DENITOOL®

MillingCutters

FräsWerkzeuge / Outils de fraisage

Eck- & Stirnfräserprogramm mit enger Rundlauftoleranz

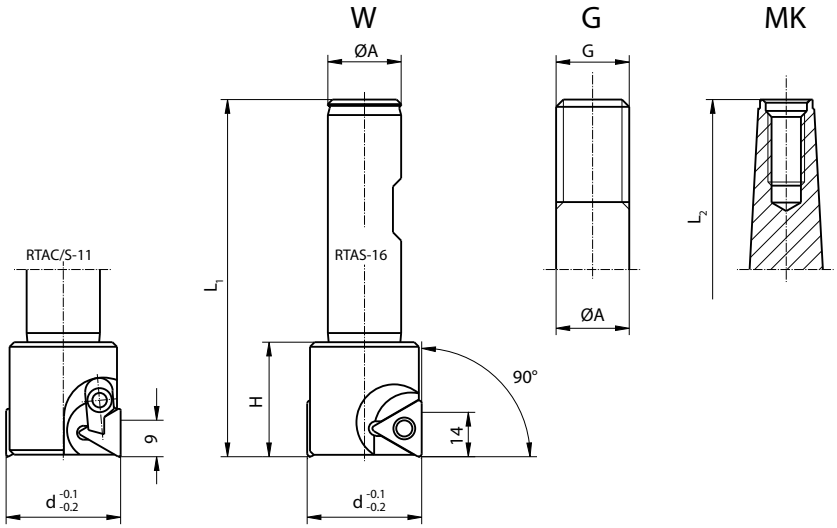
Close run-out tolerance corner & face milling cutter series

Série de forets d'affilage & de front avec déroulement au minimum

DENITOOL®

PLAN- UND ECKFRÄSER POSITIV 90°
CORNER AND FACE MILLING CUTTERS POSITIVE 90°
FRAISES EN BOUT À SURFACER ET FRAISES À CHANFREINER POSITIVES 90°

90°



Artikel-Nr. Article No. No. d'article	Abmessungen Dimensions Dimensions [mm]						Schaft Shank Tige			
	⌀D	⌀d	L_1	L_2	H	z	⌀A	G	MK	
F.- 2016 RTAC/S-11	--	20	73		25	2	16	16-20W		
F.- 2020 RTAC/S-11	--	20	75		25	2	20	20-20W		
FM 2002 RTAC/S-11	--	20		94	25	2			2	
F.- 2516 RTAC/S-11	--	25	73		25	2	16	16-20W		TPHN 1102..
F.- 2520 RTAC/S-11	--	25	75		25	2	20	20-20W		TPHW 1102..
FM 2503 RTAC/S-11	--	25		111	25	2			3	TPHT 1102..
F.- 3220 RTAC/S-11	--	32	80		30	3	20	20-20W		
FM 3203 RTAC/S-11	--	32		116	30	3			3	

Fräser für 11er Platte sind mit Pratzen und Spannschrauben ausgerüstet
Milling cutters for inserts dimension 11 are equiped with claws and screws
Fraises pour des plaquettes de dimension 11 sont équipés avec étriers de serrage et vis

F.- 2520 RTAS-16	--	25	80		30	1	20	20-20W		
FM 2502 RTAS-16	--	25		116	30	1			2	TPMT 16T3..
F.- 3220 RTAS-16	--	32	80		30	2	20	20-20W		TPHW 16T3..
F.- 3225 RTAS-16	--	32	86		30	2	25	25-20W		TPHT 16T3..
FM 3203 RTAS-16	--	32		116	30	2			3	TPMW 16T3..
F.- 4025 RTAS-16	--	40	86		30	3	25	25-20W		TPGT 16T3..
FM 4003 RTAS-16	--	40		116	30	3			3	

■ **W = Weldon**
□ **G = Clarkson**
□ **M = Morsekegel / Morse tapper shank / Cône Morse**

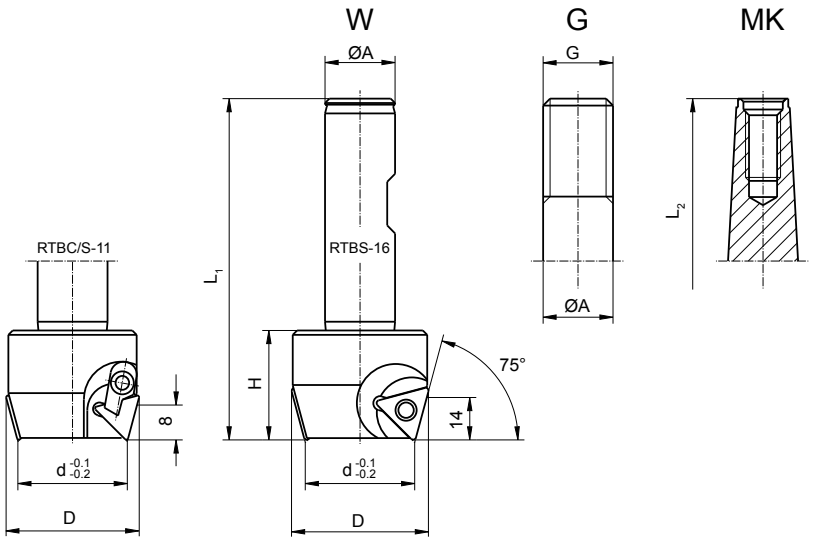
■ ab Lager / stock item / disponible du stock

□ auf Anfrage / upon request / sur demande

Bestellbeispiel: **FW 3225 RTAS-16** (Weldon)
Example of order: **FG 3225 RTAS-16** (Clarkson)
Exemple de commande:

PLAN- UND FASENFRÄSER POSITIV 75°
CORNER AND FACE MILLING CUTTERS POSITIVE 75°
FRAISES EN BOUT À SURFACER ET FRAISES À CHANFREINER POSITIVES 75°

75°



Artikel-Nr. Article No. No. d'article	Abmessungen Dimensions Dimensions [mm]						Schaft Shank Tige			
	⌀D	⌀d	L_1	L_2	H	z	⌀A	G	MK	
F.- 1616 RTBC/S-11	21	16	73		25	2	16	16-20W		TPHN 1102..
F.- 1620 RTBC/S-11	21	16	75		25	2	20	20-20W		TPHW 1102..
FM 1602 RTBC/S-11	21	16		94	25	2			2	TPHT 1102..

Fräser für 11er Platte sind mit Pratzen und Spannschrauben ausgerüstet
Milling cutters for inserts dimension 11 are equiped with claws and screws
Fraises pour des plaquettes de dimension 11 sont équipés avec étriers de serrage et vis

F.- 2520 RTBS-16	33	25	80		30	1	20	20-20W		TPMT 16T3..
FM 2503 RTBS-16	33	25		116	30	1			3	TPHW 16T3..
F.- 3220 RTBS-16	40	32	80		30	2	20	20-20W		TPHT 16T3..
F.- 3225 RTBS-16	40	32	86		30	2	25	25-20W		TPMW 16T3..
FM 3203 RTBS-16	40	32		116	30	2			3	TPGT 16T3..
F.- 4025 RTBS-16	48	40	86		30	3	25	25-20W		

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□ **M = Morsekegel / Morse tapper shank / Cône Morse**

■ ab Lager / stock item / disponible du stock

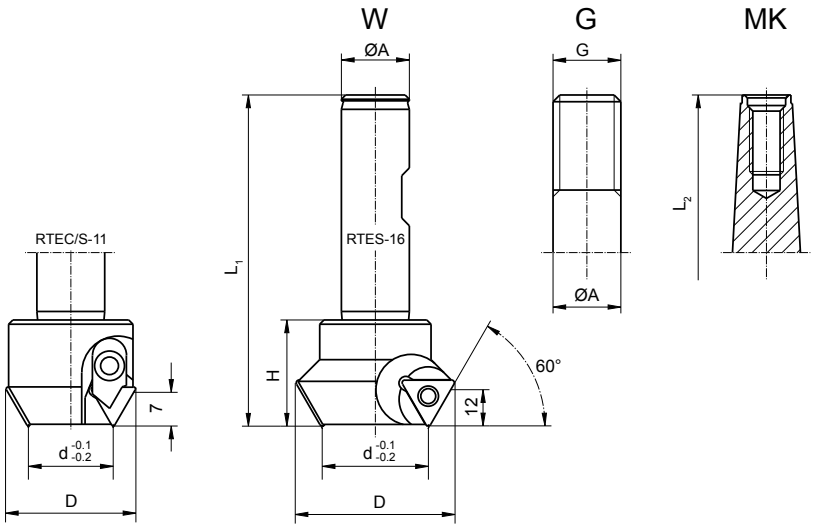
□ auf Anfrage / upon request / sur demande

Bestellbeispiel:
Example of order:
Exemple de commande:

FW 3225 RTBS-16 (Weldon)
FG 3225 RTBS-16 (Clarkson)

PLAN- UND FASENFRÄSER POSITIV 60°
CORNER AND FACE MILLING CUTTERS POSITIVE 60°
FRAISES EN BOUT À SURFACER ET FRAISES À CHANFREINER POSITIVES 60°

60°



Artikel-Nr. Article No. No. d'article	Abmessungen Dimensions Dimensions [mm]						Schaft Shank Tige			
	⌀D	⌀d	L_1	L_2	H	z	⌀A	G	MK	
F.- 1616 RTEC/S-11	26	16	73		25	2	16	16-20W		TPHN 1102..
F.- 1620 RTEC/S-11	26	16	75		25	2	20	20-20W		TPHW 1102..
FM 1602 RTEC/S-11	26	16		94	25	2			2	TPHT 1102..

Fräser für 11er Platte sind mit Pratzen und Spannschrauben ausgerüstet
Milling cutters for inserts dimension 11 are equiped with claws and screws
Fraises pour des plaquettes de dimension 11 sont équipés avec étriers de serrage et vis

F.- 2520 RTES-16	41	25	80		30	2	20	20-20W		TPMT 16T3..
FM 2503 RTES-16	41	25		116	30	2			3	TPHW 16T3..
F.- 3220 RTES-16	48	32	80		30	3	20	20-20W		TPHT 16T3..
F.- 3225 RTES-16	48	32	86		30	3	25	25-20W		TPMW 16T3..
FM 3203 RTES-16	48	32		116	30	3			3	TPGT 16T3..

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□ **M = Morsekegel / Morse tapper shank / Cône Morse**

■ ab Lager / stock item / disponible du stock

□ auf Anfrage / upon request / sur demande

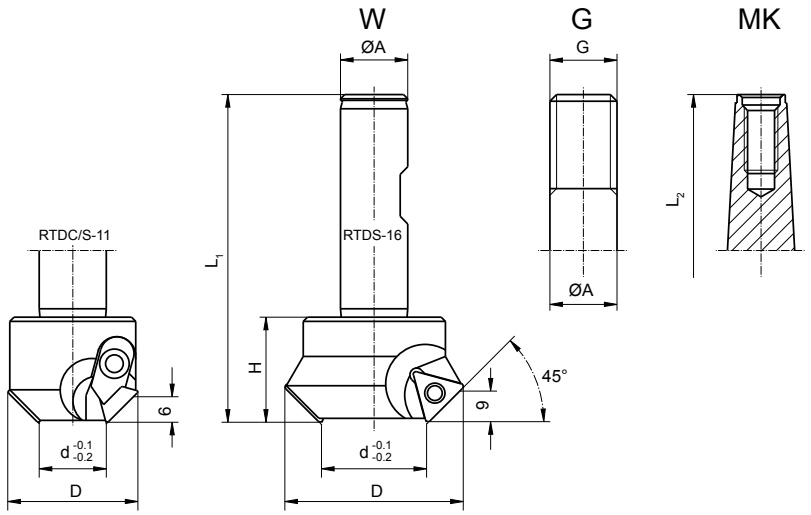
Bestellbeispiel:
Example of order:
Exemple de commande:

FW 3225 RTES-16 (Weldon)
FG 3225 RTES-16 (Clarkson)

DENITOOL®

PLAN- UND FASENFRÄSER POSITIV 45°
CORNER AND FACE MILLING CUTTERS POSITIVE 45°
FRAISES EN BOUT À SURFACER ET FRAISES À CHANFREINER POSITIVES 45°

45°



Artikel-Nr. Article No. No. d'article	Abmessungen Dimensions Dimensions [mm]						Schaft Shank Tige			
	⌀D	⌀d	L_1	L_2	H	z	⌀A	G	MK	
F.- 1616 RTDC/S-11	30	20	73		25	2	16	16-20W		TPHN 1102..
F.- 1620 RTDC/S-11	30	20	75		25	2	20	20-20W		TPHW 1102..
FM 1602 RTDC/S-11	30	20		94	25	2			2	TPHT 1102..

Fräser für 11er Platte sind mit Pratzen und Spannschrauben ausgerüstet
Milling cutters for inserts dimension 11 are equiped with claws and screws
Fraises pour des plaquettes de dimension 11 sont équipés avec étriers de serrage et vis

F.- 2520 RTDS-16	47	25	80		30	2	20	20-20W		TPMT 16T3..
FM 2503 RTDS-16	47	25		116	30	2			3	TPHW 16T3..
F.- 3220 RTDS-16	54	32	80		30	3	20	20-20W		TPHT 16T3..
F.- 3225 RTDS-16	54	32	86		30	3	25	25-20W		TPMW 16T3..
FM 3203 RTDS-16	54	32		116	30	3			3	TPGT 16T3..

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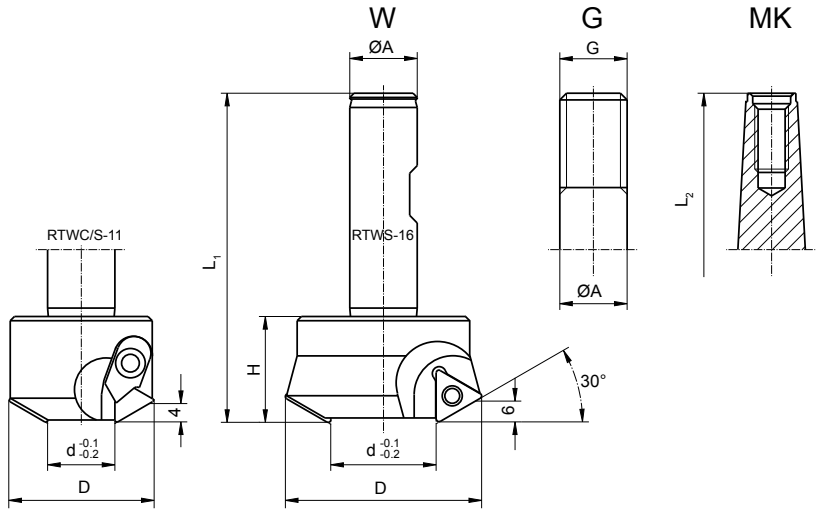
■ ab Lager / stock item / disponible du stock

□ auf Anfrage / upon request / sur demande

Bestellbeispiel: **FW 3225 RTDS-16** (Weldon)
Example of order: **FG 3225 RTDS-16** (Clarkson)
Exemple de commande:

PLAN- UND FASENFRÄSER POSITIV 30°
CORNER AND FACE MILLING CUTTERS POSITIVE 30°
FRAISES EN BOUT À SURFACER ET FRAISES À CHANFREINER POSITIVES 30°

30°



Artikel-Nr. Article No. No. d'article	Abmessungen Dimensions Dimensions [mm]						Schaft Shank Tige			
	⌀D	⌀d	L_1	L_2	H	z	⌀A	G	MK	
F.- 1616 RTWC/S-11	30	16	73		25	3	16	16-20W		TPHN 1102..
FM 1602 RTWC/S-11	30	16		94	25	3			2	TPHW 1102..
F.- 1620 RTWC/S-11	34	16	80		30	3	20	16-20W		TPHT 1102..
FM 1603 RTWC/S-11	34	16		116	30	3			3	
F.- 2520 RTWC/S-11	43	25	80		30	3	25	20-20W		
FM 2503 RTWC/S-11	43	25		116	30	3			3	

Fräser für 11er Platte sind mit Pratzen und Spannschrauben ausgerüstet
Milling cutters for inserts dimension 11 are equiped with claws and screws
Fraises pour des plaquettes de dimension 11 sont équipés avec étriers de serrage et vis

F.- 2520 RTWS-16	53	25	80		30	3	20	20-20W		TPMT 16T3..
FM 2503 RTWS-16	53	25		116	30	3			3	TPHW 16T3..
F.- 3225 RTWS-16	60	32	86		30	3	25	25-20W		TPHT 16T3..
FM 3203 RTWS-16	60	32		116	30	3			3	TPMW 16T3..
										TPGT 16T3..

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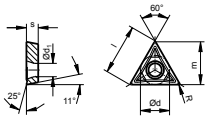
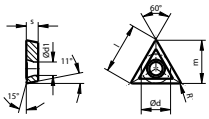
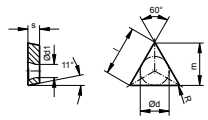
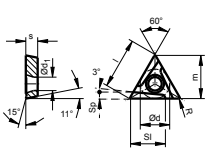
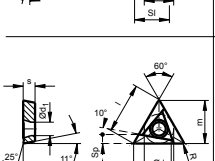
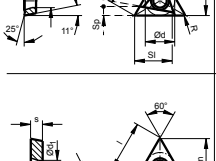
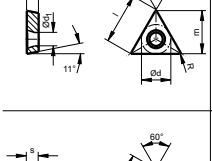
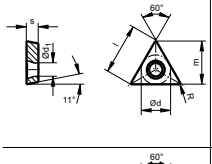
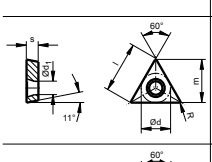
■ ab Lager / stock item / disponible du stock

☐ auf Anfrage / upon request / sur demande

Bestellbeispiel: **FW 3225 RTWS-16** (Weldon)
Example of order: **FG 3225 RTWS-16** (Clarkson)
Exemple de commande:

DENITOOL®

HARTMETALL WENDESCHNEIDPLATTEN / CARBIDE INSERTS / PLAQUETTES EN CARBURE

	Artikel-Nr. Article No. No. d'article	[mm] l	d	s	R	m	d_1	Sp	Sl	DX 2	P 25	DX 20	DP 25	DX 30	DP 35	DX 50	DP 55	DX 52	DP 57	DT 40
	**TPGT 16T304 EN**	16.5	9.52	3.97	0.4	13.89	4.35	1.7			■		■		■		□		□	
	TPGT 16T308 EN				0.8	13.49					■		■		■		□		□	
	**TPGT 16T304-25**	16.5	9.52	3.97	0.4	13.89	4.35	1.7		■	■	■	■	□	■	□	□	□	□	
	TPGT 16T308-25				0.8	13.49				■	■	■	□	■	□	□	□	□	□	
	**TPHN 110204 EN**	11	6.35	2.38	0.4	9.12					●		●		●		●			
	TPHN 110208 EN				0.8	8.74					●		●		●		●			
	TPHN 110204 FN	11	6.35	2.38	0.4	9.12				●		●		●		●				
	TPHN 110208 FN				0.8	8.74				●		●		●		●				
	**TPHT 110202 ER/L**	11	6.35	2.38	0.2	9.35	2.85	1.7	6.6		■		■		■		□		□	
	TPHT 110204 ER/L				0.4	9.12			6.7		■		■		■		■		□	
	TPHT 110208 ER/L				0.8	8.74			6.7		■		■		□		■		□	
	TPHT 16T304 ER/L	16.5	9.52	3.97	0.4	13.89	4.35	2.4	8.5		■		■		■		■		□	
	TPHT 16T308 ER/L				0.8	13.49			8.5		■		■		■		■		□	
	**TPHT 110202 FR/L**	11	6.35	2.38	0.2	9.35	2.85	1.7	6.9	■		■		□		□		□		
	TPHT 110204 FR/L				0.4	9.12			6.7	■		■		□		□		□		
	TPHT 110208 FR/L				0.8	8.74			6.4	■		■		□		□		□		
	TPHT 16T304 FR/L	16.5	9.52	3.97	0.4	13.89	4.35	2.4	10	■		■		■		■		□		□
	TPHT 16T308 FR/L				0.8	13.49			10	■		■		■		■		□		□
	**TPHW 110202 EN**	11	6.35	2.38	0.2	9.35	2.85	1.7			■		■		■		■		□	
	TPHW 110204 EN				0.4	9.12					■		■		■		■		□	
	TPHW 110208 EN				0.8	8.74					■		□		□		□		□	
	TPHW 16T304 EN	16.5	9.52	3.97	0.4	13.89	4.35	1.7			■		■		■		■		□	
	TPHW 16T308 EN				0.8	13.49					■		■		■		■		□	
	**TPHW 110202 FN**	11	6.35	2.38	0.2	9.35	2.85	1.7		■		■		□		□		□		
	TPHW 110204 FN				0.4	9.12				■		■		□		□		□		
	TPHW 110208 FN				0.8	8.74				■		□		□		□		□		
	TPHW 16T304 FN	16.5	9.52	3.97	0.4	13.89	4.35	1.7		■		■		■		■		□		
	TPHW 16T308 FN				0.8	13.49				■		■		■		■		□		
	**TPHW 16T304 SN**	16.5	9.52	3.97	0.4	13.89	4.35	1.7			■		□		□		□		□	
	TPHW 16T308 SN				0.8	13.49					■		□		□		□		□	
	**TPMW 16T304 FN**	16.5	9.52	3.97	0.4	13.89	4.35	1.7		■		■		■		■		□		
	TPMW 16T308 FN				0.8	13.49				■		■		■		■		□		

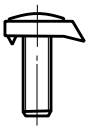
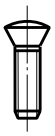
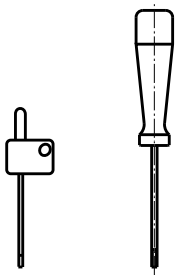
NEW

■ ab Lager
stock item
disponible du stock

□ auf Anfrage
upon request
sur demande

● Nur solange Vorrat
as long as available
jusqu' à l'épuisement du stock

ERSATZTEILE / SPARE PARTS / PIÈCES DE RECHANGE

Milling Cutter	TP.. 1102.. 90° / 75°	TP.. 1102.. 60° / 45° / 30°	TP.. 16T3..
	SSP 1000 9075	SSP 1000 6045	
	T25.055	T25.055	T35.084
	T7F T15H	T7F T15H	T15H

DENITOOL®

Achtung: Allgemeine Sicherheitsbestimmungen sowie Vorschriften der Maschinenhersteller unbedingt beachten!
Caution: General safety regulations and directions of machine manufacturers must be observed at any time!
Attention: Impératif de tenir compte des instructions générales de sécurité et des recommandations du fabricant de la machine!

	Werkstoff-Bezeichnung Material description Designation matière	Nr.	DIN	Zugfestigkeit Tensile strength Rés. à la traction	Härte Hardness Dureté
				Rm (N/mm²)	HB
1	Unlegierter Kohlenstoffstahl Low Carbon Steel Acier carbone	1.0035 1.0038 1.0401 1.0050	St 33 RSt 37-2 C 15 St 50-2	- 500	- 160
2	Vergütungsstahl - Einsatzstahl Alloy Steel Acier d'amélioration - de cémentation	1.0501 1.1141 1.5732 1.7225	Ck 35 V Ck 15 14 NiCr 14 42 CrMo 4 G	500 - 700	140 - 200
3	Vergütungsstahl - Werkzeugstahl Tool Steel Acier d'amélioration - à outils	1.1221 1.3505 1.7225 1.5141	Ck 60 100 Cr 6 42 CrMo 4 53 MnSi 4	900 - 1'100	170 - 275
4	Hochlegierter Werkzeugstahl - Stahlguss Alloy Tool Steel Acier à outils fortement allié - Acier coulé	1.1191 1.7225 1.2080 1.7220	Ck 45 V 42 CrMo 4 X 210 Cr 12 GS-34 CrMo 4	700 - 900	250 - 325
5	Hochlegierter Stahlguss Alloy Cast Steel Acier coulé fortement allié	1.6582 1.8159 1.2367 1.7361	34 CrNiMo 6 50 CrV 4 X 38 CrMoV 5 3 32 CrMo 12	1'100 - 1'500 800 - 1'000	325 - 450 250 - 390
6	Rostfreier Stahl Stainless Steel Acier inoxydable	1.4006 1.4057 1.4034 1.4005	X 10 Cr 13 X 22 CrNi 12 X 40 Cr 13 X 12 CrS 13	- 800	- 250
7	Rostfreier Stahl, austenitisch, martensitisch Stainless Steel - Austenitic, Martensitic Acier inoxydable, austénitique, martensitique	1.4300 1.4301 1.4435 1.4573	X 12 CrNi 18 8 X 5 CrNi 18 9 X 2 CrNiMo 18 12 X 10 CrNiMoTi 18 12	500 - 1100	200 - 325
8	Grauguss Grey Cast Iron Fonte grise	0.6010 0.6015 0.6020	GG-10 GG-15 GG-20	- 250	- 200
9	Grauguss - Temperguss Cast Iron Malleable Fonte grise - Fonte trempée	0.6025 0.8135 0.8140 0.7050	GG-25 GTS-35 GTS-40 GGG-50	250 - 350	200 - 250
10	Kupfer-Legierungen Copper Alloys Alliages cuivre	2.0331 2.0401 2.1030 2.0920	CuZn 36 Pb 1.5 CuZn 36 Pb 3 CuSn 8 CuAl 8	450 - 650	120 - 180
11	Aluminium-Legierungen Aluminium Alloys Alliages d'aluminium	3.2582.05 3.3541.01 3.2315 3.0205	GD-AlSi 12 G-AlMg 3 AlMgSi 1 Al 99	250 - 350	200 - 300

90° **)

	TPGT 16T3.. -25	TPGT 16T3.. EN	TPHN 1102.. EN	TPHN 1102.. FN	TPHT 1102.. ER/L	TPHT 1102.. FR/L	TPHT 16T3.. ER/L	TPHT 16T3.. FR/L	TPHW 1102.. EN	TPHW 1102.. FN	TPHW 16T3.. EN	TPHW 16T3.. FN	TPHW 16T3.. SN	TPMW 16T3.. FN
	fz (mm) *)													
1		0.15 - 0.30	0.05 - 0.20		0.02 - 0.15		0.02 - 0.20		0.05 - 0.20	0.03 - 0.10	0.05 - 0.30	0.03 - 0.10	0.15 - 0.30	
2		0.15 - 0.30	0.05 - 0.20		0.02 - 0.15		0.02 - 0.20		0.05 - 0.20	0.03 - 0.10	0.05 - 0.30	0.03 - 0.10	0.15 - 0.30	
3		0.15 - 0.30	0.05 - 0.15		0.02 - 0.10		0.02 - 0.16		0.05 - 0.15	0.03 - 0.08	0.05 - 0.20	0.03 - 0.08	0.15 - 0.30	
4		0.15 - 0.20	0.05 - 0.15		0.02 - 0.10		0.02 - 0.16		0.05 - 0.15	0.03 - 0.08	0.05 - 0.20	0.03 - 0.08	0.15 - 0.20	
5		0.15 - 0.20	0.05 - 0.10		0.02 - 0.10		0.02 - 0.13		0.05 - 0.10		0.05 - 0.20		0.15 - 0.20	
6		0.05 - 0.30	0.05 - 0.20		0.02 - 0.15		0.02 - 0.20		0.05 - 0.20		0.05 - 0.30			
7		0.05 - 0.20	0.05 - 0.15		0.02 - 0.10		0.02 - 0.15		0.05 - 0.15		0.05 - 0.20			
8		0.10 - 0.30	0.05 - 0.20	0.05 - 0.20	0.02 - 0.13		0.02 - 0.15		0.05 - 0.20	0.05 - 0.20	0.05 - 0.30	0.05 - 0.30		0.05 - 0.25
9		0.10 - 0.30	0.05 - 0.20	0.05 - 0.20	0.02 - 0.10		0.02 - 0.10		0.05 - 0.15	0.05 - 0.15	0.05 - 0.20	0.05 - 0.20		0.05 - 0.25
10	0.05 - 0.30			0.05 - 0.30	0.03 - 0.20	0.01 - 0.20	0.03 - 0.30	0.01 - 0.30		0.05 - 0.30		0.05 - 0.30		0.05 - 0.40
11	0.05 - 0.40					0.01 - 0.20		0.01 - 0.20						

Hartmetall / Carbide / Carbure

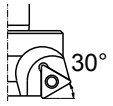
	unbeschichtet uncoated non revêtu		beschichtet coated revêtu			
	DX2	P25	DP25	DP35 DP55 DP57	DX20	DX30 DX50 DX52
	Vc (m/min)					
1		120 - 150	200 - 260	240 - 310		
2			180 - 230	210 - 280		
3			170 - 190	200 - 230		
4			180 - 200	210 - 240		
5			130 - 170	160 - 200		
6			180 - 220	210 - 260		
7			130 - 180	150 - 210		
8	120 - 150	100 - 120	170 - 260	200 - 310	200 - 260	240 - 310
9	100 - 130	80 - 120	140 - 220	170 - 260	200 - 220	240 - 260
10	200 - 400	200 - 400	350 - 700	400 - 800	350 - 700	400 - 800
11	400 - >1'000				600 - >2'000	600 - >2'000

***) abhängig von Werkzeug- & Werkstückstabilität / in function of stability of tool & workpiece / en fonction de la stabilité de l'outil et de la pièce**

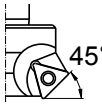
****) Obenstehende Werte gelten für Anstellwinkel χ = 90 ° ! Für nachstehende Winkel sind die Vorschubwerte mit dem entsprechenden Faktor F_χ zu multiplizieren:**

Above mentioned Cutting Data are valid for angle χ = 90 ° ! For angles mentioned hereafter please multiply the feed rate by the corresponding factor F_χ:

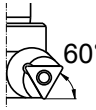
Les valeurs mentionnées ci-devant sont valable pour un angle χ = 90 ° ! Pour les angles suivants il faut multiplier les valeurs d'avance par le facteur F_χ correspondant:



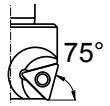
χ = 30° -> $F_{30°}$ = 2,5



χ = 45° -> $F_{45°}$ = 1,6



χ = 60° -> $F_{60°}$ = 1,3



χ = 75° -> $F_{75°}$ = 1,1

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