20020 R	20,0	25	37	117	46	54	63	0,34	0,9÷1,0	020204	12225P	5607P
SDQ 20520 R	20,5	25	37	118	47	54	64	0,34	0,9÷1,0			
SDQ 21020 R	21,0	25	37	119	48	54	65	0,35	0,9÷1,0			
SDQ 21520 R	21,5	25	37	120	49	54	66	0,35	0,9÷1,0			
SDQ 22020 R	22,0	25	37	121	50	54	67	0,36	0,9÷1,0			
SDQ 22520 R	22,5	25	37	122	51	54	68	0,36	0,9÷1,0			
SDQ 23020 R	23,0	25	37	123	52	54	69	0,37	0,9÷1,0			
SDQ 23520 R	23,5	25	37	124	53	54	70	0,37	1,2÷1,5	030308	123008P	5608P
SDQ 24020 R	24,0	25	37	125	54	54	71	0,37	1,2÷1,5			
SDQ 24520 R	24,5	25	37	126	55	54	72	0,38	1,2÷1,5			
SDQ 25020 R	25,0	32	49	133	56	58	75	0,62	1,2÷1,5			
SDQ 25520 R	25,5	32	49	134	57	58	76	0,63	1,2÷1,5			
SDQ 26020 R	26,0	32	49	135	58	58	77	0,64	1,2÷1,5			
SDQ 26520 R	26,5	32	49	136	59	58	78	0,64	1,2÷1,5			
SDQ 27020 R	27,0	32	49	137	60	58	79	0,65	1,2÷1,5			
SDQ 27520 R	27,5	32	49	138	61	58	80	0,65	1,2÷1,5			
SDQ 28020 R	28,0	32	49	139	62	58	81	0,65	1,2÷1,5			
SDQ 28520 R	28,5	32	49	140	63	58	82	0,66	1,2÷1,5			
SDQ 29020 R	29,0	32	49	141	64	58	83	0,67	1,2÷1,5			
SDQ 29520 R	29,5	32	49	142	65	58	84	0,68	1,2÷1,5			
SDQ 30020 R	30,0	32	49	143	66	58	85	0,68	1,2÷1,5	040308	123008P	5608P
SDQ 30520 R	30,5	32	49	144	67	58	86	0,69	1,2÷1,5			
SDQ 31020 R	31,0	32	49	145	68	58	87	0,69	1,2÷1,5			
SDQ 31520 R	31,5	32	49	146	69	58	88	0,71	1,2÷1,5			
SDQ 32020 R	32,0	40	59	161	71	68	93	1,11	1,2÷1,5			
SDQM 32020 R New	32,0	32	49	151	71	58	93	0,76	1,2÷1,5			
SDQ 32520 R	32,5	40	59	162	72	68	94	1,14	1,2÷1,5			
SDQ 33020 R	33,0	40	59	163	73	68	95	1,15	1,2÷1,5			
SDQM 33020 R New	33,0	32	49	153	73	58	95	0,77	1,2÷1,5			
SDQ 33520 R	33,5	40	59	164	74	68	96	1,16	1,2÷1,5			
SDQ 34020 R	34,0	40	59	165	75	68	97	1,17	1,2÷1,5			
SDQM 34020 R New	34,0	32	49	155	75	58	97	0,81	1,2÷1,5			
SDQ 35020 R New	35,0	40	59	167	77	68	99	1,19	3,0÷3,5	050412	123511P	5615P
SDQM 35020 R New	35,0	32	49	157	77	58	99	0,82	3,0÷3,5			
SDQ 36020 R New	36,0	40	59	169	79	68	101	1,21	3,0÷3,5			
SDQM 36020 R New	36,0	32	49	159	79	58	101	0,85	3,0÷3,5			
SDQ 37020 R New	37,0	40	59	171	81	68	103	1,24	3,0÷3,5			
SDQM 37020 R New	37,0	32	49	161	81	58	103	0,87	3,0÷3,5			
SDQ 38020 R New	38,0	40	59	173	83	68	105	1,25	3,0÷3,5			
SDQM 38020 R New	38,0	32	49	163	83	58	105	0,89	3,0÷3,5			
SDQ 39020 R New	39,0	40	59	175	85	68	107	1,29	3,0÷3,5			
SDQM 39020 R New	39,0	32	49	165	85	58	107	0,93	3,0÷3,5			
SDQ 40020 R New	40,0	40	59	177	87	68	109	1,30	3,0÷3,5	060412	123511P	5615P
SDQM 40020 R New	40,0	32	49	167	87	58	109	0,94	3,0÷3,5			

2 x D





(■) LAVORAZIONE OTTIMALE - OPTIMUM MACHINING - OPTIMALE BEARBEITUNG - USINAGE OPTIMALE
(▫) LAVORAZIONE POSSIBILE - POSSIBLE MACHINING - MOEGLICHE BEARBEITUNG - USINAGE POSSIBLE

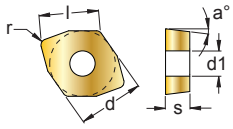
PAG. 1080

SAU QUALITY TOOLS ENGINEERING

SCELTA VELOCE - QUICK PICK

Tenacità / Toughness + -

Pag. 632



COD.			P	M	K	N	S	H	HT CERMET	HW NON RIV. CEMENTED CARBIDE GRADES	HC RIVESTITI COATED GRADES BESCHICHTET RECOUVERTS								l	d	s	d1	r	a°
											T3610			T5320	T5322	T530									
QCMX	010204	.X36	●	○		○										■			5,4	5,8	2,38	2,5	0,4	7
QCMX	020204	.X36	●	○		○										■			6,6	7,1	2,38	2,5	0,4	7
QCMX	030308	.X36	●	○		○										■			8,3	8,8	3,18	3,4	0,8	7
QCMX	040308	.X36	●	○		○										■			9,6	10,2	3,18	3,4	0,8	7
QCMX	050412	.X36	●	○		○										■			11,3	12,1	4,76	4,3	1,2	7
QCMX	060412	.X36	●	○		○										■			13,8	14,8	4,76	4,3	1,2	7
QCMX	010204	.X42	●	●		○									■				5,4	5,8	2,38	2,5	0,4	7
QCMX	020204	.X42	●	●		○									■				6,6	7,1	2,38	2,5	0,4	7
QCMX	030308	.X42	●	●		○									■				8,3	8,8	3,18	3,4	0,8	7
QCMX	040308	.X42	●	●		○									■				9,6	10,2	3,18	3,4	0,8	7
QCMX	050412	.X42	●	●		○									■				11,3	12,1	4,76	4,3	1,2	7
QCMX	060412	.X42	●	●		○									■				13,8	14,8	4,76	4,3	1,2	7
QCMX	010204	.X52	●	○	○									■					5,4	5,8	2,38	2,5	0,4	7
QCMX	020204	.X52	●	○	○									■					6,6	7,1	2,38	2,5	0,4	7
QCMX	030308	.X52	●	○	○									■					8,3	8,8	3,18	3,4	0,8	7
QCMX	040308	.X52	●	○	○									■					9,6	10,2	3,18	3,4	0,8	7
QCMX	050412	.X52	●	○	○									■					11,3	12,1	4,76	4,3	1,2	7
QCMX	060412	.X52	●	○	○									■					13,8	14,8	4,76	4,3	1,2	7
QCMX	010204	.X52	○		●						■								5,4	5,8	2,38	2,5	0,4	7
QCMX	020204	.X52	○		●						■								6,6	7,1	2,38	2,5	0,4	7
QCMX	030308	.X52	○		●						■								8,3	8,8	3,18	3,4	0,8	7
QCMX	040308	.X52	○		●						■								9,6	10,2	3,18	3,4	0,8	7
QCMX	050412	.X52	○		●						■								11,3	12,1	4,76	4,3	1,2	7
QCMX	060412	.X52	○		●						■								13,8	14,8	4,76	4,3	1,2	7

QCMX ... .X36 = *CONSIGLIATO PER ACCIAIO NON LEGATO* — *RECOMMENDED FOR NOT ALLOY STEEL*

QCMX ... .X42 = *CONSIGLIATO PER ACCIAIO INOX* — *RECOMMENDED FOR STAINLESS STEEL*

QCMX ... .X52 = *CONSIGLIATO PER ACCIAIO* — *RECOMMENDED FOR STEEL*

QCMX ... .X52 = *CONSIGLIATO PER GHISA* — *RECOMMENDED FOR CAST IRON*

MATERIALI - MATERIALS Pag. 1119		VDI 3323 GR.	HB Rm[1] HRC[2]	fn mm Ø15-19,5	Ø20-23	Ø23,5-29,5	Ø30-39	Ø40	Vc m/min Pag. 640 T3610	T5320	T5322	T530
P	ACCIAIO NON LEGATO - NOT ALLOY STEEL	1---5	125-300	0,04-0,10	0,04-0,12	0,04-0,14	0,06-0,16	0,06-0,18			300	180
P	ACCIAIO POCO LEGATO - LOW ALLOY STEEL	6--9	180-350	0,04-0,12	0,04-0,16	0,04-0,20	0,06-0,22	0,06-0,25		280	280	170
P	ACCIAIO ALTO LEGATO - ALLOY STEEL	10-11	200-325	0,04-0,12	0,04-0,16	0,04-0,20	0,06-0,22	0,06-0,25	240	250		
P	INOX MARTENS. - STAINLESS STEEL MART	12-13	200-240	0,04-0,10	0,04-0,1	0,04-0,12	0,06-0,15	0,06-0,2	180	200		
M	INOX AUST. DUPLEX - STAINLESS STEEL AUST	14.1-14.2	180-230	0,04-0,08	0,04-0,12	0,06-0,18	0,06-0,20	0,06-0,22		140	200	120
K	GHISA GRIGIA - GREY CAST IRON	15-16	180-260	0,06-0,15	0,06-0,18	0,06-0,22	0,06-0,24	0,08-0,26	350	280		
K	GHISA SFEROIDALE - SPHEROIDAL GRAPHITE	17-18	160-250	0,06-0,15	0,06-0,18	0,06-0,22	0,06-0,24	0,08-0,26	280	240		
K	GHISA MALLEABILE - MALLEABLE CAST IRON	19-20	130-230	0,06-0,15	0,06-0,18	0,06-0,22	0,06-0,24	0,08-0,26	300	260		
N	ALLUMINIO E SUE LEGHE - ALUMINIUM	21---25	60-130	0,05-0,14	0,08-0,18	0,1-0,22	0,1-0,24	0,1-0,28			400	400
N	RAME E SUE LEGHE - COPPER	26--28	90-110	0,04-0,14	0,04-0,16	0,06-0,2	0,06-0,2	0,1-0,25			300	300
N	NON METALLICI - PLASTICS	29-30	/	0,04-0,14	0,04-0,16	0,06-0,2	0,06-0,2	0,1-0,25			300	300
S	LEGHE RESIST. CALORE - HIG. TEMP. ALLOY	31---35	200-320									
S	TITANIO E SUE LEGHE - TITANIUM	36-37	400-1050[1]									
H	ACCIAIO TEMPRATO - HARDENED STEEL	38--41	45-60[2]									

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

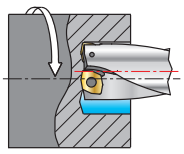
$$Vf = fn \cdot n = \text{mm/min}$$

$$n = \frac{Vc \cdot 1000}{ØD \cdot 3,14} = \text{giri/min (min}^{-1}\text{)}$$

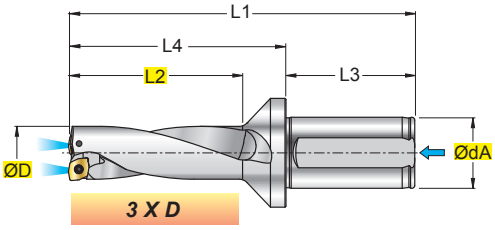
■ DISPONIBILI - IN STOCK - LIEFERBAR - DISPONIBLES / ■ NEW
●● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE
□ A RICHIESTA - ON REQUEST - AUF ANFRAGE - SUR DEMANDE / □ NEW
○○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

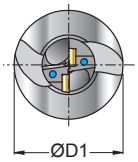
SDQ ..30 R
SDQM ..30 R

Ø 15-60



DISASSAMENTO TEORICO
THEORETICAL OFFSET





QCMX ... .X36 

QCMX ... .X42 

QCMX ... .X52 


INSERTI - INSERTS
PAG. 643

ART.	(mm) ØD	ØdA	ØD1	L1	L2	L3	L4	kg	Nm			
SDQ 15030 R	15,0	20	32	102	47	40	62	0,18	0,9÷1,0	010204	12225P	5607P
SDQ 15530 R	15,5	20	32	103,5	48,5	40	63,5	0,18	0,9÷1,0			
SDQ 16030 R	16,0	20	32	105	50	40	65	0,18	0,9÷1,0			
SDQ 16530 R	16,5	20	32	106,5	51,5	40	66,5	0,19	0,9÷1,0			
SDQ 17030 R	17,0	20	32	108	53	40	68	0,19	0,9÷1,0			
SDQ 17530 R	17,5	25	37	126,5	55,5	54	72,5	0,33	0,9÷1,0			
SDQ 18030 R	18,0	25	37	128	57	54	74	0,34	0,9÷1,0			
SDQ 18530 R	18,5	25	37	129,5	58,5	54	75,5	0,34	0,9÷1,0			
SDQ 19030 R	19,0	25	37	131	60	54	77	0,35	0,9÷1,0			
SDQ 19530 R	19,5	25	37	132,5	61,5	54	78,5	0,35	0,9÷1,0			
SDQ 20030 R	20,0	25	37	134	63	54	80	0,35	0,9÷1,0	020204	12225P	5607P
SDQ 20530 R	20,5	25	37	135,5	64,5	54	81,5	0,36	0,9÷1,0			
SDQ 21030 R	21,0	25	37	137	66	54	83	0,37	0,9÷1,0			
SDQ 21530 R	21,5	25	37	138,5	67,5	54	84,5	0,37	0,9÷1,0			
SDQ 22030 R	22,0	25	37	140	69	54	86	0,38	0,9÷1,0			
SDQ 22530 R	22,5	25	37	141,5	70,5	54	87,5	0,39	0,9÷1,0			
SDQ 23030 R	23,0	25	37	143	72	54	89	0,40	0,9÷1,0			
SDQ 23530 R	23,5	25	37	144,5	73,5	54	90,5	0,40	1,2÷1,5	030308	123008P	5608P
SDQ 24030 R	24,0	25	37	146	75	54	92	0,40	1,2÷1,5			
SDQ 24530 R	24,5	25	37	147,5	76,5	54	93,5	0,42	1,2÷1,5			
SDQ 25030 R	25,0	32	49	156	79	58	98	0,65	1,2÷1,5			
SDQ 25530 R	25,5	32	49	157,5	80,5	58	99,5	0,66	1,2÷1,5			
SDQ 26030 R	26,0	32	49	159	82	58	101	0,67	1,2÷1,5			
SDQ 26530 R	26,5	32	49	160,5	83,5	58	102,5	0,68	1,2÷1,5			
SDQ 27030 R	27,0	32	49	162	85	58	104	0,68	1,2÷1,5			
SDQ 27530 R	27,5	32	49	163,5	86,5	58	105,5	0,68	1,2÷1,5			
SDQ 28030 R	28,0	32	49	165	88	58	107	0,69	1,2÷1,5			
SDQ 28530 R	28,5	32	49	166,5	89,5	58	108,5	0,70	1,2÷1,5			
SDQ 29030 R	29,0	32	49	168	91	58	110	0,72	1,2÷1,5			
SDQ 29530 R	29,5	32	49	169,5	92,5	58	111,5	0,74	1,2÷1,5			
SDQ 30030 R	30,0	32	49	171	94	58	113	0,74	1,2÷1,5	040308	123008P	5608P
SDQ 30530 R	30,5	32	49	172,5	95,5	58	114,5	0,75	1,2÷1,5			
SDQ 31030 R	31,0	32	49	174	97	58	116	0,76	1,2÷1,5			
SDQ 31530 R	31,5	32	49	175,5	98,5	58	117,5	0,80	1,2÷1,5			
SDQ 32030 R	32,0	40	59	191	101	68	123	1,18	1,2÷1,5			
SDQM 32030 R New	32,0	32	49	181	101	58	123	0,85	1,2÷1,5			
SDQ 32530 R	32,5	40	59	192,5	102,5	68	124,5	1,19	1,2÷1,5			
SDQ 33030 R	33,0	40	59	194	104	68	126	1,20	1,2÷1,5			
SDQM 33030 R New	33,0	32	49	184	104	58	126	0,88	1,2÷1,5			
SDQ 33530 R	33,5	40	59	195,5	105,5	68	127,5	1,23	1,2÷1,5			
SDQ 34030 R	34,0	40	59	197	107	68	129	1,26	1,2÷1,5			
SDQM 34030 R New	34,0	32	49	187	107	58	129	0,92	1,2÷1,5			
SDQ 34530 R	34,5	40	59	198,5	108,5	68	130,5	1,27	3,0÷3,5	050412	123511P	5615P
SDQ 35030 R	35,0	40	59	200	110	68	132	1,28	3,0÷3,5			
SDQM 35030 R New	35,0	32	49	190	110	58	132	0,94	3,0÷3,5			
SDQ 35530 R	35,5	40	59	201,5	111,5	68	133,5	1,30	3,0÷3,5			
SDQ 36030 R	36,0	40	59	203	113	68	135	1,32	3,0÷3,5			
SDQM 36030 R New	36,0	32	49	193	113	58	135	0,99	3,0÷3,5			
SDQ 36530 R	36,5	40	59	204,5	114,5	68	136,5	1,33	3,0÷3,5			
SDQ 37030 R	37,0	40	59	206	116	68	138	1,35	3,0÷3,5			
SDQM 37030 R New	37,0	32	49	196	116	58	138	1,01	3,0÷3,5			
SDQ 37530 R	37,5	40	59	207,5	117,5	68	139,5	1,37	3,0÷3,5			
SDQ 38030 R	38,0	40	59	209	119	68	141	1,39	3,0÷3,5			
SDQM 38030 R New	38,0	32	49	199	119	58	141	1,05	3,0÷3,5			
SDQ 38530 R	38,5	40	59	210,5	120,5	68	142,5	1,42	3,0÷3,5			
SDQ 39030 R	39,0	40	59	212	122	68	144	1,44	3,0÷3,5			
SDQM 39030 R New	39,0	32	49	202	122	58	144	1,10	3,0÷3,5			
SDQ 39530 R	39,5	40	59	213,5	123,5	68	145,5	1,49	3,0÷3,5			
SDQ 40030 R	40,0	40	59	215	125	68	147	1,44	3,0÷3,5	060412	123511P	5615P
SDQM 40030 R New	40,0	32	49	205	125	58	147	1,12	3,0÷3,5			
SDQ 41030 R	41,0	40	59	218	128	68	150	1,50	3,0÷3,5			
SDQ 42030 R	42,0	40	59	221	131	68	153	1,56	3,0÷3,5			
SDQ 43030 R	43,0	40	59	224	134	68	156	1,64	3,0÷3,5			
SDQ 44030 R	44,0	40	59	227	137	68	159	1,69	3,0÷3,5			
SDQ 45030 R	45,0	40	59	230	140	68	162	1,73	3,0÷3,5			
SDQ 46030 R	46,0	40	59	241	143	68	173	1,78	3,0÷3,5			
SDQ 47030 R	47,0	40	59	244	146	68	176	1,86	3,0÷3,5			
SDQ 48030 R	48,0	40	59	247	149	68	179	1,93	3,0÷3,5			
SDQ 49030 R	49,0	40	59	250	152	68	182	2,05	3,0÷3,5			
SDQ 50030 R	50,0	40	59	253	158	68	185	2,11	3,0÷3,5	080412	123511P	5615P
SDQ 51030 R	51,0	40	59	256	161	68	188	2,17	3,0÷3,5			
SDQ 52030 R	52,0	40	59	259	164	68	191	2,27	3,0÷3,5			
SDQ 53030 R	53,0	40	59	262	167	68	194	2,37	3,0÷3,5			
SDQ 54030 R	54,0	40	59	265	170	68	197	2,47	3,0÷3,5			
SDQ 55030 R	55,0	40	59	268	173	68	200	2,59	3,0÷3,5			
SDQ 56030 R	56,0	40	59	271	176	68	203	2,70	3,0÷3,5			
SDQ 57030 R	57,0	40	59	274	179	68	206	2,81	3,0÷3,5			
SDQ 58030 R	58,0	40	59	277	182	68	209	2,88	3,0÷3,5			
SDQ 59030 R	59,0	40	59	280	185	68	212	3,05	3,0÷3,5			
SDQ 60030 R	60,0	40	59	283	188	68	215	3,17	3,0÷3,5			

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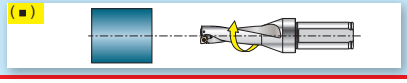
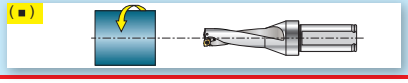




(■) LAVORAZIONE OTTIMALE - OPTIMUM MACHINING - OPTIMALE BEARBEITUNG - USINAGE OPTIMALE
(□) LAVORAZIONE POSSIBILE - POSSIBLE MACHINING - MOEGLICHE BEARBEITUNG - USINAGE POSSIBLE

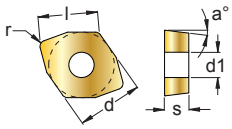
PAG. 1080

SAU QUALITY TOOLS ENGINEERING

SCELTA VELOCE - QUICK PICK

Tenacità / Toughness + -

Pag. 632



COD.			P	M	K	N	S	H	HT CERMET	HW NON RIV. CEMENTED CARBIDE GRADES	HC RIVESTITI COATED GRADES BESCHICHTET RECOUVERTS										
											T3610			T5320	T5322	T530			l	d	s	d1	r	a°
QCMX	010204	.X36	●	○		○										■			5,4	5,8	2,38	2,5	0,4	7
QCMX	020204	.X36	●	○		○										■			6,6	7,1	2,38	2,5	0,4	7
QCMX	030308	.X36	●	○		○										■			8,3	8,8	3,18	3,4	0,8	7
QCMX	040308	.X36	●	○		○										■			9,6	10,2	3,18	3,4	0,8	7
QCMX	050412	.X36	●	○		○										■			11,3	12,1	4,76	4,3	1,2	7
QCMX	060412	.X36	●	○		○										■			13,8	14,8	4,76	4,3	1,2	7
QCMX	080412	.X36	●	○		○										■			17,2	18,5	4,76	4,3	1,2	7
QCMX	010204	.X42	●	●		○									■				5,4	5,8	2,38	2,5	0,4	7
QCMX	020204	.X42	●	●		○									■				6,6	7,1	2,38	2,5	0,4	7
QCMX	030308	.X42	●	●		○									■				8,3	8,8	3,18	3,4	0,8	7
QCMX	040308	.X42	●	●		○									■				9,6	10,2	3,18	3,4	0,8	7
QCMX	050412	.X42	●	●		○									■				11,3	12,1	4,76	4,3	1,2	7
QCMX	060412	.X42	●	●		○									■				13,8	14,8	4,76	4,3	1,2	7
QCMX	080412	.X42	●	●		○									■				17,2	18,5	4,76	4,3	1,2	7
QCMX	010204	.X52	●	○	○									■					5,4	5,8	2,38	2,5	0,4	7
QCMX	020204	.X52	●	○	○									■					6,6	7,1	2,38	2,5	0,4	7
QCMX	030308	.X52	●	○	○									■					8,3	8,8	3,18	3,4	0,8	7
QCMX	040308	.X52	●	○	○									■					9,6	10,2	3,18	3,4	0,8	7
QCMX	050412	.X52	●	○	○									■					11,3	12,1	4,76	4,3	1,2	7
QCMX	060412	.X52	●	○	○									■					13,8	14,8	4,76	4,3	1,2	7
QCMX	080412	.X52	●	○	○									■					17,2	18,5	4,76	4,3	1,2	7
QCMX	010204	.X52	○		●						■								5,4	5,8	2,38	2,5	0,4	7
QCMX	020204	.X52	○		●						■								6,6	7,1	2,38	2,5	0,4	7
QCMX	030308	.X52	○		●						■								8,3	8,8	3,18	3,4	0,8	7
QCMX	040308	.X52	○		●						■								9,6	10,2	3,18	3,4	0,8	7
QCMX	050412	.X52	○		●						■								11,3	12,1	4,76	4,3	1,2	7
QCMX	060412	.X52	○		●						■								13,8	14,8	4,76	4,3	1,2	7
QCMX	080412	.X52	○		●						■								17,2	18,5	4,76	4,3	1,2	7

QCMX ... .X36 = *CONSIGLIATO PER ACCIAIO NON LEGATO* — *RECOMMENDED FOR NOT ALLOY STEEL*

QCMX ... .X42 = *CONSIGLIATO PER ACCIAIO INOX* — *RECOMMENDED FOR STAINLESS STEEL*

QCMX ... .X52 = *CONSIGLIATO PER ACCIAIO* — *RECOMMENDED FOR STEEL*

QCMX ... .X52 = *CONSIGLIATO PER GHISA* — *RECOMMENDED FOR CAST IRON*

MATERIALI - MATERIALS Pag. 1119		VDI 3323 GR.	HB Rm[1] HRC[2]	fn mm Ø15-19,5	Ø20-23	Ø23,5-29,5	Ø30-39,5	Ø40-49	Ø50-60	Vc m/min Pag. 640 T3610	T5320	T5322	T530
P	ACCIAIO NON LEGATO - NOT ALLOY STEEL	1---5	125-300	0,04-0,10	0,04-0,12	0,04-0,14	0,06-0,16	0,06-0,18	0,08-0,2			300	180
P	ACCIAIO POCO LEGATO - LOW ALLOY STEEL	6--9	180-350	0,04-0,12	0,04-0,16	0,04-0,20	0,06-0,22	0,06-0,25	0,08-0,3		280	280	170
P	ACCIAIO ALTO LEGATO - ALLOY STEEL	10-11	200-325	0,04-0,12	0,04-0,16	0,04-0,20	0,06-0,22	0,06-0,25	0,08-0,3	240	250		
P	INOX MARTENS. - STAINLESS STEEL MART	12-13	200-240	0,04-0,10	0,04-0,1	0,04-0,12	0,06-0,15	0,06-0,2	0,08-0,22	180	200		
M	INOX AUST. DUPLEX - STAINLESS STEEL AUST	14.1-14.2	180-230	0,04-0,08	0,04-0,12	0,06-0,18	0,06-0,20	0,06-0,22	0,08-0,25		140	200	120
K	GHISA GRIGIA - GREY CAST IRON	15-16	180-260	0,06-0,15	0,06-0,18	0,06-0,22	0,06-0,24	0,08-0,26	0,08-0,3	350	280		
K	GHISA SFEROIDALE - SPHEROIDAL GRAPHITE	17-18	160-250	0,06-0,15	0,06-0,18	0,06-0,22	0,06-0,24	0,08-0,26	0,08-0,3	280	240		
K	GHISA MALLEABILE - MALLEABLE CAST IRON	19-20	130-230	0,06-0,15	0,06-0,18	0,06-0,22	0,06-0,24	0,08-0,26	0,08-0,3	300	260		
N	ALLUMINIO E SUE LEGHE - ALUMINIUM	21---25	60-130	0,05-0,14	0,08-0,18	0,1-0,22	0,1-0,24	0,1-0,28	0,12-0,3			400	400
N	RAME E SUE LEGHE - COPPER	26--28	90-110	0,04-0,14	0,04-0,16	0,06-0,2	0,06-0,2	0,1-0,25	0,1-0,25			300	300
N	NON METALLICI - PLASTICS	29-30	/	0,04-0,14	0,04-0,16	0,06-0,2	0,06-0,2	0,1-0,25	0,1-0,25			300	300
S	LEGHE RESIST. CALORE - HIG. TEMP. ALLOY	31---35	200-320										
S	TITANIO E SUE LEGHE - TITANIUM	36-37	400-1050[1]										
H	ACCIAIO TEMPRATO - HARDENED STEEL	38--41	45-60[2]										

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

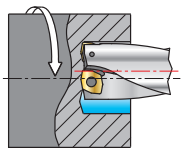
$$Vf = fn \cdot n = \text{mm/min}$$

$$n = \frac{Vc \cdot 1000}{ØD \cdot 3,14} = \text{giri/min (min}^{-1}\text{)}$$

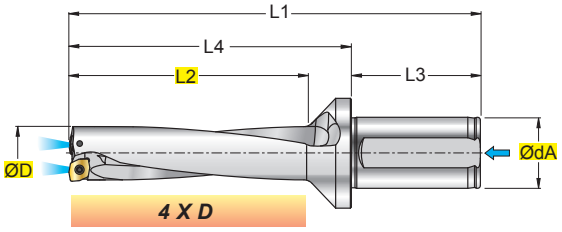
■ DISPONIBILI - IN STOCK - LIEFERBAR - DISPONIBLES / ■ NEW
●● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE
□ A RICHIESTA - ON REQUEST - AUF ANFRAGE - SUR DEMANDE / □ NEW
○○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

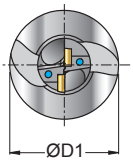
SDQ ..40 R

Ø 15-50



DISASSAMENTO TEORICO
THEORETICAL OFFSET






QCMX X36

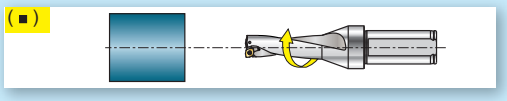

QCMX X42

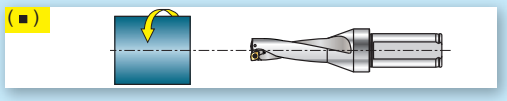

QCMX X52

INSERTI - INSERTS
PAG. 643

ART.			(mm) ØD +/-0,1	ØdA	ØD1	L1	L2	L3	L4	kg	Nm			
	SDQ 15040	R	15,0	20	32	120	65	40	80	0,20	0,9÷1,0	010204	12225P	5607P
	SDQ 15540	R	15,5	20	32	122	67	40	82	0,20	0,9÷1,0			
	SDQ 16040	R	16,0	20	32	124	69	40	84	0,20	0,9÷1,0			
	SDQ 16540	R	16,5	20	32	126	71	40	86	0,21	0,9÷1,0			
	SDQ 17040	R	17,0	20	32	128	73	40	88	0,21	0,9÷1,0			
	SDQ 17540	R	17,5	25	37	147	76	54	93	0,37	0,9÷1,0			
	SDQ 18040	R	18,0	25	37	149	78	54	95	0,38	0,9÷1,0			
	SDQ 18540	R	18,5	25	37	151	80	54	97	0,38	0,9÷1,0			
	SDQ 19040	R	19,0	25	37	153	82	54	99	0,39	0,9÷1,0			
	SDQ 19540	R	19,5	25	37	155	84	54	101	0,39	0,9÷1,0			
	SDQ 20040	R	20,0	25	37	157	86	54	103	0,39	0,9÷1,0	020204	12225P	5607P
	SDQ 20540	R	20,5	25	37	159	88	54	105	0,40	0,9÷1,0			
	SDQ 21040	R	21,0	25	37	161	90	54	107	0,41	0,9÷1,0			
	SDQ 21540	R	21,5	25	37	163	92	54	109	0,41	0,9÷1,0			
	SDQ 22040	R	22,0	25	37	165	94	54	111	0,42	0,9÷1,0			
	SDQ 22540	R	22,5	25	37	167	96	54	113	0,43	0,9÷1,0			
	SDQ 23040	R	23,0	25	37	169	98	54	115	0,44	0,9÷1,0			
	SDQ 23540	R	23,5	25	37	170	99	54	116	0,44	1,2÷1,5	030308	123008P	5608P
	SDQ 24040	R	24,0	25	37	173	102	54	119	0,45	1,2÷1,5			
	SDQ 24540	R	24,5	25	37	175	104	54	121	0,47	1,2÷1,5			
	SDQ 25040	R	25,0	32	49	184	107	58	126	0,72	1,2÷1,5			
	SDQ 25540	R	25,5	32	49	186	109	58	128	0,73	1,2÷1,5			
	SDQ 26040	R	26,0	32	49	188	111	58	130	0,74	1,2÷1,5			
	SDQ 26540	R	26,5	32	49	190	113	58	132	0,75	1,2÷1,5			
	SDQ 27040	R	27,0	32	49	192	115	58	134	0,75	1,2÷1,5			
	SDQ 27540	R	27,5	32	49	194	117	58	136	0,76	1,2÷1,5			
	SDQ 28040	R	28,0	32	49	196	119	58	138	0,77	1,2÷1,5			
	SDQ 28540	R	28,5	32	49	198	121	58	140	0,78	1,2÷1,5			
	SDQ 29040	R	29,0	32	49	200	123	58	142	0,80	1,2÷1,5			
	SDQ 29540	R	29,5	32	49	202	125	58	144	0,82	1,2÷1,5			
	SDQ 30040	R	30,0	32	49	204	127	58	146	0,82	1,2÷1,5	040308	123008P	5608P
	SDQ 31040	R	31,0	32	49	208	131	58	150	0,84	1,2÷1,5			
	SDQ 32040	R	32,0	40	59	226	136	68	158	1,33	1,2÷1,5			
	SDQ 33040	R	33,0	40	59	230	140	68	162	1,36	1,2÷1,5			
	SDQ 34040	R	34,0	40	59	234	144	68	166	1,42	1,2÷1,5			
	SDQ 35040	R	35,0	40	59	238	148	68	170	1,45	3,0÷3,5	050412	123511P	5615P
	SDQ 36040	R	36,0	40	59	242	152	68	174	1,49	3,0÷3,5			
	SDQ 37040	R	37,0	40	59	246	156	68	178	1,52	3,0÷3,5			
	SDQ 38040	R	38,0	40	59	250	160	68	182	1,57	3,0÷3,5			
	SDQ 39040	R	39,0	40	59	254	164	68	186	1,62	3,0÷3,5			
	SDQ 40040	R	40,0	40	59	258	168	68	190	1,62	3,0÷3,5	060412	123511P	5615P
	SDQ 41040	R	41,0	40	59	262	172	68	194	1,70	3,0÷3,5			
	SDQ 42040	R	42,0	40	59	266	176	68	198	1,76	3,0÷3,5			
	SDQ 43040	R	43,0	40	59	270	180	68	202	1,85	3,0÷3,5			
	SDQ 44040	R	44,0	40	59	274	184	68	206	1,90	3,0÷3,5			
	SDQ 45040	R	45,0	40	59	278	188	68	210	1,95	3,0÷3,5			
	SDQ 46040	R	46,0	40	59	290	192	68	222	2,01	3,0÷3,5			
	SDQ 47040	R	47,0	40	59	294	196	68	226	2,10	3,0÷3,5			
	SDQ 48040	R	48,0	40	59	298	200	68	230	2,18	3,0÷3,5			
	SDQ 49040	R	49,0	40	59	302	204	68	234	2,32	3,0÷3,5			
	SDQ 50040	R	50,0	40	59	306	211	68	238	2,38	3,0÷3,5	080412	123511P	5615P

4 x D





(■) LAVORAZIONE OTTIMALE - OPTIMUM MACHINING - OPTIMALE BEARBEITUNG - USINAGE OPTIMALE
(▫) LAVORAZIONE POSSIBILE - POSSIBLE MACHINING - MOEGLICHE BEARBEITUNG - USINAGE POSSIBLE

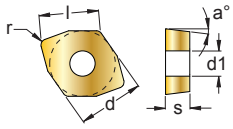
PAG. 1080

SAU QUALITY TOOLS ENGINEERING

SCELTA VELOCE - QUICK PICK

Tenacità / Toughness + -

Pag. 632



COD.			P	M	K	N	S	H	HT CERMET	HW NON RIV. CEMENTED CARBIDE GRADES	HC RIVESTITI COATED GRADES BESCHICHTET RECOUVERTS											l	d	s	d1	r	a°
											T3610			T5320	T5322	T530										
QCMX	010204	.X36	●	○		○										■						5,4	5,8	2,38	2,5	0,4	7
QCMX	020204	.X36	●	○		○										■						6,6	7,1	2,38	2,5	0,4	7
QCMX	030308	.X36	●	○		○										■						8,3	8,8	3,18	3,4	0,8	7
QCMX	040308	.X36	●	○		○										■						9,6	10,2	3,18	3,4	0,8	7
QCMX	050412	.X36	●	○		○										■						11,3	12,1	4,76	4,3	1,2	7
QCMX	060412	.X36	●	○		○										■						13,8	14,8	4,76	4,3	1,2	7
QCMX	080412	.X36	●	○		○										■						17,2	18,5	4,76	4,3	1,2	7
QCMX	010204	.X42	●	●		○									■							5,4	5,8	2,38	2,5	0,4	7
QCMX	020204	.X42	●	●		○									■							6,6	7,1	2,38	2,5	0,4	7
QCMX	030308	.X42	●	●		○									■							8,3	8,8	3,18	3,4	0,8	7
QCMX	040308	.X42	●	●		○									■							9,6	10,2	3,18	3,4	0,8	7
QCMX	050412	.X42	●	●		○									■							11,3	12,1	4,76	4,3	1,2	7
QCMX	060412	.X42	●	●		○									■							13,8	14,8	4,76	4,3	1,2	7
QCMX	080412	.X42	●	●		○									■							17,2	18,5	4,76	4,3	1,2	7
QCMX	010204	.X52	●	○	○									■								5,4	5,8	2,38	2,5	0,4	7
QCMX	020204	.X52	●	○	○									■								6,6	7,1	2,38	2,5	0,4	7
QCMX	030308	.X52	●	○	○									■								8,3	8,8	3,18	3,4	0,8	7
QCMX	040308	.X52	●	○	○									■								9,6	10,2	3,18	3,4	0,8	7
QCMX	050412	.X52	●	○	○									■								11,3	12,1	4,76	4,3	1,2	7
QCMX	060412	.X52	●	○	○									■								13,8	14,8	4,76	4,3	1,2	7
QCMX	080412	.X52	●	○	○									■								17,2	18,5	4,76	4,3	1,2	7
QCMX	010204	.X52	○		●						■											5,4	5,8	2,38	2,5	0,4	7
QCMX	020204	.X52	○		●						■											6,6	7,1	2,38	2,5	0,4	7
QCMX	030308	.X52	○		●						■											8,3	8,8	3,18	3,4	0,8	7
QCMX	040308	.X52	○		●						■											9,6	10,2	3,18	3,4	0,8	7
QCMX	050412	.X52	○		●						■											11,3	12,1	4,76	4,3	1,2	7
QCMX	060412	.X52	○		●						■											13,8	14,8	4,76	4,3	1,2	7
QCMX	080412	.X52	○		●						■											17,2	18,5	4,76	4,3	1,2	7

QCMX ... .X36 = *CONSIGLIATO PER ACCIAIO NON LEGATO* — *RECOMMENDED FOR NOT ALLOY STEEL*

QCMX ... .X42 = *CONSIGLIATO PER ACCIAIO INOX* — *RECOMMENDED FOR STAINLESS STEEL*

QCMX ... .X52 = *CONSIGLIATO PER ACCIAIO* — *RECOMMENDED FOR STEEL*

QCMX ... .X52 = *CONSIGLIATO PER GHISA* — *RECOMMENDED FOR CAST IRON*

MATERIALI - MATERIALS Pag. 1119		VDI 3323 GR.	HB Rm[1] HRC[2]	fn mm Ø15-19,5	Ø20-23	Ø23,5-29,5	Ø30-39	Ø40-49	Ø50	Vc m/min Pag. 640 T3610	T5320	T5322	T530
P	ACCIAIO NON LEGATO - NOT ALLOY STEEL	1---5	125-300	0,04-0,10	0,04-0,12	0,04-0,14	0,06-0,16	0,06-0,18	0,08-0,2			300	180
P	ACCIAIO POCO LEGATO - LOW ALLOY STEEL	6--9	180-350	0,04-0,12	0,04-0,16	0,04-0,20	0,06-0,22	0,06-0,25	0,08-0,3		280	280	170
P	ACCIAIO ALTO LEGATO - ALLOY STEEL	10-11	200-325	0,04-0,12	0,04-0,16	0,04-0,20	0,06-0,22	0,06-0,25	0,08-0,3	240	250		
P	INOX MARTENS. - STAINLESS STEEL MART	12-13	200-240	0,04-0,10	0,04-0,1	0,04-0,12	0,06-0,15	0,06-0,2	0,08-0,22	180	200		
M	INOX AUST. DUPLEX - STAINLESS STEEL AUST	14.1-14.2	180-230	0,04-0,08	0,04-0,12	0,06-0,18	0,06-0,20	0,06-0,22	0,08-0,25		140	200	120
K	GHISA GRIGIA - GREY CAST IRON	15-16	180-260	0,06-0,15	0,06-0,18	0,06-0,22	0,06-0,24	0,08-0,26	0,08-0,3	350	280		
K	GHISA SFEROIDALE - SPHEROIDAL GRAPHITE	17-18	160-250	0,06-0,15	0,06-0,18	0,06-0,22	0,06-0,24	0,08-0,26	0,08-0,3	280	240		
K	GHISA MALLEABILE - MALLEABLE CAST IRON	19-20	130-230	0,06-0,15	0,06-0,18	0,06-0,22	0,06-0,24	0,08-0,26	0,08-0,3	300	260		
N	ALLUMINIO E SUE LEGHE - ALUMINIUM	21---25	60-130	0,05-0,14	0,08-0,18	0,1-0,22	0,1-0,24	0,1-0,28	0,12-0,3			400	400
N	RAME E SUE LEGHE - COPPER	26--28	90-110	0,04-0,14	0,04-0,16	0,06-0,2	0,06-0,2	0,1-0,25	0,1-0,25			300	300
N	NON METALLICI - PLASTICS	29-30	/	0,04-0,14	0,04-0,16	0,06-0,2	0,06-0,2	0,1-0,25	0,1-0,25			300	300
S	LEGHE RESIST. CALORE - HIG. TEMP. ALLOY	31---35	200-320										
S	TITANIO E SUE LEGHE - TITANIUM	36-37	400-1050[1]										
H	ACCIAIO TEMPRATO - HARDENED STEEL	38--41	45-60[2]										

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

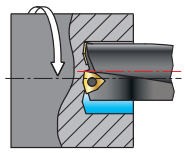
$$Vf = fn \cdot n = \text{mm/min}$$

$$n = \frac{Vc \cdot 1000}{ØD \cdot 3,14} = \text{giri/min (min}^{-1}\text{)}$$

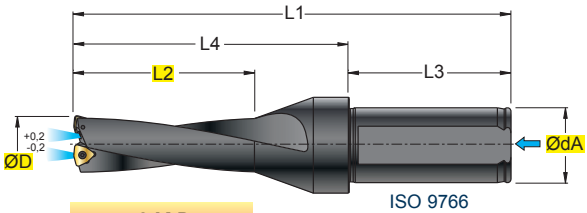
■ DISPONIBILI - IN STOCK - LIEFERBAR - DISPONIBLES / ■ NEW
●● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE
□ A RICHIESTA - ON REQUEST - AUF ANFRAGE - SUR DEMANDE / □ NEW
○○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

TDC ..30 R/L

Ø 17,5-59

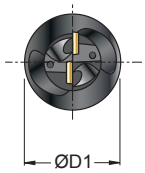


DISASSAMENTO TEORICO
THEORETICAL OFFSET



3 X D

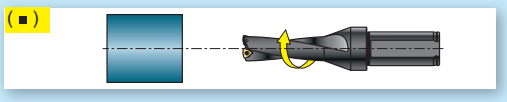
ISO 9766
COMPATIBILE-COMPATIBLE

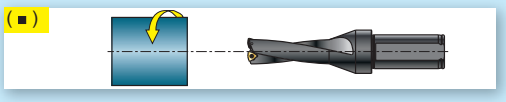


WCMX S42	
WCMX S62/.O62	

INSERTI - INSERTS
PAG. 643

	ART.		(mm) ØD +/-0,2	ØdA	ØD1	L1	L2	L3	L4	kg	Nm			
	TDC 17530	R/L	17,5	25	32	138,5	54,5	54	84,5	0,38	1,1÷1,3	030208	12256P	5608P
	TDC 18030	R/L	18	25	32	140	56	54	86	0,38	1,1÷1,3			
	TDC 18530	R/L	18,5	25	32	141,5	57,5	54	87,5	0,38	1,1÷1,3			
	TDC 19030	R/L	19	25	32	143	59	54	89	0,38	1,1÷1,3			
	TDC 19530	R/L	19,5	25	32	144,5	60,5	54	90,5	0,39	1,1÷1,3			
	TDC 20030	R/L	20	25	32	146	62	54	92	0,39	1,1÷1,3			
	TDC 20530	R/L	20,5	25	32	147,5	63,5	54	93,5	0,40	1,1÷1,3			
	TDC 21030	R/L	21	25	32	149	65	54	95	0,41	1,1÷1,3	040208	12256P	5608P
	TDC 21530	R/L	21,5	25	32	150,5	66,5	54	96,5	0,41	1,1÷1,3			
	TDC 22030	R/L	22	25	32	152	68	54	98	0,42	1,1÷1,3			
	TDC 22530	R/L	22,5	25	32	153,5	69,5	54	99,5	0,42	1,1÷1,3			
	TDC 23030	R/L	23	25	32	155	71	54	101	0,43	1,1÷1,3			
	TDC 23530	R/L	23,5	25	32	156,5	72,5	54	102,5	0,44	1,1÷1,3			
	TDC 24030	R/L	24	25	32	158	74	54	104	0,45	1,1÷1,3			
	TDC 24530	R/L	24,5	25	32	159,5	75,5	54	105,5	0,45	1,1÷1,3			
	TDC 25030	R/L	25	25	32	161	77	54	107	0,46	1,1÷1,3			
	TDC 25530	R/L	25,5	25	32	162,5	78,5	54	108,5	0,47	1,1÷1,3			
	TDC 26030	R/L	26	25	32	164	80	54	110	0,48	1,2÷1,5	050308	123008P	5608P
	TDC 26530	R/L	26,5	25	32	165,5	81,5	54	111,5	0,49	1,2÷1,5			
	TDC 27030	R/L	27	25	32	167	83	54	113	0,50	1,2÷1,5			
	TDC 28030	R/L	28	25	32	170	86	54	116	0,52	1,2÷1,5			
	TDC 29030	R/L	29	25	32	173	89	54	119	0,55	1,2÷1,5			
	TDC 30030	R/L	30	32	49	180	92	58	122	0,84	1,2÷1,5	050308	123008P	5608P
3 x D	TDC 31030	R/L	31	32	49	183	95	58	125	0,87	2,0÷3,0	06T308	123009P	5610P
	TDC 32030	R/L	32	32	49	186	98	58	128	0,88	2,0÷3,0			
	TDC 33030	R/L	33	32	49	189	101	58	131	0,91	2,0÷3,0			
	TDC 34030	R/L	34	32	49	192	104	58	134	0,95	2,0÷3,0			
	TDC 35030	R/L	35	32	49	195	107	58	137	0,98	2,0÷3,0			
	TDC 36030	R/L	36	32	49	198	110	58	140	1,02	2,0÷3,0			
	TDC 37030	R/L	37	32	49	201	113	58	143	1,06	2,0÷3,0			
	TDC 38030	R/L	38	32	49	204	116	58	146	1,09	2,0÷3,0			
	TDC 39030	R/L	39	32	49	207	119	58	149	1,13	2,0÷3,0			
	TDC 40030	R/L	40	32	49	210	122	58	152	1,18	2,0÷3,0			
	TDC 41030	R/L	41	32	49	213	125	58	155	1,23	2,0÷3,0			
	TDC 42030	R/L	42	32	49	216	128	58	158	1,27	3,8÷5,0	080412	C04011P	5615P
	TDC 43030	R/L	43	32	49	219	131	58	161	1,31	3,8÷5,0			
	TDC 44030	R/L	44	32	49	222	134	58	164	1,35	3,8÷5,0			
	TDC 45030	R/L	45	40	59	240	137	68	172	1,91	3,8÷5,0	080412	C04011P	5615P
	TDC 46030	R/L	46	40	59	243	140	68	175	1,93	3,8÷5,0			
	TDC 47030	R/L	47	40	59	246	143	68	178	2,02	3,8÷5,0			
	TDC 48030	R/L	48	40	59	249	146	68	181	2,09	3,8÷5,0			
	TDC 49030	R/L	49	40	59	252	149	68	184	2,12	3,8÷5,0			
	TDC 50030	R/L	50	40	59	255	152	68	187	2,22	3,8÷5,0			
	TDC 51030	R/L	51	40	59	258	155	68	190	2,27	3,8÷5,0			
	TDC 52030	R/L	52	40	59	261	158	68	193	2,32	3,8÷5,0			
	TDC 53030	R/L	53	40	59	264	161	68	196	2,52	3,8÷5,0			
	TDC 54030	R/L	54	40	59	267	164	68	199	2,57	3,8÷5,0			
	TDC 55030	R/L	55	40	59	270	167	68	202	2,82	3,8÷5,0			
	TDC 56030	R/L	56	40	59	273	170	68	205	2,92	3,8÷5,0			
	TDC 57030	R/L	57	40	59	276	173	68	208	3,02	3,8÷5,0			
	TDC 58030	R/L	58	40	59	279	176	68	211	3,12	3,8÷5,0			
	TDC 59030	R/L	59	40	59	282	179	68	214	3,22	3,8÷5,0			





(■) LAVORAZIONE OTTIMALE - OPTIMUM MACHINING - OPTIMALE BEARBEITUNG - USINAGE OPTIMALE
(▫) LAVORAZIONE POSSIBILE - POSSIBLE MACHINING - MOEGLICHE BEARBEITUNG - USINAGE POSSIBLE

PAG. 1080

SCELTA VELOCE - QUICK PICK

Tenacità / Toughness + -

Pag. 632

COD.			P	M	K	N	S	H	HT CERMET	HW NON RIV. CEMEN-TED CARBIDE GRADES T120	HC RIVESTITI COATED GRADES BESCHICHTET RECOUVERTS T538N	l	d	s	d1	r	a°
WCMX	030208	.S62			○	●	○			■		3,46	5,56	2,38	2,5	0,8	7°
WCMX	040208	.S62			○	●	○			■		3,99	6,35	2,38	2,8	0,8	7°
WCMX	050308	.S62			○	●	○			■		5,07	7,94	3,18	3,4	0,8	7°
WCMX	06T308	.O62			○	●	○			■		6,14	9,52	3,97	3,8	0,8	7°
WCMX	080412	.S62			○	●	○			■		8,14	12,7	4,76	4,4	1,2	7°
WCMX	030208	.S62	●	●	○						■	3,46	5,56	2,38	2,5	0,8	7°
WCMX	040208	.S62	●	●	○						■	3,99	6,35	2,38	2,8	0,8	7°
WCMX	050308	.S62	●	●	○						■	5,07	7,94	3,18	3,4	0,8	7°
WCMX	06T308	.S62	●	●	○						■	6,14	9,52	3,97	3,8	0,8	7°
WCMX	080412	.S62	●	●	○						■	8,14	12,7	4,76	4,4	1,2	7°
WCMX	040208	.S42	●	●		○	●				■	3,99	6,35	2,38	2,8	0,8	7°
WCMX	050308	.S42	●	●		○	●				■	5,07	7,94	3,18	3,4	0,8	7°
WCMX	06T308	.S42	●	●		○	●				■	6,14	9,52	3,97	3,8	0,8	7°
WCMX	080412	.S42	●	●		○	●				■	8,14	12,7	4,76	4,4	1,2	7°

WCMX .S62/O62 = ***1° SCELTA PER IMPIEGO GENERICO*** *1° CHOICE FOR GENERIC USE*

WCMX ... S42 = *CONTROLLO DEL TRUCIOLO A BASSI AVANZAMENTI* *CHIP CONTROL WITH LOW FEEDS*

MATERIALI - MATERIALS Pag. 1119		VDI 3323 GR.	HB Rm[1] HRC[2]	fn mm Ø17,5-20,5	Ø21-25,5	Ø26-30	Ø31-41	Ø42-59	Vc m/min Pag. 640 T120	T538N
P	ACCIAIO NON LEGATO - NOT ALLOY STEEL	1---5	125-300	0,04-0,12	0,06-0,14	0,10-0,18	0,12-0,2	0,12-0,20		
P	ACCIAIO POCO LEGATO - LOW ALLOY STEEL	6--9	180-350	0,04-0,12	0,06-0,14	0,10-0,18	0,12-0,2	0,12-0,20		170
P	ACCIAIO ALTO LEGATO - ALLOY STEEL	10-11	200-325	0,04-0,12	0,06-0,14	0,10-0,18	0,12-0,2	0,12-0,20		120
P	INOX MARTENS. - STAINLESS STEEL MART	12-13	200-240	0,04-0,12	0,06-0,14	0,10-0,18	0,12-0,2	0,12-0,20		170
M	INOX AUST. DUPLEX - STAINLESS STEEL AUST	14.1-14.2	180-230	0,04-0,12	0,06-0,12	0,10-0,14	0,12-0,16	0,12-0,18		120
K	GHISA GRIGIA - GREY CAST IRON	15-16	180-260	0,08-0,16	0,08-0,18	0,12-0,2	0,14-0,26	0,15-0,28	80	
K	GHISA SFEROIDALE - SPHEROIDAL GRAPHITE	17-18	160-250	0,08-0,14	0,08-0,14	0,12-0,18	0,14-0,2	0,15-0,22		
K	GHISA MALLEABILE - MALLEABLE CAST IRON	19-20	130-230	0,08-0,16	0,08-0,18	0,12-0,2	0,14-0,26	0,15-0,28		80
N	ALLUMINIO E SUE LEGHE - ALUMINIUM	21---25	60-130	0,06-0,16	0,06-0,16	0,10-0,18	0,12-0,22	0,14-0,26	350	300
N	RAME E SUE LEGHE - COPPER	26--28	90-110	0,06-0,16	0,06-0,16	0,10-0,18	0,12-0,22	0,14-0,26	200	230
N	NON METALLICI - PLASTICS	29-30	/	–	–	–	–	–		
S	LEGHE RESIST. CALORE - HIG. TEMP. ALLOY	31---35	200-320	0,04-0,08	0,04-0,08	0,06-0,1	0,08-0,12	0,09-0,14		40
S	TITANIO E SUE LEGHE - TITANIUM	36-37	400-1050[1]	0,08-0,14	0,08-0,14	0,12-0,16	0,14-0,18	0,16-0,2	80	50
H	ACCIAIO TEMPRATO - HARDENED STEEL	38--41	45-60[2]							

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

$$Vf = fn \cdot n = \text{mm/min}$$

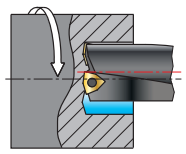
$$n = \frac{Vc \cdot 1000}{ØD \cdot 3,14} = \text{giri/min (min}^{-1}\text{)}$$

■ DISPONIBILI - IN STOCK - LIEFERBAR - DISPONIBLES / ■ NEW
●● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE
□ A RICHIESTA - ON REQUEST - AUF ANFRAGE - SUR DEMANDE / □ NEW
○○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

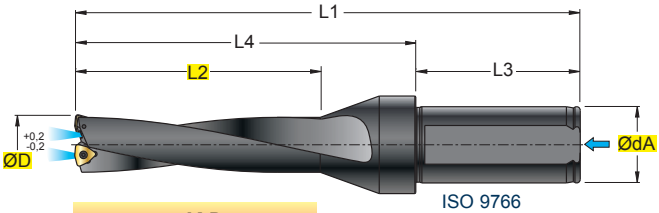
TDC ..40 R/L

Ø 17,5-50

WCMX S42	
WCMX S62/.O62	

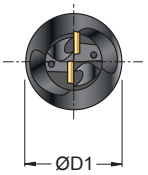


DISASSAMENTO TEORICO
THEORETICAL OFFSET



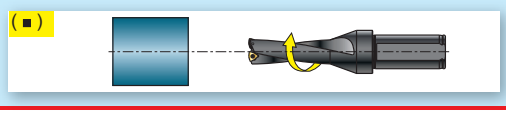
4 X D

ISO 9766
COMPATIBILE-COMPATIBLE



INSERTI - INSERTS
PAG. 643

ART.			(mm) ØD +/-0,2	ØdA	ØD1	L1	L2	L3	L4	kg	Nm			
	TDC 17540	R/L	17,5	25	32	156	72	54	102	0,41	1,1÷1,3	030208	12256P	5608P
	TDC 18040	R/L	18	25	32	158	74	54	104	0,41	1,1÷1,3			
	TDC 18540	R/L	18,5	25	32	160	76	54	106	0,42	1,1÷1,3			
	TDC 19040	R/L	19	25	32	162	78	54	108	0,42	1,1÷1,3			
	TDC 19540	R/L	19,5	25	32	164	80	54	110	0,44	1,1÷1,3			
	TDC 20040	R/L	20	25	32	166	82	54	112	0,44	1,1÷1,3			
	TDC 20540	R/L	20,5	25	32	168	84	54	114	0,45	1,1÷1,3			
	TDC 21040	R/L	21	25	32	170	86	54	116	0,45	1,1÷1,3	040208	12256P	5608P
	TDC 21540	R/L	21,5	25	32	172	88	54	118	0,47	1,1÷1,3			
	TDC 22040	R/L	22	25	32	174	90	54	120	0,47	1,1÷1,3			
	TDC 22540	R/L	22,5	25	32	176	92	54	122	0,49	1,1÷1,3			
	TDC 23040	R/L	23	25	32	178	94	54	124	0,49	1,1÷1,3			
	TDC 23540	R/L	23,5	25	32	180	96	54	126	0,49	1,1÷1,3			
	TDC 24040	R/L	24	25	32	182	98	54	128	0,49	1,1÷1,3			
	TDC 24540	R/L	24,5	25	32	184	100	54	130	0,53	1,1÷1,3			
	TDC 25040	R/L	25	25	32	186	102	54	132	0,53	1,1÷1,3			
	TDC 25540	R/L	25,5	25	32	188	104	54	134	0,55	1,1÷1,3			
	TDC 26040	R/L	26	25	32	190	106	54	136	0,55	1,2÷1,5	050308	123008P	5608P
	TDC 26540	R/L	26,5	25	32	192	108	54	138	0,57	1,2÷1,5			
	TDC 27040	R/L	27	25	32	194	110	54	140	0,57	1,2÷1,5			
4	TDC 28040	R/L	28	25	32	198	114	54	144	0,60	1,2÷1,5			
x	TDC 29040	R/L	29	25	32	202	118	54	148	0,63	1,2÷1,5			
D	TDC 30040	R/L	30	32	49	210	122	58	152	0,96	1,2÷1,5	050308	123008P	5608P
	TDC 31040	R/L	31	32	49	214	126	58	156	1,00	2,0÷3,0	06T308	123009P	5610P
	TDC 32040	R/L	32	32	49	218	130	58	160	1,02	2,0÷3,0			
	TDC 33040	R/L	33	32	49	222	134	58	164	1,06	2,0÷3,0			
	TDC 34040	R/L	34	32	49	226	138	58	168	1,10	2,0÷3,0			
	TDC 35040	R/L	35	32	49	230	142	58	172	1,15	2,0÷3,0			
	TDC 36040	R/L	36	32	49	234	146	58	176	1,19	2,0÷3,0			
	TDC 37040	R/L	37	32	49	238	150	58	180	1,24	2,0÷3,0			
	TDC 38040	R/L	38	32	49	242	154	58	184	1,30	2,0÷3,0			
	TDC 39040	R/L	39	32	49	246	158	58	188	1,35	2,0÷3,0			
	TDC 40040	R/L	40	32	49	250	162	58	192	1,41	2,0÷3,0			
	TDC 41040	R/L	41	32	49	254	166	58	196	1,47	2,0÷3,0			
	TDC 42040	R/L	42	32	49	258	170	58	200	1,54	3,8÷5,0	080412	C04011P	5615P
	TDC 43040	R/L	43	32	49	262	174	58	204	1,58	3,8÷5,0			
	TDC 44040	R/L	44	32	49	266	178	58	208	1,66	3,8÷5,0			
	TDC 45040	R/L	45	40	59	285	182	68	217	2,22	3,8÷5,0	080412	C04011P	5615P
	TDC 46040	R/L	46	40	59	289	186	68	221	2,31	3,8÷5,0			
	TDC 47040	R/L	47	40	59	293	190	68	225	2,38	3,8÷5,0			
	TDC 48040	R/L	48	40	59	297	194	68	229	2,42	3,8÷5,0			
	TDC 49040	R/L	49	40	59	301	198	68	233	2,52	3,8÷5,0			
	TDC 50040	R/L	50	40	59	305	202	68	237	2,62	3,8÷5,0			



(■) LAVORAZIONE OTTIMALE - OPTIMUM MACHINING - OPTIMALE BEARBEITUNG - USINAGE OPTIMALE
(▫) LAVORAZIONE POSSIBILE - POSSIBLE MACHINING - MOEGLICHE BEARBEITUNG - USINAGE POSSIBLE

PAG. 1080

SAU QUALITY TOOLS ENGINEERING

SCELTA VELOCE - QUICK PICK

Tenacità / Toughness + -

Pag. 632

COD.			P	M	K	N	S	H	HT CERMET	HW NON RIV. CEMENTED CARBIDE GRADES T120	HC RIVESTITI COATED GRADES BESCHICHTET RECOUVERTS T538N	l	d	s	d1	r	a°
WCMX	030208	.S62			○	●	○			■		3,46	5,56	2,38	2,5	0,8	7°
WCMX	040208	.S62			○	●	○			■		3,99	6,35	2,38	2,8	0,8	7°
WCMX	050308	.S62			○	●	○			■		5,07	7,94	3,18	3,4	0,8	7°
WCMX	06T308	.O62			○	●	○			■		6,14	9,52	3,97	3,8	0,8	7°
WCMX	080412	.S62			○	●	○			■		8,14	12,7	4,76	4,4	1,2	7°
WCMX	030208	.S62	●	●	○						■	3,46	5,56	2,38	2,5	0,8	7°
WCMX	040208	.S62	●	●	○						■	3,99	6,35	2,38	2,8	0,8	7°
WCMX	050308	.S62	●	●	○						■	5,07	7,94	3,18	3,4	0,8	7°
WCMX	06T308	.S62	●	●	○						■	6,14	9,52	3,97	3,8	0,8	7°
WCMX	080412	.S62	●	●	○						■	8,14	12,7	4,76	4,4	1,2	7°
WCMX	040208	.S42	●	●		○	●				■	3,99	6,35	2,38	2,8	0,8	7°
WCMX	050308	.S42	●	●		○	●				■	5,07	7,94	3,18	3,4	0,8	7°
WCMX	06T308	.S42	●	●		○	●				■	6,14	9,52	3,97	3,8	0,8	7°
WCMX	080412	.S42	●	●		○	●				■	8,14	12,7	4,76	4,4	1,2	7°

WCMX .S62/O62 = ***1° SCELTA PER IMPIEGO GENERICO*** *1° CHOICE FOR GENERIC USE*

WCMX ... S42 = *CONTROLLO DEL TRUCIOLO A BASSI AVANZAMENTI* *CHIP CONTROL WITH LOW FEEDS*

MATERIALI - MATERIALS Pag. 1119		VDI 3323 GR.	HB Rm[1] HRC[2]	fn mm Ø17,5-20,5	Ø21-25,5	Ø26-30	Ø31-41	Ø42-50	Vc m/min Pag. 640 T120	T538N
P	ACCIAIO NON LEGATO - NOT ALLOY STEEL	1---5	125-300	0,04-0,10	0,06-0,14	0,10-0,18	0,12-0,2	0,12-0,20		
P	ACCIAIO POCO LEGATO - LOW ALLOY STEEL	6--9	180-350	0,04-0,10	0,06-0,14	0,10-0,18	0,12-0,2	0,12-0,20		170
P	ACCIAIO ALTO LEGATO - ALLOY STEEL	10-11	200-325	0,04-0,10	0,06-0,14	0,10-0,18	0,12-0,2	0,12-0,20		120
P	INOX MARTENS. - STAINLESS STEEL MART	12-13	200-240	0,04-0,10	0,06-0,14	0,10-0,18	0,12-0,2	0,12-0,20		170
M	INOX AUST. DUPLEX - STAINLESS STEEL AUST	14.1-14.2	180-230	0,04-0,14	0,06-0,12	0,10-0,14	0,12-0,16	0,12-0,18		120
K	GHISA GRIGIA - GREY CAST IRON	15-16	180-260	0,08-0,16	0,08-0,18	0,12-0,2	0,14-0,26	0,15-0,28	80	
K	GHISA SFEROIDALE - SPHEROIDAL GRAPHITE	17-18	160-250	0,08-0,14	0,08-0,14	0,12-0,18	0,14-0,2	0,15-0,22		
K	GHISA MALLEABILE - MALLEABLE CAST IRON	19-20	130-230	0,08-0,16	0,08-0,18	0,12-0,2	0,14-0,26	0,15-0,28		80
N	ALLUMINIO E SUE LEGHE - ALUMINIUM	21---25	60-130	0,06-0,16	0,06-0,16	0,10-0,18	0,12-0,22	0,14-0,26	350	300
N	RAME E SUE LEGHE - COPPER	26--28	90-110	0,06-0,16	0,06-0,16	0,10-0,18	0,12-0,22	0,14-0,26	200	230
N	NON METALLICI - PLASTICS	29-30	/	–	–	–	–	–		
S	LEGHE RESIST. CALORE - HIG. TEMP. ALLOY	31---35	200-320	0,04-0,08	0,04-0,08	0,06-0,1	0,08-0,12	0,09-0,14		40
S	TITANIO E SUE LEGHE - TITANIUM	36-37	400-1050[1]	0,08-0,14	0,08-0,14	0,12-0,16	0,14-0,18	0,16-0,2	80	50
H	ACCIAIO TEMPRATO - HARDENED STEEL	38--41	45-60[2]							

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

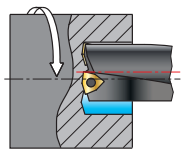
$$Vf = fn \cdot n = \text{mm/min}$$

$$n = \frac{Vc \cdot 1000}{ØD \cdot 3,14} = \text{giri/min (min}^{-1}\text{)}$$

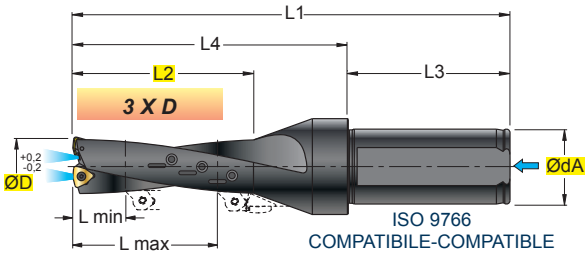
■ DISPONIBILI - IN STOCK - LIEFERBAR - DISPONIBLES / ■ NEW
●● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE
□ A RICHIESTA - ON REQUEST - AUF ANFRAGE - SUR DEMANDE / □ NEW
○○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

TDCS ..30 R

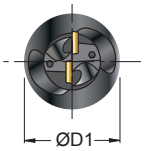
Ø 17,5-40



DISASSAMENTO TEORICO
THEORETICAL OFFSET



ISO 9766
COMPATIBILE-COMPATIBILE



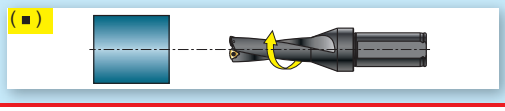
Pag. 615

WCMX S42

WCMX S62/.O62

INSERTI - INSERTS
PAG. 643

ART.		(mm) ØD +/-0,2	ØdA	ØD1	Lmin	Lmax	L1	L2	L3	L4	kg	Nm					
TDCS 17530	R	17,5	25	32	12,0	48,0	138,5	54,5	54	84,5	0,38	1,1÷1,3	030208	12256P	5608P	n°6 12404P	–
TDCS 18030	R	18,0	25	32	13,5	49,5	140,0	56,0	54	86,0	0,38	1,1÷1,3					
TDCS 18530	R	18,5	25	32	15,0	51,0	141,5	57,5	54	87,5	0,38	1,1÷1,3					
TDCS 19030	R	19,0	25	32	16,5	52,5	143,0	59,0	54	89,0	0,38	1,1÷1,3					
TDCS 19530	R	19,5	25	32	12,0	54,0	144,5	60,5	54	90,5	0,39	1,1÷1,3	030208	12256P	5608P	n°7 12404P	–
TDCS 20030	R	20,0	25	32	13,5	55,5	146,0	62,0	54	92,0	0,39	1,1÷1,3					
TDCS 20530	R	20,5	25	32	15,0	57,0	147,5	63,5	54	93,5	0,40	1,1÷1,3					
TDCS 21030	R	21,0	25	32	16,5	58,5	149,0	65,0	54	95,0	0,41	1,1÷1,3	040208	12256P	5608P	n°7 12404P	–
TDCS 21530	R	21,5	25	32	18,0	60,0	150,5	66,5	54	96,5	0,41	1,1÷1,3					
TDCS 22030	R	22,0	25	32	19,5	61,5	152,0	68,0	54	98,0	0,42	1,1÷1,3					
TDCS 22530	R	22,5	25	32	15,0	63,0	153,5	69,5	54	99,5	0,42	1,1÷1,3	040208	12256P	5608P	n°8 12404P	–
TDCS 23030	R	23,0	25	32	16,5	64,5	155,0	71,0	54	101,0	0,43	1,1÷1,3					
TDCS 23530	R	23,5	25	32	18,0	66,0	156,5	72,5	54	102,5	0,44	1,1÷1,3					
TDCS 24030	R	24,0	25	32	19,5	67,5	158,0	74,0	54	104,0	0,45	1,1÷1,3					
TDCS 24530	R	24,5	25	32	21,0	69,0	159,5	75,5	54	105,5	0,45	1,1÷1,3					
TDCS 25030	R	25,0	25	32	22,5	70,5	161,0	77,0	54	107,0	0,46	1,1÷1,3					
TDCS 25530	R	25,5	25	32	18,0	72,0	162,5	78,5	54	108,5	0,47	1,1÷1,3	040208	12256P	5608P	n°9 12404P	–
TDCS 26030	R	26,0	25	32	19,5	73,5	164,0	80,0	54	110,0	0,48	1,2÷1,5	050308	123008P	5608P	n°10 12404P	–
TDCS 26530	R	26,5	25	32	21,0	75,0	165,5	81,5	54	111,5	0,49	1,2÷1,5					
TDCS 27030	R	27,0	25	32	22,5	76,5	167,0	83,0	54	113,0	0,50	1,2÷1,5					
TDCS 27530	R	27,5	25	32	24,0	78,0	168,5	84,5	54	114,5	0,51	1,2÷1,5					
TDCS 28030	R	28,0	25	32	25,5	79,5	170,0	86,0	54	116,0	0,52	1,2÷1,5					
TDCS 28530	R	28,5	25	32	21,0	81,0	171,5	87,5	54	117,5	0,53	1,2÷1,5	050308	123008P	5608P	n°10 12404P	–
TDCS 29030	R	29,0	25	32	22,5	82,5	173,0	89,0	54	119,0	0,55	1,2÷1,5					
TDCS 29530	R	29,5	25	32	24,0	84,5	174,5	90,5	54	120,5	0,56	1,2÷1,5					
TDCS 30030	R	30,0	32	49	25,5	85,5	180,0	92,0	58	122,0	0,84	1,2÷1,5	050308	123008P	5608P	n°10 12404P	–
TDCS 30530	R	30,5	32	49	27,0	87,0	181,5	93,5	58	123,5	0,85	1,2÷1,5					
TDCS 31030	R	31,0	32	49	28,5	88,5	183,0	95,0	58	125,0	0,87	2,0÷3,0	06T308	123009P	5610P	n°10 12404P	5608P
TDCS 31530	R	31,5	32	49	24,0	90,0	184,5	96,5	58	126,5	0,87	2,0÷3,0	06T308	123009P	5610P	n°11 12404P	5608P
TDCS 32030	R	32,0	32	49	25,5	91,5	186,0	98,0	58	128,0	0,88	2,0÷3,0					
TDCS 32530	R	32,5	32	49	27,0	93,0	187,5	99,5	58	129,5	0,90	2,0÷3,0					
TDCS 33030	R	33,0	32	49	28,5	94,5	189,0	101,0	58	131,0	0,91	2,0÷3,0					
TDCS 33530	R	33,5	32	49	30,0	96,0	190,5	102,5	58	132,5	0,92	2,0÷3,0					
TDCS 34030	R	34,0	32	49	31,5	97,5	192,0	104,0	58	134,0	0,95	2,0÷3,0					
TDCS 34530	R	34,5	32	49	27,0	99,0	193,5	105,5	58	135,5	0,96	2,0÷3,0	06T308	123009P	5610P	n°12 12404P	5608P
TDCS 35030	R	35,0	32	49	28,5	100,5	195,0	107,0	58	137,0	0,98	2,0÷3,0					
TDCS 35530	R	35,5	32	49	30,0	102,0	196,5	108,5	58	138,5	1,00	2,0÷3,0					
TDCS 36030	R	36,0	32	49	31,5	103,5	198,0	110,0	58	140,0	1,02	2,0÷3,0					
TDCS 36530	R	36,5	32	49	33,0	105,0	199,5	111,5	58	141,5	1,04	2,0÷3,0					
TDCS 37030	R	37,0	32	49	34,5	106,5	201,0	113,0	58	143,0	1,06	2,0÷3,0					
TDCS 37530	R	37,5	32	49	30,0	108,0	202,5	114,5	58	144,5	1,07	2,0÷3,0	06T308	123009P	5610P	n°13 12404P	5608P
TDCS 38030	R	38,0	32	49	31,5	109,5	204,0	116,0	58	146,0	1,09	2,0÷3,0					
TDCS 38530	R	38,5	32	49	33,0	111,0	205,5	117,5	58	147,5	1,11	2,0÷3,0					
TDCS 39030	R	39,0	32	49	34,5	112,5	207,0	119,0	58	149,0	1,13	2,0÷3,0					
TDCS 39530	R	39,5	32	49	36,0	114,0	208,5	120,5	58	150,5	1,15	2,0÷3,0					
TDCS 40030	R	40,0	32	49	37,5	115,5	210,0	122,0	58	152,0	1,18	2,0÷3,0					



(■) LAVORAZIONE OTTIMALE - OPTIMUM MACHINING - OPTIMALE BEARBEITUNG - USINAGE OPTIMALE
(▫) LAVORAZIONE POSSIBILE - POSSIBLE MACHINING - MOEGLICHE BEARBEITUNG - USINAGE POSSIBLE

PAG. 1080

SAU QUALITY TOOLS ENGINEERING

SCELTA VELOCE - QUICK PICK

Tenacità / Toughness + -

Pag. 632

COD.			P	M	K	N	S	H	HT CERMET	HW NON RIV. CEMENTED CARBIDE GRADES T120	HC RIVESTITI COATED GRADES BESCHICHTET RECOUVERTS T538N	l	d	s	d1	r	a°
WCMX	030208	.S62			○	●	○			■		3,46	5,56	2,38	2,5	0,8	7°
WCMX	040208	.S62			○	●	○			■		3,99	6,35	2,38	2,8	0,8	7°
WCMX	050308	.S62			○	●	○			■		5,07	7,94	3,18	3,4	0,8	7°
WCMX	06T308	.O62			○	●	○			■		6,14	9,52	3,97	3,8	0,8	7°
WCMX	080412	.S62			○	●	○			■		8,14	12,7	4,76	4,4	1,2	7°
WCMX	030208	.S62	●	●	○						■	3,46	5,56	2,38	2,5	0,8	7°
WCMX	040208	.S62	●	●	○						■	3,99	6,35	2,38	2,8	0,8	7°
WCMX	050308	.S62	●	●	○						■	5,07	7,94	3,18	3,4	0,8	7°
WCMX	06T308	.S62	●	●	○						■	6,14	9,52	3,97	3,8	0,8	7°
WCMX	080412	.S62	●	●	○						■	8,14	12,7	4,76	4,4	1,2	7°
WCMX	040208	.S42	●	●		○	●				■	3,99	6,35	2,38	2,8	0,8	7°
WCMX	050308	.S42	●	●		○	●				■	5,07	7,94	3,18	3,4	0,8	7°
WCMX	06T308	.S42	●	●		○	●				■	6,14	9,52	3,97	3,8	0,8	7°
WCMX	080412	.S42	●	●		○	●				■	8,14	12,7	4,76	4,4	1,2	7°

WCMX.S62/O62 = 1° SCELTA PER IMPIEGO GENERICO
1°CHOICE FOR GENERIC USE

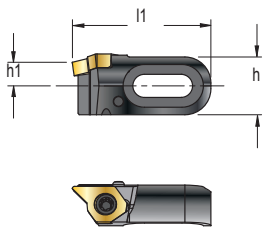
WCMX ... S42 = CONTROLLO DEL TRUCIOLO A BASSI AVANZAMENTI
CHIP CONTROL WITH LOW FEEDS

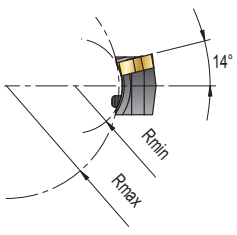
QUANDO LO SMUSSATORE "SPU 1840-07" SI AVVICINA AL MATERIALE DA LAVORARE, RIDURRE L'AVANZAMENTO DEL 50%
AS THE "SPU 1840-07" CHAMFERING TOOL APPROACHES THE WORKPIECE, REDUCE FEED BY 50%

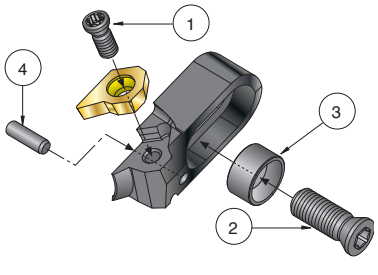
MATERIALI - MATERIALS Pag. 1119		VDI 3323 GR.	HB Rm[1] HRC[2]	fn mm Ø17,5-20,5	Ø21-25,5	Ø26-30,5	Ø31-40	Vc m/min Pag. 640 T120	T538N
P	ACCIAIO NON LEGATO - NOT ALLOY STEEL	1---5	125-300	0,04-0,12	0,06-0,14	0,10-0,18	0,12-0,2		
	ACCIAIO POCO LEGATO - LOW ALLOY STEEL	6--9	180-350	0,04-0,12	0,06-0,14	0,10-0,18	0,12-0,2		170
	ACCIAIO ALTO LEGATO - ALLOY STEEL	10-11	200-325	0,04-0,12	0,06-0,14	0,10-0,18	0,12-0,2		120
	INOX MARTENS. - STAINLESS STEEL MART	12-13	200-240	0,04-0,12	0,06-0,14	0,10-0,18	0,12-0,2		170
M	INOX AUST. DUPLEX - STAINLESS STEEL AUST	14.1-14.2	180-230	0,04-0,12	0,06-0,12	0,10-0,14	0,12-0,16		120
K	GHISA GRIGIA - GREY CAST IRON	15-16	180-260	0,08-0,16	0,08-0,18	0,12-0,2	0,14-0,26	80	
	GHISA SFEROIDALE - SPHEROIDAL GRAPHITE	17-18	160-250	0,08-0,14	0,08-0,14	0,12-0,18	0,14-0,2		
	GHISA MALLEABILE - MALLEABLE CAST IRON	19-20	130-230	0,08-0,16	0,08-0,18	0,12-0,2	0,14-0,26		80
N	ALLUMINIO E SUE LEGHE - ALUMINIUM	21---25	60-130	0,06-0,16	0,06-0,16	0,10-0,18	0,12-0,22	350	300
	RAME E SUE LEGHE - COPPER	26--28	90-110	0,06-0,16	0,06-0,16	0,10-0,18	0,12-0,22	200	230
	NON METALLICI - PLASTICS	29-30	/	–	–	–	–		
S	LEGHE RESIST. CALORE - HIG. TEMP. ALLOY	31---35	200-320	0,04-0,08	0,04-0,08	0,06-0,1	0,08-0,12		40
	TITANIO E SUE LEGHE - TITANIUM	36-37	400-1050[1]	0,08-0,14	0,08-0,14	0,12-0,16	0,14-0,18	80	50
H	ACCIAIO TEMPRATO - HARDENED STEEL	38--41	45-60[2]						

Smussatore - Chamfering tool - Werkzeug zum abschrägen -Outil à chanfreiner

SPU 1840-07







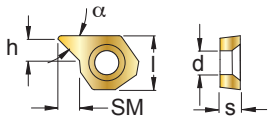
SM0702 -30	
SM0702 -45	
SM0702 -55	

INSERTI - INSERTS PAG. 644

ART.	(mm) l1	h	h1	Rman	Rmix	kg	Nm		1		2		3	
SPU 1840-07	24	10	4	19,5	8,2	0,03	1,1÷1,3	SM0702	12256P	5608P	1240P	5615P	RSPU04	2063

Inserti per Smussatore - Inserts for Chamfering tool - Wendeplatten für Werkzeug zum abschrägen - Plaquéttes pour Outil à chanfreiner

ART.	α	S	l	d	h	SM
SM 0702 - 30	30°	2,38	6,35	2,8	1,3	2,2
SM 0702 - 45	45°	2,38	6,35	2,8	2,3	2,3
SM 0702 - 55	55°	2,38	6,35	2,8	5,6	3,9



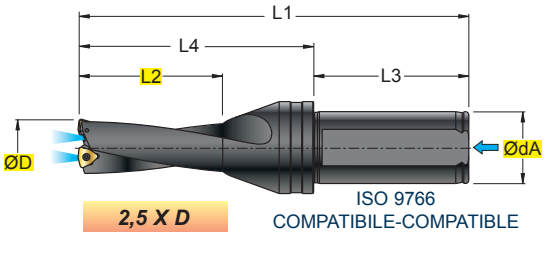
GRADO GRADE	QUICK PICK	MATERIALI-MATERIALS Pag.1119 P	M	K	N	S	H
T519D HC		●	○	●	○		

■ DISPONIBILI - IN STOCK - LIEFERBAR - DISPONIBLES / ■ NEW
●● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

□ A RICHIESTA - ON REQUEST - AUF ANFRAGE - SUR DEMANDE / □ NEW
○○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

TDBC ..25 R/L

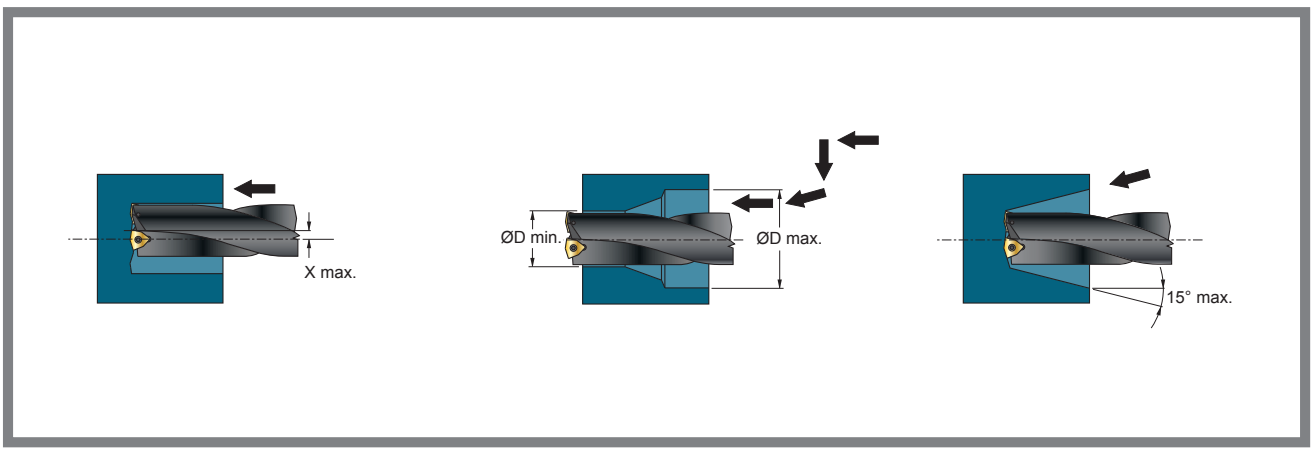
Ø 19-54

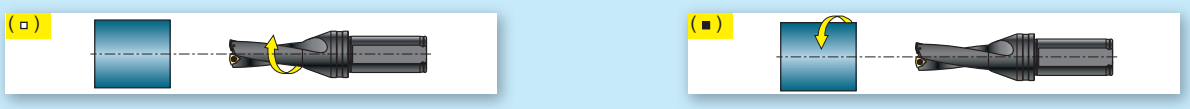


WCMX S42	
WCMX S62/.O62	

INSERTI - INSERTS
PAG. 643

ART.				(mm) ØD min-max	ØdA	ØD1	X max	L1	L2	L3	L4	kg	Nm			
2,5 x D	TDBC	19025	R/L	19-24	25	32	2,5	134	50	54	80	0,39	1,1÷1,3	040208	12256P	5608P
	TDBC	24025	R/L	24-30	25	32	3,0	146	62	54	92	0,45	1,2÷1,5	050308	123008P	5608P
	TDBC	30025	R/L	30-38	32	49	4,0	165	77	58	107	0,84	2,0÷3,0	06T308	123009P	5610P
	TDBC	38025	R/L	38-48	32	49	5,0	185	95	58	127	1,07	3,8÷5,0	080412	C04011P	5615P
	TDBC	48025	R/L	48-54	40	59	3,0	223	120	68	155	1,99	3,8÷5,0	080412	C04011P	5615P





(■) LAVORAZIONE OTTIMALE - OPTIMUM MACHINING - OPTIMALE BEARBEITUNG - USINAGE OPTIMALE
(▫) LAVORAZIONE POSSIBILE - POSSIBLE MACHINING - MOEGLICHE BEARBEITUNG - USINAGE POSSIBLE

PAG. 1080

SAU QUALITY TOOLS ENGINEERING

SCELTA VELOCE - QUICK PICK

Tenacità / Toughness + -

Pag. 632

COD.			P	M	K	N	S	H	HT CERMET	HW NON RIV. CEMENTED CARBIDE GRADES T120	HC RIVESTITI COATED GRADES BESCHICHTET RECOUVERTS T538N	l	d	s	d1	r	a°
WCMX	030208	.S62			○	●	○			■		3,46	5,56	2,38	2,5	0,8	7°
WCMX	040208	.S62			○	●	○			■		3,99	6,35	2,38	2,8	0,8	7°
WCMX	050308	.S62			○	●	○			■		5,07	7,94	3,18	3,4	0,8	7°
WCMX	06T308	.O62			○	●	○			■		6,14	9,52	3,97	3,8	0,8	7°
WCMX	080412	.S62			○	●	○			■		8,14	12,7	4,76	4,4	1,2	7°
WCMX	030208	.S62	●	●	○						■	3,46	5,56	2,38	2,5	0,8	7°
WCMX	040208	.S62	●	●	○						■	3,99	6,35	2,38	2,8	0,8	7°
WCMX	050308	.S62	●	●	○						■	5,07	7,94	3,18	3,4	0,8	7°
WCMX	06T308	.S62	●	●	○						■	6,14	9,52	3,97	3,8	0,8	7°
WCMX	080412	.S62	●	●	○						■	8,14	12,7	4,76	4,4	1,2	7°
WCMX	040208	.S42	●	●		○	●				■	3,99	6,35	2,38	2,8	0,8	7°
WCMX	050308	.S42	●	●		○	●				■	5,07	7,94	3,18	3,4	0,8	7°
WCMX	06T308	.S42	●	●		○	●				■	6,14	9,52	3,97	3,8	0,8	7°
WCMX	080412	.S42	●	●		○	●				■	8,14	12,7	4,76	4,4	1,2	7°

WCMX .S62/O62 = *1° SCELTA PER IMPIEGO GENERICO* — *1° CHOICE FOR GENERIC USE*

WCMX ... S42 = *CONTROLLO DEL TRUCIOLO A BASSI AVANZAMENTI* — *CHIP CONTROL WITH LOW FEEDS*

MATERIALI - MATERIALS Pag. 1119		VDI 3323 GR.	HB Rm[1] HRC[2]	fn mm Ø19-24	Ø24-30	Ø30-38	Ø38-48			Vc m/min Pag. 640 T120	T538N			
P	ACCIAIO NON LEGATO - NOT ALLOY STEEL	1---5	125-300	0,08	0,10	0,1	0,12							
P	ACCIAIO POCO LEGATO - LOW ALLOY STEEL	6--9	180-350	0,08	0,10	0,1	0,12				170			
P	ACCIAIO ALTO LEGATO - ALLOY STEEL	10-11	200-325	0,08	0,10	0,1	0,12				120			
P	INOX MARTENS. - STAINLESS STEEL MART	12-13	200-240	0,08	0,10	0,1	0,12				170			
M	INOX AUST. DUPLEX - STAINLESS STEEL AUST	14.1-14.2	180-230	0,08	0,10	0,1	0,11				120			
K	GHISA GRIGIA - GREY CAST IRON	15-16	180-260	0,08	0,12	0,14	0,15			80				
K	GHISA SFEROIDALE - SPHEROIDAL GRAPHITE	17-18	160-250	0,08	0,12	0,14	0,15							
K	GHISA MALLEABILE - MALLEABLE CAST IRON	19-20	130-230	0,08	0,12	0,14	0,15				80			
N	ALLUMINIO E SUE LEGHE - ALUMINIUM	21---25	60-130	0,06	0,10	0,12	0,14			350	300			
N	RAME E SUE LEGHE - COPPER	26--28	90-110	0,06	0,10	0,12	0,14			200	230			
N	NON METALLICI - PLASTICS	29-30	/	–	–	–	–							
S	LEGHE RESIST. CALORE - HIG. TEMP. ALLOY	31---35	200-320	0,04	0,06	0,08	0,09				40			
S	TITANIO E SUE LEGHE - TITANIUM	36-37	400-1050[1]	0,08	0,12	0,14	0,16			80	50			
H	ACCIAIO TEMPRATO - HARDENED STEEL	38--41	45-60[2]											

Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED

$$Vf = fn \cdot n = \text{mm/min}$$

$$n = \frac{Vc \cdot 1000}{ØD \cdot 3,14} = \text{giri/min (min}^{-1}\text{)}$$

■ DISPONIBILI - IN STOCK - LIEFERBAR - DISPONIBLES / ■ NEW
●● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE
□ A RICHIESTA - ON REQUEST - AUF ANFRAGE - SUR DEMANDE / □ NEW
○○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

SAU
QUALITY TOOLS ENGINEERING

UTENSILI PER LAVORAZIONE FORI
TOOLS FOR MACHINING BORES
WERKZEUGE ZUR BEARBEITUNG VON BOHRUNGEN
OUTILS POUR USINAGE TROUS
HERRAMIENTAS PARA TRABAJO DE LOS AGUJEROS

S656 — Pag. 620

S656W ..

ØD = 11 - 50

XCNT / XCET: 0401.. 0502.. 0602.. 0703.. 0803.. 09T3.. 10T3.. 1304.. 1705..

S636 — Pag. 624

S636W .. 06

ØD = 9,8 - 31,8

CC.. 060202

SMT ... R/L — Pag. 628

SMT ... R/L ..

ØD = 8 - 26

XCHX: 0401 05T1 0602 0703 0903 10T3 1305

S659 — Pag. 621

S659W ..

ØD = 11 - 30

XCNT / XCET: 0401.. 0502.. 0602.. 0703.. 0803.. 09T3.. 10T3..

S646 — Pag. 625

S646W .. 05

ØD = 15 - 32

CC.. 0602..

S626 — Pag. 630

S626 ..

ØD = 10 - 33

CC.. 0602.. 09T3..

S662W — Pag. 622

S662W ..

ØD = 18 - 33

CC.. 0602.. 09T3..

SMU.C...10W — Pag. 626

SMU.C... 10W

SMU45.. 10T2..

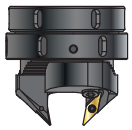
S663W — Pag. 623

S663W ..

ØD = 15 - 31

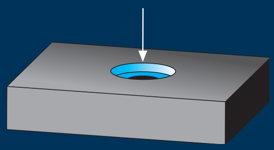
TC.. 0802 1102

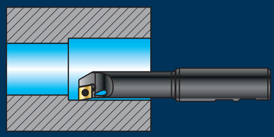
SMU.ER...10 — Pag. 627

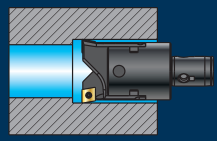


SMU.ER... 10

SMU45.. 10T2..



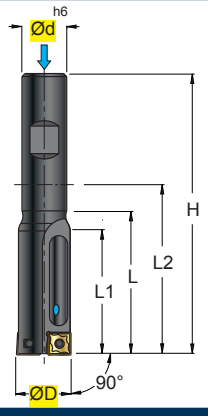


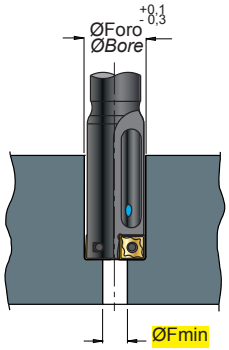


Bareno a 2 tagli per lamatura-allargatura
Spot-facing and widening boring bar with 2 cutting edges
2 Schneiden-bohrstange zum ansenken und aufbohren
Barre à aléser avec 2 tranchants pour lamage et élargissement

S 656W ..

Ø 11-50





XCET N57P	 NEW
XCET N53	 NEW
XCNT N54	

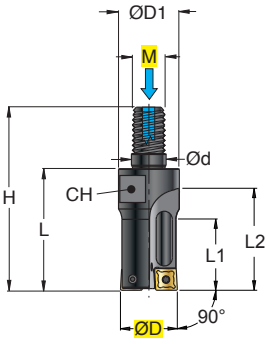
INSERTI - INSERTS
PAG. 667

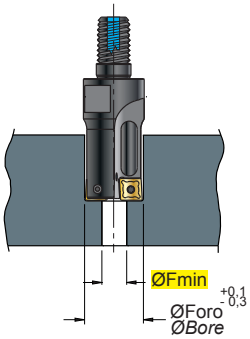
ART.		(mm) ØD	Ød	ØFmin	H	L	L1	L2	Z	kg	Nm				
S 656W	011.04	11	16	3,0	99	29	22	51	2	0,11	0,4÷0,5	M6	0401..	121837P	5506P
S 656W	011,5.04	11,5	16	3,5	99	29	22	51	2	0,11	0,4÷0,5				
S 656W	012.04	12	16	4,0	101	31	24	53	2	0,11	0,4÷0,5				
S 656W	012,5.04	12,5	16	4,5	101	31	24	53	2	0,11	0,4÷0,5				
S 656W	013.04	13	16	5,0	105	35	26	57	2	0,12	0,4÷0,5				
S 656W	013,5.04	13,5	16	5,5	105	35	26	57	2	0,12	0,4÷0,5				
S 656W	014.05	14	16	3,4	86	36,5	28	38	2	0,09	0,5÷0,6	M8	0502..	12204P	5506P
S 656W	014,5.05	14,5	16	3,9	86	36,5	28	38	2	0,09	0,5÷0,6				
S 656W	015.05	15	16	4,5	88	38	30	40	2	0,10	0,5÷0,6				
S 656W	015,5.05	15,5	16	5,0	88	38	30	40	2	0,10	0,5÷0,6				
S 656W	016.06	16	16	4,1	92	42	32	44	2	0,10	0,9÷1,0		0602..	12225P	5507P
S 656W	016,5.06	16,5	16	4,6	92	42	32	44	2	0,10	0,9÷1,0				
S 656W	017.06	17	16	5,1	94	44	35	46	2	0,11	0,9÷1,0				
S 656W	017,5.07	17,5	16	3,4	96	46	35	48	2	0,11	1,0÷1,2	M10	0703..	1225	5507
S 656W	018.07	18	16	3,9	97	48	36	49	2	0,11	1,0÷1,2				
S 656W	018,5.07	18,5	16	4,4	97	48	36	49	2	0,11	1,0÷1,2				
S 656W	019.07	19	16	4,9	100	50	38	52	2	0,12	1,0÷1,2				
S 656W	019,5.07	19,5	16	5,4	100	50	38	52	2	0,12	1,0÷1,2				
S 656W	020.08	20	16	4,2	102	52	40	54	2	0,13	1,2÷1,5	M12	0803..	123008P	5508P
S 656W	020,5.08	20,5	16	4,7	102	52	40	54	2	0,13	1,2÷1,5				
S 656W	021.08	21	20	5,2	114	54	42	64	2	0,20	1,2÷1,5				
S 656W	021,5.08	21,5	20	5,7	114	54	42	64	2	0,20	1,2÷1,5				
S 656W	022.09	22	20	4,0	116	56	44	66	2	0,20	1,2÷1,5		09T3..	123008P	5508P
S 656W	022,5.09	22,5	20	4,5	116	56	44	66	2	0,20	1,2÷1,5				
S 656W	023.09	23	20	5,0	119	59	46	69	2	0,22	1,2÷1,5	M14			
S 656W	023,5.09	23,5	20	5,5	119	59	46	69	2	0,22	1,2÷1,5				
S 656W	024.10	24	20	4,0	122	62	48	72	2	0,22	3,0÷3,5		10T3..	123509P	5515P
S 656W	024,5.10	24,5	20	4,5	122	62	48	72	2	0,22	3,0÷3,5				
S 656W	025.10	25	20	5,0	125	65	50	75	2	0,24	3,0÷3,5				
S 656W	025,5.10	25,5	20	5,5	125	65	50	75	2	0,24	3,0÷3,5				
S 656W	026.10	26	25	6,0	136	66	52	80	2	0,37	3,0÷3,5	M16			
S 656W	026,5.10	26,5	25	6,5	136	66	52	80	2	0,37	3,0÷3,5				
S 656W	027.10	27	25	7,0	139	69	54	83	2	0,40	3,0÷3,5				
S 656W	027,5.10	27,5	25	7,5	139	69	54	83	2	0,40	3,0÷3,5				
S 656W	028.10	28	25	8,0	142	72	56	86	2	0,42	3,0÷3,5				
S 656W	028,5.10	28,5	25	8,5	142	72	56	86	2	0,42	3,0÷3,5				
S 656W	029.10	29	25	9,0	144	74	58	88	2	0,46	3,0÷3,5	M18			
S 656W	029,5.10	29,5	25	9,5	144	74	58	88	2	0,46	3,0÷3,5				
S 656W	030.10	30	25	10,0	146	76	58	90	2	0,48	3,0÷3,5				
S 656W	030,5.10	30,5	25	10,5	146	76	58	90	2	0,48	3,0÷3,5				
S 656W	031.13	31	25	5,3	149	79	62	93	2	0,46	4,0÷5,0		1304..	124510P	5520P
S 656W	031,5.13	31,5	25	5,8	149	79	62	93	2	0,46	4,0÷5,0				
S 656W	032.13	32	25	6,3	152	82	64	96	2	0,49	4,0÷5,0	M20			
S 656W	032,5.13	32,5	25	6,8	152	82	64	96	2	0,49	4,0÷5,0				
S 656W	033.13	33	32	7,2	163	83	66	103	2	0,74	4,0÷5,0				
S 656W	033,5.13	33,5	32	7,7	163	83	66	103	2	0,74	4,0÷5,0				
S 656W	034.13	34	32	8,2	167	87	68	107	2	0,78	4,0÷5,0				
S 656W	034,5.13	34,5	32	8,7	167	87	68	107	2	0,78	4,0÷5,0				
S 656W	035.13	35	32	9,2	169	89	70	109	2	0,85	4,0÷5,0	M22			
S 656W	035,5.13	35,5	32	9,7	169	89	70	109	2	0,85	4,0÷5,0				
S 656W	036.13	36	32	10,2	169	89	70	109	2	0,85	4,0÷5,0				
S 656W	036,5.13	36,5	32	10,7	169	89	70	109	2	0,85	4,0÷5,0				
S 656W	037.13	37	32	11,2	169	89	70	109	2	0,88	4,0÷5,0				
S 656W	037,5.13	37,5	32	11,7	169	89	70	109	2	0,88	4,0÷5,0				
S 656W	038.13	38	32	12,2	170	90	70	110	2	0,91	4,0÷5,0				
S 656W	038,5.13	38,5	32	12,7	170	90	70	110	2	0,91	4,0÷5,0				
S 656W	039.17	39	32	6,2	171	91	70	111	2	0,84	4,0÷5,0	M24	1705..	124510P	5520P
S 656W	039,5.17	39,5	32	6,7	171	91	70	111	2	0,84	4,0÷5,0				
S 656W	040.17	40	32	7,2	172	92	70	112	2	0,88	4,0÷5,0				
S 656W	040,5.17	40,5	32	7,7	172	92	70	112	2	0,88	4,0÷5,0				
S 656W	041.17	41	32	8,2	173	93	70	113	2	0,92	4,0÷5,0				
S 656W	041,5.17	41,5	32	8,7	173	93	70	113	2	0,92	4,0÷5,0				
S 656W	042.17	42	32	9,2	174	94	70	114	2	0,96	4,0÷5,0				
S 656W	042,5.17	42,5	32	9,7	174	94	70	114	2	0,96	4,0÷5,0				
S 656W	043.17	43	32	10,2	186	106	80	126	2	1,06	4,0÷5,0	M27			
S 656W	043,5.17	43,5	32	10,7	186	106	80	126	2	1,06	4,0÷5,0				
S 656W	044.17	44	32	11,2	186	106	80	126	2	1,10	4,0÷5,0				
S 656W	044,5.17	44,5	32	11,7	186	106	80	126	2	1,10	4,0÷5,0				
S 656W	045.17	45	32	12,2	187	107	80	127	2	1,15	4,0÷5,0				
S 656W	045,5.17	45,5	32	12,7	187	107	80	127	2	1,15	4,0÷5,0				
S 656W	046.17	46	32	13,2	187	107	80	127	2	1,19	4,0÷5,0				
S 656W	046,5.17	46,5	32	13,7	187	107	80	127	2	1,19	4,0÷5,0				
S 656W	047.17	47	32	14,2	187	107	80	127	2	1,24	4,0÷5,0				
S 656W	047,5.17	47,5	32	14,7	187	107	80	127	2	1,24	4,0÷5,0				
S 656W	048.17	48	32	15,2	188	108	80	128	2	1,30	4,0÷5,0	M30			
S 656W	048,5.17	48,5	32	15,7	188	108	80	128	2	1,30	4,0÷5,0				
S 656W	049.17	49	32	16,2	188	108	80	128	2	1,34	4,0÷5,0				
S 656W	049,5.17	49,5	32	16,7	188	108	80	128	2	1,34	4,0÷5,0				
S 656W	050.17	50,0	32	17,2	188	108	80	128	2	1,39	4,0÷5,0				

ØF min = DIAMETRO MINIMO DI PREFORO, DA UTILIZZARE SOLAMENTE IN CASO DI NECESSITÀ
ØF min = MINIMUM PRE-BORE DIAMETER, TO BE USED ONLY IN CASE OF NEED

S 659W ..

Ø 11-30

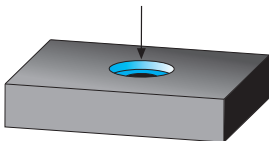


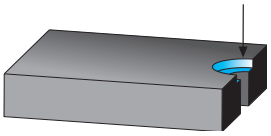


XCET N57P	
XCET N53	
XCNT N54	

INSERTI - INSERTS
PAG. 667

ART.		(mm) ØD	M	Ød	ØFmin	ØD1	H	L	L1	L2	Z	CH	kg	Nm				
S 659W	011-04	11	8	8,5	3,0	13	43	26	15,0	22	2	10	0,02	0,4÷0,5	M6	0401..	121837P	5506P
S 659W	012-04	12	8	8,5	4,0	13	44	27	16,0	23	2	10	0,02	0,4÷0,5				
S 659W	013-04	13	8	8,5	5,0	13	45	28	17,0	24	2	10	0,03	0,4÷0,5				
S 659W	014-05	14	10	10,5	3,4	18	52	33	18,6	27	2	15	0,04	0,5÷0,6	M8	0502..	12204P	5506P
S 659W	015-05	15	10	10,5	4,5	18	53	34	19,6	28	2	15	0,05	0,5÷0,6				
S 659W	016-06	16	10	10,5	4,1	18	54	35	20,0	29	2	15	0,05	0,9÷1,0		0602..	12225P	5507P
S 659W	017-06	17	10	10,5	5,1	18	55	36	21,0	30	2	15	0,05	0,9÷1,0				
S 659W	018-07	18	12	12,5	3,9	21	60	38	23,0	33	2	17	0,06	1,0÷1,2	M10	0703..	1225	5507
S 659W	019-07	19	12	12,5	4,9	21	61	39	24,0	34	2	17	0,07	1,0÷1,2				
S 659W	020-08	20	12	12,5	4,2	21	62	40	25,0	36	2	17	0,07	1,2÷1,5	M12	0803..	123008P	5508P
S 659W	021-08	21	12	12,5	5,2	21	63	41	26,0	37	2	17	0,08	1,2÷1,5				
S 659W	022-09	22	16	17,0	4,0	29	71	47	28,0	41	2	24	0,13	1,2÷1,5		09T3..	123008P	5508P
S 659W	023-09	23	16	17,0	5,0	29	72	48	29,0	42	2	24	0,14	1,2÷1,5	M14			
S 659W	024-10	24	16	17,0	4,0	29	74	50	30,0	44	2	24	0,14	3,0÷3,5		10T3..	123509P	5515P
S 659W	025-10	25	16	17,0	5,0	29	75	51	31,0	45	2	24	0,15	3,0÷3,5				
S 659W	026-10	26	16	17,0	6,0	29	76	52	32,0	46	2	24	0,16	3,0÷3,5	M16			
S 659W	027-10	27	16	17,0	7,0	29	77	53	33,0	47	2	24	0,17	3,0÷3,5				
S 659W	028-10	28	16	17,0	8,0	29	78	54	34,0	48	2	24	0,19	3,0÷3,5				
S 659W	029-10	29	16	17,0	9,0	29	79	55	35,0	49	2	24	0,21	3,0÷3,5	M18			
S 659W	030-10	30	16	17,0	10,0	29	80	56	36,0	50	2	24	0,22	3,0÷3,5				





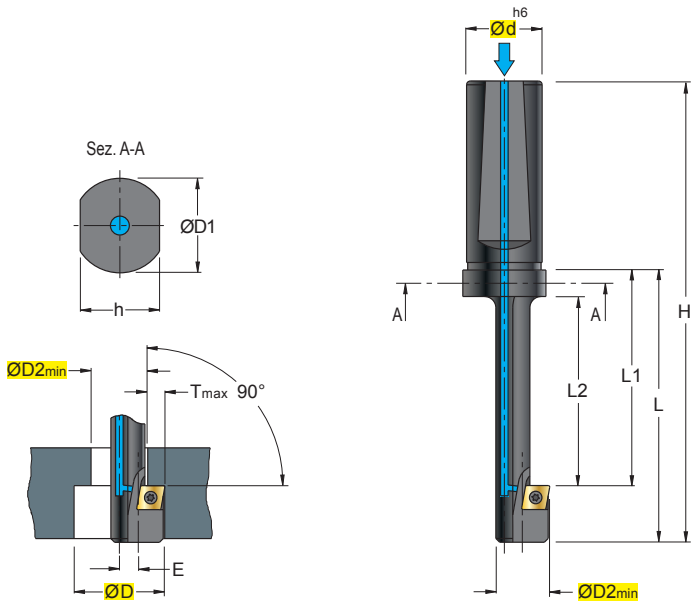
W = FORO PER LIQUIDO REFRIGERANTE - COOLANT BORE - KÜHLMITTELBOHRUNG - TROU DU LIQUIDE D'ARROSAGE

ØF min = DIAMETRO MINIMO DI PREFORO, DA UTILIZZARE SOLAMENTE IN CASO DI NECESSITÀ
ØF min = MINIMUM PRE-BORE DIAMETER, TO BE USED ONLY IN CASE OF NEED

S 662W ..

Ø 18-33

(ATTACCO/SHANK) WHISTLE-NOTCH - DIN1835E



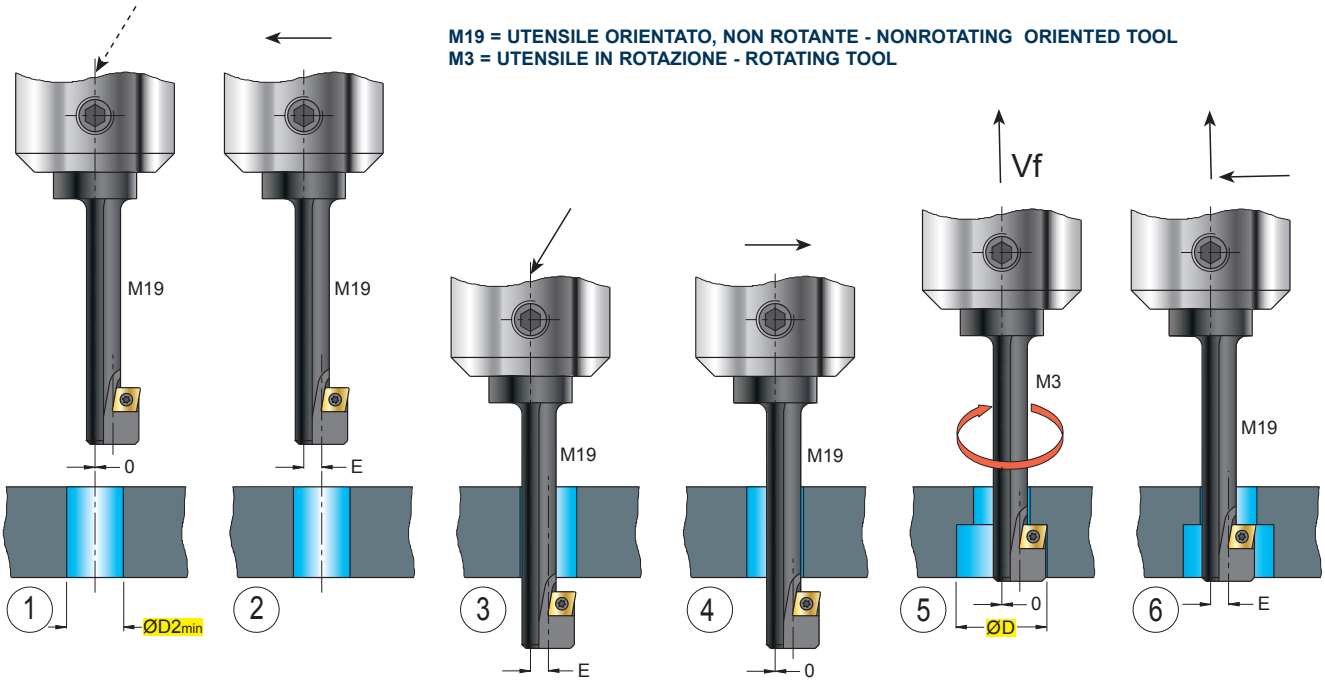
CC.. 0602	
CC.. 09T3	

INSERTI - INSERTS
PAG. 665

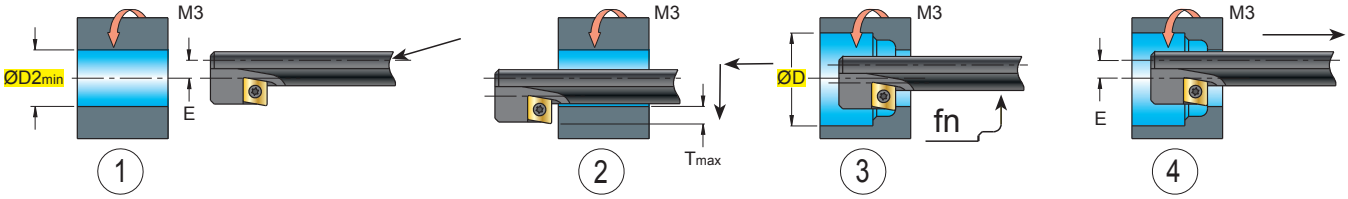
(mm)

ART.		ØD	ØD2min	ØD1	Ød	Tmax	E	H	L	L1	L2	h	kg	Nm				
S 662	018-06 (*)	18	10,5	25	20	3,8	4,0	112	62	47	40	20,5	0,14	1,0÷1,2	M10	060204	12253	5607
S 662W	020-06	20	13,0	25	20	3,5	3,75	117	67	52	45	20,5	0,15	1,1÷1,3	M12	060204	12256CP	5608P
S 662W	024-06	24	15,0	25	20	4,5	4,75	122	72	57	50	20,5	0,16	1,1÷1,3	M14	060204	12256P	5608P
S 662W	026-06	26	17,0	25	20	4,5	5,0	132	82	67	60	20,5	0,19	1,1÷1,3	M16			
S 662W	030-06	30	19,0	25	20	5,5	6,0	142	92	72	65	20,5	0,22	1,1÷1,3	M18			
S 662W	033-09	33	21,0	25	20	6,0	6,6	152	102	82	75	20,5	0,25	3,8÷5,0	M20	09T308	C04008P	5615P

M19 = UTENSILE ORIENTATO, NON ROTANTE - NONROTATING ORIENTED TOOL
M3 = UTENSILE IN ROTAZIONE - ROTATING TOOL



M3 = PEZZO IN ROTAZIONE - ROTATING WORK PIECE

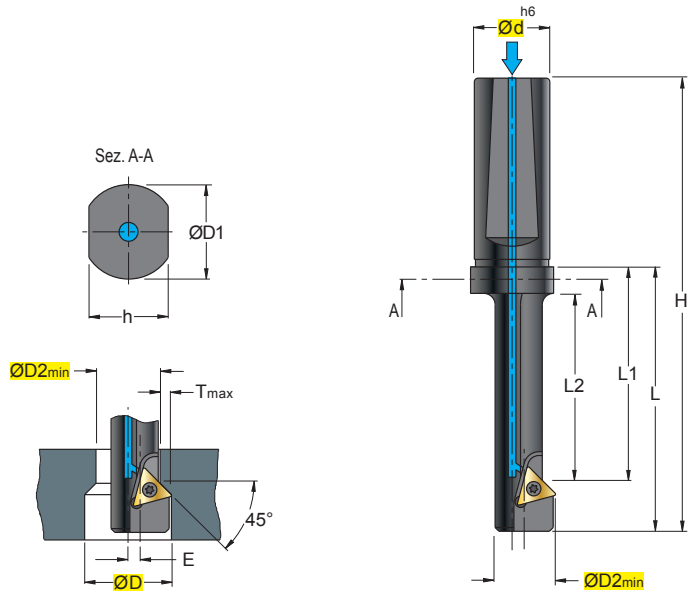


W = FORO PER LIQUIDO REFRIGERANTE - COOLANT BORE - KÜHLMITTELBOHRUNG - TROU DU LIQUIDE D'ARROSAGE
(*) = SENZA FORO REFRIGERANTE - WITHOUT COOLANT BORE - OHNE KÜHLMITTELBOHRUNG - SANS TROU RÉFRIGÉRANT

S 663W ..

Ø 15-31

(ATTACCO/SHANK) WHISTLE-NOTCH - DIN1835E



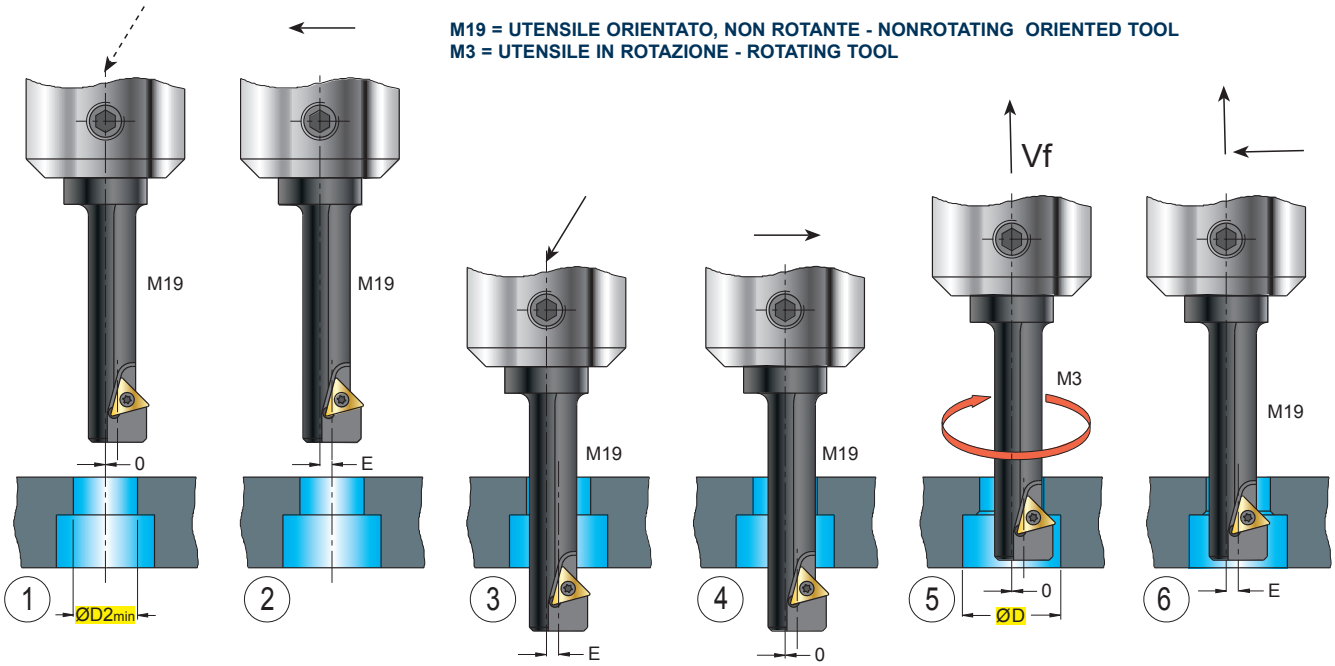
TC.. 0802	
TC.. 1102	

INSERTI - INSERTS
PAG. 666

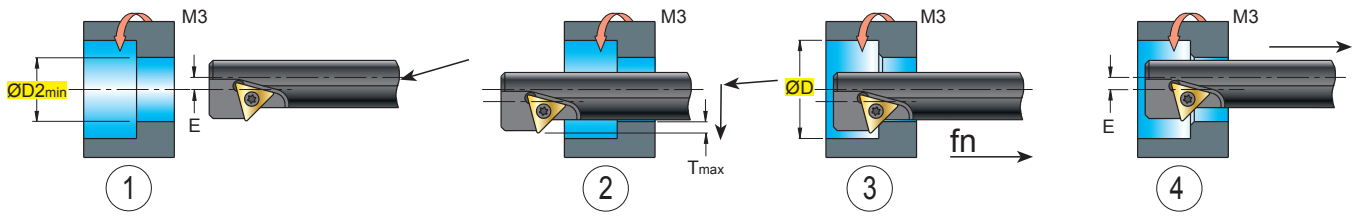
(mm)

ART.		ØD	ØD2min	ØD1	Ød	Tmax	E	H	L	L1	L2	h	kg	Nm			
S 663	015-08 (*)	15	10,0	25	20	2,5	2,7	105	55	42	35	20,5	0,13	0,9÷1,0	080204	12225P	5607P
S 663W	020-08	20	14,0	25	20	3,0	3,2	110	60	47	40	20,5	0,15	0,9÷1,0			
S 663W	023-11	23	17,0	25	20	3,0	3,2	120	70	57	50	20,5	0,18	1,1÷1,3	110204	12256P	5608P
S 663W	027-11	27	21,0	25	20	3,0	3,2	140	90	77	70	20,5	0,27	1,1÷1,3			
S 663W	031-11	31	24,0	25	20	3,5	3,7	150	100	87	80	20,5	0,34	1,1÷1,3			

M19 = UTENSILE ORIENTATO, NON ROTANTE - NONROTATING ORIENTED TOOL
M3 = UTENSILE IN ROTAZIONE - ROTATING TOOL



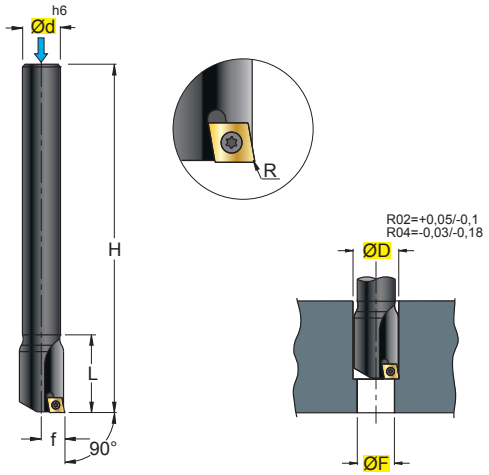
M3 = PEZZO IN ROTAZIONE - ROTATING WORK PIECE



W = FORO PER LIQUIDO REFRIGERANTE - COOLANT BORE - KÜHLMITTELBOHRUNG - TROU DU LIQUIDE D'ARROSAGE
(*) = SENZA FORO REFRIGERANTE - WITHOUT COOLANT BORE - OHNE KÜHLMITTELBOHRUNG - SANS TROU RÉFRIGÉRANT

S 636W .. 06

Ø 9,8-31,8

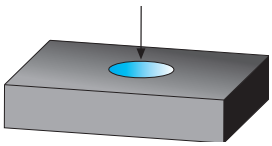


CCET 0602 .B22	
CCGT 0602 .G13	
CCGT 0602 .G57P	
CCGW 0602 .X47	 NEW
CCMT 0602 .G39	
CCMT 0602 .G42	
CCMT 0602 .G52	

INSERTI - INSERTS
PAG. 665

ART.		(mm) ØD	Ød	ØF	f	H	L	Z	kg	Nm			
S 636W	09.8-06	9,8	8	4,5	4,9	85	23	1	0,03	1,0÷1,2	0602	12254P	5607P
S 636W	10.8-06	10,8	10	3,5	5,4	95	24	1	0,05	1,0÷1,2			
S 636W	11.8-06	11,8	10	3,0	5,9	100	25	1	0,05	1,0÷1,2			
S 636W	12.8-06	12,8	10	2,5	6,4	105	26	1	0,06	1,0÷1,2			
S 636W	13.8-06	13,8	10	3,0	6,9	110	27	1	0,06	1,0÷1,2			
S 636W	14.8-06	14,8	12	3,5	7,4	120	28	1	0,10	1,0÷1,2			
S 636W	15.8-06	15,8	12	4,0	7,9	125	29	1	0,11	1,1÷1,3	0602	12256P	5608P
S 636W	16.8-06	16,8	16	5,0	8,4	133	30	1	0,20	1,1÷1,3			
S 636W	17.8-06	17,8	16	6,0	8,9	138	31	1	0,21	1,1÷1,3			
S 636W	18.8-06	18,8	16	7,0	9,4	143	32	1	0,22	1,1÷1,3			
S 636W	19.8-06	19,8	16	8,0	9,9	148	33	1	0,24	1,1÷1,3			
S 636W	20.8-06	20,8	16	9,0	10,4	154	34	1	0,25	1,1÷1,3			
S 636W	21.8-06	21,8	16	10,0	10,9	158	35	1	0,27	1,1÷1,3			
S 636W	22.8-06	22,8	20	11,0	11,4	165	36	1	0,40	1,1÷1,3			
S 636W	23.8-06	23,8	20	12,0	11,9	170	37	1	0,42	1,1÷1,3			
S 636W	24.8-06	24,8	20	13,0	12,4	175	38	1	0,44	1,1÷1,3			
S 636W	25.8-06	25,8	20	14,0	12,9	180	39	1	0,46	1,1÷1,3			
S 636W	26.8-06	26,8	20	15,0	13,4	185	40	1	0,48	1,1÷1,3			
S 636W	27.8-06	27,8	20	16,0	13,9	190	41	1	0,50	1,1÷1,3			
S 636W	28.8-06	28,8	20	17,0	14,4	195	42	1	0,52	1,1÷1,3			
S 636W	29.8-06	29,8	20	18,0	14,9	195	43	1	0,53	1,1÷1,3			
S 636W	30.8-06	30,8	25	19,0	15,4	195	44	1	0,55	1,1÷1,3			
S 636W	31.8-06	31,8	25	20,0	15,9	195	45	1	0,77	1,1÷1,3			

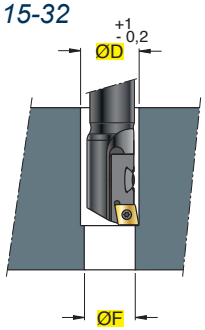
- PREFORO MINIMO POSSIBILE, INDICAZIONE PURAMENTE TEORICA, NON CONSIGLIATO
- MINIMUM POSSIBLE PRE-HOLE , MERELY THEORETICAL INDICATION, NOT RECOMMENDED
- KLEINSTMÖGLICHE VORBOHRUNG , REIN THEORETISCHE ANGABE , NICHT EMPFOHLEN
- PRE-TROU MINIMUM , INDICATION SEULEMENT THÉORIQUE , PAS CONSEILLÈE

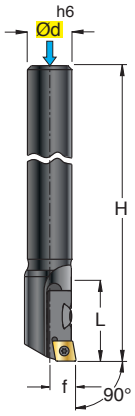


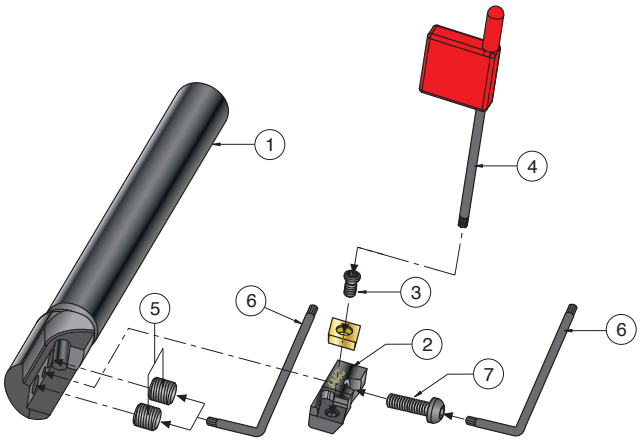
W = FORO PER LIQUIDO REFRIGERANTE - COOLANT BORE - KÜHLMITTELBOHRUNG - TROU DU LIQUIDE D'ARROSAGE

S 646W .. 06

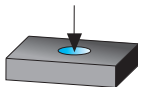
Ø 15-32







CC.. 0602..




.B22


.G13


.G57P

NEW

.X47


.G39

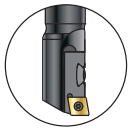

.G42

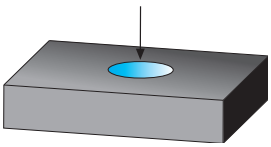

.G52


INSERTI - INSERTS
PAG. 665

ART.		(mm) ØD	Ød	ØF	f	H	L	Z	kg		①	②	③	④	⑤	⑥	⑦
S 646W	15.0 - 06	15	12	9	7,4	120	28	1	0,09	0602	645	644-06	12256CP	5508P	GR505FP	5409	1803N
S 646W	16.0 - 06	16	12	10	7,9	125	29	1	0,09								
S 646W	17.0 - 06	17	16	11	8,4	133	30	1	0,13								
S 646W	18.0 - 06	18	16	12	8,9	138	31	1	0,14								
S 646W	19.0 - 06	19	16	13	9,4	143	32	1	0,14								
S 646W	20.0 - 06	20	16	14	9,9	148	33	1	0,21								
S 646W	21.0 - 06	21	16	15	10,4	154	34	1	0,23								
S 646W	22.0 - 06	22	16	16	10,9	158	35	1	0,24								
S 646W	23.0 - 06	23	20	17	11,4	165	36	1	0,37								
S 646W	24.0 - 06	24	20	18	11,9	170	37	1	0,38								
S 646W	25.0 - 06	25	20	19	12,4	175	38	1	0,40								
S 646W	26.0 - 06	26	20	20	12,9	180	39	1	0,41								
S 646W	27.0 - 06	27	20	21	13,4	185	40	1	0,42								
S 646W	28.0 - 06	28	20	22	13,9	190	41	1	0,43								
S 646W	29.0 - 06	29	20	23	14,4	195	42	1	0,44								
S 646W	30.0 - 06	30	20	24	14,9	195	43	1	0,45								
S 646W	31.0 - 06	31	25	25	15,4	195	44	1	0,46								
S 646W	32.0 - 06	32	25	26	15,9	195	45	1	0,47								

- PREFORO MINIMO POSSIBILE, INDICAZIONE PURAMENTE TEORICA, NON CONSIGLIATO
- MINIMUM POSSIBLE PRE-HOLE, MERELY THEORETICAL INDICATION, NOT RECOMMENDED
- KLEINSTMÖGLICHE VORBOHRUNG , REIN THEORETISCHE ANGABE , NICHT EMPFOHLEN
- PRE-TROU MINIMUM , INDICATION SEULEMENT THÉORIQUE , PAS CONSEILLÈE





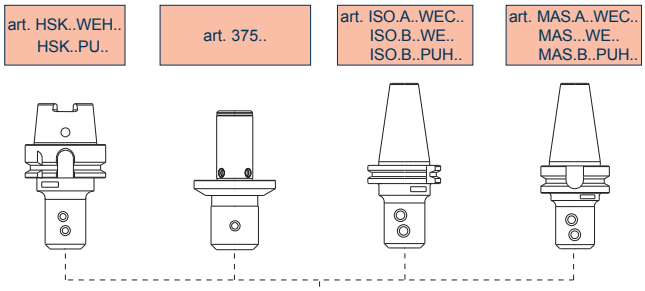
W = FORO PER LIQUIDO REFRIGERANTE - COOLANT BORE - KÜHLMITTELBOHRUNG - TROU DU LIQUIDE D'ARROSAGE

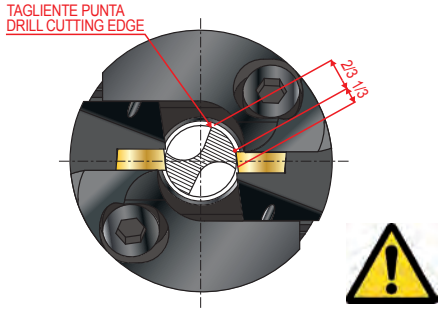
ØF = DIAMETRO MINIMO DI PREFORO, DA UTILIZZARE SOLAMENTE IN CASO DI NECESSITÀ. PREFORO CONSIGLIATO ØD -0,5÷1mm.
ØF = MINIMUM PRE-BORE DIAMETER, TO BE USED ONLY IN CASE OF NEED. RECOMMENDED PRE-BORE ØD -0,5÷1mm.

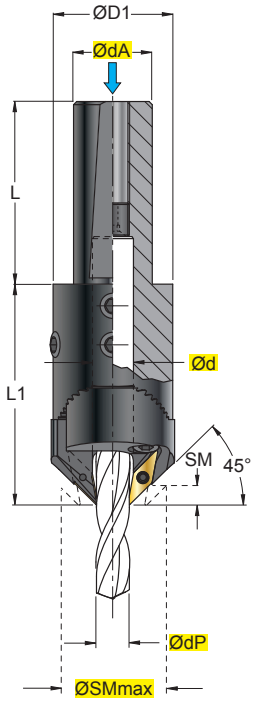
Smussatore a 45° per Punte integrali con attacco fisso whistle-notch
45° chamferer for Solid Carbide Drills with whistle-notch fixed shank
45°-Abschrägwerkzeug für VHM-Bohrer mit fester Whistle-Notch-Werkzeugaufnahme
Dispositif de biseautage à 45° pour Pointes intégrales avec raccord fixe whistle-notch

SAU QUALITY TOOLS ENGINEERING

SMU.C...10W







Posizionare il vertice inserto dello smussatore a 2/3 del dorso dell' elica della punta dal filo tagliente, come mostrato in figura.
"Non utilizzare punte con doppio pattino".

Place the top of the chamferer insert at 2/3 of the drill pitch flank from the cutting edge, as shown in the figure.
"DO not use double-guide drills".

Spitze der abschräg-wendeschneidplatte auf 2/3 des schraubenrückens des bohrers ab der schneidkante positionieren, wie in der abbildung dargestellt.
"Keine Doppelschlitten-Bohrer verwenden".

Positionner le sommet de la plaquette du dispositif de biseautage a 2/3 du dos de l'helice de la pointe a partir du fil tranchant, comme indique sur la figure.
"Ne pas utiliser de pointes pourvues d'un double patin".

SMU45 10T2 .X55

INSERTI
INSERTS
PAG.666

SCHEMA MONTAGGIO
ASSEMBLY SCHEME
PAG.1087

ART.	(mm) Ødp	Ød	ØdA	ØD1	SM	L	L1	kg	Nm									
											n°2	n°2	n°2	n°4	n°1			
SMU.C025.0506.10W	>5-6	6	25	35	0-3	56	56	0,46	1,1÷1,3	10T2	LMA.CIL. 0618.10W	905.005. 080.012	12256P	GR05	GWR05	5004	5508P	5025
SMU.C025.0608.10W	>6-8	8	25	35	0-3	56	56	0,45	1,1÷1,3	10T2	LMA.CIL. 0618.10W	905.005. 080.012	12256P	GR612	GWR06	5004	5508P	5003
SMU.C025.0810.10W	>8-10	10	25	37	0-3	56	64	0,50	1,1÷1,3	10T2	LMA.CIL. 0618.10W	905.005. 080.012	12256P	GR612	GWR08	5004	5508P	5003
SMU.C025.1012.10W	>10-12	12	25	39	0-3	56	69	0,52	1,1÷1,3	10T2	LMA.CIL. 0618.10W	905.005. 080.012	12256P	GR810F	GWR10	5004	5508P	5004
SMU.C025.1214.10W	>12-14	14	25	41	0-3	56	69	0,50	1,1÷1,3									
SMU.C032.1416.10W	>14-16	16	32	43	0-3	60	68	0,69	1,1÷1,3	10T2	LMA.CIL. 0618.10W	905.005. 080.012	12256P	GR1010F	GWR10	5004	5508P	5005
SMU.C032.1618.10W	>16-18	18	32	45	0-3	60	68	0,70	1,1÷1,3									

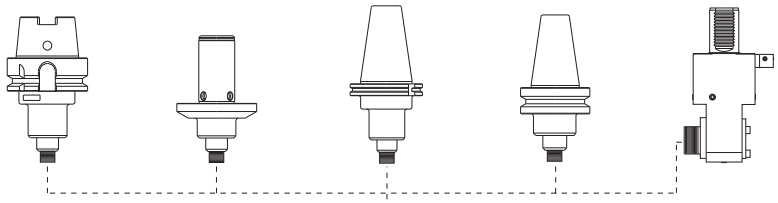
- DIMENSIONE INGOMBRI PAG. 1088
- OVERALL SIZES PAGE 1088
- AUSSENABMESSUNGEN SEITE 1088
- DIMENSION HORS TOUT PAGE 1088

- SMUSSO Max ESEGUIBILE **3mm**
- Max. CHAMFERING POSSIBLE **3mm**
- Max. AUSFÜHRBARE ABCHRÄGUNG **3mm**
- BISEAU Maxi EXÉCUTABLE **3mm**

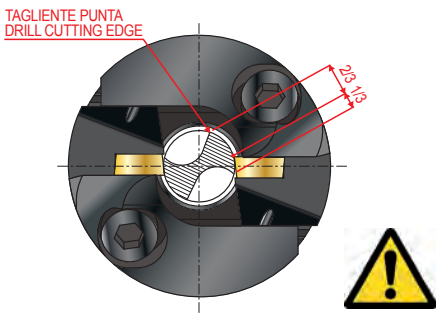
Smussatore a 45° per Punte integrali con attacco portapinza tipo "..ER.."
45° chamferer for Solid Carbide Drills with "..ER.." type collet holder shank
45°-Abschrägwerkzeug für VHM-Bohrer mit Spannzangenfutter Typ "..ER.."
Dispositif de biseautage à 45° pour Pointes intégrales avec raccord porte-pince type "..ER.."

SMU.ER...10

art. HSK..ER.. | art. 360../356../357.. | art. ISO.B..ER.. | art. MAS..ER..



art. 228..
228Q..
230..
230Q..

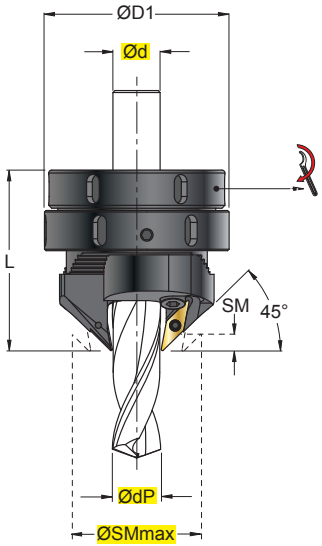


Posizionare il vertice inserto dello smussatore a 2/3 del dorso dell' elica della punta dal filo tagliente, come mostrato in figura.
"Non utilizzare punte con doppio pattino".

Place the top of the chamferer insert at 2/3 of the drill pitch flank from the cutting edge, as shown in the figure.
"DO not use double-guide drills".

Spitze der abschräg-wendeschneidplatte auf 2/3 des schraubenrückens des bohrers ab der schneidkante positionieren, wie in der abbildung dargestellt.
"Keine Doppelschlitten-Bohrer verwenden".

Positionner le sommet de la plaquette du dispositif de biseautage a 2/3 du dos de l'helice de la pointe a partir du fil tranchant, comme indique sur la figure.
"Ne pas utiliser de pointes pourvues d'un double patin".



SMU45 10T2 .X55

INSERTI
INSERTS
PAG.666

SCHEMA MONTAGGIO
ASSEMBLY SCHEME
PAG.1087

ART.	(mm) Ødp	Ød	ØD1	SM	L	kg	Nm	Nm			n°2	n°2	n°1	n°2			
SMU.ER25.0616.10	>5-16	6-16	52	0-3	60	0,39	1,1÷1,3	130	**--.025.--.--**	10T2	LMA.ER. 0618.10	905.005. 080.012	SMU-ER25-00	12256P	5004	5508P	925.040
SMU.ER32.0618.10	>5-18	6-18	62	0-3	62	0,53	1,1÷1,3	160	**--.032.--.--**	10T2	LMA.ER. 0618.10	905.005. 080.012	SMU-ER32-00	12256P	5004	5508P	925.058
SMU.ER40.0618.10	>5-18	6-18	70	0-3	65	0,64	1,1÷1,3	230	**--.040.--.--**	10T2	LMA.ER. 0618.10	905.005. 080.012	SMU-ER40-00	12256P	5004	5508P	925.068

- DIMENSIONE INGOMBRI PAG. 1089
- OVERALL SIZES PAGE 1089
- AUSSENABMESSUNGEN SEITE 1089
- DIMENSION HORS TOUT PAGE 1089

- SMUSSO Max ESEGUIBILE **3mm**
- Max. CHAMFERING POSSIBLE **3mm**
- Max. AUSFÜHRBARE ABCHRÄGUNG **3mm**
- BISEAU Maxi EXÉCUTABLE **3mm**

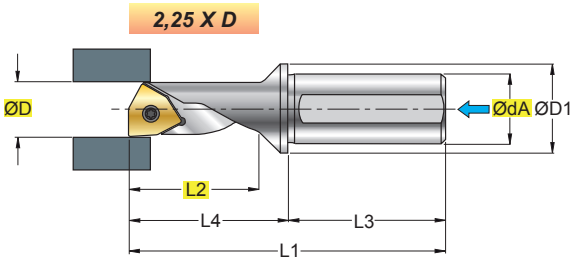
SMT ... R/L

Ø 8-26

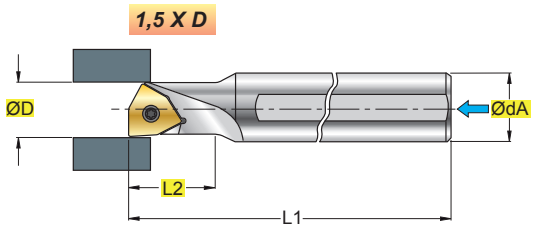
XCHX ... F44

XCHX ... F47P

FORM A



FORM B



INSERTI - INSERTS
PAG. 668

(mm)

ART.	FORM	ØD H13	ØdA	ØD1	L1	L2	L3	L4	Z	kg	Nm			
SMT 08225.04R/L	A	8	10	12	60,5	18,0	38	22,5	1	0,05	0,5÷0,6	0401	122033	5606
SMT 08150.04R/L	B	8	12	–	80,0	12,0	–	–	1	0,03	0,5÷0,6			
SMT 10225.05R/L	A	10	12	16	70,0	22,5	42	28,0	1	0,06	1,0÷1,2	05T1	12253	5607
SMT 10150.05R/L	B	10	12	–	90,0	15,0	–	–	1	0,04	1,0÷1,2			
SMT 11225.06R/L	A	11	16	20	77,0	27,75	45	32,0	1	0,13	1,0÷1,2	0602	122549	5607
SMT 11150.06R/L	B	11	16	–	100,0	16,5	–	–	1	0,08	1,0÷1,2			
SMT 15225.07R/L	A	15	20	25	93,0	33,75	50	43	1	0,24	1,2÷1,5	0703	123008P	5608P
SMT 15150.07R/L	B	15	20	–	125,0	22,5	–	–	1	0,15	1,2÷1,5			
SMT 18225.09R/L	A	18	25	32	109,0	40,5	56	53	1	0,40	3,0÷3,5	0903	123509	5615P
SMT 18150.09R/L	B	18	25	–	135,0	27,0	–	–	1	0,28	3,0÷3,5			
SMT 20225.10R/L	A	20	25	32	112,0	45,0	56	56	1	0,46	5,5÷7,0	10T3	125088	5620
SMT 20150.10R/L	B	20	25	–	150,0	30,0	–	–	1	0,29	5,5÷7,0			
SMT 26225.13R/L	A	26	32	40	133,0	58,5	60	73	1	0,91	7,5÷9,0	1305	126012	5625
SMT 26150.13R/L	B	26	32	–	180,0	39,0	–	–	1	0,57	7,5÷9,0			

PAG. 1085

SAU QUALITY TOOLS ENGINEERING

SCELTA VELOCE - QUICK PICK

Tenacità + / *Toughness* -

Pag. 646

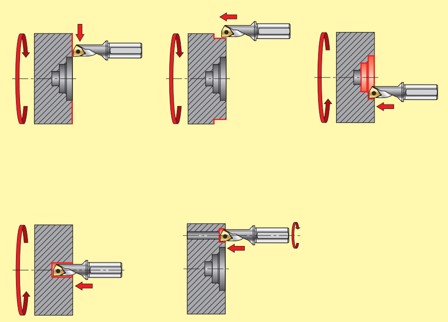
HT: CERMET — HW: NON RIV. CEMENTED CARBIDE GRADES — HC: RIVESTITI COATED GRADES BESCHICHTET RECOUVERTS

COD.	P F	P M	P R	M F	M M	M R	K F	K M	K R	N F	N M	N R	S F	S M	S R	H F	H M	H R	CERMET	N3015	F2430	T1225	l	d	b°	s	d1	r
XCHX 040102 .F44	●	●		● ○	● ○								○	○							■	■	4,0	6,35	88	1,59	2,25	0,2
XCHX 040104 .F44	●	●		● ○	● ○								○	○							■	■	4,0	6,35	88	1,59	2,25	0,4
XCHX 05T102 .F44	●	●		● ○	● ○								○	○							■	■	5,0	7,94	88	1,98	2,8	0,2
XCHX 05T104 .F44	●	●		● ○	● ○								○	○							■	■	5,0	7,94	88	1,98	2,8	0,4
XCHX 060202 .F44	●	●		● ○	● ○								○	○							■	■	5,5	8,73	88	2,38	2,8	0,2
XCHX 060204 .F44	●	●		● ○	● ○								○	○							■	■	5,5	8,73	88	2,38	2,8	0,4
XCHX 070304 .F44	●	●		● ○	● ○								○	○							■	■	7,5	12,0	88	3,18	3,4	0,4
XCHX 070308 .F44	●	●		● ○	● ○								○	○							■	■	7,5	12,0	88	3,18	3,4	0,8
XCHX 090304 .F44	●	●		● ○	● ○								○	○							■	■	9,0	14,29	88	3,18	4,4	0,4
XCHX 090308 .F44	●	●		● ○	● ○								○	○							■	■	9,0	14,29	88	3,18	4,4	0,8
XCHX 10T304 .F44	●	●		● ○	● ○								○	○							■	■	10,0	15,88	88	3,97	5,9	0,4
XCHX 10T308 .F44	●	●		● ○	● ○								○	○							■	■	10,0	15,88	88	3,97	5,9	0,8
XCHX 130508 .F44	●	●		● ○	● ○								○	○							■	■	13,0	21,0	88	5,56	7,0	0,8
XCHX 040102 .F47P										●	●									■			4,0	6,35	88	1,59	2,25	0,2
XCHX 040104 .F47P										●	●									■			4,0	6,35	88	1,59	2,25	0,4
XCHX 05T102 .F47P										●	●									■			5,0	7,94	88	1,98	2,8	0,2
XCHX 05T104 .F47P										●	●									■			5,0	7,94	88	1,98	2,8	0,4
XCHX 060202 .F47P										●	●									■			5,5	8,73	88	2,38	2,8	0,2
XCHX 060204 .F47P										●	●									■			5,5	8,73	88	2,38	2,8	0,4
XCHX 070304 .F47P										●	●									■			7,5	12,0	88	3,18	3,4	0,4
XCHX 070308 .F47P										●	●									■			7,5	12,0	88	3,18	3,4	0,8
XCHX 090304 .F47P										●	●									■			9,0	14,29	88	3,18	4,4	0,4
XCHX 090308 .F47P										●	●									■			9,0	14,29	88	3,18	4,4	0,8
XCHX 10T304 .F47P										●	●									■			10,0	15,88	88	3,97	5,9	0,4
XCHX 10T308 .F47P										●	●									■			10,0	15,88	88	3,97	5,9	0,8
XCHX 130508 .F47P										●	●									■			13,0	21,0	88	5,56	7,0	0,8
CON ADDUZIONE LUBROREFRIGERANTE - WITH COOLANT SUPPLY																				●	●	●						
SENZA ADDUZIONE LUBROREFRIGERANTE - WITHOUT COOLANT SUPPLY																												

MATERIALI - MATERIALS Pag. 1119		VDI 3323 GR.	HB Rm 1) HRC 2)	N3015	T1225	F2430			
P	ACCIAIO NON LEGATO - NOT ALLOY STEEL	1---5	125-300		160				
P	ACCIAIO POCO LEGATO - LOW ALLOY STEEL	6--9	180-350		110				
P	ACCIAIO ALTO LEGATO - ALLOY STEEL	10-11	200-325		120				
P	INOX MARTENS. - STAINLESS STEEL MART	12-13	200-240		120				
M	INOX AUST. DUPLEX - STAINLESS STEEL AUST	14.1-14.2	180-230		120	150			
K	GHISA GRIGIA - GREY CAST IRON	15-16	180-260						
K	GHISA SFEROIDALE - SPHEROIDAL GRAPHITE	17-18	160-250						
K	GHISA MALLEABILE - MALLEABLE CAST IRON	19-20	130-230						
N	ALLUMINIO E SUE LEGHE - ALUMINIUM	21---25	60-130	500					
N	RAME E SUE LEGHE - COPPER	26--28	90-110	400					
N	NON METALLICI - PLASTICS	29-30	/	400					
S	LEGHE RESIST. CALORE - HIG. TEMP. ALLOY	31---35	200-320			30			
S	TITANIO E SUE LEGHE - TITANIUM	36-37	400-1050 1)			20			
H	ACCIAIO TEMPRATO - HARDENED STEEL	38--41	45-60 2)						

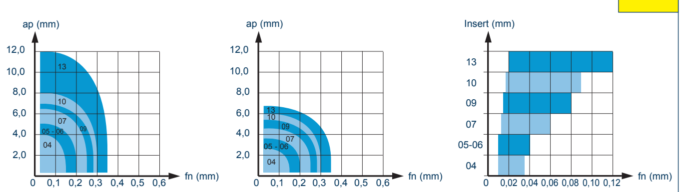
Vc m/min Pag. 658

Cinque lavorazioni, un unico utensile
Five machining operations, one tool



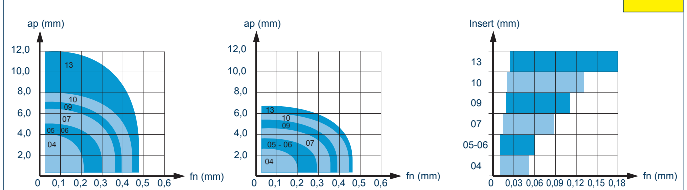
.F44

TORNITURA 1,5XD *TURNING 1,5XD*	TORNITURA 2,25XD *TURNING 2,25XD*	FORATURA *DRILLING*



.F47P

TORNITURA 1,5XD *TURNING 1,5XD*	TORNITURA 2,25XD *TURNING 2,25XD*	FORATURA *DRILLING*



Vc = m/min VELOCITÀ DI TAGLIO - CUTTING SPEED
n = giri/min (min^{-1}) NUMERO DI GIRI - NUMBER OF REVOLUTIONS
fn = mm AVANZAMENTO AL GIRO - FEED / REVOLUTION
Vf = mm/min VELOCITÀ DI AVANZAMENTO - FEED SPEED
W = mm LARGHEZZA TAGLIENTE - CUTTING EDGE WIDTH

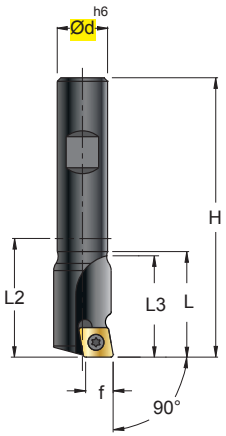
$$n = \frac{Vc \cdot 1000}{ØD \cdot 3,14} = \text{giri/min } (min^{-1})$$

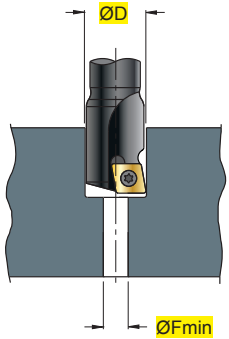
$$Vf = fn \cdot n = \text{mm/min}$$

Bareno a 1 taglio per lamatura-allargatura
Spot-facing and widening boring bar with 1 cutting edge
1 Schneiden-bohrstange zum ansenken und aufbohren
Barre à aléser avec 1 tranchant pour lamage et élargissement

S 626 ..

Ø 10-33

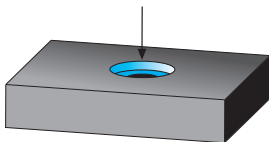


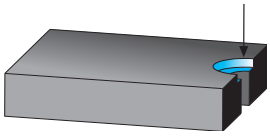


CC.. 0602	
CC.. 09T3	

INSERTI - INSERTS
PAG. 665

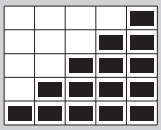
ART.		(mm) ØD	Ød	ØFmin	f	H	L	L2	L3	Z	kg	Nm				
S 626	10-06	10	8	4,0	5,0	61	23	25	22	1	0,02	1,0÷1,2		060204	12254P	5607P
S 626	11-06	11	10	4,0	5,5	70	24	30	23	1	0,04	1,0÷1,2	M6			
S 626	12-06	12	10	4,0	6,0	70	25	37,5	24	1	0,04	1,0÷1,2				
S 626	13-06	13	12	5,0	6,5	80	27	35	25	1	0,06	1,0÷1,2				
S 626	14-06	14	12	5,0	7,0	80	28	35	26	1	0,07	1,0÷1,2	M8			
S 626	15-06	15	12	5,0	7,5	80	29	35	27	1	0,07	1,0÷1,2				
S 626	16-06	16	12	5,0	8,0	80	30	35	28	1	0,08	1,0÷1,2				
S 626	17-09	17	16	6,0	8,5	90	31	42	29	1	0,13	3,5÷4,0	M10	09T308	1440	5615
S 626	18-09	18	16	6,0	9,0	90	33	42	30	1	0,13	3,5÷4,0				
S 626	19-09	19	16	6,0	9,5	90	34	42	31	1	0,14	3,5÷4,0				
S 626	20-09	20	16	6,0	10,0	90	35	42	32	1	0,14	3,5÷4,0	M12			
S 626	21-09	21	20	6,0	10,5	100	36	51	33	1	0,22	3,5÷4,0				
S 626	22-09	22	20	7,0	11,0	100	37	51	34	1	0,22	3,5÷4,0				
S 626	23-09	23	20	7,0	11,5	100	38	51	35	1	0,23	3,5÷4,0	M14			
S 626	24-09	24	20	8,0	12,0	100	39	51	36	1	0,23	3,5÷4,0				
S 626	25-09	25	20	9,0	12,5	100	40	51	37	1	0,24	3,5÷4,0				
S 626	26-09	26	25	10,0	13,0	120	41	64	38	1	0,41	3,8÷5,0	M16	09T308	12409P	5615P
S 626	27-09	27	25	10,5	13,5	120	42	64	39	1	0,42	3,8÷5,0				
S 626	28-09	28	25	11,0	14,0	120	43	64	40	1	0,43	3,8÷5,0				
S 626	29-09	29	25	12,0	14,5	120	44	64	41	1	0,44	3,8÷5,0	M18			
S 626	30-09	30	25	13,0	15,0	120	45	64	42	1	0,45	3,8÷5,0				
S 626	31-09	31	25	14,0	15,5	120	46	64	43	1	0,46	3,8÷5,0				
S 626	32-09	32	25	15,0	16,0	120	47	64	44	1	0,47	3,8÷5,0	M20			
S 626	33-09	33	25	16,0	16,5	120	48	64	45	1	0,49	3,8÷5,0				





SCELTA VELOCE
QUICK PICK

Tenacità + / *Toughness* -



METODO PER LA SCELTA VELOCE DEL GRADO DI METALLO DURO PIÙ IDONEO. CONTARE IL NUMERO DI RETTANGOLI COLORATI

METHOD FOR A QUICK CHOICE OF THE MOST SUITABLE SOLID CARBIDE GRADE. COUNT THE NUMBER OF COLORED RECTANGLES

METHODE ZUR RASCHEN AUSWAHL DER GEEIGNETSTEN HARTMETALLSORTE. DIE ANZAHL DER BUNTEN RECH TECKEZAHLEN

METODE POUR CHOISIR RAPIDEMENT LE DEGRÉ LE PLUS APPROPRIÉ DU METAL DUR. COMPTER LES RECTANGLES EN COULEURS

METODO PARA LA ELECCION RAPIDA DE EL GRADO MAS ADECUADO DE METAL DURO. CONTAR LOS NUMEROS DE RECTANGULOS COLORAEDOS

- GRADO MOLTO RESISTENTE ALL'USURA, SOLO PER FINITURA, LAVORAZIONI AD ALTE VELOCITÀ DI TAGLIO E CONDIZIONI MOLTO RIGIDE E STABILI
- GRADE WITH HIGH RESISTANCE TO WEAR; ONLY FOR FINISHING, MACHINING AT HIGH CUTTING SPEEDS, AND VERY RIGID AND STABLE CONDITIONS

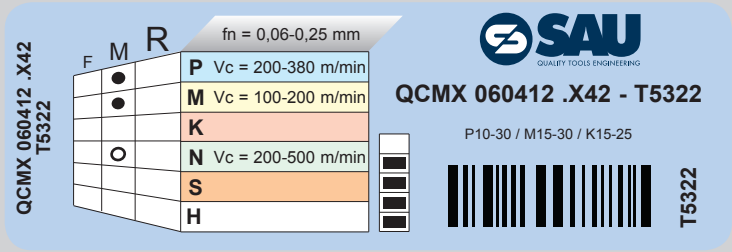
- GRADO CON ALTA RESISTENZA ALL'USURA, DISCRETA TENACITÀ PER LAVORAZIONI A VELOCITÀ MEDIO ALTE ED AVANZAMENTI MEDI, IN CONDIZIONI NORMALI
- GRADE WITH HIGH RESISTANCE TO WEAR, GOOD TOUGHNESS, FOR MEDIUM-HIGH MACHINING AND MEDIUM FEED UNDER NORMAL CONDITIONS

- GRADO CON BUONA RESISTENZA ALL'USURA UNITA A BUONA TENACITÀ, PER LAVORAZIONI GENERICHE IN CONDIZIONI NORMALI
- GRADE WITH GOOD RESISTANCE TO WEAR; COMBINED WITH A GOOD DEGREE OF TOUGHNESS, FOR GENERAL MACHINING UNDER NORMAL CONDITIONS

- GRADO CON OTTIMA TENACITÀ PER LAVORAZIONI MEDIO PESANTI O IN CONDIZIONI POCO STABILI
- GRADE WITH EXCELLENTE TOUGHNESS, FOR MEDIUM HEAVY MACHINING OR MACHINING UNDER CONDITIONS OF LOW STABILITY

- GRADO CON ECCEZIONALE TENACITÀ PER LAVORAZIONI PESANTI CON BASSE VELOCITÀ DI TAGLIO, ALTI AVANZAMENTI O IN CONDIZIONI SFAVOREVOLI
- GRADE WITH EXCELLENTE TOUGHNESS, FOR HEAVY MACHINING WITH LOW CUTTING SPEEDS, HIGH FEED, OR UNDER UNFAVORABLE CONDITIONS

GUIDA FACILE
EASY GUIDE



GUIDA ALL'USO DELL'INSERTO. PRESENTE ANCHE SU OGNI ETICHETTA

GUIDE FOR THE USE OF THE INSERT. ALSO LISTED ON EACH LABEL

LEITFADEN ZUR VERWENDUNG DER WENDEPLATTE, AUCH AUF JEDEM AUFKLEBER VORHANDEN

INSTRUCTIONS POUR L'UTILISATION DE LA PLAQUETTE.SE TROUVANT EGALEMENT SUR CHAQUE ETIQUETTE

GUIA POR EL UTILIZO DE LA PLAQUITA, PRESENTE TAMBIEN EN CADA ETIQUETA

GR. VDI 3323	6	P	= ACCIAIO BASSO LEGATO HB 180	- LOW STEEL ALLOY
	14.1	M	= ACCIAIO INOSSIDABILE AUSTENITICO HB 180	- AUSTENITIC STAINLESS STEELHB 180
	16	K	= GHISA GRIGIA HB 260	- GRAY CAST IRON HB 260
MATERIALI MATERIALS	21	N	= LEGHE DI ALLUMINIO HB 60	- ALUMINUM ALLOYS HB 60
	33	S	= LEGHE RESISTENTI AL CALORE (INCONEL) HB 250	- HEAT RESISTANT ALLOYS (INCONEL) HB 250
Pag. 1119	38	H	= ACCIAIO TEMPRATO HRC 55	- TEMPERED STEEL HRC 55

F	= FINITURA, LAVORAZIONI LEGGERE	- FINISHING, LIGHT MACHINING
M	= LAVORAZIONI MEDIE, IMPIEGO GENERICO	- MEDIUM MACHINING, GENERAL USE
R	= SGROSSATURA, LAVORAZIONI PESANTI	- ROUGHING, HEAVY MACHINING

fn (mm)	= AVANZAMENTO PER TORNITURA	- FEED FOR TOURNING
fz (mm/z)	= AVANZAMENTO PER FRESATURA	- FEED FOR MILLING
Vc (m/min)	= VELOCITÀ DI TAGLIO	- CUTTING SPEED
●	= APPLICAZIONE CONSIGLIATA	- RECOMMENDED APPLICATION
○	= APPLICAZIONE POSSIBILE	- POSSIBLE APPLICATION

INSERTI PER FORATURA

DRILLING INSERTS / WENDEPLATTEN ZUM BOHREN / PLAQUÉTTES POUR PERÇAGE
PLAQUITAS DE TALADRADO

SAU
QUALITY TOOLS ENGINEERING

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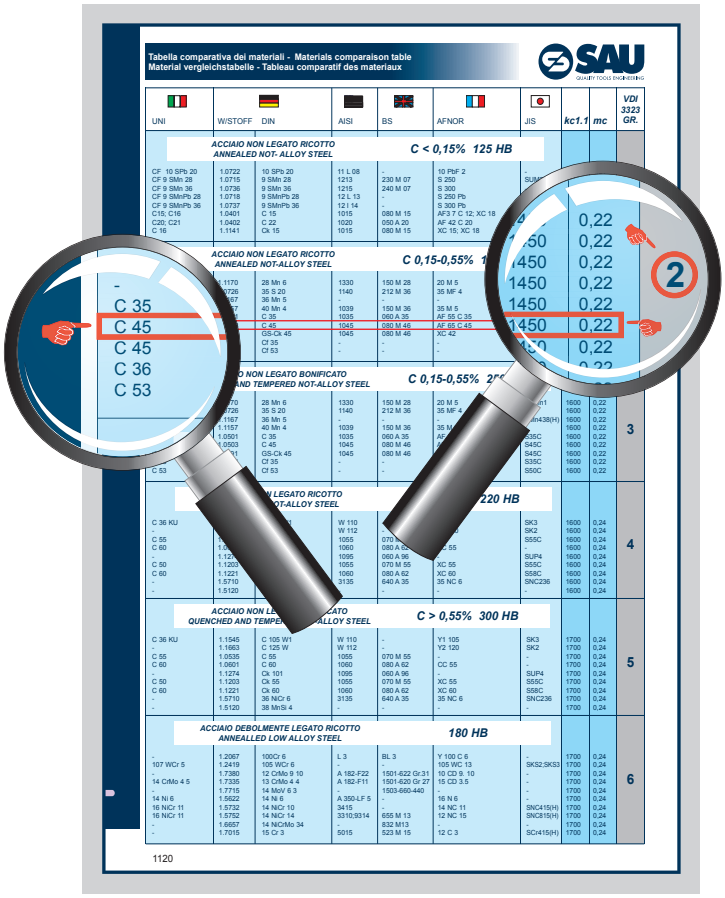
QUALITY TOOLS ENGINEERING

INSERTI PER FORATURA
DRILLING INSERTS
WENDEPLATTEN ZUM BOHREN
PLAQUÉTTES POUR PERÇAGE
PLAQUITAS DE TALADRADO

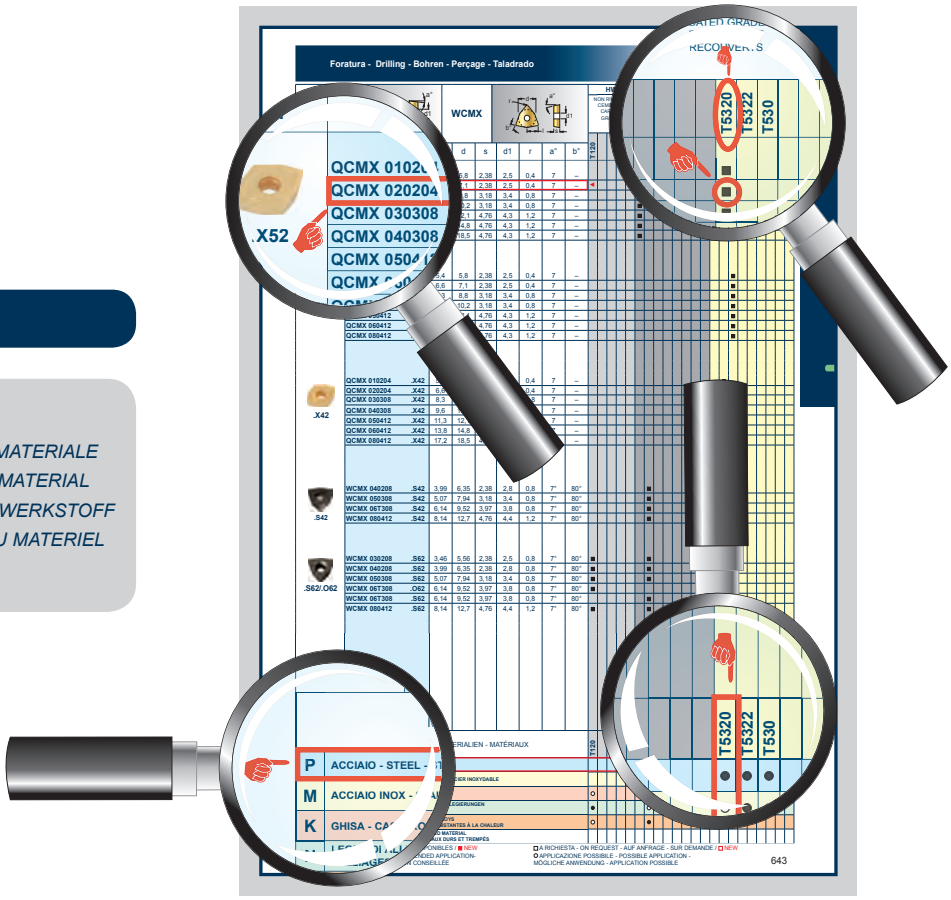
FASE 1 - PHASE 1

SCELTA GR. VDI IN FUNZIONE DEL MATERIALE
CHOICE OF VDI GR. DEPENDING ON MATERIAL
WAHL VDI-SORTE JE NACH WERKSTOFF
CHOIX GR. VDI EN FONCTION DU MATERIEL



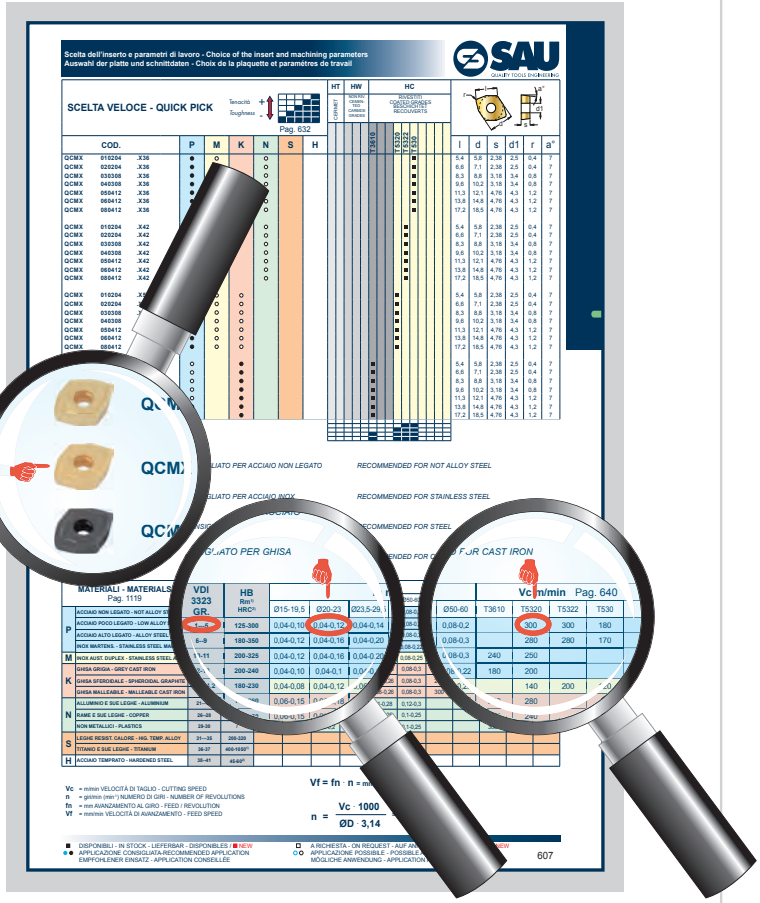
FASE 2 - PHASE 2

SCELTA INSERTO IN FUNZIONE DEL MATERIALE
CHOICE OF INSERT DEPENDING ON MATERIAL
WAHL DER WENDEPLATTE JE NACH WERKSTOFF
CHOIX PLAQUETTE EN FONCTION DU MATERIEL



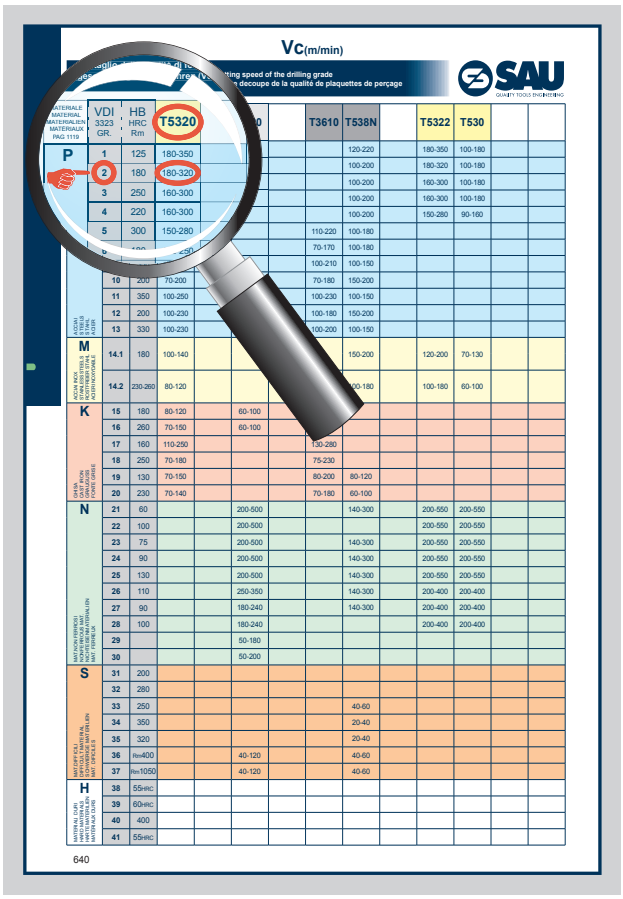
FASE 3 - *PHASE 3*

SCELTA VELOCE DEI PARAMETRI
QUICK CHOICE OF PARAMETERS
SCHNELLWAHL DER PARAMETER
TRIAGE RAPIDE DES PARAMÈTRES



FASE 4 - *PHASE 4*

SCELTA DI VC IN FUNZIONE DEL GR. VDI
CHOICE OF VC DEPENDING ON VDI GR.
WAHL VC JE NACH WERKSTOFF
CHOIX DE VC EN FONCTION DU GR. VDI



SAU
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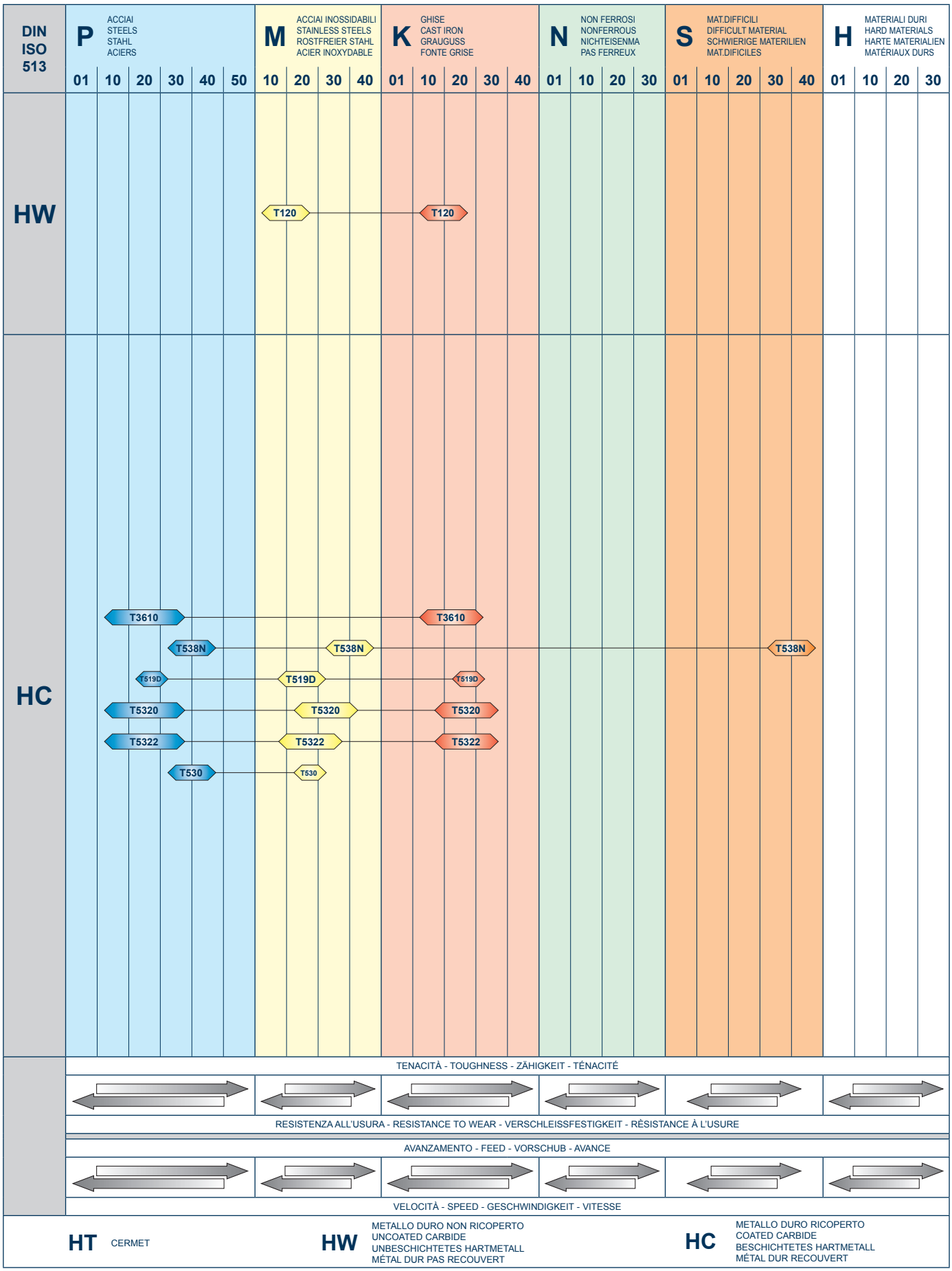
PANORAMICA QUALITÀ DI FORATURA
GENERAL VIEW OF THE DRILLING GRADE
BOHREN-ÜBERSICHT
VUE D' ENSEMBLE QUALITÉ DE PERÇAGE
VISTA GENERAL DE LA CALIDAD DE TALADRADO



HT CERMET

HW METALLO DURO NON RICOPERTO
UNCOATED CARBIDE
UNBESCHICHTETES HARTMETALL
MÉTAL DUR PAS RECOUVERT

HC METALLO DURO RICOPERTO
COATED CARBIDE
BESCHICHTETES HARTMETALL
MÉTAL DUR RECOUVERT

SAU QUALITY TOOLS ENGINEERING

SAU	DIN ISO 513		MATERIALE - MATERIAL MATERIALIEN - MATÉRIAUX PAG. 1119						QUICK PICK PAG. 632 Tenacità / Toughness + -			INDICAZIONI - USO
			P ACCIAI STEELS STAHL ACIER	M ACCIAI INOX STAINLESS STEELS ROSTFREIER STAHL ACIER INOXYDABLE	K GHISA CAST IRON GRAUGUSS FONTE GRISE	N MAT.NON FERROSI NONFERROUS MAT. NICHTEISENMATERIALIEN MAT. FERREUX	S MAT.DIFFICILI DIFFICULT MATERIAL SCHWERIGE MATERILIEN MAT. DIFICILES	H MATERIALI DURI HARD MATERIALS HARTE MATERIALIEN MATÉRIAUX DURS				
T120	HW	M10-20 K10-20	○		●	●	○				●	- ALTA RESISTENZA ALL' USURA E BUONA TENACITÀ - INDICATO PER MEDIE VELOCITÀ DI TAGLIO E MEDI AVANZAMENTI
T3610	HC / CVD	P10-30 K10-25	○		●						●	-INSERTO RESISTENTE ALL'USURA -INDICATO PER MEDIE ALTE VELOCITÀ DI TAGLIO -ADATTO PER LA LAVORAZIONE DELLA GHISA
T538N	HC / CVD	P30-40 M30-40 S30-40	●	●	○	○	●				●	- ELEVATA TENACITÀ, ALTA RESISTENZA ALLA FRATTURA E ALLA SCHEGGIATURA CON BUONA RESISTENZA ALL'USURA - INDICATO PER MEDIO-BASSE VELOCITÀ DI TAGLIO ANCHE IN CONDIZIONI DIFFICILI - CONSIGLIATO COME INSERTO PERIFERICO NELLA LAVORAZIONE DI INOX E COME INSERTO CENTRALE NELLA LAVORAZIONE DI GHISA
T519D	HC / CVD	P20-25 M15-25 K20-25	●	○	●	○					●	- QUALITÀ MICROGRANO CON ELEVATA TENACITÀ - INDICATO PER MEDIO-BASSE VELOCITÀ DI TAGLIO
T5320	HC / CVD	P10-30 M20-35 K15-30	●	○	○						●	-INSERTO CON MEDIA TENACITÀ -INDICATO PER MEDIE ALTE VELOCITÀ DI TAGLIO -ADATTO PER LA LAVORAZIONE DEGLI ACCIAI LEGATI E DEBOLMENTE LEGATI
T5322	HC / CVD	P10-30 M15-30 K15-30	●	●		○					●	-INSERTO CON MEDIA TENACITÀ -INDICATO PER MEDIE ALTE VELOCITÀ DI TAGLIO -ADATTO PER LA LAVORAZIONE DEGLI ACCIAI BASSO LEGATI E INOX
T530	HC / CVD	P30-40 M20-25	●	○							●	-GRADO MOLTO TENACE PARTICOLARMENTE INDICATO ALLA LAVORAZIONE A BASSE VELOCITÀ DI TAGLIO E SU MATERIALI MOLTO TENACI (ES. FE O ACCIAIO ALTA VELOCITÀ AL PIOMBO). -POSSIBILE IMPIEGO ANCHE SU ACCIAIO INOX E MATERIALI NON FERROSI.

● APPLICAZIONE CONSIGLIATA
RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ
APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE
POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG
APPLICATION POSSIBLE

● APPLICAZIONE CONSIGLIATA
RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ
APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE
POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG
APPLICATION POSSIBLE

INDICATIONS - USE	GEBRAUCHSANWEISUNGEN	INDICATION - USAGE
-HIGH RESISTANCE TO WEAR WITH GOOD TOUGHNESS -SUITABLE FOR MEDIUM CUTTING SPEEDS AND MEDIUM FEED	-HOHE VERSCHLEISSFESTIGKEIT MIT SEHR ZÄHIGKET -FÜR MITTEL SCHNITTGESCHWINDIGKEITEN UND MITTEL VORSCHÜBE	-HAUTE RESISTANCE ET BONNE TENACITÉ -INDIQUÉE POUR LE MOYENNE VITESSE DE COUPE ET MOYENNE DÉPLACEMENT
- WEAR-RESISTANT INSERT - IDEAL FOR MEDIUM TO HIGH CUTTING SPEEDS - SUITABLE FOR MACHINING CAST IRON	- VERSCHLEISSFESTE WENDEPLATTE - GEEIGNET FÜR MITTLERE/HOHE SCHNITTGESCHWINDIGKEITEN - GEEIGNET FÜR GUSSBEARBEITUNGEN	- PLAQUETTE RÉSISTANTE À L'USURE - PRÉVUE POUR DES VITESSES DE COUPE HAUTES ET MOYENNES - PRÉVUE POUR L'USINAGE DE LA FONTE
- HIGH TOUGHNESS, HIGH FRACTURE RESISTANCE AND CHIPPING STRENGTH AS WELL AS GOOD RESISTANCE TO WEAR - SUITABLE FOR MEDIUM-LOW CUTTING SPEED, ALSO UNDER DIFFICULT MACHINING CONDITIONS - RECOMMENDED AS PERIPHERAL INSERT FOR INOX AND AS CENTRAL INSERT FOR CAST-IRON	- HOHE ZÄHIGKEIT, BRUCH-UND RISSFESTIGKEIT MIT GUTEM VERSCHLEIßWIDERSTAND - GEEIGNET FÜR MITTLERE BIS GERINGE GESCHWINDIGKEIT AUCH UNDER SCHWIERIGEN BEARBEITUNGSBEDINGUNGEN - EMPFOHLEN ALS PERIPHERIE-WENDEPLATTE ZUR INOX-BEARBEITUNG UND ALS ZENTRALPLATTE ZUR GUSSBEARBEITUNG	- TENACITÉ ÉLEVÉE, HAUTE RESISTANCE À LA RUPTURE ET À L'ÉCHARDE AVEC BONNE RESISTANCE À L'USURE - INDIQUÉE POUR MOYENNE-BAS VITESSE DE COUPE MÊME AVEC CONDITIONS DIFFICILES - CONSEILLÉ COMMENT PLAQUETTE PHÉRIPHÉRIQUE POUR TRAVAILLER INOX ET COMMENT PLAQUETTE CENTRAL POUR TRAVAILLER LA FRONTE
-MICROGRAIN GRADE WITH HIGH TOUGHNESS -SUITABLE FOR MEDIUM AND LOW CUTTING SPEEDS	-MIKROKORNSORTE MIT HOHER ZÄHIGKET -FÜR MITTEL UND GERINGE SCHNITTGESCHWINDIGKEITEN GEEIGNET	-QUALITÉ DE MICROGRAIN AVEC TENACITÉ ÉLEVÉE -INDIQUÉE POUR LE MOYENNE-FAIBLE VITESSE DE COUPE
- MEDIUM TOUGH INSERT - IDEAL FOR MEDIUM TO HIGH CUTTING SPEEDS - SUITABLE FOR MACHINING ALLOYED AND WEAKLY ALLOYED STEELS	- WENDEPLATTE MIT MITTLERER ZÄHIGKEIT - GEEIGNET FÜR MITTLERE/HOHE SCHNITTGESCHWINDIGKEITEN - GEEIGNET FÜR BEARBEITUNGEN VON LEGIERTEM UND SCHWACH LEGIERTEM STAHL	- PLAQUETTE AVEC TÉNACITÉ MOYENNE - PRÉVUE POUR DES VITESSES DE COUPE HAUTES ET MOYENNES - PRÉVUE POUR L'USINAGE DES ACIERS ALLIÉS ET FAIBLEMENT ALLIÉS
- MEDIUM TOUGH INSERT - IDEAL FOR MEDIUM TO HIGH CUTTING SPEEDS - SUITABLE FOR BOTH LOW-ALLOY AND INOX STEEL	- WENDEPLATTE MIT MITTLERER ZÄHIGKEIT - GEEIGNET FÜR MITTLERE/HOHE SCHNITTGESCHWINDIGKEITEN - GEEIGNET SOWOHL FÜR NIEDERLEGIERTE ALS AUCH FÜR INOX-STÄHLE	- PLAQUETTE AVEC TÉNACITÉ MOYENNE - PRÉVUE POUR DES VITESSES DE COUPE HAUTES ET MOYENNES - INDIQUE POUR L'USINAGE DES ACIERS FAIBLEMENT ALLIES ET INOX
- VERY TOUGH GRADE, PARTICULARLY SUITABLE FOR LOW CUTTING SPEED AND FOR VERY TOUGH MATERIALS (E.G FE OR HIGH SPEED LEADED STEEL) - ALSO SUITABLE FOR STAINLESS STEEL AND NON-FERROUS MATERIALS	- SEHR ZÄHE SORTE, BESONDERS FÜR DIE BEARBEITUNG MIT NIEDRIGER SCHNITTGESCHWINDIGKEIT UND FÜR SEHR ZÄHE MATERIALIEN (Z.B. FE ODER BLEIHALTIGEN HOCHGESCHWINDIGKEITSSTAHL) GEEIGNET - AUCH BEI EDELSTAHL UND NICHT EISERNEN MATERIALIEN EINSETZBAR	- DEGRE TRES TENACE PARTICULIEREMENT INDIQUE POUR L'USINAGE A DE FAIBLES VITESSES DE COUPE ET SUR DES MATERIAUX TRES TENACES (PAR EXEMPLE FE OU ACIER A HAUTE VITESSE AU PLOMB). - EMPLOI POSSIBLE MEME SUR ACIER INOX ET MATERIAUX NON FERREUX.

HT CERMET

HW METALLO DURO NON RICOPERTO
UNCOATED CARBIDE
UNBESCHICHTETES HARTMETALL
MÉTAL DUR PAS RECOUVERT

HC METALLO DURO RICOPERTO
COATED CARBIDE
BESCHICHTETES HARTMETALL
MÉTAL DUR RECOUVERT

Vc(m/min)

Velocità di taglio delle qualità di foratura - Cutting speed of the drilling grade
Schnittgeschwindigkeit der bohren (Vc) - Vitesse decoupe de la qualité de plaquettes de perçage

SAU QUALITY TOOLS ENGINEERING

MATERIALE MATERIAL MATERIALIEN MATÉRIAUX PAG 1119	VDI 3323 GR.	HB HRC Rm	T120		T3610	T538N		T5320	T5322	T530			
P ACCIAI STEELS STAHL ACIER	1	125				120-220			180-350	100-180			
	2	180				100-200			180-320	100-180			
	3	250				100-200			160-300	100-180			
	4	220				100-200			160-300	100-180			
	5	300				100-200			150-280	90-160			
	6	180			110-220	100-180		120-250					
	7-8	250-300			70-170	100-180		70-200					
	9	350			100-210	100-150		100-250					
	10	200			70-180	150-200		70-200					
	11	350			100-230	100-150		100-250					
	12	200			100-180	150-200		100-230					
	13	330			100-200	100-150		100-230					
M ACCIAI INOX STAINLESS STEELS ROSTFREIER STAHL ACIER INOXYDABLE	14.1	180				150-200		100-140	120-200	70-130			
	14.2	230-260				100-180		80-120	100-180	60-100			
K GHISA CAST IRON GRAUGUSS FONTE GRISE	15	180	60-100		80-220			80-120					
	16	260	60-100		70-180			70-150					
	17	160			130-280			110-250					
	18	250			75-230			70-180					
	19	130			80-200	80-120		70-150					
	20	230			70-180	60-100		70-140					
N MAT.NON FERROSI NONFERROUS MAT. NICHTEISENMATERIALIEN MAT. FERREUX	21	60	200-500			140-300			200-550	200-550			
	22	100	200-500						200-550	200-550			
	23	75	200-500			140-300			200-550	200-550			
	24	90	200-500			140-300			200-550	200-550			
	25	130	200-500			140-300			200-550	200-550			
	26	110	250-350			140-300			200-400	200-400			
	27	90	180-240			140-300			200-400	200-400			
	28	100	180-240						200-400	200-400			
	29		50-180										
	30		50-200										
S MAT.DIFFICILI DIFFICULT MATERIAL SCHWIERIGE MATERILIEN MAT. DIFICILES	31	200											
	32	280											
	33	250				40-60							
	34	350				20-40							
	35	320				20-40							
	36	Rm400	40-120			40-60							
	37	Rm1050	40-120			40-60							
H MATERIALI DURI HARD MATERIALS HARTE MATERILIEN MATÉRIAUX DURS	38	55HRC											
	39	60HRC											
	40	400											
	41	55HRC											

Vc(m/min)

Velocità di taglio delle qualità di foratura - Cutting speed of the drilling grade
Schnittgeschwindigkeit der bohren (Vc) - Vitesse decoupe de la qualité de plaquettes de perçage

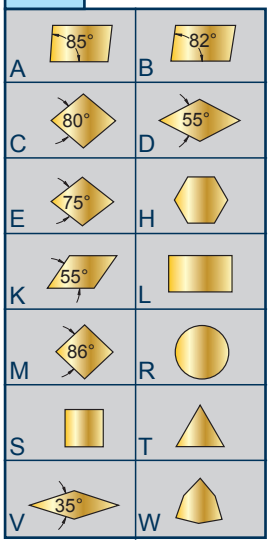
SAU QUALITY TOOLS ENGINEERING

MATERIALE MATERIAL MATERIALIEN MATÉRIAUX PAG 1119	VDI 3323 GR.	HB HRC Rm											
P ACCIAI STEELS STAHL ACIER	**1**	125											
	2	180											
	3	250											
	4	220											
	5	300											
	6	180											
	7-8	250-300											
	9	350											
	10	200											
	11	350											
	12	200											
	13	330											
M ACCIAI INOX STAINLESS STEELS ROSTFREIER STAHL ACIER INOXYDABLE	**14.1**	180											
	14.2	230-260											
K GHISA CAST IRON GRAUGUSS FONTE GRISE	**15**	180											
	16	260											
	17	160											
	18	250											
	19	130											
	20	230											
N MAT.NON FERROSI NONFERROUS MAT. NICHTEISENMATERIALIEN MAT. FERREUX	**21**	60											
	22	100											
	23	75											
	24	90											
	25	130											
	26	110											
	27	90											
	28	100											
	29												
	30												
S MAT.DIFFICILI DIFFICULT MATERIAL SCHWIERIGE MATERILIEN MAT. DIFICILES	**31**	200											
	32	280											
	33	250											
	34	350											
	35	320											
	36	Rm400											
	37	Rm1050											
H MATERIALI DURI HARD MATERIALS HARTE MATERILIEN MATÉRIAUX DURS	**38**	55HRC											
	39	60HRC											
	40	400											
	41	55HRC											

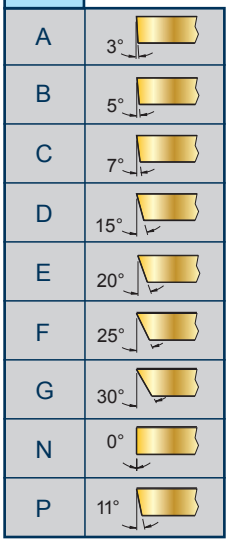
SAU QUALITY TOOLS ENGINEERING

W	C	G	T	06	03	04	S	N	•	-	-	-	P
1	2	3	4	5	6	7	8	9		10	11	12	13

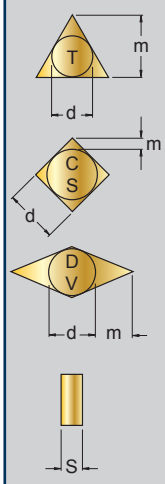
1 FORMA INSERTO / SHAPE OF INSERT



2 SPOGLIA INFER. / RELIEF ANGLE

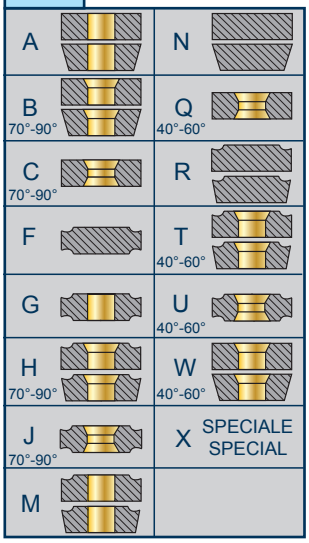


3 TOLLERANZA+/-{mm} / TOLERANCE+/-{mm}



	m	s	d
A	+/-0,005	+/-0,025	+/-0,025
C	+/-0,013	+/-0,025	+/-0,025
E	+/-0,025	+/-0,025	+/-0,025
F	+/-0,005	+/-0,025	+/-0,013
G	+/-0,025	+/-0,05 +/-0,13	+/-0,025
H	+/-0,013	+/-0,025	+/-0,013
J	+/-0,005	+/-0,025	+/-0,05 +/-0,13
K	+/-0,013	+/-0,025	+/-0,05 +/-0,13
L	+/-0,05	+/-0,013	+/-0,025
M	+/-0,08 +/-0,18	+/-0,13	+/-0,05 +/-0,18
N	+/-0,08 +/-0,18	+/-0,025	+/-0,05 +/-0,13
U	+/-0,13 +/-0,38	+/-0,05 +/-0,13	+/-0,08 +/-0,32

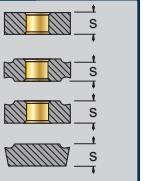
4 TIPO INSERTO / TYPE OF INSERT



5 LUNGHEZZA TAGLIENTE / CUTTING EDGE LENGTH

ød CERCHIO INSCRITTO INSCRIBED CIRCLE	A	C	D	E	K	L	M	R	S	T	V	W
3,97												02
4,76										08		02-03
5,56		05								09		
6,00												03
6,35		06	07	06			06		06	11	11	04
6,70	10											
7,94									07			
8,00				08								05
9,45	16											
9,52	15-16	09	11	09	16	15	09		09	16	16	06
10,00								10				06
11,00									11			
11,50						12						
12,00								12				07
12,62						18						
12,70		12	15	12		15-20			12	22		08
15,87		16							15			
19,05		19							19			

6 SPESSORE / THICKNESS

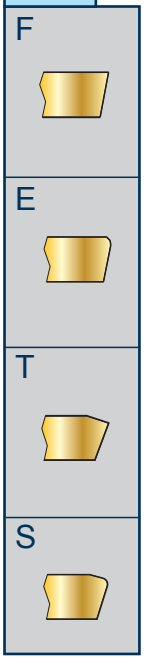


S	mm
01	1,59
T1	1,97
02	2,38
T2	2,78
H3	2,80
X3	3,00
03	3,18
T3	3,97
04	4,76
05	5,56
06	6,35
07	7,94
09	9,52

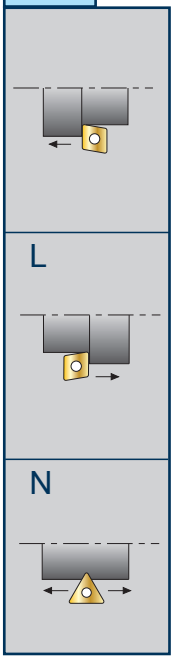
7 RAGGIO / RADIUS

00 (")	
MO (mm)	
02	r=0,2
04	r=0,4
05	r=0,5
06	r=0,6
08	r=0,8
10	r=1,0
12	r=1,2
16	r=1,6

8



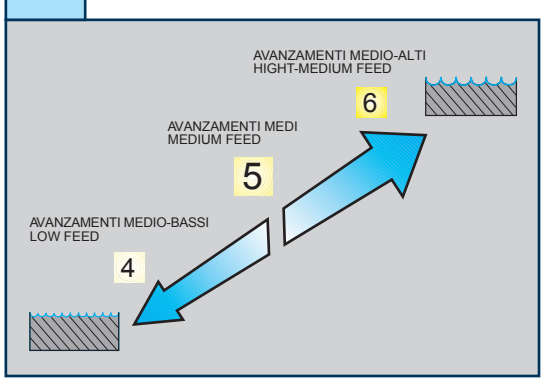
9



10 LETTERA DI IDENTIF. / IDENTIFICATION LETTER

A	N
C	P
D	R
E	S
H	T
I	U
J	W
K	Y
L	Z
M	

11 CAMPO DI LAVORAZIONE / MACHINING TYPES

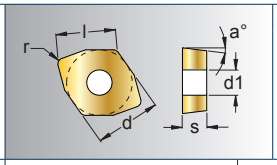
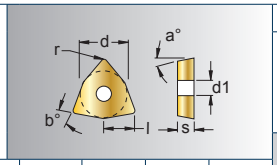


12 PREPARAZIONE TAGLIENTE / CUTTING EDGE PREPARATION

1 =	SPECIFICO PER GHISA SPECIFIC FOR CAST IRON
3 =	SPECIFICO PER ACCIAIO INOX SPECIFIC FOR STAINLESS STEEL
7 =	SPECIFICO PER LEGHE DI ALLUMINIO SPECIFIC FOR ALUMINIUM ALLOYS
9 =	SPECIFICO PER ACCIAIO SPECIFIC FOR STEEL
2 = 4 = 5 = 6 = 8 =	INTERMEDI DI USO GENERICO INTERMEDIATE FOR GENERAL USE

13 LUCIDATO / POLISH

SAU QUALITY TOOLS ENGINEERING

QCMX		WCMX	
			

ART	COD.	l	d	s	d1	r	a°	b°	HW NON RIVESTITI CEMENTED CARBIDE GRADES T120	HC RIVESTITI COATED GRADES BESCHICHTET RECOUVERTS T3610	T538N	T5320	T5322	T530
 .X36	QCMX 010204 .X36	5,4	5,8	2,38	2,5	0,4	7	–						■
	QCMX 020204 .X36	6,6	7,1	2,38	2,5	0,4	7	–						■
	QCMX 030308 .X36	8,3	8,8	3,18	3,4	0,8	7	–						■
	QCMX 040308 .X36	9,6	10,2	3,18	3,4	0,8	7	–						■
	QCMX 050412 .X36	11,3	12,1	4,76	4,3	1,2	7	–						■
	QCMX 060412 .X36	13,8	14,8	4,76	4,3	1,2	7	–						■
	QCMX 080412 .X36	17,2	18,5	4,76	4,3	1,2	7	–						■
 .X42	QCMX 010204 .X42	5,4	5,8	2,38	2,5	0,4	7	–					■	
	QCMX 020204 .X42	6,6	7,1	2,38	2,5	0,4	7	–					■	
	QCMX 030308 .X42	8,3	8,8	3,18	3,4	0,8	7	–					■	
	QCMX 040308 .X42	9,6	10,2	3,18	3,4	0,8	7	–					■	
	QCMX 050412 .X42	11,3	12,1	4,76	4,3	1,2	7	–					■	
	QCMX 060412 .X42	13,8	14,8	4,76	4,3	1,2	7	–					■	
	QCMX 080412 .X42	17,2	18,5	4,76	4,3	1,2	7	–					■	
 .X52	QCMX 010204 .X52	5,4	5,8	2,38	2,5	0,4	7	–		■		■		
	QCMX 020204 .X52	6,6	7,1	2,38	2,5	0,4	7	–		■		■		
	QCMX 030308 .X52	8,3	8,8	3,18	3,4	0,8	7	–		■		■		
	QCMX 040308 .X52	9,6	10,2	3,18	3,4	0,8	7	–		■		■		
	QCMX 050412 .X52	11,3	12,1	4,76	4,3	1,2	7	–		■		■		
	QCMX 060412 .X52	13,8	14,8	4,76	4,3	1,2	7	–		■		■		
	QCMX 080412 .X52	17,2	18,5	4,76	4,3	1,2	7	–		■		■		
 .S42	WCMX 040208 .S42	3,99	6,35	2,38	2,8	0,8	7°	80°			■			
	WCMX 050308 .S42	5,07	7,94	3,18	3,4	0,8	7°	80°			■			
	WCMX 06T308 .S42	6,14	9,52	3,97	3,8	0,8	7°	80°			■			
	WCMX 080412 .S42	8,14	12,7	4,76	4,4	1,2	7°	80°			■			
 .S62/.O62	WCMX 030208 .S62	3,46	5,56	2,38	2,5	0,8	7°	80°	■		■			
	WCMX 040208 .S62	3,99	6,35	2,38	2,8	0,8	7°	80°	■		■			
	WCMX 050308 .S62	5,07	7,94	3,18	3,4	0,8	7°	80°	■		■			
	WCMX 06T308 .O62	6,14	9,52	3,97	3,8	0,8	7°	80°	■					
	WCMX 06T308 .S62	6,14	9,52	3,97	3,8	0,8	7°	80°			■			
	WCMX 080412 .S62	8,14	12,7	4,76	4,4	1,2	7°	80°	■		■			

MATERIALE - MATERIAL - MATERIALIEN - MATÉRIAUX

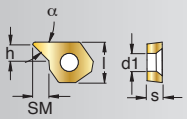
		T120	T3610	T538N	T5320	T5322	T530
P	ACCIAIO - STEEL - STAHL - ACIER		○	●	●	●	●
M	ACCIAIO INOX - STAINLESS STEEL - ROSTFREIER STAHL - ACIER INOXYDABLE			●	○	●	○
K	GHISA - CAST IRON - GRAUGUSS - FONTE GRISE	○	●	○	○		
N	LEGHE DI ALLUMINIO - ALUMINIUM ALLOYS - ALUMINIUM-LEGIERUNGEN - ALLIAGES D'ALUMINIUM	●		○		○	
S	LEGHE RESISTENTI AL CALORE - HEAT RESISTANT ALLOYS - WÄRMEBESTÄNDIGE LEGIERUNGEN - ALLIAGES RÉSISTANTES À LA CHALEUR	○		●			
H	MATERIALI DURI E TEMPRATI - HARD AND HARDENED MATERIAL - HARTE UND GEHÄRTETE MATERIALIEN - MATERIAUX DURS ET TREMPÉS						

■ DISPONIBILI - IN STOCK - LIEFERBAR - DISPONIBLES / ■ NEW
● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION-EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

□ A RICHIESTA - ON REQUEST - AUF ANFRAGE - SUR DEMANDE / □ NEW
○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION - MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

SAU QUALITY TOOLS ENGINEERING

SM..-30
SM..-45
SM..-55



ART	COD.	l	s	d1	SM	h	α	HW NON RIVESTITI CEMENTED CARBIDE GRADES	HC RIVESTITI COATED GRADES BESCHICHTET RECOUVERTS
									T519D
	SM 0702 - 30	6,35	2,38	2,8	2,2	1,3	30°		■
	SM 0702 - 45	6,35	2,38	2,8	2,3	2,3	45°		■
	SM 0702 - 55	6,35	2,38	2,8	3,9	5,6	55°		■

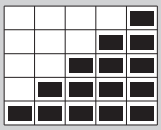
MATERIALE - MATERIAL - MATERIALIEN - MATÉRIAUX		T519D
P	ACCIAIO - STEEL - STAHL - ACIER	●
M	ACCIAIO INOX - STAINLESS STEEL - ROSTFREIER STAHL - ACIER INOXYDABLE	○
K	GHISA - CAST IRON - GRAUGUSS - FONTE GRISE	●
N	LEGHE DI ALLUMINIO - ALUMINIUM ALLOYS - ALUMINIUM-LEGIERUNGEN - ALLIAGES D'ALUMINIUM	○
S	LEGHE RESISTENTI AL CALORE - HEAT RESISTANT ALLOYS - WÄRMEBESTÄNDIGE LEGIERUNGEN - ALLIAGES RÉSISTANTES À LA CHALEUR	
H	MATERIALI DURI E TEMPRATI - HARD AND HARDENED MATERIAL - HARTE UND GEHÄRTETE MATERIALIEN - MATERIAUX DURS ET TREMPÉS	

■ DISPONIBILI - IN STOCK - LIEFERBAR - DISPONIBLES / ■ NEW
● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION-EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

□ A RICHIESTA - ON REQUEST - AUF ANFRAGE - SUR DEMANDE / □ NEW
○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION - MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

SCELTA VELOCE
QUICK PICK

Tenacità + / *Toughness* -



METODO PER LA SCELTA VELOCE DEL GRADO DI METALLO DURO PIÙ IDONEO. CONTARE IL NUMERO DI RETTANGOLI COLORATI

METHOD FOR A QUICK CHOICE OF THE MOST SUITABLE SOLID CARBIDE GRADE. COUNT THE NUMBER OF COLORED RECTANGLES

METHODE ZUR RASCHEN AUSWAHL DER GEEIGNETSTEN HARTMETALLSORTE. DIE ANZAHL DER BUNTEN RECH TECKEZAHLEN

METODE POUR CHOISIR RAPIDEMENT LE DEGRÉ LE PLUS APPROPRIÉ DU METAL DUR. COMPTER LES RECTANGLES EN COULEURS

METODO PARA LA ELECCION RAPIDA DE EL GRADO MAS ADECUADO DE METAL DURO. CONTAR LOS NUMEROS DE RECTANGULOS COLORAEDOS

- GRADO MOLTO RESISTENTE ALL'USURA, SOLO PER FINITURA, LAVORAZIONI AD ALTE VELOCITÀ DI TAGLIO E CONDIZIONI MOLTO RIGIDE E STABILI
- GRADE WITH HIGH RESISTANCE TO WEAR; ONLY FOR FINISHING, MACHINING AT HIGH CUTTING SPEEDS, AND VERY RIGID AND STABLE CONDITIONS

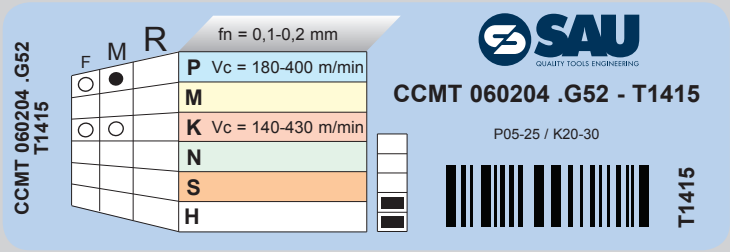
- GRADO CON ALTA RESISTENZA ALL'USURA, DISCRETA TENACITÀ PER LAVORAZIONI A VELOCITÀ MEDIO ALTE ED AVANZAMENTI MEDI, IN CONDIZIONI NORMALI
- GRADE WITH HIGH RESISTANCE TO WEAR, GOOD TOUGHNESS, FOR MEDIUM-HIGH MACHINING AND MEDIUM FEED UNDER NORMAL CONDITIONS

- GRADO CON BUONA RESISTENZA ALL'USURA UNITA A BUONA TENACITÀ, PER LAVORAZIONI GENERICHE IN CONDIZIONI NORMALI
- GRADE WITH GOOD RESISTANCE TO WEAR; COMBINED WITH A GOOD DEGREE OF TOUGHNESS, FOR GENERAL MACHINING UNDER NORMAL CONDITIONS

- GRADO CON OTTIMA TENACITÀ PER LAVORAZIONI MEDIO PESANTI O IN CONDIZIONI POCO STABILI
- GRADE WITH EXCELLENTE TOUGHNESS, FOR MEDIUM HEAVY MACHINING OR MACHINING UNDER CONDITIONS OF LOW STABILITY

- GRADO CON ECCEZIONALE TENACITÀ PER LAVORAZIONI PESANTI CON BASSE VELOCITÀ DI TAGLIO, ALTI AVANZAMENTI O IN CONDIZIONI SFAVOREVOLI
- GRADE WITH EXCELLENTE TOUGHNESS, FOR HEAVY MACHINING WITH LOW CUTTING SPEEDS, HIGH FEED, OR UNDER UNFAVORABLE CONDITIONS

GUIDA FACILE
EASY GUIDE



GUIDA ALL'USO DELL'INSERTO. PRESENTE ANCHE SU OGNI ETICHETTA

GUIDE FOR THE USE OF THE INSERT. ALSO LISTED ON EACH LABEL

LEITFADEN ZUR VERWENDUNG DER WENDEPLATTE, AUCH AUF JEDEM AUFKLEBER VORHANDEN

INSTRUCTIONS POUR L'UTILISATION DE LA PLAQUETTE.SE TROUVANT EGALEMENT SUR CHAQUE ETIQUETTE

GUIA POR EL UTILIZO DE LA PLAQUITA, PRESENTE TAMBIEN EN CADA ETIQUETA

GR. VDI 3323	6	P	= ACCIAIO BASSO LEGATO HB 180	- LOW STEEL ALLOY
	14.1	M	= ACCIAIO INOSSIDABILE AUSTENITICO HB 180	- AUSTENITIC STAINLESS STEELHB 180
	16	K	= GHISA GRIGIA HB 260	- GRAY CAST IRON HB 260
MATERIALI MATERIALS	21	N	= LEGHE DI ALLUMINIO HB 60	- ALUMINUM ALLOYS HB 60
	33	S	= LEGHE RESISTENTI AL CALORE (INCONEL) HB 250	- HEAT RESISTANT ALLOYS (INCONEL) HB 250
Pag. 1119	38	H	= ACCIAIO TEMPRATO HRC 55	- TEMPERED STEEL HRC 55

F	= FINITURA, LAVORAZIONI LEGGERE	- FINISHING, LIGHT MACHINING
M	= LAVORAZIONI MEDIE, IMPIEGO GENERICO	- MEDIUM MACHINING, GENERAL USE
R	= SGROSSATURA, LAVORAZIONI PESANTI	- ROUGHING, HEAVY MACHINING

fn (mm)	= AVANZAMENTO PER TORNITURA	- FEED FOR TOURNING
fz (mm/z)	= AVANZAMENTO PER FRESATURA	- FEED FOR MILLING
Vc (m/min)	= VELOCITÀ DI TAGLIO	- CUTTING SPEED
●	= APPLICAZIONE CONSIGLIATA	- RECOMMENDED APPLICATION
○	= APPLICAZIONE POSSIBILE	- POSSIBLE APPLICATION

INSERTI PER LAVORAZIONE FORI

INSERTS FOR MACHINING BORES / WENDEPLATTEN ZUR BEARBEITUNG VON BOHRUNGEN
PLAQUETTES POUR USINAGE TROUS /PLAQUITAS PARA TRABAJO DE LOS AGUJEROS

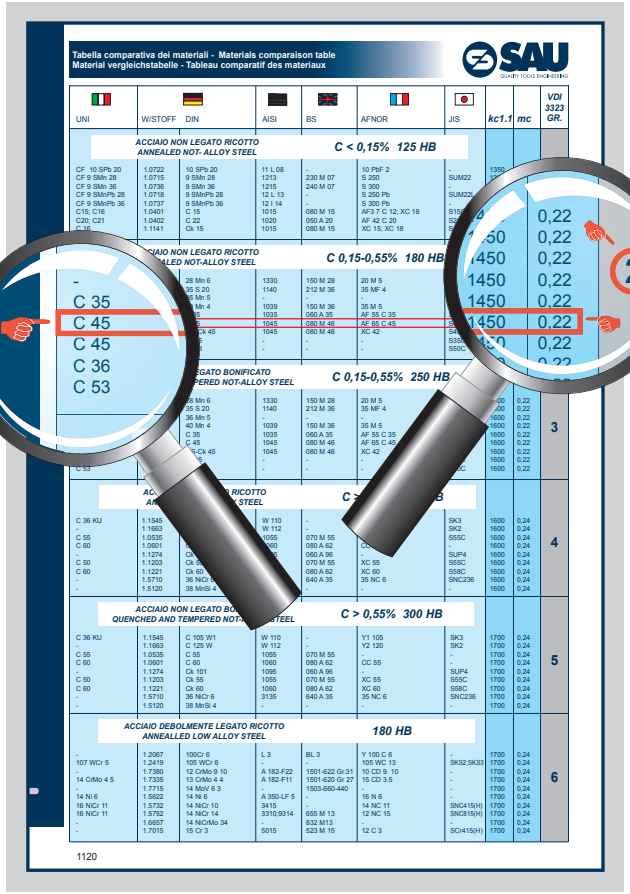
SAU
QUALITY TOOLS ENGINEERING

SAU
QUALITY TOOLS ENGINEERING

INSERTI PER LAVORAZIONE FORI
INSERTS FOR MACHINING BORES
WENDEPLATTEN ZUR BEARBEITUNG VON BOHRUNGEN
PLAQUETTES POUR USINAGE TROUS
PLAQUITAS PARA TRABAJO DE LOS AGUJEROS

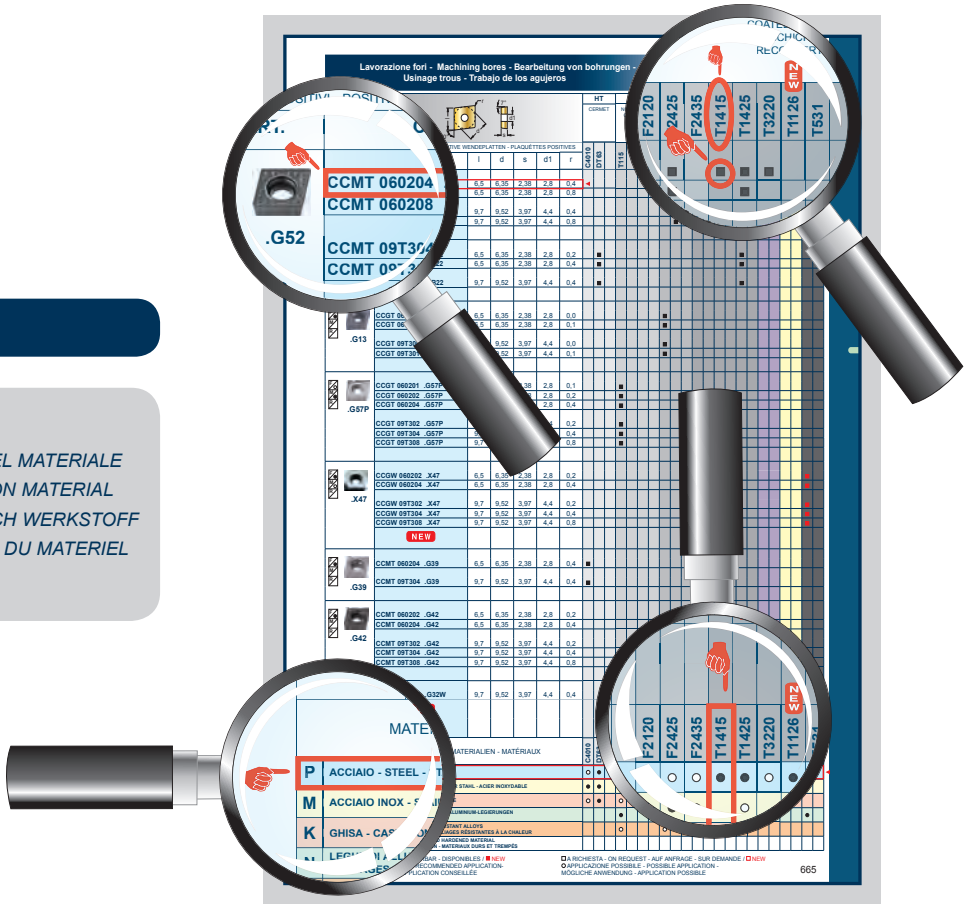
FASE 1 - PHASE 1

SCELTA GR. VDI IN FUNZIONE DEL MATERIALE
CHOICE OF VDI GR. DEPENDING ON MATERIAL
WAHL VDI-SORTE JE NACH WERKSTOFF
CHOIX GR. VDI EN FONCTION DU MATERIEL



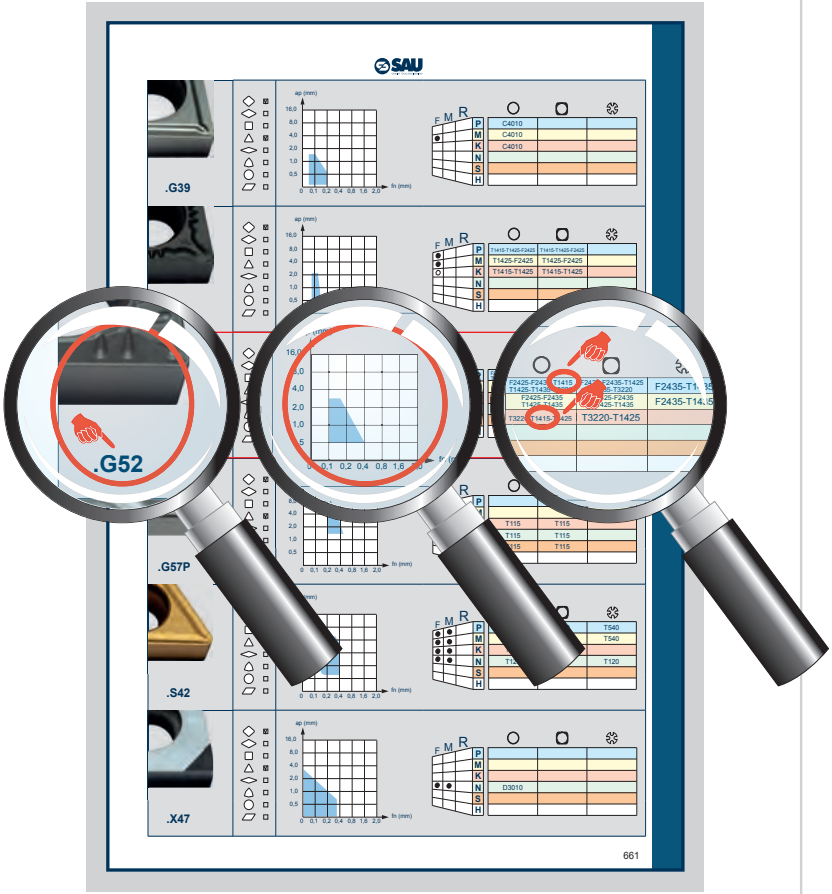
FASE 2 - PHASE 2

SCELTA INSERTO IN FUNZIONE DEL MATERIALE
CHOICE OF INSERT DEPENDING ON MATERIAL
WAHL DER WENDEPLATTE JE NACH WERKSTOFF
CHOIX PLAQUETTE EN FONCTION DU MATERIEL



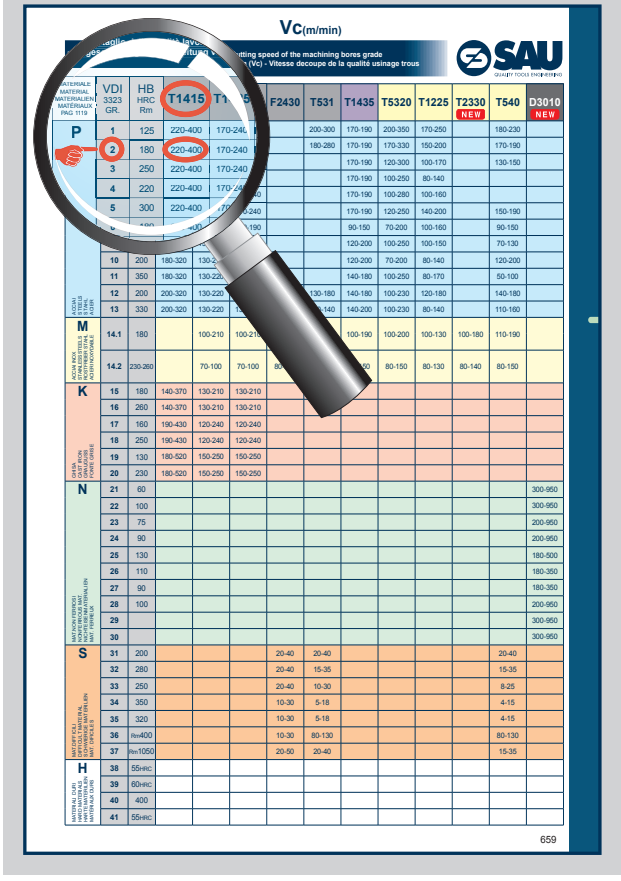
FASE 3 - *PHASE 3*

SCELTA DELL' AVANZAMENTO
CHOICE OF FEED
EINSTELLUNG DES VORSCHUBS
CHOIX DE L'AVANCEMENT



FASE 4 - *PHASE 4*

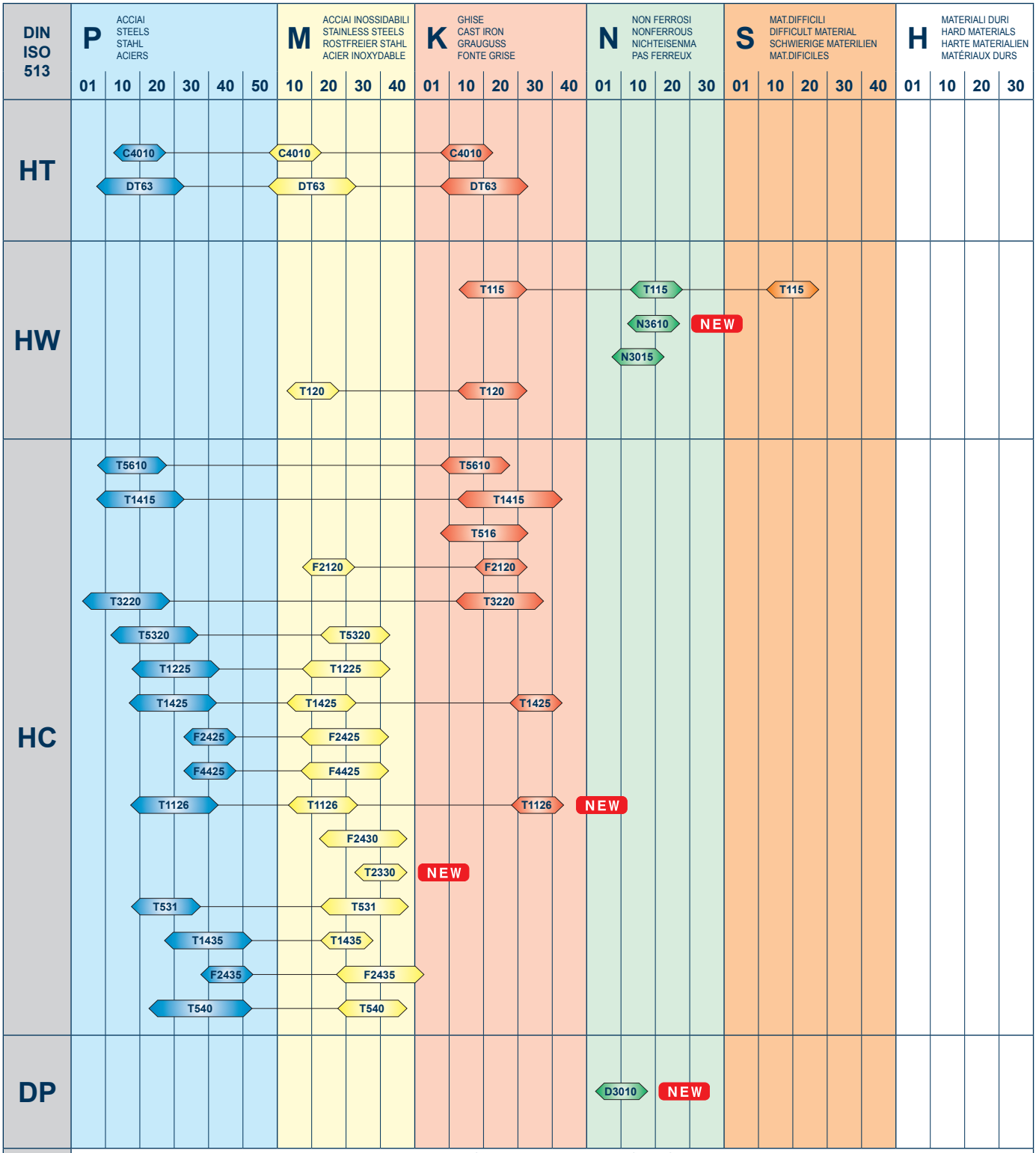
SCELTA DI VC IN FUNZIONE DEL GR. VDI
CHOICE OF VC DEPENDING ON VDI GR.
WAHL VC JE NACH WERKSTOFF
CHOIX DE VC EN FONCTION DU GR. VDI



	VDI 3323 GR.	HB HRC Rm	T1415	T1	F2430	T531	T1435	T5320	T1225	T2330 NEW	T540	D3010 NEW
P	1	125	220-400	170-240		200-300	170-190	200-350	170-250		180-230	
	2	180	220-400	170-240		180-260	170-190	170-330	150-200		170-190	
	3	250	220-400	170-240			170-190	120-300	100-170		130-150	
	4	220	220-400	170-240			170-190	100-250	80-140			
	5	300	220-400	170-240			170-190	100-280	100-160			
	6						170-190	120-250	140-200		150-190	
	7						90-150	70-200	100-160		90-150	
	8						120-200	100-250	100-150		70-130	
	10	200	180-320	130-220			120-200	70-200	80-140		120-200	
	11	350	180-320	130-220			140-180	100-250	80-170		80-100	
	12	200	200-320	130-220		130-180	140-180	100-230	120-180		140-180	
	13	330	200-320	130-220		140	140-200	100-230	80-140		110-160	
M	14.1	180		100-210			100-190	100-200	100-130	100-180	110-190	
	14.2	230-260		70-100				80-150	80-130	80-140	80-150	
K	15	180	140-370	130-210								
	16	260	140-370	130-210								
	17	160	190-430	120-240								
	18	250	190-430	120-240								
	19	130	180-520	150-250								
	20	230	180-520	150-250								
N	21	60										300-950
	22	100										300-950
	23	75										200-950
	24	90										200-950
	25	130										180-500
	26	110										180-350
	27	90										180-350
	28	100										200-950
	29											300-950
	30											300-950
S	31	200			20-40	20-40					20-40	
	32	280			20-40	15-35					15-35	
	33	250			20-40	10-30					8-25	
	34	350			10-30	5-18					4-15	
	35	320			10-30	5-18					4-15	
	36	Rm400			10-30	80-130					80-130	
	37	Rm1050			20-50	20-40					15-35	
H	38	55HRC										
	39	60HRC										
	40	400										
	41	55HRC										

SAU
QUALITY TOOLS ENGINEERING

PANORAMICA QUALITÀ LAVORAZIONE FORI
GENERAL VIEW MACHINING BORES
BEARBEITUNG VON BOHRUNGEN-ÜBERSICHT
VUE D' ENSEMBLE QUALITÉ USINAGE TROUS
VISTA GENERAL TRABAJO DE LOS AGUJEROS



HT CERMET

HW METALLO DURO NON RICOPERTO
UNCOATED CARBIDE
UNBESCHICHTETES HARTMETALL
MÉTAL DUR PAS RECOUVERT

HC METALLO DURO RICOPERTO
COATED CARBIDE
BESCHICHTETES HARTMETALL
MÉTAL DUR RECOUVERT

DP DIAMANTE POLICRISTALLINO (PCD)
POLYCRYSTALLINE DIAMOND (PCD)
POLYKRISTALLINER DIAMANT (PCD)
DIAMANT POLYCRISTALLIN (PCD)

SAU QUALITY TOOLS ENGINEERING

SAU	DIN ISO 513		MATERIALE - MATERIAL MATERIALIEN - MATÉRIAUX PAG. 1119						QUICK PICK PAG. 646			INDICAZIONI - USO
			P	M	K	N	S	H	Tenacità + / Toughness -			
			ACCIAI STEELS STAHL ACIER	ACCIAI INOX STAINLESS STEELS ROSTFREIER STAHL ACIER INOXYDABLE	GHISA CAST IROIN GRAUGUSS FONTE GRISE	MAT.NON FERROSI NONFERROUS MAT. NICHTEISENMATERIALIEN MAT. FERREUX	MAT.DIFFICILI DIFFICULT MATERIAL SCHWERIGE MATERILIEN MAT. DIFICILES	MATERIALI DURI HARD MATERIALS HARTE MATERIALIEN MATERIAUX DURS				
C4010	HT	P10-20 M05-15 K05-15	○	●	○					○	●	- QUALITÀ UNIVERSALE - ALTA RESISTENZA AL CALORE E ALL'USURA, BUONA TENACITÀ - INDICATO PER LE ALTE VELOCITÀ DI TAGLIO
DT63	HT	P05-25 M05-25 K05-25	●	●	●					○	●	- QUALITA' MICROGRANO MOLTO RESISTENTE ALLA ROTTURA ED ALL'USURA - INDICATO PER MEDIO-ALTE VELOCITA' DI TAGLIO IN FINITURA.
T115	HW	K10-25 N10-20 S10-20			○	●	○			○	●	- QUALITA' MICROGRANO CON BUONA RESISTENZA ALL'USURA ELEVATA STABILITÀ DEL FILO TAGLIENTE, BASSA TENDENZA ALL'INCOLLAMENTO - INDICATO PER MEDIO-BASSE VELOCITA' DI TAGLIO SU GHISA GRIGIA E ALTE PER MATERIALI NON FERROSI.
N3610 NEW	HW	N10-20				●				●	●	- GRADO PER LA LAVORAZIONE DELLE LEGHE DI ALLUMINIO
N3015	HW	N05-15				●					●	- QUALITA' PER LAVORAZIONI DI MATERIALI NON FERROSI COME ALLUMINIO E RAME
T120	HW	M10-20 K10-25		○	●	●				○	●	- QUALITA' MICROGRANO CON BUONA TENACITA' - INDICATO PER MEDIO-BASSE VELOCITA' DI TAGLIO E ALTI AVANZAMENTI. PER ASPORTAZIONI MEDIE IN SGROSSATURA
T5610	HC / CVD	P05-20 K05-20	●		●						●	- ALTA TENACITÀ, BUONA RESISTENZA ALL'USURA E ALLO SHOCK TERMICO - INDICATO PER MEDIO-ALTE VELOCITÀ DI TAGLIO NELLA LAVORAZIONE DELL'ACCIAIO E MEDIE PER LAVORAZIONI PROBLEMATICHE DI GHISA
F2120	HC / PVD	M15-25 K15-25		●	○	○	○			●	○	- QUALITÀ SPECIFICA PER LA LAVORAZIONE DEGLI ACCIAI INOX, PARTICOLARMENTE ADATTO ALLE LAVORAZIONI DI SUPER FINITURA - PUÒ ESSERE IMPIEGATO NELLE LAVORAZIONI DI GHISA, ALLUMINIO E LEGHE RESISTENTI AL CALORE
F2425	HC / PVD	P30-40 M15-35	○	●						○	●	- SUBSTRATO DI CARBURO APPOSITAMENTE SVILUPPATO, RIVESTIMENTO IN PVD INNOVATIVO. - QUALITÀ CON UN'ECCELLENTE ROBUSTEZZA SENZA PREGIUDICARE LA DUREZZA A CALDO E LA RESISTENZA ALL'USURA SIA A BASSE CHE AD ALTE VELOCITÀ DI TAGLIO
F2435	HC / PVD	P35-45 M25-45	○	●						●	○	- SUBSTRATO DI CARBURO APPOSITAMENTE SVILUPPATO - RIVESTIMENTO IN PVD INNOVATIVO, FORNISCE UN'ECCELLENTE ROBUSTEZZA E OTTIMA TENACITÀ SENZA PREGIUDICARE LA DUREZZA A CALDO SIA A BASSE CHE AD ALTE VELOCITÀ DI TAGLIO

● APPLICAZIONE CONSIGLIATA
RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ
APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE
POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG
APPLICATION POSSIBLE

● APPLICAZIONE CONSIGLIATA
RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ
APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE
POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG
APPLICATION POSSIBLE

INDICATIONS - USE	GEBRAUCHSANWEISUNGEN	INDICATION - USAGE
- UNIVERSAL GRADE - HIGH HEAT AND WEAR RESISTANCE, GOOD TOUGHNESS - SUITABLE FOR HIGH CUTTING SPEEDS	- UNIVERSALSORTE - HOHE HITZE- UND VERSCHLEISSBESTÄNDIGKEIT, GUTE ZÄHIGKEIT - FÜR HOHE SCHNITTGESCHWINDIGKEITEN GEEIGNET	- QUALITE UNIVERSELLE - HAUTE RESISTANCE A LA CHALEUR ET A L'USURE, BONNE TENACITE - INDIQUE POUR LES HAUTES VITESSES DE COUPE
-MICROGRAIN GRADE WITH VERY HIGH ULTIMATE STRENGHT AND RESISTANCE TO WEAR -SUITABLE FOR MEDIUM-HIGH CUTTING SPEEDS FOR FINISHING	-MIKROKORNSORTE MIT SEHR HOHER BRUCH – UND VERSCH-LEISSFESTIGKEIT -FÜR HOHE SCHNITTGESCHWINDIGKEITEN BEIM SCHLICHTEN GEEIGNET	-QUALITÈ DE MICROGRAIN TRÉS RÉSISTANT À LA RUPTURE ET À L'USURE -INDIQUÉE POUR HAUTE VITESSE DE COUPE EN FINISSAGE
-MICROGRAIN GRADE WITH GOOD RESISTANCE TO WEAR, HIGH STABILITY OF THE CUTTING EDGE, LOW TENDENCY TO STICKING -SUITABLE FOR MEDIUM CUTTING SPEEDS ON GRAY IRON AND HIGH CUTTING SPEEDS AND NONFERROUS MATERIALS.	-MIKROKORNSORTE MIT HOHER VERSCHLEIS-SFESTIGKEIT, STABILITÄT DER SCHNEIDE, NIE-DRIGER NEIGUNG ZUR VERKLEBUNG -FÜR MITTEL-NIEDRIGE SCHNITTGESCHWIN-DIGKEITEN BEI GRAUGUSS UND NE-MATERIA-LIEN	-QUALITE MICRO-GRAIN AVEC BONNE RESI-STANCE A L'USURE, STABILITE ELEVEE DU TRANCHANT, BASSE TENDANCE AU ENCOLLAGE -INDIQUÉE POUR MOYENNE-FAIBLE VITESSE DE COUPE SUR FONTE GRISE ET MATERIAL NON FERROUX
- GRADE FOR THE MACHINING OF ALUMINUM	- SORTE FÜR DIE BEARBEITUNG VON ALUMINIUM	- NUANCE POUR L'USINAGE DE L'ALUMINIUM
- DEGREE FOR NON-FERROUS MATERIALS LIKE ALUMINIUM AND COPPER	- SORTE FÜR NICHTEISENMATERIALIEN WIE ALUMINIUM UND KUPFER	- QUALITE POUR DES USINAGES DE MATERIAUX NON FERREUX TELS QUE L'ALUMINIUM ET LE CUIVRE
- MICROGRAIN GRADE WITH GOOD TOUHGNESS -SUITABLE FOR MEDIUM CUTTING SPEEDS AND HIGH FEED FOR ROUGHING WITH MEDIUM REMOVAL OF MATERIAL	-MIKROKORN SORTE MIT GUTER ZÄHIGKEIT -FÜR MITTEL-NIEDRIGE SCHNITTGESCHWIN-DIGKEITEN GROSSE VORSCHÜBE FÜR MITTLERE ZERSPANNUNG BEIM SCHRUPPEN GEEIGNET	-QUALITÉ DE MICROGRAIN AVEC BONNE TENACITE -INDIQUÉE POUR MOYENNE-FAIBLE VITESSE DE COUPE ET HAUTE DÉPLACEMENT POUR MOYEN EMPORTATION EN ÉBAUCHAGE
-HIGH TOUGHNESS, GOOD RESISTANCE TO WEAR AND TO THERMAL SHOCK -SUITABLE FOR MEDIUM-HIGH CUTTING SPEEDS ON STEEL AND MEDIUM CUTTING SPEED FOR DIFFICULT IRON OPERATIONS	-HOHE ZÄHIGKEIT , GUTE VERSCHLEISSFESTIGKEIT UND TEMPERATURWECHSELBESTÄNDIGKEIT -GEEIGNET FÜR MITTEL-HOHE SCHNITTGESCHWIN-DIGKEITEN BEI STAHL UND FÜR MITTLERE SCHNITTGESCHWINDIGKEITEN BEI GUSEISEN	-HAUTE TENACITÉ, BONNE RÉSISTANCE À L'USURE ET AU SHOCK THERMIQUE -INDIQUÉE POUR DES HAUTE-MOYENNE VITESSE DE COUPE DANS LES USINAGES DE L'ACIER ET MOYENNE POUR LES USINAGES PROBLÉMATIQUES DE LA FONTE
- SPECIFIC GRADE FOR INOX STEEL, PARTICULARLY SUITABLE FOR SUPER-FINISHING - IT CAN BE USED FOR CAST IRON, ALUMINIUM AND HEAT-RESISTANT ALLOYS	- SPEZIALSORTE FÜR INOX-STAHL, BESONDERS ZUM FEIN-SCHLICHTEN GEEIGNET -EINSETZBAR FÜR GUSS, ALUMINIUM UND HITZEBESTÄNDIGE LEGIERUNGEN	- QUALITE SPECIFIQUE POUR L'USINAGE DES ACIERS INOX, SPECIALEMENT PREVUE POUR LES USINAGES DE SUPER FINITION - PEUT ETRE EMPLOYEE DANS LES USINAGES DE FONTE, ALUMINIUM ET ALLIAGES RESISTANTS A LA CHALEUR
- SPECIALLY DEVELOPED CARBIDE SUBSTRA-TE, INNOVATIVE PVD COATING - GRADE WITH EXCELLENT TOUGHNESS WHICH DOES NOT AFFECT RED HARDNESS AND WEAR RESISTANCE, AT BOTH LOW AND HIGH CUTTING SPEEDS	- SPEZIELL ENTWICKELTES KARBIDSUBSTRAT, INNOVATIVE PVD-BESCHICHTUNG. - SORTE MIT HERVORRAGENDER ROBUSTHEIT BEI UNVERÄNDERTER WARMHÄRTE UND VERSCHLEISSBESTÄNDIGKEIT SOWOHL MIT NIEDRIGEN ALS AUCH MIT HOHEN SCHNITTGESCHWINDIGKEITEN	- SUBSTRAT DE CARBURE SPÉCIALEMENT DÉVELOPPÉ, REVÊTEMENT EN PVD INNOVANT. - QUALITÉ AVEC UNE ROBUSTESSE EXCEL-LENTE SANS PORTER PRÉJUDICE À LA DURETÉ À CHAUD ET À LA RÉSISTANCE À L'USURE À BASSES VITESSES COMME À HAUTES VITESSES DE COUPE
- SPECIALLY DEVELOPED CARBIDE SUBSTRATE - INNOVATIVE PVD COATING PROVIDING EXCELLENT STRENGTH AND VERY GOOD TOUGHNESS WITHOUT AFFECTING RED HARDNESS AT BOTH LOW AND HIGH CUTTING SPEED	- SPEZIELL ENTWICKELTES KARBID-SUBSTRAT - INNOVATIVE PVD-BESCHICHTUNG FÜR EXCELLENTE ROBUSTHEIT UND OPTIMALE ZÄHIGKEIT OHNE BEEINTRÄCHTIGUNG DER WARMHÄRTE BEI SOWOHL HOHEN ALS AUCH NIEDRIGEN SCHNITTGESCHWINDIGKEITEN	- SUBSTRAT DE CARBURE SPECIALEMENT DEVELOPPE - REVETEMENT EN PVD INNOVANT, FOURNIT UNE ROBUSTESSE ET TENACITE EXCELLENTES, SANS POUR AUTANT PORTER PREJUDICE A LA DURETE A CHAUD A DE BASSES COMME A DE HAUTES VITESSES DE COUPE.

HT CERMET

HW METALLO DURO NON RICOPERTO
UNCOATED CARBIDE
UNBESCHICHTETES HARTMETALL
MÉTAL DUR PAS RECOUVERT

HC METALLO DURO RICOPERTO
COATED CARBIDE
BESCHICHTETES HARTMETALL
MÉTAL DUR RECOUVERT

DP DIAMANTE POLICRISTALLINO (PCD)
POLYCRYSTALLINE DIAMOND (PCD)
POLYKRISTALLINER DIAMANT (PCD)
DIAMANT POLYCRISTALLIN (PCD)

SAU QUALITY TOOLS ENGINEERING

SAU	DIN ISO 513		MATERIALE - MATERIAL MATERIALIEN - MATÉRIAUX PAG. 1119						QUICK PICK PAG. 646 Tenacità / Toughness + -			INDICAZIONI - USO
			P ACCIAI STEELS STAHL ACIER	M ACCIAI INOX STAINLESS STEELS ROSTFREIER STAHL ACIER INOXYDABLE	K GHISA CAST IRO/N GRAUGUSS FONTE GRISE	N MAT.NON FERROSI NONFERROUS MAT. NICHTEISENMATERIALIEN MAT. FERREUX	S MAT.DIFFICILI DIFFICULT MATERIAL SCHWERIGE MATERILIEN MAT. DIFICILES	H MATERIALI DURI HARD MATERIALS HARTE MATERIALIEN MATERIAUX DURS				
T1415	HC / CVD	P05-25 K10-35	●		○					○	●	- GRADO INSERTO IDEALE PER LA PRODUZIONE AD ALTO VOLUME - BUONA RESISTENZA AL CALORE CHE LO RENDE PERFETTAMENTE ADATTO PER LA LAVORAZIONE A SECCO ANCHE AD ALTE VELOCITÀ DI TAGLIO
T516	HC / PVD	K05-25			●					○	●	- ALTA RESISTENZA ALL' USURA E BUONA TENACITÀ - INDICATO PER MEDIO-ALTE VELOCITÀ DI TAGLIO IN FINITURA E SGROSSATURA PREVALENTEMENTE SU GHISA GRIGIA
T3220	HC / CVD	P01-20 K10-30	○		●					○	●	- GRADO DA TORNITURA PER LA LAVORAZIONE DELLA GHISA GRIGIA E SFEROIDALE
T1425	HC / CVD	P15-35 M10-25 K25-35	●	○	○					○	●	- VASTA GAMMA DI IMPIEGHI, IDEAELE PER TUTTE LE LEGHE DI ACCIAIO E GHISA, BUONE PRESTAZIONI ANCHE SU INOX
F4425	HC / PVD	P30-40 M15-35	●	●							●	- ELEVATA TENACITA' , ALTA RESISTENZA ALLA DEFORMAZIONE E ALLA SCHEGGIATURA - INDICATO PER BASSE VELOCITA' DI TAGLIO
T1126 NEW	HC / CVD	P15-35 M10-25 K25-35	●	●	●					●	○	- SUBSTRATO MIGLIORATO CON BUONA RESISTENZA ALL'USURA E ALL'ABRASIONE - ADATTO PERE LAVORAZIONI SENZA L'AUSILIO DEL LUBROREFRIGERANTE.
F2430	HC / PVD	M20-40		●			○				●	- GRADO MOLTO TENACE, IDEALE PER LA LAVORAZIONE DI ACCIAIO INOSSIDABILE A MEDIO BASSE VELOCITA' DI TAGLIO. - OTIIMA RESISTENZA ALL'USURA SIA CON LAVORAZIONI A SECCO CHE IN UMIDO.
T531	HC / CVD	P15-30 M20-40	○	●			●			○	●	-QUALITA' MICROGRANO TENACE CON BUONA RESISTENZA AGLI URTI ED AGLI SHOCK TERMICI - INDICATO PER MEDIE E MEDIO-BASSE VELOCITA' DI TAGLIO
T1435	HC / CVD	P25-45 M20-30	●	○						●	●	- GRADO INSERTO TENACE PER LAVORAZIONI DIFFICILI CON CONDIZIONI INSTABILI E A TAGLIO INTERROTTO
T5320	HC / CVD	P10-30 M20-35	●	○							●	-INSERTO CON MEDIA TENACITÀ -INDICATO PER MEDIE ALTE VELOCITÀ DI TAGLIO -ADATTO PER LA LAVORAZIONE DEGLI ACCIAI LEGATI E DEBOLMENTE LEGATI

● APPLICAZIONE CONSIGLIATA
RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ
APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE
POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG
APPLICATION POSSIBLE

● APPLICAZIONE CONSIGLIATA
RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ
APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE
POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG
APPLICATION POSSIBLE

INDICATIONS - USE	GEBRAUCHSANWEISUNGEN	INDICATION - USAGE
- IDEAL GRADE FOR HIGH VOLUME MACHINING - GOOD HEAT RESISTANCE AND THEREFORE PERFECTLY SUITABLE FOR DRY MACHINING, EVEN AT HICH CUTTING SPEEDS	- IDEALE SORTE FÜR HOCHVOLUMENFERTIGUNG - GUTE HITZEBESTÄNDIGKEIT UND DAHER PERFEKT FÜR DIE TROCKENBEARBEITUNG, AUCH MIT HOHEN SCHNITTGESCHWINDIGEKEITEN	- DEGRÉ PLAQUETTE IDÉAL POUR LA PRODUCTION À HAUT VOLUME - BONNE RÉSISTANCE À LA CHALEUR, QUI LE REND PARFAITEMENT INDIQUÉ POUR L'USINAGE À SEC MEME A DE HAUTES VITESSES DE COUPE
-HIGH RESISTANCE TO WEAR, GOOD TOUGHNESS -SUITABLE FOR MEDIUM – HIGH CUTTING SPEEDS FOR FINISHING AND ROUGHING MAINLY ON GRAY IRON	- HOHE VERSCHLEISSFESTIGKEIT UND GUTE ZÄHIGKEIT - FÜR MITTEL-HOHE SCHNITTGESCHWINDIGKEITEN ZUM SCHLICHTEN UND SCHRUPPEN, ÜBERWIEGEND AUF GRAUGUSS, GEEIGNET.	- HAUTE RESISTANCE A L'USURE ET BONNE TENACITE - INDIQUE POUR LES VITESSES HAUTES-MOYENNES DE COUPE DANS LA FINITION ET LE DEGROSSISSAGE PRINCIPALEMENT SUR FONTE GRISE
- TURNING GRADE FOR GREY CAST IRON AND NODULAR CAST IRON	- DREHSORTE FÜR DIE BEARBEITUNG VON GUSS UND SPHÄROGUSS	- DEGRE DE TOURNAGE POUR L'USINAGE DE LA FONTE GRISE ET SPHEROIDALE
- WIDE RANGE OF APPLICATIONS, IDEAL FOR ALL STEEL AND CAST IRON ALLOYS, GOOD PERFORMANCE ALSO ON INOX	- HOHE VIELSEITIGKEIT, IDEAL FÜR ALLE STAHL- UND GUSSLEGIERUNGEN, GUTE LEISTUNG AUCH MIT INOXSTAHL	- VASTE GAMME D'EMPLOIS, IDÉAL POUR TOUS LES ALLIAGES EN ACIER ET FONTE, BONNES PERFORMANCES MÊME SUR INOX
- HIGH TOUGHNESS,STRAIN STRENGHT AND RESISTANCE TO CHIPPING - SUITABLE FOR LOW CUTTING SPEEDS	- HOHE ZÄHIGKEIT, UMFORMFESTIGKEIT UND ABSPLITTERWINDERSTAND - FÜR GERINGE SCHNITTGESCHWINDIGKEITEN GEEI-GNET	- TENACITÉ ELEVÉE,HAUTE RÉSISTANCE Ä LA DÉFORMATION ET Ä L'EBRÉCHEMENT - INDIQUÉE POUR FAIBLE VITESSE DE COUPE POUR OPÉRATIONS DURS ET DIFFICILES
- IMPROVED SUBSTRATE WITH GOOD RESISTANCE TO WEAR AND ABRASION - SUITABLE FOR MACHINING WITHOUT COOLING LUBRICANT	- VERBESSERTES SUBSTRAT MIT GUTER VERSCHLEIßBESTÄNDIGKEIT UND ABRIEBFESTIGKEIT - ZUR BEARBEITUNG OHNE KÜHLSCHMIERSTOFF GEEIGNET	- SUBSTRAT AMÉLIORÉ AVEC BONNE RÉSISTANCE À L'USURE ET À L'ABRASION - SPÉCIALEMENT PRÉVU POUR LES USINAGES SANS LUBRIFIANT-RÉFRIGÉRANT.
- REMARKABLY TOUGH, IDEAL FOR MACHINING STAINLESS STEEL AT MEDIUM-SLOW CUTTING SPEEDS - EXCELLENT WEAR RESISTANCE WITH BOTH DRY AND WET MACHINING WORK	- SEHR ZÄHE SORTE, IDEAL FÜR EDELSTAHLBEARBEITUNGEN MIT MITTLERER/ NIEDRIGER SCHNITTGESCHWINDIGKEIT. - AUSGEZEICHNETE VERSCHLEISSFESTIGKEIT BEI TROCKEN- UND NASSBEARBEITUNGEN.	- DEGRÉ TRÈS TENACE, IDÉAL POUR L'USINAGE DE L'ACIER INOXYDABLE À DES VITESSES BASSES ET MOYENNES DE COUPE. - RÉSISTANCE PARFAITE À L'USURE AVEC DES USINAGES À SEC COMME À L'EAU.
-TOUGH MICROGRAIN GRADE WITH HIGH RESISTANCE TO SHOCK AND THERMAL SHOCK. -SUITABLE FOR MEDIUM AND MEDIUM-LOW CUTTING SPEEDS	-MIKROKORNSORTE MIT HOHER STOSSFESTIGKEIT UND TEMPERATURWECHSELBESTÄNDIGKEIT -FÜR MITTLERE UND MITTEL-NIEDRIGE SCHNITTGESCHWINDIGKEITEN GEEIGNET	-QUALITÉ DE MICROGRAIN TENACE AVEC BONNE RÉSISTANCE AU COUPS ET AU SHOCKS THERMIQUES. -INDIQUÉE POUR MOYENNE ET MOYENNE-FAIBLE VITESSE DE COUPE
- TOUGH DEGREE FOR DIFFICULT MACHINING UNDER UNSTABLE CONDITIONS AND WITH INTERRUPTED CUT	- ZÄHE SORTE FÜR SCHWERE BEARBEITUNGEN UNTER UNSTABILEN BEDINGUNGEN UND MIT UNTERBROCHENEM SCHNITT	- DEGRÉ PLAQUETTE TENACE POUR USINAGES DIFFICILES DANS DES CONDITIONS INSTABLES ET À COUPE INTERROMPUE
- MEDIUM TOUGH INSERT - IDEAL FOR MEDIUM TO HIGH CUTTING SPEEDS - SUITABLE FOR MACHINING ALLOYED AND WEAKLY ALLOYED STEELS	- WENDEPLATTE MIT MITTLERER ZÄHIGKEIT - GEEIGNET FÜR MITTLERE/HOHE SCHNITTGESCHWINDIGKEITEN - GEEIGNET FÜR BEARBEITUNGEN VON LEGIERTEM UND SCHWACH LEGIERTEM STAHL	- PLAQUETTE AVEC TÉNACITÉ MOYENNE - PRÉVUE POUR DES VITESSES DE COUPE HAUTES ET MOYENNES - PRÉVUE POUR L'USINAGE DES ACIERS ALLIÉS ET FAIBLEMENT ALLIÉS

HT CERMET

HW METALLO DURO NON RICOPERTO
UNCOATED CARBIDE
UNBESCHICHTETES HARTMETALL
MÉTAL DUR PAS RECOUVERT

HC METALLO DURO RICOPERTO
COATED CARBIDE
BESCHICHTETES HARTMETALL
MÉTAL DUR RECOUVERT

DP DIAMANTE POLICRISTALLINO (PCD)
POLYCRYSTALLINE DIAMOND (PCD)
POLYKRISTALLINER DIAMANT (PCD)
DIAMANT POLYCRISTALLIN (PCD)

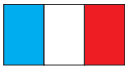
SAU	DIN ISO 513		MATERIALE - MATERIAL MATERIALIEN - MATÉRIAUX PAG. 1119						QUICK PICK PAG. 646			INDICAZIONI - USO
			P	M	K	N	S	H				
			ACCIAI STEELS STAHL ACIER	ACCIAI INOX STAINLESS STEELS ROSTFREIER STAHL ACIER INOXYDABLE	GHISA CAST IRON GRAUGUSS FONTE GRISE	MAT.NON FERROSI NONFERROUS MAT. NICHTEISENMATERIALIEN MAT. FERREUX	MAT.DIFFICILI DIFFICULT MATERIAL SCHWERIGE MATERILIEN MAT. DIFICILES	MATERIALI DURI HARD MATERIALS HARTE MATERIALIEN MATERIAUX DURS	Tenacità / Toughness + -			
T1225	HC / CVD	P15-35 M15-35	●	○							●	- OTTIMA RESISTENZA ALL' USURA E BUONA TENACITA. - INDICATO PER UNA VASTA GAMMA DI APPLICAZIONI
T2330 NEW	HC / CVD	M30-40		●						●	●	- GRADO PER LA LAVORAZIONE DELL'ACCIAIO INOX
T540	HC / CVD	P20-43 M25-40	●	○			○				●	- OTTIMA TENACITÀ , RESISTENZA ALL'USURA E ALLA SCHEGGIATURA - INDICATO PER MEDIO-BASSE VELOCITÀ DI TAGLIO
D3010 NEW	DP	N01-10				●				●		- GRADO INDICATO PER LA TORNITURA DI MATERIALI NON FERROSI, ES. LEGHE DI ALLUMINIO, MEGLIO SE AD ALTO TENORE DI SILICIO, RAME, BRONZO TERMOPLASTICI RINFORZATI E COMPOSITI. - OTTIMA FINITURA E VITA UTENSILE.

● APPLICAZIONE CONSIGLIATA
RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ
APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE
POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG
APPLICATION POSSIBLE

● APPLICAZIONE CONSIGLIATA
RECOMMENDED APPLICATION
EMPFOHLENER EINSATZ
APPLICATION CONSEILLÉE

○ APPLICAZIONE POSSIBILE
POSSIBLE APPLICATION
MÖGLICHE ANWENDUNG
APPLICATION POSSIBLE

 INDICATIONS - USE	 GEBRAUCHSANWEISUNGEN	 INDICATION - USAGE
-EXCELLENT RESISTANCE TO WEAR AND GOOD TOUGHNESS - SUITABLE FOR A WIDE RANGE OF APPLICATIONS	-OPTIMAL VERSCHLEISSFESTIGKEIT UND GUTE ZÄHIGKEIT - GEEIGNET FÜR EINE BREITE PALETTE VON ANWENDUNGEN	-OPTIMAL RÉSISTANCE À L'USURE ET BONNE TENACITÉ - INDIQUE POUR UNE VASTE GAMME D'APPLICATIONS
- GRADE FOR THE MACHINING OF STAINLESS STEEL	- SORTE FÜR DIE BEARBEITUNG VON INOX-STAHL	- NUANCE POUR L'USINAGE DE L'ACIER INOXYDABLE
-HIGH TOUGHNESS, RESISTANCE TO WEAR AND CHIPPING -SUITABLE FOR MEDIUM-LOW CUTTING SPEEDS	-SEHR GUTER VERSCHLEISS, UND AUSBRUCHFESTIGKEIT -FÜR MITTEL-NIEDRIGE SCHNITTGESCHWINDIGKEITEN	-HAUTE TENACITÈ, RÉSISTANCE À L'USURE ET À L'ÉBRÈCHEMENT -INDIQUÉE POUR MOYENNE-FAIBLE VITESSE DE COUPE
- TURNING GRADE FOR NON-FERROUS MATERIALS, SUCH AS ALUMINUM ALLOYS, PREFERABLY WITH HIGH SILICON, COPPER, BRONZE CONTENT, REINFORCED THERMOPLASTIC MATERIALS AND COMPOUNDS - EXCELLENT FINISHING AND TOOL LIFE	- SORTE ZUM DREHEN FÜR NICHT-EISENMATERIALIEN, z.B. ALUMINIUM-LEGIERUNGEN, VORZUGSWEISE MIT HOHEM SILIZIUM- , KUPFER- UND BRONZEGEHALT, VERSTÄRKTE THERMOPLASTE UND VERBUNDMATERIALIEN. - HERVORRAGENDE OBERFLÄCHENGÜTE UND WERKZEUGSTANDZEIT	- DEGRÉ INDIQUÉ POUR LE TOURNAGE DE MATÉRIAUX NON FERREUX, TELS QUE ALLIAGES D'ALUMINIUM, AUTANT QUE POSSIBLE À TENEUR ÉLEVÉE DE SILICIUM, CUIVRE, BRONZE, THERMOPLASTIQUES RENFORCÉS ET COMPOSITES. - FINITION ET VIE DE L'OUTIL EXCELLENTES.

HT CERMET **HW** METALLO DURO NON RICOPERTO
UNCOATED CARBIDE
UNBESCHICHTETES HARTMETALL
MÉTAL DUR PAS RECOUVERT **HC** METALLO DURO RICOPERTO
COATED CARBIDE
BESCHICHTETES HARTMETALL
MÉTAL DUR RECOUVERT **DP** DIAMANTE POLICRISTALLINO (PCD)
POLYCRYSTALLINE DIAMOND (PCD)
POLYKRISTALLINER DIAMANT (PCD)
DIAMANT POLYCRISTALLIN (PCD)

Vc(m/min)

Velocità di taglio delle qualità lavorazione fori - Cutting speed of the machining bores grade
Schnittgeschwindigkeit bearbeitung von bohrungen (Vc) - Vitesse decoupe de la qualité usinage trous

SAU QUALITY TOOLS ENGINEERING

MATERIALE MATERIAL MATERIALIEN MATÉRIAUX PAG 1119	VDI 3323 GR.	HB HRC Rm	C4010	DT63	T115	N3610 NEW	N3015	T120	F2120	F2425	F2435	T1415	T516
P ACCIAI STEELS STAHL ACIER	1	125	230-270	310-400						130-250	170-190	220-400	
	2	180	230-270	260-350						130-250	170-190	220-400	
	3	250	230-270	220-300						130-250	170-190	220-400	
	4	220	230-270	220-330						130-250	170-190	220-400	
	5	300	230-270	180-280						130-250	170-190	220-400	
	6	180	230-270	250-350						130-250	90-150	220-400	
	7-8	250-300	180-230	200-350						60-180	90-150	200-320	
	9	350	180-230	150-220						60-180	90-150	200-320	
	10	200	160-200	200-350						80-200	120-200	180-320	
	11	350	160-200	150-220						80-200	120-200	180-320	
	12	200	230-270	180-300				80-150		120-250	140-180	200-320	
	13	330	170-240	150-250				40-70		120-250	140-180	200-320	
M ACCIAI INOX STAINLESS STEELS ROSTFREIER STAHL ACIER INOXYDABLE	14.1	180	170-240	150-280				50-100	120-200	100-250	110-200		
	14.2	230-260	130-160	100-150				50-90	60-160	40-160	55-150		
K GHISA CAST IRON GRAUGUSS FONTE GRISE	15	180	200-300	200-300	120-160			100-150	120-160			140-370	180-300
	16	260	200-300	150-260	120-160			70-120	120-160			140-370	140-270
	17	160	220-300	180-300	130-170			100-140	120-160			190-430	130-220
	18	250	220-300	150-240	90-130			80-120	120-160			190-430	100-200
	19	130	250-350	170-280	140-200			120-180	140-220			180-520	150-280
	20	230	250-350	150-220	120-160			70-120	120-160			180-520	120-220
N MAT.NON FERROSI NONFERROUS MAT. NICHTEISENMATERIALIEN MAT. FERREUX	21	60			100-950	100-950	400-950	300-1000	100-400				
	22	100			100-950	100-950	160-950	300-800	100-400				
	23	75			100-950	100-950	320-950	200-500	100-400				
	24	90			100-950	100-950	240-950	200-400	100-400				
	25	130			100-800	100-800	160-800	200-300	100-400				
	26	110			100-600	100-600	200-520	200-450	100-400				
	27	90			100-600	100-600	200-800	200-400	100-400				
	28	100			100-400	100-400	120-320	250-350	100-400				
	29				60-180	60-180		300-500	100-600				
	30				100-250	100-250		100-300	100-600				
S MAT.DIFFICILI DIFFICULT MATERIAL SCHWIERIGE MATERILIEN MAT. DIFICILES	31	200			30-45				20-50				
	32	280			20-35				20-50				
	33	250			20-35				15-40				
	34	350			18-30				20-35				
	35	320			15-25				20-35				
	36	Rm400			60-120				80-140				
	37	Rm1050			30-80				80-140				
H MATERIALI DURI HARD MATERIALS HARTE MATERILIEN MATÉRIAUX DURS	38	55HRC											
	39	60HRC											
	40	400											
	41	55HRC											

Vc(m/min)

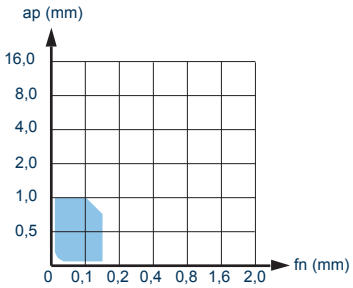
Velocità di taglio delle qualità lavorazione fori - Cutting speed of the machining bores grade
Schnittgeschwindigkeit bearbeitung von bohrungen (Vc) - Vitesse decoupe de la qualité usinage trous

SAU QUALITY TOOLS ENGINEERING

MATERIALE MATERIAL MATERIALIEN MATÉRIAUX PAG 1119	VDI 3323 GR.	HB HRC Rm	T3220	T1425	T1126 NEW	F2430	T531	T1435	T5320	T1225	T2330 NEW	T540	D3010 NEW
P ACCIAI STEELS STAHL ACIER	1	125	200-340	170-240	170-240		200-300	170-190	200-350	170-250		180-230	
	2	180	200-340	170-240	170-240		180-280	170-190	170-330	150-200		170-190	
	3	250	200-340	170-240	170-240			170-190	120-300	100-170		130-150	
	4	220	200-340	170-240	170-240			170-190	100-250	80-140			
	5	300	200-340	170-240	170-240			170-190	100-280	100-160			
	6	180	200-340	170-240	170-240			170-190	120-250	140-200		150-190	
	7-8	250-300	150-290	100-190	100-190			90-150	70-200	100-160		90-150	
	9	350	150-290	130-210	130-210			120-200	100-250	100-150		70-130	
	10	200	160-290	130-210	130-210			120-200	70-200	80-140		120-200	
	11	350	160-290	130-220	130-220			140-180	100-250	80-170		50-100	
	12	200	160-290	130-220	130-220		130-180	140-180	100-230	120-180		140-180	
	13	330	160-290	130-220	130-220		100-140	140-200	100-230	80-140		110-160	
M ACCIAI INOX STAINLESS STEELS ROSTFREIER STAHL ACIER INOXYDABLE	14.1	180		100-210	100-210	100-220	100-160	100-190	100-200	100-130	100-180	110-190	
	14.2	230-260		70-100	70-100	80-200	80-120	50-150	80-150	80-130	80-140	80-150	
K GHISA CAST IRON GRAUGUSS FONTE GRISE	15	180	150-400	130-210	130-210								
	16	260	150-400	130-210	130-210								
	17	160	200-450	120-240	120-240								
	18	250	200-450	120-240	120-240								
	19	130	200-550	150-250	150-250								
	20	230	200-550	150-250	150-250								
N MAT.NON FERROSI NONFERROUS MAT. NICHTEISENMATERIALIEN MAT. FERREUX	21	60											300-950
	22	100											300-950
	23	75											200-950
	24	90											200-950
	25	130											180-500
	26	110											180-350
	27	90											180-350
	28	100											200-950
	29												300-950
	30												300-950
S MAT.DIFFICILI DIFFICULT MATERIAL SCHWIERIGE MATERILIEN MAT. DIFICILES	31	200				20-40	20-40					20-40	
	32	280				20-40	15-35					15-35	
	33	250				20-40	10-30					8-25	
	34	350				10-30	5-18					4-15	
	35	320				10-30	5-18					4-15	
	36	Rm400				10-30	80-130					80-130	
	37	Rm1050				20-50	20-40					15-35	
H MATERIALI DURI HARD MATERIALS HARTE MATERILIEN MATÉRIAUX DURS	38	55HRC											
	39	60HRC											
	40	400											
	41	55HRC											

SAU
QUALITY TOOLS ENGINEERING

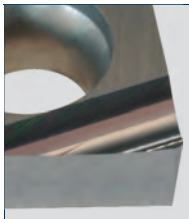
CAMPI D'IMPIEGO DEI ROMPITRUCIOLI LAVORAZIONE FORI
FIELDS OF APPLICATION FOR CHIP BREAKERS
EINSATZGEBIETE DER SPANBRECHER
CHAMPS D'USINAGE DE LE BRISE-COPEAUX
CAMPOS DE UTILIZACIÒN DE ROMPEVIRUTAS PARA MANDRINADO



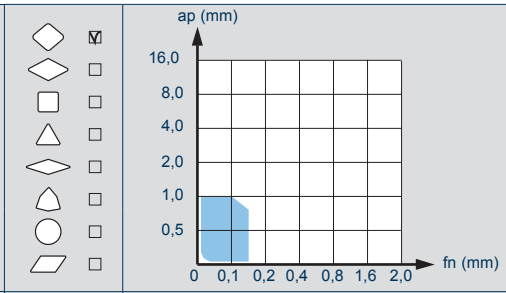
F M R	○	▢	⛭
P	DT61T		
M	DT61T		
K	T120		
N	T120		
S			
H			

GRADI CONSIGLIATI
RECOMMENDED GRADES
EMPFOHLENE SORTEN
DEGRÉS CONSEILLÉS

F =	FINITURA, LAV. LEGGERE	FINISHING,LIGHT MACHING	SCHLICHTEN,LEICHTE BEARBEITUNG	FINISSAGE USINAGES LÉGERES
M =	GENERICO, LAV. MEDIE	GENERIC MEDIUM MACHINING	ALLGEMEIN,MITTELSCHWERE BEARBEITUNG	GENERAL USINAGES MOYENS
R =	SGROSSATURA, LAV. PESANTI	ROUGHING, HEAVY MACHINING	SCHRUPPEN,SCHWERE BEARBETUNG	DEGROSSISAGES,USINAGES LOURDS
P,M,K,N,S,H =	MATERIALI ISO **PAG** 1119	ISO MATERIALS **PAGE** 1119	ISO-MATEREIALIEN,**SEITE** 1119	MATERIAUX ISO **PAG** 1119
○ =	TAGLIO CONTINUO	CONTINUOUS CUT	KONTINUIERLICHER SCHNITT	TRONÇONNAGE CONTINU
▢ =	TAGLIO DISCONTINUO	DISCONTINUOUS CUT	DISKONTINUIERLICHER SCHNITT	TRONÇONNAGE DISCONTINU
⛭ =	TAGLIO INTERROTTO	INTERRUPTED CUT	UNTERBROCHENER SCHNITT	TRONÇONNAGE INTERROMPU
● =	APPLICAZIONE CONSIGLIATA	RECOMMENDED APPLICATION	EMPFOHLENER EINSATZ	APPLICATION CONSEILLÉE
○ =	APPLICAZIONE POSSIBILE	POSSIBLE APPLICATION	MOGLICHE ANWENDUNG	APPLICATION POSSIBLE
ap (mm) =	PROFONDITÀ DI PASSATA	DEPTH OF CUT	GANGTIEFE	PROFONDEUR DE PASSE
fn (mm) =	AVANZAMENTO AL GIRO	FEED/REVOLUTION	VORSCHUB PRO UMDREHUNG	DÉPLACEMENT AU TOUR

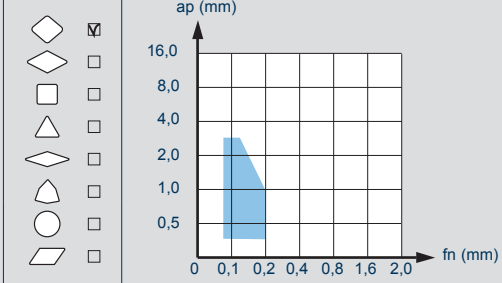


.B22



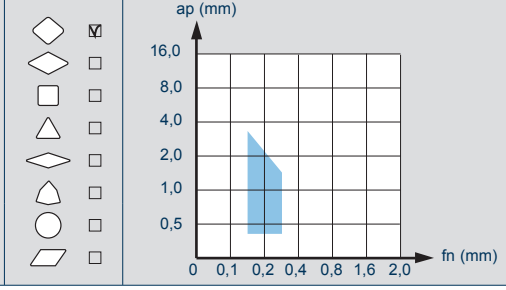
F M R	○	▢	⛭
P	DT63		
M	DT63-T531	T531	T531
K	DT63		
N			
S			
H			

.G13

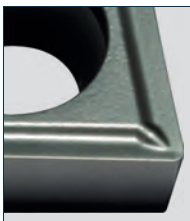


F M R	○	▢	⛭
P			
M	F2120	F2120	
K	F2120	F2120	
N	F2120	F2120	
S	F2120	F2120	
H			

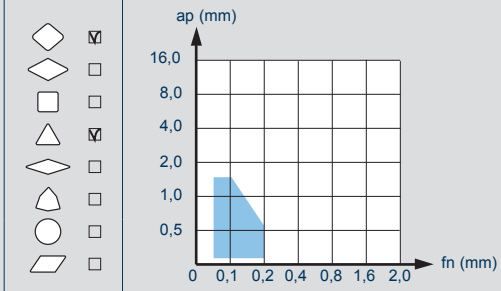
.G32W NEW



F M R	○	▢	⛭
P	T1425		
M	T1425		
K	T1425		
N			
S			
H			

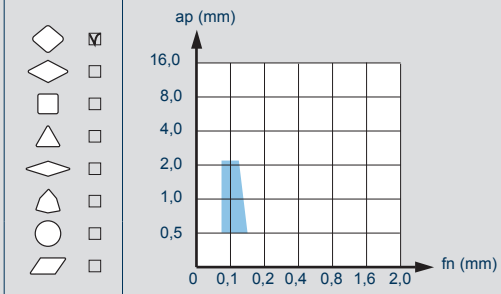


.G39



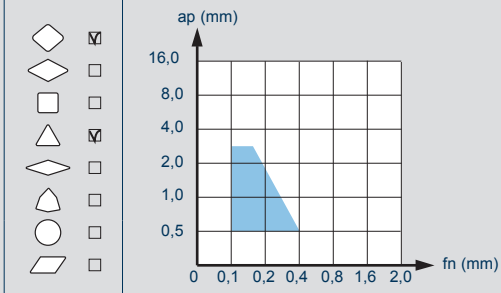
F M R	○	▢	⚙
P	C4010		
M	C4010		
K	C4010		
N			
S			
H			

.G42



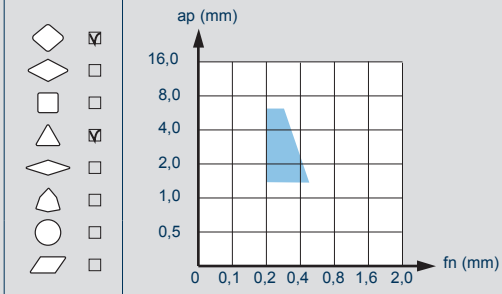
F M R	○	▢	⚙
P	T1415-T1425-F2425	T1415-T1425-F2425	
M	T1425-F2425	T1425-F2425	
K	T1415-T1425	T1415-T1425	
N			
S			
H			

.G52



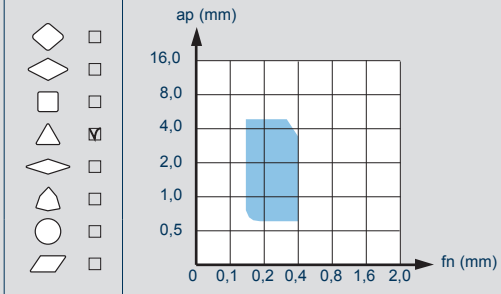
F M R	○	▢	⚙
P	F2425-F2435-T1415 T1425-T1435-T3220	F2425-F2435-T1425 T1435-T3220	F2435-T1435
M	F2425-F2435 T1425-T1435	F2425-F2435 T1425-T1435	F2435-T1435
K	T3220-T1415-T1425	T3220-T1425	
N			
S			
H			

.G57P



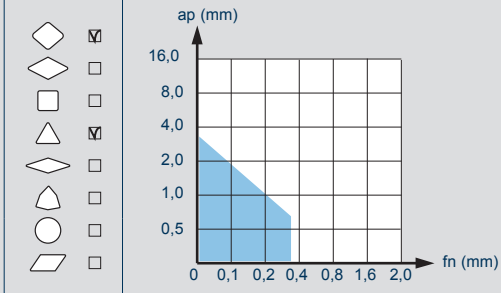
F M R	○	▢	⚙
P			
M			
K	T115	T115	
N	T115	T115	
S	T115	T115	
H			

.S42



F M R	○	▢	⚙
P	T540	T540	T540
M	T540	T540	T540
K	T120	T120	
N	T120	T120	T120
S			
H			

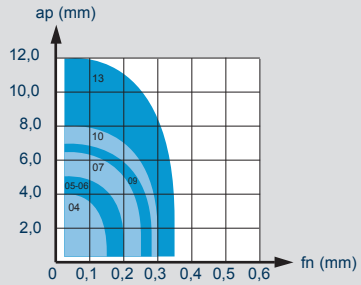
.X47 NEW



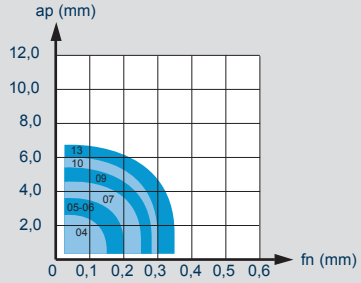
F M R	○	▢	⚙
P			
M			
K			
N	D3010		
S			
H			

.F44

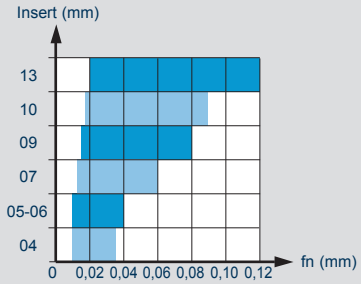
TORNITURA 1,5XD *TURNING 1,5XD*

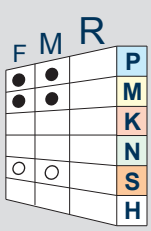


TORNITURA 2,25XD *TURNING 2,25XD*



FORATURA *DRILLING*

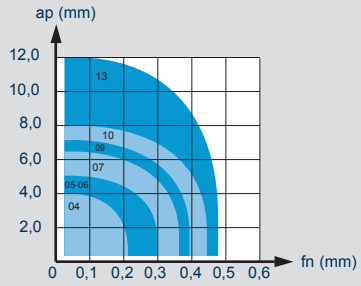




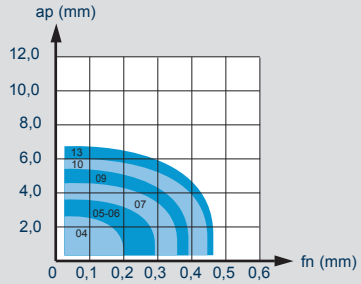
T1225	T1225	T1225
T1225-F2430	T1225-F2430	T1225-F2430
F2430	F2430	

.F47P

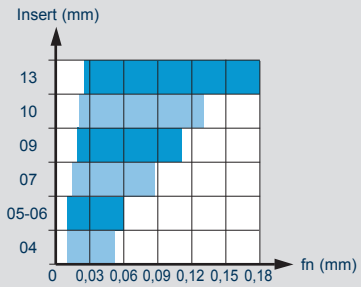
TORNITURA 1,5XD *TURNING 1,5XD*

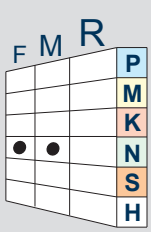


TORNITURA 2,25XD *TURNING 2,25XD*



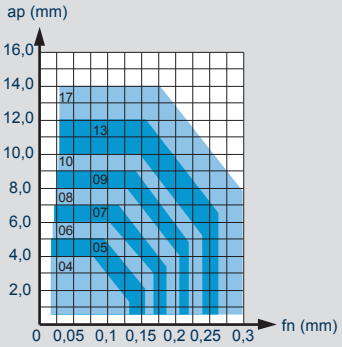
FORATURA *DRILLING*

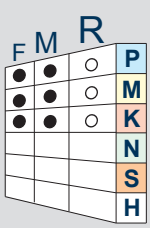




N3015	N3015	

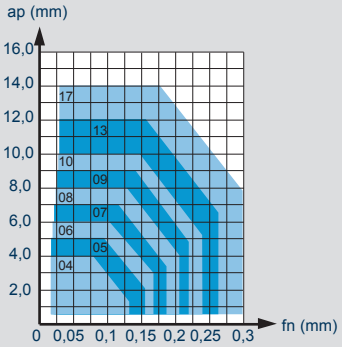
.N53
.N54 NEW

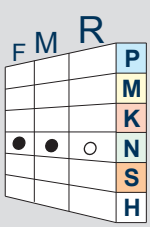




T5320	T5320	T5320
T5320-T2330	T5320-T2330	T5320-T2330
T516	T516	

.N57P NEW





N3610	N3610	N3610

Denominazione degli inserti per Lavorazione fori
Inserts designation for Machining bores

SAU QUALITY TOOLS ENGINEERING

C	N	M	G	12	04	08	-	-	•	W	5	2	P
1	2	3	4	5	6	7	8	9		10	11	12	13

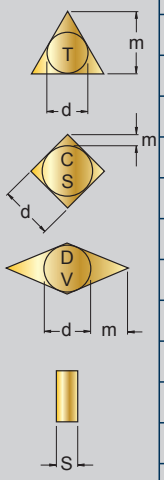
1 FORMA INSERTO / SHAPE OF INSERT

A	85°	B	82°
C	80°	D	55°
E	75°	H	
K	55°	L	
M	86°	R	
S		T	
V	35°	W	

2 SPOGLIA INFER. / RELIEF ANGLE

A	3°
B	5°
C	7°
D	15°
E	20°
F	25°
G	30°
N	0°
P	11°

3 TOLLERANZA+/-{mm} / TOLERANCE+/-{mm}



	m	s	d
A	+/-0,005	+/-0,025	+/-0,025
C	+/-0,013	+/-0,025	+/-0,025
E	+/-0,025	+/-0,025	+/-0,025
F	+/-0,005	+/-0,025	+/-0,013
G	+/-0,025	+/-0,05 +/-0,13	+/-0,025
H	+/-0,013	+/-0,025	+/-0,013
J	+/-0,005	+/-0,025	+/-0,05 +/-0,13
K	+/-0,013	+/-0,025	+/-0,05 +/-0,13
L	+/-0,05	+/-0,013	+/-0,025
M	+/-0,08 +/-0,18	+/-0,13	+/-0,05 +/-0,18
N	+/-0,08 +/-0,18	+/-0,025	+/-0,05 +/-0,13
U	+/-0,13 +/-0,38	+/-0,05 +/-0,13	+/-0,08 +/-0,32

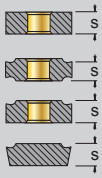
4 TIPO INSERTO / TYPE OF INSERT

A		N	
B	70°-90°	Q	40°-60°
C	70°-90°	R	
F		T	40°-60°
G		U	40°-60°
H	70°-90°	W	40°-60°
J	70°-90°	X	SPECIALE / SPECIAL
M			

5 LUNGHEZZA TAGLIENTE / CUTTING EDGE LENGTH

Ød CERCHIO INSCRITTO / INSCRIBED CIRCLE	A	C	D	E	K	L	M	R	S	T	V	W
3,97												02
4,76										08		02-03
5,56		05								09		
6,00												03
6,35		06	07	06			06		06	11	11	04
6,70	10											
7,94									07			
8,00				08								05
9,45	16											
9,52	15-16	09	11	09	16	15	09		09	16	16	06
10,00								10				06
11,00									11			
11,50						12						
12,00								12				07
12,62						18						
12,70		12	15	12		15-20			12	22		08
15,87		16							15			
19,05		19							19			

6 SPESSORE / THICKNESS



S	mm
01	1,59
T1	1,97
02	2,38
T2	2,78
03	3,18
T3	3,97
04	4,76
05	5,56
06	6,35
07	7,94
09	9,52

7 RAGGIO / RADIUS

R	00 (")
	MO (mm)
r (mm)	
02	r=0,2
04	r=0,4
05	r=0,5
06	r=0,6
08	r=0,8
10	r=1,0
12	r=1,2
16	r=1,6

8

F

E

T

S

9

R

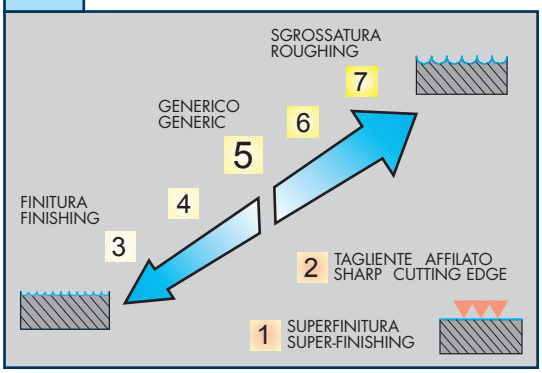
L

N

10 LETTERA DI IDENTIF. / IDENTIFICATION LETTER

A	N
C	P
D	R
E	S
H	T
I	U
J	W
K	Y
L	Z
M	

11 CAMPO DI LAVORAZIONE / MACHINING TYPES



12 PREPARAZIONE TAGLIENTE / CUTTING EDGE PREPARATION

1 =	SPECIFICO PER GHISA / SPECIFIC FOR CAST IRON
3 =	SPECIFICO PER ACCIAIO INOX / SPECIFIC FOR STAINLESS STEEL
7 =	SPECIFICO PER LEGHE DI ALLUMINIO / SPECIFIC FOR ALUMINIUM ALLOYS
9 =	SPECIFICO PER ACCIAIO / SPECIFIC FOR STEEL
2 = 4 = 5 = 6 = 8 =	INTERMEDI DI USO GENERICO / INTERMEDIATE FOR GENERAL USE

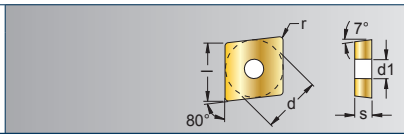
13

P = LUCIDATO / POLISH

W = GEOMETRIA CON WIPER / GEOMETRY WITH WIPER

SAU QUALITY TOOLS ENGINEERING

CCET CCGT CCGW CCMT CCMX



INSERTI POSITIVI - POSITIVE INSERTS - POSITIVE WENDEPLATTEN - PLAQUÉTTES POSITIVES

ART.	COD.	l	d	s	d1	r	HT CERMET C4010	HT CERMET DT63	HW NON RIVESTITI CEMENTED CARBIDE GRADES T115	HC RIVESTITI COATED GRADES BESCHICHTET RECOUVERTS F2120	F2425	F2435	T1415	T1425	T3220	T1126 NEW	T531	T1435	DP PCD D3010 NEW
.B22	CCET 060202 L .B22	6,5	6,35	2,38	2,8	0,2		■										■		
	CCET 060204 L .B22	6,5	6,35	2,38	2,8	0,4		■										■		
	CCET 09T304 L .B22	9,7	9,52	3,97	4,4	0,4		■										■		
.G13	CCGT 060200 .G13	6,5	6,35	2,38	2,8	0,0				■										
	CCGT 060201 .G13	6,5	6,35	2,38	2,8	0,1				■										
	CCGT 09T300 .G13	9,7	9,52	3,97	4,4	0,0				■										
	CCGT 09T301 .G13	9,7	9,52	3,97	4,4	0,1				■										
.G57P	CCGT 060201 .G57P	6,5	6,35	2,38	2,8	0,1			■											
	CCGT 060202 .G57P	6,5	6,35	2,38	2,8	0,2			■											
	CCGT 060204 .G57P	6,5	6,35	2,38	2,8	0,4			■											
	CCGT 09T302 .G57P	9,7	9,52	3,97	4,4	0,2			■											
	CCGT 09T304 .G57P	9,7	9,52	3,97	4,4	0,4			■											
	CCGT 09T308 .G57P	9,7	9,52	3,97	4,4	0,8			■											
.X47	CCGW 060202 .X47	6,5	6,35	2,38	2,8	0,2														■
	CCGW 060204 .X47	6,5	6,35	2,38	2,8	0,4														■
	CCGW 09T302 .X47	9,7	9,52	3,97	4,4	0,2														■
	CCGW 09T304 .X47	9,7	9,52	3,97	4,4	0,4														■
	CCGW 09T308 .X47	9,7	9,52	3,97	4,4	0,8														■
	NEW																			
.G39	CCMT 060204 .G39	6,5	6,35	2,38	2,8	0,4	■													
	CCMT 09T304 .G39	9,7	9,52	3,97	4,4	0,4	■													
.G42	CCMT 060202 .G42	6,5	6,35	2,38	2,8	0,2					■			■						
	CCMT 060204 .G42	6,5	6,35	2,38	2,8	0,4					■		■	■						
	CCMT 09T302 .G42	9,7	9,52	3,97	4,4	0,2					■			■						
	CCMT 09T304 .G42	9,7	9,52	3,97	4,4	0,4					■		■	■						
	CCMT 09T308 .G42	9,7	9,52	3,97	4,4	0,8					■		■	■						
.G52	CCMT 060204 .G52	6,5	6,35	2,38	2,8	0,4					■		■	■	■				■	
	CCMT 060208 .G52	6,5	6,35	2,38	2,8	0,8					■			■					■	
	CCMT 09T304 .G52	9,7	9,52	3,97	4,4	0,4					■	■	■	■	■	■			■	
	CCMT 09T308 .G52	9,7	9,52	3,97	4,4	0,8					■	■	■	■	■	■			■	
.G32W	CCMX 09T304 .G32W	9,7	9,52	3,97	4,4	0,4									■					
	NEW																			

MATERIALE - MATERIAL - MATERIALIEN - MATÉRIAUX

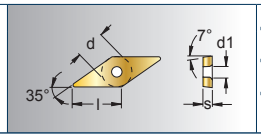
		C4010	DT63	T115	F2120	F2425	F2435	T1415	T1425	T3220	T1126 NEW	T531	T1435	D3010 NEW
P	ACCIAIO - STEEL - STAHL - ACIER	○	●			○	○	●	●	○	●	○	●	
M	ACCIAIO INOX - STAINLESS STEEL - ROSTFREIER STAHL - ACIER INOXYDABLE	●	●		●	●	●		○		●	●	○	
K	GHISA - CAST IRON - GRAUGUSS - FONTE GRISE	○	●	○	○			○	○	●	●			
N	LEGHE DI ALLUMINIO - ALUMINIUM ALLOYS - ALUMINIUM-LEGIERUNGEN - ALLIAGES D'ALUMINIUM			●	○									●
S	LEGHE RESISTENTI AL CALORE - HEAT RESISTANT ALLOYS - WÄRMEBESTÄNDIGE LEGIERUNGEN - ALLIAGES RÉSISTANTES À LA CHALEUR			○	○									
H	MATERIALI DURI E TEMPRATI - HARD AND HARDENED MATERIAL - HARTE UND GEHÄRTETE MATERIALIEN - MATERIAUX DURS ET TREMPÉS													

■ DISPONIBILI - IN STOCK - LIEFERBAR - DISPONIBLES / ■ NEW
● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION-EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

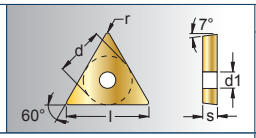
□ A RICHIESTA - ON REQUEST - AUF ANFRAGE - SUR DEMANDE / □ NEW
○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION - MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

QUALITY TOOLS ENGINEERING

SMU45



TCGT TCGW TCMT



INSERTI POSITIVI - POSITIVE INSERTS - POSITIVE WENDEPLATTEN - PLAQUÉTTES POSITIVES

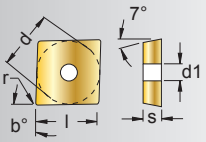
ART.	COD.	l	d	s	d1	r	HT CERMET C4010			HW NON RIVESTITI CEMENTED CARBIDE GRADES T115	T120			HC RIVESTITI COATED GRADES BESCHICHTET RECOUVERTS T5610	F2425	F2435	T1415	T1425	T3220	F4425			T1435		T540		DP PCD D3010 NEW	
F M R .X55	SMU45 10T2 .X55	9,5	6,1	2,83	2,8	–				■				■						■							
F M R .G39	TCGT 110202 .G39	11,0	6,35	2,38	2,8	0,2	■																				
F M R .G57P	TCGT 110204 .G57P	11,0	6,35	2,38	2,8	0,4				■																	
F M R .X47	TCGW 110202 .X47	11,0	6,35	2,38	2,8	0,2																				■	
	TCGW 110204 .X47	11,0	6,35	2,38	2,8	0,4																				■	
	NEW																										
F M R .G39	TCMT 110204 .G39	11,0	6,35	2,38	2,8	0,4	■																				
F M R .S42	TCMT 110202 .S42	11,0	6,35	2,38	2,8	0,2																		■			
	TCMT 110204 .S42	11,0	6,35	2,38	2,8	0,4					■													■			
F M R .G52	TCMT 080204 .G52	8,2	4,76	2,38	2,3	0,4																	■				
	TCMT 110204 .G52	11,0	6,35	2,38	2,8	0,4									■	■	■	■	■				■				
	TCMT 110208 .G52	11,0	6,35	2,38	2,8	0,8									■	■		■	■				■				
MATERIALE - MATERIAL - MATERIALIEN - MATÉRIAUX							C4010			T115	T120			T5610	F2425	F2435	T1415	T1425	T3220	F4425			T1435		T540		D3010 NEW	
P	ACCIAIO - STEEL - STAHL - ACIER						○							●	○	○	●	●	○	●			●		●			
M	ACCIAIO INOX - STAINLESS STEEL - ROSTFREIER STAHL - ACIER INOXYDABLE						●				○				●	●		○		●			○		●			
K	GHISA - CAST IRON - GRAUGUSS - FONTE GRISE						○			○	●			●			○	○	●								
N	LEGHE DI ALLUMINIO - ALUMINIUM ALLOYS - ALUMINIUM-LEGIERUNGEN - ALLIAGES D'ALUMINIUM									●	○														○		●	
S	LEGHE RESISTENTI AL CALORE - HEAT RESISTANT ALLOYS - WÄRMEBESTÄNDIGE LEGIERUNGEN - ALLIAGES RÉSISTANTES À LA CHALEUR									○	○														○			
H	MATERIALI DURI E TEMPRATI - HARD AND HARDENED MATERIAL - HARTE UND GEHÄRTETE MATERIALIEN - MATERIAUX DURS ET TREMPÉS																											

■ DISPONIBILI - IN STOCK - LIEFERBAR - DISPONIBLES / ■ NEW
● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION-EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

□ A RICHIESTA - ON REQUEST - AUF ANFRAGE - SUR DEMANDE / □ NEW
○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION - MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

SAU QUALITY TOOLS ENGINEERING

XCET XCNT

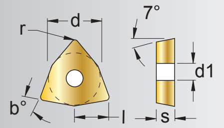


								HT	HW	HC									DP
								CERMET	NON RIVESTITI CEMENTED CARBIDE GRADES	RIVESTITI COATED GRADES BESCHICHTET RECOUVERTS									PCD
									NEW								NEW		
ART.	COD.	l	d	b°	s	d1	r		N3610							T516		T5320	T2330		
F M R .N57P	XCET 040104FR .N57P	4	4,5	88	1,80	2,10	0,4		■												
	XCET 050204FN .N57P	5	5,8	88	2,1	2,25	0,4		■												
	XCET 060204FN .N57P	6	6,5	88	2,38	2,5	0,4		■												
	XCET 070304FN .N57P	7	7,6	88	3,18	2,8	0,4		■												
	XCET 080304FN .N57P	8	8,5	88	3,18	3,4	0,4		■												
	XCET 09T304FN .N57P	9	9,6	88	3,97	3,4	0,4		■												
	XCET 10T304FN .N57P	10	10,6	88	3,97	4,4	0,4		■												
	XCET 130408FN .N57P	13	13,5	88	4,76	5,3	0,8		■												
	XCET 170508FN .N57P	17	17,5	88	5,56	5,3	0,4		■												
	NEW		DISPONIBILE DA GIUGNO 2020 AVAILABLE FROM JUNE 2020 AB JUNI 2020 LIEFERBAR DISPONIBLE À PARTIR DE JUIN 2020																		
F M R .N53	XCET 040104ER .N53	4	4,5	88	1,80	2,10	0,4												■		
	XCET 050204EN .N53	5	5,8	88	2,1	2,25	0,4												■		
	XCET 060204EN .N53	6	6,5	88	2,38	2,5	0,4												■		
	XCET 070304EN .N53	7	7,6	88	3,18	2,8	0,4												■		
	XCET 080304EN .N53	8	8,5	88	3,18	3,4	0,4												■		
	XCET 09T304EN .N53	9	9,6	88	3,97	3,4	0,4												■		
	XCET 10T304EN .N53	10	10,6	88	3,97	4,4	0,4												■		
	XCET 130408EN .N53	13	13,5	88	4,76	5,3	0,8												■		
	XCET 170508EN .N53	17	17,5	88	5,56	5,3	0,4												■		
	NEW		DISPONIBILE DA GIUGNO 2020 AVAILABLE FROM JUNE 2020 AB JUNI 2020 LIEFERBAR DISPONIBLE À PARTIR DE JUIN 2020																		
F M R .N54	XCNT 040102ER .N54	4	4,5	88	1,80	2,10	0,2									■		■			
	XCNT 040104ER .N54	4	4,5	88	1,80	2,10	0,4									■		■			
	XCNT 050202EN .N54	5	5,8	88	2,1	2,25	0,2									■		■			
	XCNT 050204EN .N54	5	5,8	88	2,1	2,25	0,4									■		■			
	XCNT 060202EN .N54	6	6,5	88	2,38	2,5	0,2									■		■			
	XCNT 060204EN .N54	6	6,5	88	2,38	2,5	0,4									■		■			
	XCNT 070304EN .N54	7	7,6	88	3,18	2,8	0,4									■		■			
	XCNT 080304EN .N54	8	8,5	88	3,18	3,4	0,4									■		■			
	XCNT 09T304EN .N54	9	9,6	88	3,97	3,4	0,4									■		■			
	XCNT 10T304EN .N54	10	10,6	88	3,97	4,4	0,4									■		■			
	XCNT 10T308EN .N54	10	10,6	88	3,97	4,4	0,8									■		■			
	XCNT 130404EN .N54	12,5	13,5	88	4,76	5,3	0,4									■		■			
	XCNT 130408EN .N54	12,5	13,5	88	4,76	5,3	0,8									■		■			
	XCNT 170508EN .N54	17	17,5	88	5,56	5,3	0,8									■		■			
	MATERIALE - MATERIAL - MATERIALIEN - MATÉRIAUX								NEW N3610							T516		T5320	NEW T2330		
P	ACCIAIO - STEEL - STAHL - ACIER																	●			
M	ACCIAIO INOX - STAINLESS STEEL - ROSTFREIER STAHL - ACIER INOXYDABLE																	○	●		
K	GHISA - CAST IRON - GRAUGUSS - FONTE GRISE															●					
N	LEGHE DI ALLUMINIO - ALUMINIUM ALLOYS - ALUMINIUM-LEGIERUNGEN - ALLIAGES D'ALUMINIUM								●												
S	LEGHE RESISTENTI AL CALORE - HEAT RESISTANT ALLOYS - WÄRMEBESTÄNDIGE LEGIERUNGEN - ALLIAGES RÉSISTANTES À LA CHALEUR																				
H	MATERIALI DURI E TEMPRATI - HARD AND HARDENED MATERIAL - HARTE UND GEHÄRTETE MATERIALIEN - MATERIAUX DURS ET TREMPÉS																				

■ DISPONIBILI - IN STOCK - LIEFERBAR - DISPONIBLES / ■ NEW
● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION-EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

□ A RICHIESTA - ON REQUEST - AUF ANFRAGE - SUR DEMANDE / □ NEW
○ APPLICAZIONE POSSIBILE - POSSIBLE APPLICATION - MÖGLICHE ANWENDUNG - APPLICATION POSSIBLE

XCHX..



	HT	HW	HC	DP
	CERMET	NON RIVESTITI CEMENTED CARBIDE GRADES	RIVESTITI COATED GRADES BESCHICHTET RECOUVERTS	PCD

ART.	COD.	l	d	b°	s	d1	r	N3015	F2430	T1225
 F M R .F44	XCHX 040102 .F44	4,0	6,35	88	1,59	2,25	0,2		■	■
	XCHX 040104 .F44	4,0	6,35	88	1,59	2,25	0,4		■	■
	XCHX 05T102 .F44	5,0	7,938	88	1,98	2,8	0,2		■	■
	XCHX 05T104 .F44	5,0	7,938	88	1,98	2,8	0,4		■	■
	XCHX 060202 .F44	5,5	8,73	88	2,38	2,8	0,2		■	■
	XCHX 060204 .F44	5,5	8,73	88	2,38	2,8	0,4		■	■
	XCHX 070304 .F44	7,5	12,0	88	3,18	3,4	0,4		■	■
	XCHX 070308 .F44	7,5	12,0	88	3,18	3,4	0,8		■	■
	XCHX 090304 .F44	9,0	14,29	88	3,18	4,4	0,4		■	■
	XCHX 090308 .F44	9,0	14,29	88	3,18	4,4	0,8		■	■
	XCHX 10T304 .F44	10,0	15,875	88	3,97	5,9	0,4		■	■
	XCHX 10T308 .F44	10,0	15,875	88	3,97	5,9	0,8		■	■
	XCHX 130508 .F44	13,0	21,0	88	5,56	7,0	0,8		■	■
 F M R .F47P	XCHX 040102 .F47P	4,0	6,35	88	1,59	2,25	0,2	■		
	XCHX 040104 .F47P	4,0	6,35	88	1,59	2,25	0,4	■		
	XCHX 05T102 .F47P	5,0	7,938	88	1,98	2,8	0,2	■		
	XCHX 05T104 .F47P	5,0	7,938	88	1,98	2,8	0,4	■		
	XCHX 060202 .F47P	5,5	8,73	88	2,38	2,8	0,2	■		
	XCHX 060204 .F47P	5,5	8,73	88	2,38	2,8	0,4	■		
	XCHX 070304 .F47P	7,5	12,0	88	3,18	3,4	0,4	■		
	XCHX 070308 .F47P	7,5	12,0	88	3,18	3,4	0,8	■		
	XCHX 090304 .F47P	9,0	14,29	88	3,18	4,4	0,4	■		
	XCHX 090308 .F47P	9,0	14,29	88	3,18	4,4	0,8	■		
	XCHX 10T304 .F47P	10,0	15,875	88	3,97	5,9	0,4	■		
	XCHX 10T308 .F47P	10,0	15,875	88	3,97	5,9	0,8	■		
	XCHX 130508 .F47P	13,0	21,0	88	5,56	7,0	0,8	■		

	MATERIALE - MATERIAL - MATERIALIEN - MATÉRIAUX	N3015	F2430	T1225
P	ACCIAIO - STEEL - STAHL - ACIER			●
M	ACCIAIO INOX - STAINLESS STEEL - ROSTFREIER STAHL - ACIER INOXYDABLE		●	○
K	GHISA - CAST IRON - GRAUGUSS - FONTE GRISE			
N	LEGHE DI ALLUMINIO - ALUMINIUM ALLOYS - ALUMINIUM-LEGIERUNGEN - ALLIAGES D'ALUMINIUM	●		
S	LEGHE RESISTENTI AL CALORE - HEAT RESISTANT ALLOYS - WÄRMEBESTÄNDIGE LEGIERUNGEN - ALLIAGES RÉSISTANTES À LA CHALEUR		○	
H	MATERIALI DURI E TEMPRATI - HARD AND HARDENED MATERIAL - HARTE UND GEHÄRTETE MATERIALIEN - MATERIAUX DURS ET TREMPÉS			

■ DISPONIBILI - IN STOCK - LIEFERBAR - DISPONIBLES / ■ NEW
● APPLICAZIONE CONSIGLIATA-RECOMMENDED APPLICATION-EMPFOHLENER EINSATZ - APPLICATION CONSEILLÉE

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