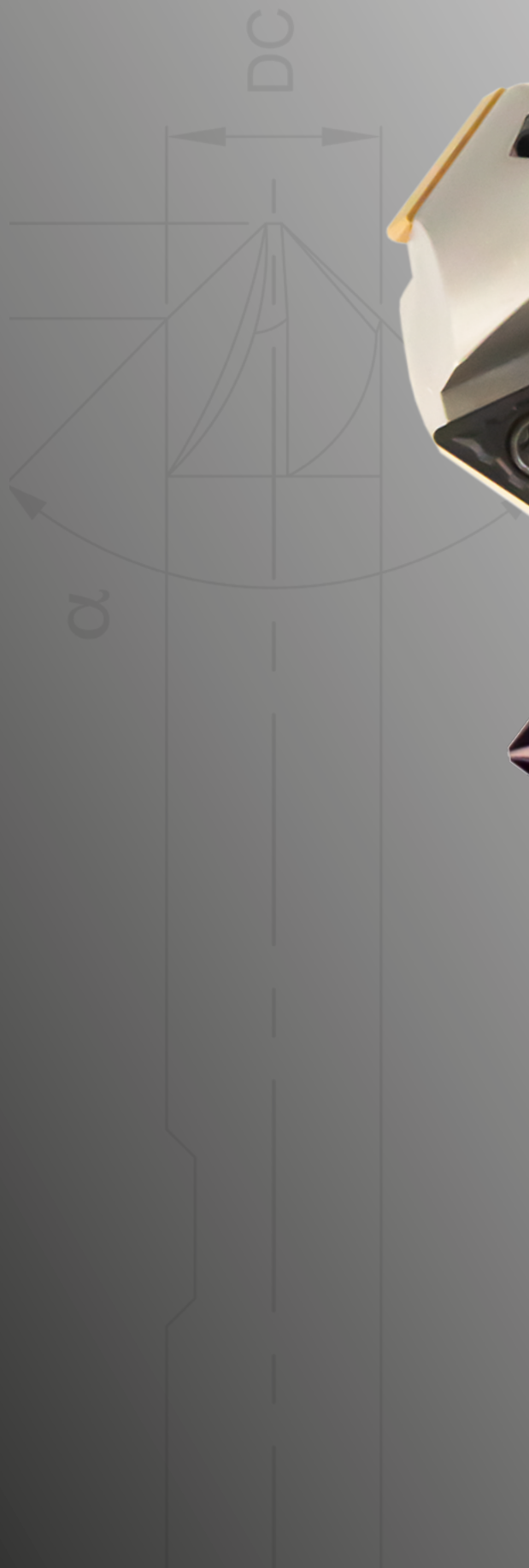
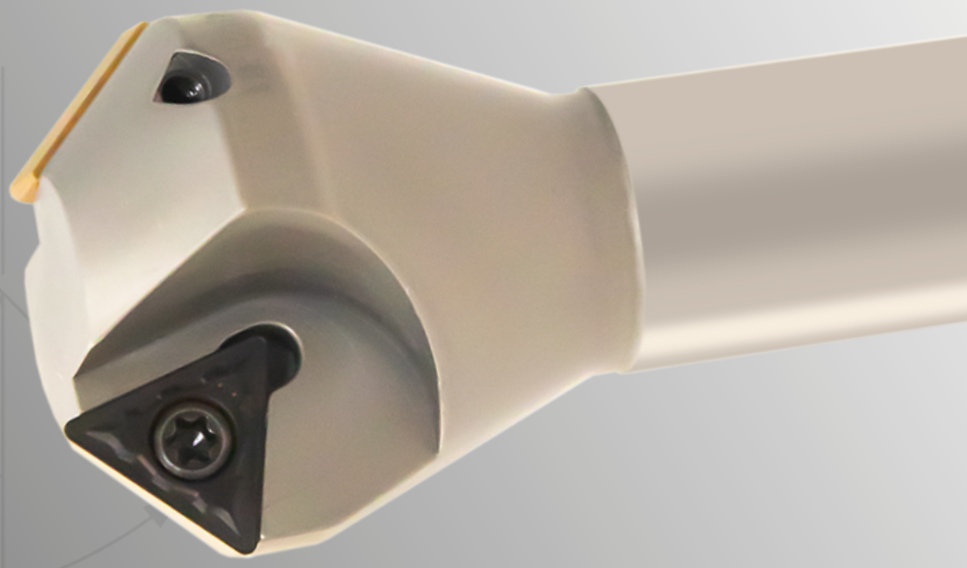
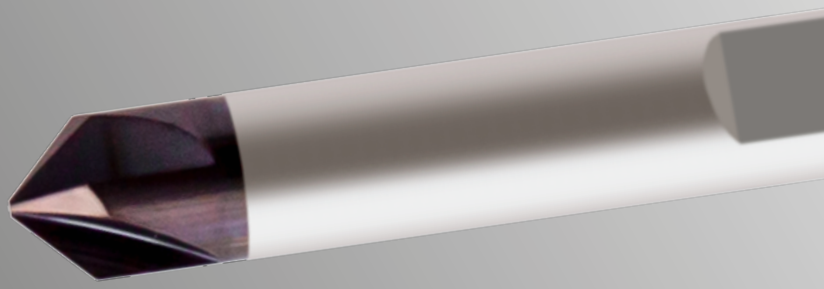
CHAMFER MILLS

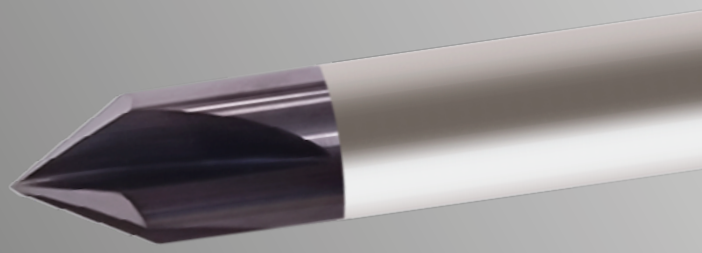
EUROPA TOOL

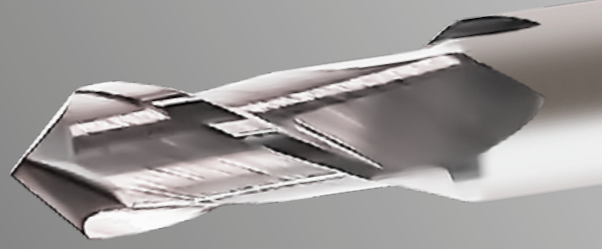
Clarkson





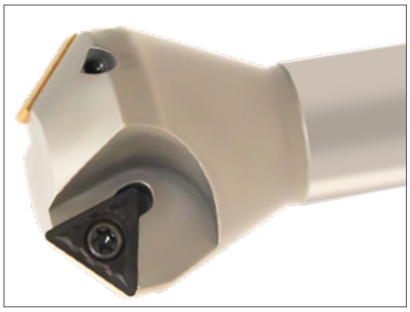


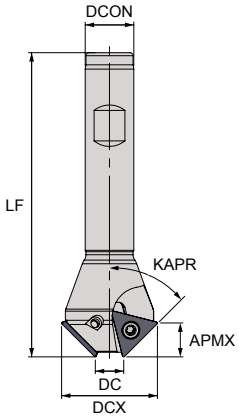


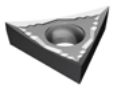
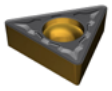


INDEXABLE CHAMFER MILLING

GCE
CHAMFER MILL





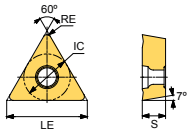
Insert P.3-4	
	TCGT 16T3..
	TCMT 16T3..

EDP Code	TOOL CODE	♦	DC	DCX	DCON	LF	KAPR	APMX	ZEFP	Insert	Screw	Wrench
MTH0170	**G30CE.06161-16**	**X**	**6**	20	16	100	30º	13.3	1	TCGT 16 TCMT 16	TXS3509	TXW15
MTH0171	**G30CE.175202-16**	**X**	**17.5**	32.5	20	100	30º	13.3	2			
MTH0172	**G45CE.05161-16**	**X**	**5**	26	16	100	45º	10.8	1			
MTH0173	**G45CE.18202-16**	**X**	**18**	39	20	100	45º	10.8	2			
MTH0174	**G45CE.20202-16**	**X**	**20**	41	20	100	45º	10.8	2			

EUROPA TOOL

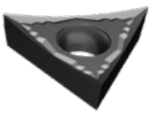
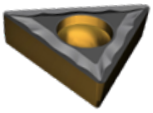
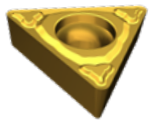
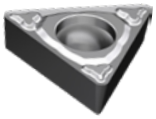
TCGT/TCMT 60º TRIANGULAR TYPE

▸ EDP Code TI..... Example: TCGT 16T302-AL ET10D = TI00276



INSERT	LE	IC	S
TC-- 1102	11.0	6.35	2.38
TC-- 16T3	15.7	9.53	3.97

	ET101C	ET31C	ET315C	ET32C	ET33C	ET225C	ET21P	ET23P	ET24P	ET41P	ET801	ET10D	ET10U	CT10U
P		●	●	●	●		○				●			●
M					●	●	●	●	●	○	○			●
K	●	●									●			●
N												●	●	
S							○	○	○	●				
H		○									○			

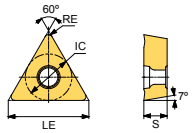
TCGT TCMT	DESIGNATION	RE (mm)	fn (mm/rev)	ap (mm)	ET101C	ET31C	ET315C	ET32C	ET33C	ET225C	ET21P	ET23P	ET24P	ET41P	ET801	ET10D	ET10U	CT10U
AL 	TCGT 16T302-AL	0.2	0.02 - 0.05	0.5 - 1.0												● 00276	● 00277	
	TCGT 16T304-AL	0.4	0.05 - 0.25	0.5 - 2.0												● 00278	● 00279	
	TCGT 16T308-AL	0.8	0.10 - 0.35	1.0 - 3.0												● 00280	● 00281	
BF 	TCMT 16T304-BF	0.4	0.05 - 0.25	0.5 - 2.0		■ 00421	● 01862	● 00422	● 00906		● 01225		● 01226		● 00017			
	TCMT 16T308-BF	0.8	0.05 - 0.25	0.8 - 2.0		■ 00844	● 01864	● 00845	● 00905									
MF 	TCMT 16T304-MF	0.4	0.06 - 0.25	0.1 - 2.0						● 01993	● 01394	● 01395	● 01396	● 01397				
	TCMT 16T308-MF	0.8	0.08 - 0.30	0.15 - 2.0						● 01994	● 01398	● 01399	● 01400	● 01326				
PF 	TCMT 16T304-PF	0.4	0.06 - 0.25	0.1 - 2.0														● 01926
	TCMT 16T308-PF	0.8	0.08 - 0.30	0.15 - 2.0														● 01927

ISO		P			M		K		N	S	H
MATERIAL		Non-alloy steel <25 HRc	Low alloy steel 25-35 HRc	High alloy steel, Tool steel 35-45 HRc	Ferritic / Martensitic Stainless steel	Austenitic Stainless steel	Grey Cast iron	Nodular Cast iron	Aluminium & Non-ferrous material	Heat Resistant and Super Alloys	Hardened steel <55 HRc
VDI GROUP		1-5	6-9	10-11	12-13	14	15-16	17-20	21-30	31-37	38-41
Vc (m/min)	ET101C	-	-	-	-	-	170 - 420	120 - 410	-	-	-
	ET31C	170 - 450	180 - 380	100 - 330	-	-	120 - 300	120 - 280	-	-	40 - 80
	ET315C	170 - 410	130 - 360	80 - 310	-	-	-	-	-	-	-
	ET32C	180 - 380	110 - 350	60 - 300	-	-	-	-	-	-	-
	ET33C	150 - 350	90 - 300	70 - 250	120 - 220	50 - 180	-	-	-	-	-
	ET801	120 - 200	70 - 230	70 - 180	70 - 180	-	60 - 160	60 - 120	-	-	40 - 80
	ET21P	135 - 405	120 - 350	95 - 280	130 -230	100 - 200	-	-	-	30 - 90	-
	ET23P	-	-	-	110 - 180	40 - 130	-	-	-	20 - 40	-
	ET24P	-	-	-	80 - 150	30 - 120	-	-	-	20 - 40	-
	ET41P	-	-	-	95 - 290	90 - 210	-	-	-	35 - 90	-
	ET10D	-	-	-	-	-	-	-	350 - 1200	-	-
	ET10U	-	-	-	-	-	-	-	250 - 800	-	-

EUROPA TOOL

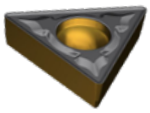
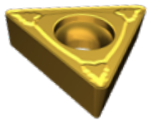
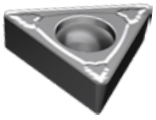
TCGT/TCMT 60º TRIANGULAR TYPE

▸ EDP Code TI..... Example: TCMT 16T304-BG ET101C = TI01518



INSERT	LE	IC	S
TC-- 1102	11.0	6.35	2.38
TC-- 16T3	15.7	9.53	3.97

	ET101C	ET31C	ET315C	ET32C	ET33C	ET225C	ET21P	ET23P	ET24P	ET41P	ET801	ET10D	ET10U	CT10U
P		●	●	●	●		○				●			●
M					●	●	●	●	●	○	○			●
K	●	●									●			●
N												●	●	
S							○	○	○	●				
H		○									○			

TCMT	DESIGNATION	RE (mm)	fn (mm/rev)	ap (mm)	ET101C	ET31C	ET315C	ET32C	ET33C	ET225C	ET21P	ET23P	ET24P	ET41P	ET801	ET10D	ET10U	CT10U
BG 	TCMT 16T304-BG	0.4	0.15 - 0.30	0.5 - 2.5	● 01518	■ 00510	● 01863	● 00511	● 01228									
	TCMT 16T308-BG	0.8	0.15 - 0.30	0.8 - 2.5	● 01519	■ 00513	● 01865	● 00309	● 00514		● 01711		● 01229		● 00018			
MM 	TCMT 16T304-MM	0.4	0.08 - 0.25	0.25 - 3.0						● 01995	● 01421	● 01422	● 01423	● 01424				
	TCMT 16T308-MM	0.8	0.10 - 0.30	0.5 - 3.0						● 01996	● 01327	● 01328	● 01329	● 01425				
	TCMT 16T312-MM	1.2	0.10 - 0.30	0.5 - 3.5						● 02157								
PM 	TCMT 16T304-PM	0.4	0.08 - 0.25	0.25 - 3.0														● 01928
	TCMT 16T308-PM	0.8	0.10 - 0.30	0.5 - 3.0														● 01929

■ = Available while stocks last

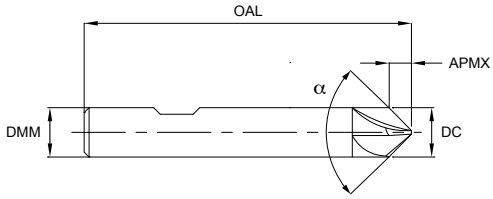
ISO		P			M		K		N	S	H
MATERIAL		Non-alloy steel <25 HRc	Low alloy steel 25-35 HRc	High alloy steel, Tool steel 35-45 HRc	Ferritic / Martensitic Stainless steel	Austenitic Stainless steel	Grey Cast iron	Nodular Cast iron	Aluminium & Non-ferrous material	Heat Resistant and Super Alloys	Hardened steel <55 HRc
VDI GROUP		1-5	6-9	10-11	12-13	14	15-16	17-20	21-30	31-37	38-41
Vc (m/min)	ET101C	-	-	-	-	-	170 - 420	120 - 410	-	-	-
	ET31C	170 - 450	180 - 380	100 - 330	-	-	120 - 300	120 - 280	-	-	40 - 80
	ET315C	170 - 410	130 - 360	80 - 310	-	-	-	-	-	-	-
	ET32C	180 - 380	110 - 350	60 - 300	-	-	-	-	-	-	-
	ET33C	150 - 350	90 - 300	70 - 250	120 - 220	50 - 180	-	-	-	-	-
	ET801	120 - 200	70 - 230	70 - 180	70 - 180	-	60 - 160	60 - 120	-	-	40 - 80
	ET21P	135 - 405	120 - 350	95 - 280	130 -230	100 - 200	-	-	-	30 - 90	-
	ET23P	-	-	-	110 - 180	40 - 130	-	-	-	20 - 40	-
	ET24P	-	-	-	80 - 150	30 - 120	-	-	-	20 - 40	-
	ET41P	-	-	-	95 - 290	90 - 210	-	-	-	35 - 90	-
	ET10D	-	-	-	-	-	-	-	350 - 1200	-	-
	ET10U	-	-	-	-	-	-	-	250 - 800	-	-

4-FL CHAMFER MILL

MG HM | ZEFP 4 | FHA 0° | DIN 6535HB | DIN 6535HA

Series No. 199323

▸ cutting conditions : p.7



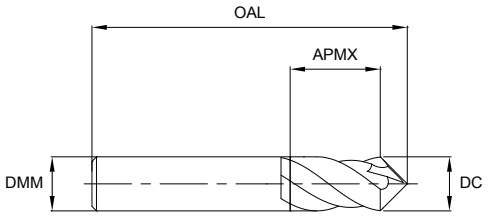
EUROPA **ORDCODE**	DIAMETER **DC**	SHANK DIAMETER **DMM**	LENGTH OF CUT **APMX**	O/ALL LENGTH **OAL**	CHAMFER ANGLE α
1993230400*	**4.0**	4.0	2.0	54	90°
1993230600	**6.0**	6.0	3.0	54	
1993230800	**8.0**	8.0	4.0	58	
1993231000	**10.0**	10.0	5.0	66	
1993231200	**12.0**	12.0	6.0	73	
1993230401*	**4.0**	4.0	3.4	54	60°
1993230601	**6.0**	6.0	5.2	54	
1993230801	**8.0**	8.0	6.9	58	
1993231001	**10.0**	10.0	8.6	66	
1993231201	**12.0**	12.0	10.4	73	

* Plain shank to DIN6535HA

Mill Dia. Tolerance **TCDC** (mm)	Shank Dia. Tolerance **TCDMM**
0.00 / -0.03	h6

ISO		P			M		K		N					S		H	
VDI GROUP		1-5	6-9	10-11	12, 13	14	15-16	17-20	21-25	26-28	29.1	29.2	30	31-35	36-37	38-39	40-41
● Primary	○ Secondary	●	●		●	○	●	●	○					○	○		

2-FL DRILL MILL



MG HM | ZEFP 2 | FHA 30° | DIN 6535HA

Series No. 197303, 197323

▸ cutting conditions : p.8-9

UNCOATED **ORDCODE**	TiAlN **ORDCODE**	DIAMETER **DC**	SHANK DIAMETER **DMM**	LENGTH OF CUT **APMX**	O/ALL LENGTH **OAL**
1973030300	**1973230300***	**3.0**	4	6	50
1973030400	**1973230400***	**4.0**	5	8	50
1973030500	**1973230500***	**5.0**	6	10	50
1973030600	**1973230600***	**6.0**	8	12	60
1973030800	**1973230800***	**8.0**	10	16	70
1973031000	**1973231000***	**10.0**	12	18	70
1973031200	**1973231200***	**12.0**	12	20	70
1973031400	**1973231400***	**14.0**	14	24	80
1973031600	**1973231600***	**16.0**	16	26	80
1973032000	**1973232000***	**20.0**	20	32	100

* Available to order

Mill Dia. **DC** (mm)	Mill Dia. Tolerance **TCDC**	Shank Dia. Tolerance **TCDMM**
3.0 - 10.0	h9	h6
12.0 - 20.0	d9	

ISO		P			M		K		N					S		H	
VDI GROUP		1-5	6-9	10-11	12, 13	14	15-16	17-20	21-25	26-28	29.1	29.2	30	31-35	36-37	38-39	40-41
● Primary	○ Secondary	●	●	●	○	○			○								

CUTTING DATA

199323 (4 Flute Chamfer Mill)

VDI MATERIAL GROUP			HRc		Size (mm)				
					4.0	**6.0**	**8.0**	**10.0**	**12.0**
P	1-5	Non-alloy Steel	**<25**	v_c (m/min)	90	90	90	85	90
				n	7165	4775	3580	2705	2385
				f_z	0.02	0.029	0.043	0.047	0.047
				f (mm/min)	570	555	615	510	450
	6-9	Low alloy Steel	**25-35**	v_c (m/min)	90	90	90	85	90
				n	7165	4775	3580	2705	2385
				f_z	0.02	0.029	0.043	0.047	0.047
				f (mm/min)	570	555	615	510	450
M	12-14	Stainless Steel		v_c (m/min)	45	45	45	45	45
				n	3580	2385	1790	1430	1195
				f_z	0.02	0.029	0.042	0.044	0.045
				f (mm/min)	285	275	300	250	215
K	15-20	Cast Iron		v_c (m/min)	55	55	55	60	55
				n	4380	2920	2190	1910	1460
				f_z	0.05	0.065	0.093	0.116	0.155
				f (mm/min)	875	760	815	885	905
N	21-24	Aluminium/ Aluminium Alloys		v_c (m/min)	145	145	145	145	140
				n	11545	7690	5770	4615	3715
				f_z	0.04	0.047	0.063	0.078	0.095
				f (mm/min)	1845	1445	1455	1440	1410
S	31-35	HRSA Fe & Ni/Co Based		v_c (m/min)	25	25	25	25	25
				n	1990	1325	995	795	660
				f_z	0.01	0.014	0.018	0.02	0.02
				f (mm/min)	80	75	70	60	50
	36-37	Titanium/ Titanium Alloys		v_c (m/min)	45	45	45	45	45
				n	3580	2385	1790	1430	1195
				f_z	0.02	0.029	0.042	0.044	0.045
				f (mm/min)	285	275	300	250	215

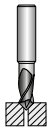
Recommended cutting depths are **maximum** depths, and **speeds and feeds are a starting point** based on these depths.
All recommendations are based on ideal machining conditions. Adjustments may need to be made according to your set-up.
For long series and long necked tools it may be necessary to reduce feed rate by up to 50%.

v_c - cutting speed (m/min)
n - RPM (rev/min)
f_z - feed per tooth (mm)
f - feed rate (mm/min)
a_p - axial depth of cut
a_e - radial depth of cut

CUTTING DATA

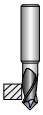
197303, 197323 (2 Flute Drill Mill) **CHAMFERING**

VDI MATERIAL GROUP			HRc		Size (mm)								
					3.0	**4.0**	**5.0**	**6.0**	**8.0**	**10.0**	**12.0**	**16.0**	**20.0**
P	1-5	Non-alloy Steel	**<25**	v_c (m/min)	35	40	40	40	40	40	40	30	45
				n	3500	3000	2400	2000	1540	1300	1100	950	750
				f_z	0.023	0.027	0.035	0.043	0.058	0.073	0.091	0.105	0.140
				f (mm/min)	160	160	170	170	180	190	200	200	210
	6-9	Low alloy Steel	**25-35**	v_c (m/min)	35	40	40	40	40	40	40	30	45
				n	3500	3000	2400	2000	1540	1300	1100	950	750
				f_z	0.023	0.027	0.035	0.043	0.058	0.073	0.091	0.105	0.140
				f (mm/min)	160	160	170	170	180	190	200	200	210
M	12-13	Ferritic/ Martensitic Stainless Steel		v_c (m/min)	25	25	30	25	25	25	30	15	35
				n	2400	2000	1760	1400	1000	870	730	550	530
				f_z	0.021	0.025	0.03	0.038	0.55	0.063	0.079	0.109	0.123
				f (mm/min)	100	100	105	105	110	110	115	120	130
N	21-24	Aluminium/ Aluminium Alloys		v_c (m/min)	105	115	110	105	110	125	130	85	140
				n	11000	9000	6900	5600	4400	4000	3500	2750	2200
				f_z	0.025	0.032	0.045	0.057	0.075	0.085	0.1	0.135	0.175
				f (mm/min)	550	580	620	640	660	680	700	740	770



197303, 197323 (2 Flute Drill Mill) **CHAMFERING & SIDE CUTTING**

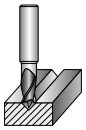
VDI MATERIAL GROUP			HRc		Size (mm)								
					3.0	**4.0**	**5.0**	**6.0**	**8.0**	**10.0**	**12.0**	**16.0**	**20.0**
P	1-5	Non-alloy Steel	**<25**	v_c (m/min)	35	40	40	40	40	40	40	45	45
				n	3900	3200	2500	2000	1540	1300	1100	900	700
				f_z	0.008	0.01	0.013	0.018	0.024	0.031	0.041	0.05	0.064
				f (mm/min)	65	65	65	70	75	80	90	90	90
	6-9	Low alloy Steel	**25-35**	v_c (m/min)	35	40	40	40	40	40	40	45	45
				n	3900	3200	2500	2000	1540	1300	1100	900	700
				f_z	0.008	0.01	0.013	0.018	0.024	0.031	0.041	0.05	0.064
				f (mm/min)	65	65	65	70	75	80	90	90	90
M	12-13	Ferritic/ Martensitic Stainless Steel		v_c (m/min)	25	25	30	25	30	30	30	35	30
				n	2400	2000	1760	1400	1100	1000	840	660	440
				f_z	0.008	0.01	0.013	0.018	0.025	0.028	0.036	0.045	0.068
				f (mm/min)	40	40	45	50	55	55	60	60	60
N	21-24	Aluminium/ Aluminium Alloys		v_c (m/min)	130	150	150	145	145	160	165	165	165
				n	14000	12000	9500	7700	5800	5100	4400	3300	2640
				f_z	0.008	0.01	0.013	0.019	0.03	0.037	0.045	0.05	0.064
				f (mm/min)	230	240	250	300	350	280	400	330	340



CUTTING DATA

197303, 197323 (2 Flute Drill Mill) **V-GROOVING**

VDI MATERIAL GROUP			HRc		Size (mm)								
					3.0	**4.0**	**5.0**	**6.0**	**8.0**	**10.0**	**12.0**	**16.0**	**20.0**
P	1-5	Non-alloy Steel	**<25**	v_c (m/min)	40	40	40	40	40	40	40	45	45
				n	4000	3300	2500	2000	1540	1300	1000	900	700
				f_z	0.004	0.005	0.006	0.008	0.011	0.013	0.02	0.022	0.029
				f (mm/min)	30	30	30	30	35	35	40	40	40
	6-9	Low alloy Steel	**25-35**	v_c (m/min)	40	40	40	40	40	40	40	45	45
				n	4000	3300	2500	2000	1540	1300	1000	900	700
				f_z	0.004	0.005	0.006	0.008	0.011	0.013	0.02	0.022	0.029
				f (mm/min)	30	30	30	30	35	35	40	40	40
M	12-13	Ferritic/ Martensitic Stainless Steel		v_c (m/min)	25	25	30	25	30	30	20	35	30
				n	2400	2000	1760	1400	1100	1000	840	660	440
				f_z	0.004	0.005	0.006	0.007	0.009	0.01	0.012	0.019	0.028
				f (mm/min)	20	20	20	20	20	20	20	25	25
N	21-24	Aluminium/ Aluminium Alloys		v_c (m/min)	130	150	150	145	145	155	165	165	165
				n	14000	11800	9500	7700	5800	5000	4400	3300	2600
				f_z	0.008	0.01	0.013	0.016	0.022	0.026	0.03	0.041	0.052
				f (mm/min)	220	230	240	250	260	260	260	270	270



Recommended cutting depths are **maximum** depths, and **speeds and feeds are a starting point** based on these depths.
All recommendations are based on ideal machining conditions. Adjustments may need to be made according to your set-up.
For long series and long necked tools it may be necessary to reduce feed rate by up to 50%.

v_c - cutting speed (m/min)
n - RPM (rev/min)
f_z - feed per tooth (mm)
f - feed rate (mm/min)
a_p - axial depth of cut
a_e - radial depth of cut