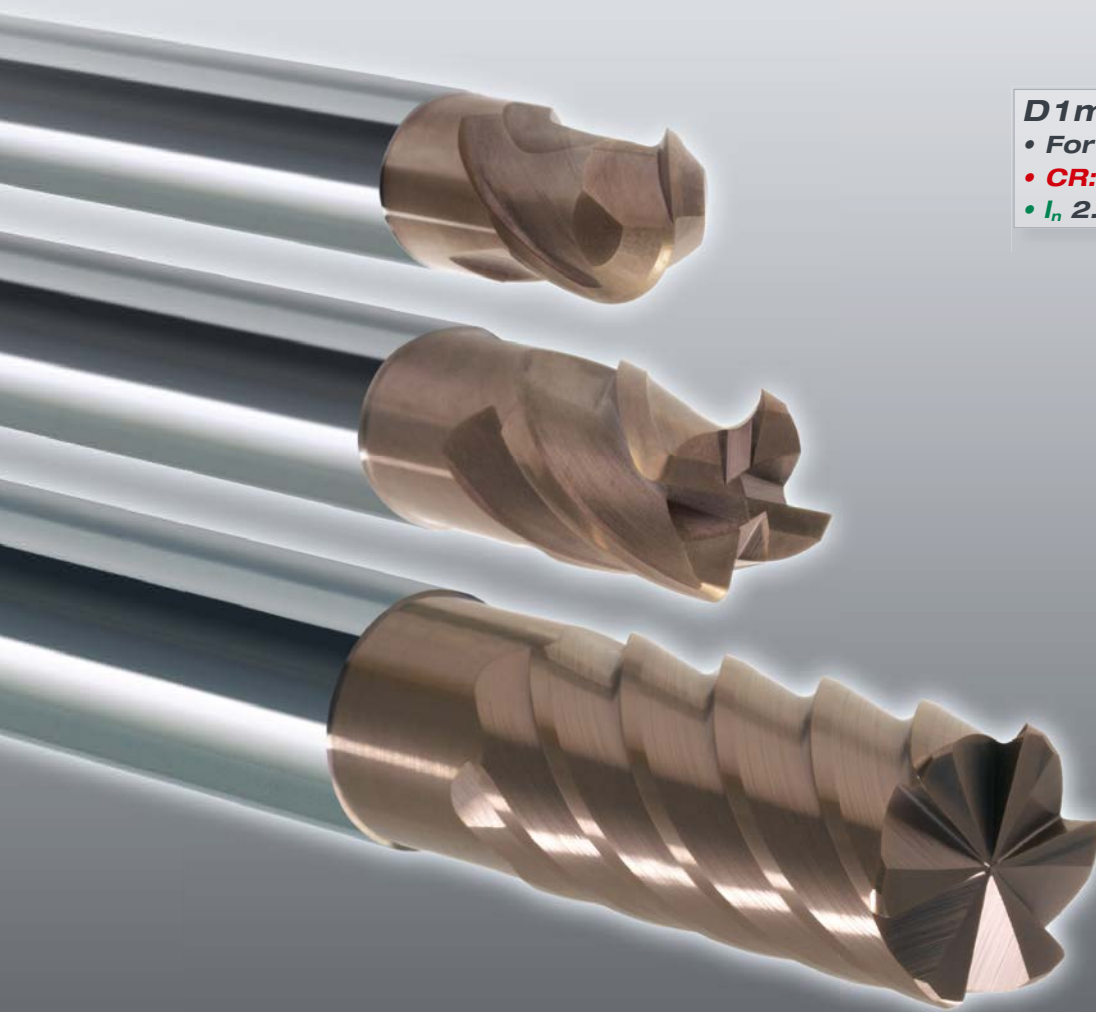


GO-Line HGOB-2 · HGOR-4 · HGOH-6

High Feed Solid Carbide End Mills



D1mm ~ D20mm

• For Materials $\leq 50\text{HRC}$

• **CR:** 0.3 | 0.5 | 1 | 2

• **l_n** 2.5 ~ 3xD

HGOB-2 | GO-Line High Feed

V max
High Speed

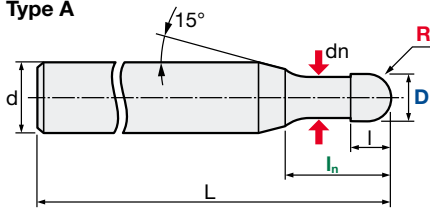
▽
Roughing

▽▽
Finishing

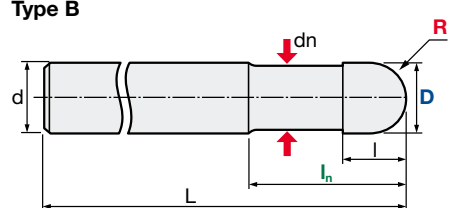
HRC
50



Type A



Type B





Carbide
Micro Grain

TH
Nano-PVD Coating

Rake Angle
Positive

Helix Angle	R Tol. [mm]	D Tol. [mm]	d Tol.
30°	+/-0.005	0/-0.01	h6

Type	ID Code	Item Code	Flutes	D	R	I	L _n	d _n	L	d
 	EL010	HGOB-2010TH	2	1	0.5	1	2.5	0.95	40	4
	EL011	HGOB-2020TH		2	1	2	5	1.95	45	6
	EL012	HGOB-2030TH		3	1.5	3	7.5	2.9		
	EL013	HGOB-2040TH		4	2	4	10	3.9		
	EL014	HGOB-2050TH		5	2.5	5	12.5	4.9	50	8
	EL015	HGOB-2060TH		6	3	6	15	5.9		
	EL016	HGOB-2080TH		8	4	8	20	7.9	60	8
	EL017	HGOB-2100TH		10	5	10	25	9.9	65	10
	EL018	HGOB-2120TH		12	6	12	30	11.9	75	12

Cutting Conditions | Schnittwerte | Condizioni di taglio | Condiciones de Corte | Conditions de coupe | Valores de corte:

HGOB-2 | D 1 – D 12 (Z2): Page 6–7

HGOR-4 | D 6 – D 20 (Z4): Page 8

HGOH-6 | D 6 – D 20 (Z6): Page 9

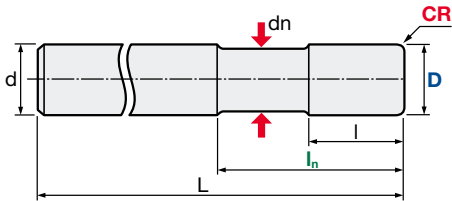
HGOR-4 | GO-Line High Feed

V max
High Speed

▽
Roughing

▽▽
Finishing

HRC
50





Carbide
Micro Grain

TH
Nano-PVD Coating

Rake Angle
Positive

Helix Angle	R Tol. [mm]	D Tol. [mm]	d Tol.
30°	+/-0.02	0/-0.03	h6

Type	ID Code	Item Code	Flutes	D	CR	I	I _n	dn	L	d
 	EL031	HGOR-4060-03TH	4	6	0.3	9	18	5.7	50	6
	EL032	HGOR-4060-10TH			1					
	EL033	HGOR-4080-03TH		8	0.3	12	24	7.6	55	8
	EL034	HGOR-4080-10TH			1					
	EL035	HGOR-4100-03TH		10	0.3	15	30	9.5	70	10
	EL036	HGOR-4100-10TH			1					
	EL037	HGOR-4120-03TH		12	0.3	18	36	11.5	75	12
	EL038	HGOR-4120-10TH			1					
	EL039	HGOR-4160-05TH		16	0.5	24	48	15	90	16
	EL040	HGOR-4160-20TH			2					
	EL041	HGOR-4200-05TH		20	0.5	30	60	19	100	20
	EL042	HGOR-4200-20TH			2					

Cutting Conditions | Schnittwerte | Condizioni di taglio | Condiciones de Corte | Conditions de coupe | Valores de corte:

HGOB-2 | D 1 – D 12 (Z2): Page 6–7

HGOR-4 | D 6 – D 20 (Z4): Page 8

HGOH-6 | D 6 – D 20 (Z6): Page 9

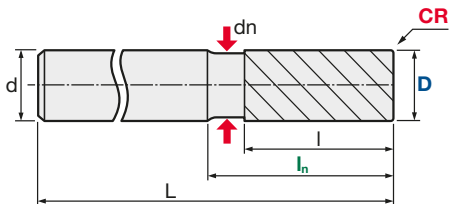
HGOH-6 | GO-Line High Feed

V max
High Speed

▽
Roughing

▽▽
Finishing

HRC
50





Carbide
Micro Grain

TH
Nano-PVD Coating

Rake Angle
Negative

Helix Angle	R Tol. [mm]	D Tol. [mm]	d Tol.
46°	+/-0.03	0/-0.03	h6

Type	ID Code	Item Code	Flutes	D	CR	I	I _n	dn	L	d
 	EL043	HGOH-6060-05TH	6	6	0.5	12.5	18	5.7	55	6
	EL044	HGOH-6080-05TH		8		17.0	24	7.6	65	8
	EL045	HGOH-6100-05TH		10		21.0	30	9.5	75	10
	EL046	HGOH-6120-10TH		12	1.0	25.0	36	11.5	85	12
	EL047	HGOH-6160-10TH		16		34.0	48	15	100	16
	EL048	HGOH-6200-10TH		20		42.0	60	19	115	20


Cutting Conditions | Schnittwerte | Condizioni di taglio | Condiciones de Corte | Conditions de coupe | Valores de corte:


HGOB-2 | D 1 – D 12 (Z2): Page 6–7


HGOR-4 | D 6 – D 20 (Z4): Page 8


HGOH-6 | D 6 – D 20 (Z6): Page 9


GO-Line High Feed | Recommended Cutting Conditions


 **Note:** For finishing and precise tool definition for the CAM system please download DXF data (QuickFinder), or contact your local MOLDINO Tool staff for more details.

 **Achtung:** Bitte laden Sie sich für die Schlichtbearbeitung und die präzise Definition der Werkzeuge die DXF Daten herunter (QuickFinder) oder wenden Sie sich an Ihren MOLDINO Anwendungstechniker.


 **Nota:** Per lavorazioni di finitura e per una precisa e corretta definizione del profilo dell'utensile per l'utilizzo CAM si prega di richiedere file DXF tramite QuickFinder o rivolgendosi al personale MOLDINO Tool.

 **Nota:** En procesos de acabado y para una más precisa definición de la herramienta en el sistema de CAM por favor solicite los ficheros DXF (QuickFinder), o póngase en contacto con MOLDINO Tool para obtener más detalles.

 **Remarque :** Pour les opérations de finition et une définition précise de l'outil dans votre système FAO, demandez nous le fichier DXF des outils, téléchargez les via notre logiciel QuickFinder, ou contactez votre interlocuteur commercial pour plus de détails.

 **Nota:** Para o acabamento e precisão assim como melhor definição da ferramenta para o sistema CAM por favor solicitar dados DXF (QuickFinder), ou entre em contato com sua equipe de ferramentas MOLDINO local para obter mais detalhes.

HGOB-2 | Recommended Cutting Conditions

			D1/R 0.5		D2/R 1.0		D3/R 1.5		D4/R 2.0		D5/R 2.5	
			▽	▽▽▽	▽	▽▽▽	▽	▽▽▽	▽	▽▽▽	▽	▽▽▽
			Roughing	Finishing	Roughing	Finishing	Roughing	Finishing	Roughing	Finishing	Roughing	Finishing
D1 - 5	Mild steel, Carbon Steel & Alloy steel (HB180 ~ HRC30)	V _c (m/min)	140	120	160	140	180	160	200	180	200	180
		n (min ⁻¹)	44580	38210	25470	22300	19100	16980	15920	14330	12740	11470
		f _z (mm/tooth)	0.04	0.025	0.06	0.04	0.08	0.055	0.1	0.07	0.12	0.08
		V _f (mm/min)	3570	1910	3060	1780	3060	1870	3190	2000	3060	1840
		a _p (mm)	0.05	0.025	0.1	0.05	0.15	0.075	0.2	0.1	0.25	0.125
		a _e (mm)	0.3	0.025	0.6	0.05	0.9	0.075	1.2	0.1	1.5	0.125
	Pre-Hardened & Hardened tool steel (HRC30 ~ 50)	V _c (m/min)	120	100	140	120	160	140	180	160	180	160
		n (min ⁻¹)	38220	31850	22290	19100	16990	14860	14330	12740	11460	10200
		f _z (mm/tooth)	0.04	0.025	0.06	0.04	0.08	0.055	0.1	0.07	0.12	0.08
		V _f (mm/min)	3060	1600	2670	1530	2720	1630	2870	1780	2750	1630
		a _p (mm)	0.05	0.025	0.1	0.05	0.15	0.075	0.2	0.1	0.25	0.125
		a _e (mm)	0.3	0.025	0.6	0.05	0.9	0.075	1.2	0.1	1.5	0.125
	Copper, Aluminium & Cast Iron	V _c (m/min)	180	160	200	180	220	200	240	220	240	220
		n (min ⁻¹)	57330	51000	31850	28670	23350	21230	19100	17520	15300	14000
		f _z (mm/tooth)	0.04	0.025	0.06	0.04	0.08	0.055	0.1	0.07	0.12	0.08
		V _f (mm/min)	4590	2550	3820	2300	3740	2330	3820	2450	3670	2240
		a _p (mm)	0.05	0.025	0.1	0.05	0.15	0.075	0.2	0.1	0.25	0.125
		a _e (mm)	0.3	0.025	0.6	0.05	0.9	0.075	1.2	0.1	1.5	0.125

🇬🇧 Theoretical cusp height in end milling (μm)

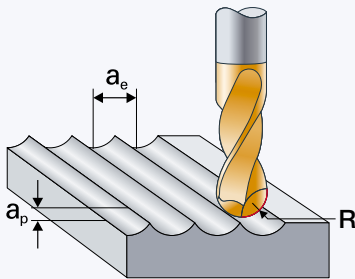
🇩🇪 Die theoretische Rautiefe in der Fräsbearbeitung (μm)

🇮🇹 Cresta teorica di fresatura (μm)

🇪🇸 Cálculo de altura de la cresta teórica en fresado (mm)

🇫🇷 Hauteur de crête théorique en fraisage (μm)

🇵🇹 Altura da crista teórica em fresagem (μm)



🇬🇧 Feed pitch and cusp height

🇩🇪 a_e (mm) Zeilensprung

🇮🇹 Passo di avanzamento / Cresta

🇪🇸 Paso y altura de cresta

🇫🇷 Pas et hauteur de crête

🇵🇹 Passo lateral x/ Altura da crista

$$h = R - \sqrt{\frac{(2 \cdot R)^2 - a_{p,e}^2}{4}}$$

$$h = \frac{a_e^2}{8 \cdot R}$$

		a_e (mm)							
		0.05	0.075	0.1	0.15	0.2	0.3	0.4	0.5
R (mm)	0.5	0.63	1.41	2.51	5.66	10.10	23.03	41.74	66.99
	1.0	0.31	0.70	1.25	2.82	5.01	11.31	20.20	31.75
	2.0	0.16	0.35	0.63	1.41	2.50	5.63	10.03	15.69
	3.0	0.10	0.23	0.42	0.94	1.67	3.75	6.67	10.43
	4.0	0.08	0.18	0.31	0.70	1.25	2.81	5.00	7.82
	5.0	0.06	0.14	0.25	0.56	1.00	2.25	4.00	6.25
	6.0	0.05	0.12	0.21	0.47	0.83	1.88	3.33	5.21
	8.0	0.04	0.09	0.16	0.35	0.63	1.41	2.50	3.91
	10.0	0.03	0.07	0.13	0.28	0.50	1.13	2.0	3.13

HGOB-2 | Recommended Cutting Conditions

D6/R 3.0		D8/R 4.0		D10/R 5.0		D12/R 6.0			
▽	▽▽	▽	▽▽	▽	▽▽	▽	▽▽		
Roughing	Finishing	Roughing	Finishing	Roughing	Finishing	Roughing	Finishing	Mild steel, Carbon Steel & Alloy steel (HB180 ~ HRC30)	D 6 - 12
220	220	220	220	260	240	260	240	V_c (m/min)	
11680	11680	8760	8760	8280	7640	6900	6370	n (min ⁻¹)	
0.14	0.09	0.16	0.11	0.18	0.13	0.2	0.15	f_z (mm/tooth)	
3270	2100	2800	1930	2980	1990	2760	1910	V_f (mm/min)	
0.3	0.15	0.4	0.2	0.5	0.25	0.6	0.3	a_p (mm)	
1.8	0.15	2.4	0.2	3.0	0.25	3.6	0.3	a_e (mm)	
200	180	200	180	220	200	220	200	V_c (m/min)	
10620	9550	7960	7170	7000	6370	5840	5300	n (min ⁻¹)	
0.14	0.09	0.16	0.11	0.18	0.13	0.2	0.15	f_z (mm/tooth)	
2970	1720	2550	1580	2520	1660	2340	1590	V_f (mm/min)	
0.3	0.15	0.4	0.2	0.5	0.25	0.6	0.3	a_p (mm)	
1.8	0.15	2.4	0.2	3.0	0.25	3.6	0.3	a_e (mm)	
260	270	260	270	320	300	320	300	V_c (m/min)	
13800	14330	10350	10750	10200	9550	8500	7960	n (min ⁻¹)	
0.14	0.09	0.16	0.11	0.18	0.13	0.2	0.15	f_z (mm/tooth)	
3870	2580	3300	2360	3670	2480	3400	2390	V_f (mm/min)	
0.3	0.15	0.4	0.2	0.5	0.25	0.6	0.3	a_p (mm)	
1.8	0.15	2.4	0.2	3.0	0.25	3.6	0.3	a_e (mm)	
								Copper, Aluminium & Cast Iron	

NOTE

1. Use a highly rigid and accurate machine as available.
2. The radial step over (Pf, pick feed) in the above table is for general information. Please select the conditions to suit your actual surface finish requirements, according to the cusp height stated.
3. The cutting conditions in the above table are a general guide. For your actual work piece adjust the conditions according to the machining shape, purpose and the machine tool to be used.
4. If the rpm speed available is lower, adjust the feed rate to the same ratio with the rpm.

ANMERKUNG

1. Nutzen Sie für die Bearbeitungen die Maschine mit der höchsten Genauigkeit und der höchsten Steifigkeit.
2. Der in der Tabelle angegebene Zeilensprung ist eine generelle Empfehlung. Um die jeweiligen Anforderungen an die Oberflächengüte zu erreichen wählen Sie die Bedingungen entsprechend der angegebenen Rautiefe.
3. Die in der Tabelle angegebenen Schnittbedingungen stellen eine generelle Empfehlung dar. Die Werte sollten immer an die jeweilige Bearbeitung, deren Form und die verwendete Maschine angepasst werden.
4. Sollte die Ihnen verfügbare Drehzahl niedriger als der in der Tabelle angegebene Wert sein, sollte der Vorschub im gleichen Verhältnis reduziert werden.

NOTA

1. Usate centri di lavoro più precisi e rigidi possibile.
2. Gli indicazioni sul passo laterale (a_p) espresso nella tabella sopra riportata sono valori generali. Per ottimizzare il processo di lavoro usate le relazioni cresta/raggio più vicine alle Vostre esigenze.
3. Le condizioni di taglio indicate sono valori generali. Per ottimizzare il Vostro processo di lavoro analizzate i parametri in funzione delle geometrie che dovete generare e del centro di lavoro a disposizione.
4. Se i giri del mandrino della macchina disponibili sono più bassi rispetto al valore espresso regolate l'avanzamento con lo stesso rapporto.

OBSERVACIONES

1. Utilizar la máquina más rígida y precisa posible.
2. El paso radial (Pf, paso) de la tabla es una información general. Hay que utilizar el paso adecuado en función del acabado superficial que se pretenda obtener según la rugosidad máxima prevista (Altura de cresta).
3. Las condiciones de corte de la tabla son una orientación general. Para un trabajo específico hay que ajustar las condiciones en función de la geometría de la pieza, el resultado esperado y el tipo de máquina que vamos a utilizar.
4. Si las rpm de la maquina son inferiores, hay que ajustar el avance en proporción a las mismas.











NOTE

1. Utiliser une machine aussi fiable et rigide que possible .
2. SVP choisissez vos conditions en fonction de l'état de surface requis .
3. Les conditions de coupe du tableau sont indicatives. Pour votre application, ajuster cette base en fonction de votre machine .
4. Si le nombre de tours est insuffisant ajuster les avances dans la même proportion que la rotation disponible .

NOTA










1. Use a máquina disponível mais rígida e precisa possível.
2. O passo lateral (Pf, incremento lateral) na tabela acima é para informação geral.
Por favor seleccione as condições para atender às suas exigências de acabamento de superfície real, de acordo com a altura da crista pretendida.
3. As condições de corte no quadro acima são uma informação geral. Para o seu trabalho real ajuste as condições de acordo com a forma da peça, máquina e ferramenta a ser usada para objectivo pretendido.
4. Se a sua rpm disponível é menor do que o recomendado, ajuste o avanço para a mesma relação com a rpm.










HGOR-4 | Recommended Cutting Conditions

		D6/CR 0.3, 1.0			D8/CR 0.3, 1.0			D10/CR 0.3, 1.0			
											
		Slotting	Side	2D/3D HSC	Slotting	Side	2D/3D HSC	Slotting	Side	2D/3D HSC	
D 6 - 10	Mild steel, Carbon Steel & Alloy steel (HB180 ~ HRC30)	V _c (m/min)	90	110	200	90	110	200	90	110	200
		n (min ⁻¹)	4,780	5,840	10,620	3,580	4,380	7,960	2,870	3,500	6,370
		f _z (mm/tooth)	0.04	0.04	0.09	0.05	0.05	0.12	0.06	0.06	0.15
		V _f (mm/min)	760	930	3,820	710	880	3,820	690	840	3,820
		a _p (mm)	3.0	6.0	0.2 – 0.5	4.0	8.0	0.2 – 0.5	5.0	10.0	0.2 – 0.5
		a _e (mm)	6.0	0.6	0.2 – 0.5	8.0	0.8	0.2 – 0.5	10.0	1.0	0.2 – 0.5
	Pre-Hardened & Hardened tool steel (HRC30 ~ 50)	V _c (m/min)	60	80	150	60	80	150	60	80	150
		n (min ⁻¹)	3,190	4,250	7,960	2,390	3,190	5,970	1,910	2,550	4,780
		f _z (mm/tooth)	0.03	0.03	0.09	0.04	0.04	0.12	0.05	0.05	0.15
		V _f (mm/min)	380	510	2,870	380	510	2,870	380	510	2,870
		a _p (mm)	1.5	3.0	0.1 – 0.3	2.0	4.0	0.1 – 0.3	2.5	5.0	0.1 – 0.3
		a _e (mm)	6.0	0.3	0.1 – 0.3	8.0	0.4	0.1 – 0.3	10.0	0.5	0.1 – 0.3
	Copper, Aluminium & Cast Iron	V _c (m/min)	180	200	250	180	200	250	180	200	250
		n (min ⁻¹)	9,550	10,620	13,270	7,170	7,960	9,950	5,730	6,370	7,960
		f _z (mm/tooth)	0.06	0.06	0.09	0.07	0.07	0.12	0.08	0.08	0.15
		V _f (mm/min)	2,290	2,550	4,780	2,000	2,230	4,780	1,830	2,040	4,780
		a _p (mm)	3.0	6.0	0.2 – 0.5	4.0	8.0	0.2 – 0.5	5.0	10.0	0.2 – 0.5
		a _e (mm)	6.0	0.6	0.2 – 0.5	8.0	0.8	0.2 – 0.5	10.0	1.0	0.2 – 0.5

		D12/CR 0.3, 1.0			D16/CR 0.5, 2.0			D20/CR 0.5, 2.0			
D 12 - 20	Mild steel, Carbon Steel & Alloy steel (HB180 ~ HRC30)	V _c (m/min)	90	110	200	90	110	200	90	110	200
		n (min ⁻¹)	2,390	2,920	5,300	1,790	2,190	3,980	1,430	1,750	3,190
		f _z (mm/tooth)	0.07	0.07	0.18	0.09	0.09	0.22	0.11	0.11	0.25
		V _f (mm/min)	670	820	3,820	640	790	3,500	630	770	3,190
		a _p (mm)	6.0	12.0	0.2 – 0.5	8.0	16.0	0.2 – 0.5	10.0	20.0	0.2 – 0.5
		a _e (mm)	12.0	1.2	0.2 – 0.5	16.0	1.6	0.2 – 0.5	20.0	2.0	0.2 – 0.5
	Pre-Hardened & Hardened tool steel (HRC30 ~ 50)	V _c (m/min)	60	80	150	60	80	150	60	80	150
		n (min ⁻¹)	1,590	2,120	3,980	1,200	1,590	2,990	950	1,270	2,390
		f _z (mm/tooth)	0.06	0.06	0.18	0.08	0.08	0.22	0.09	0.09	0.25
		V _f (mm/min)	380	510	2,870	380	510	2,630	340	460	2,390
		a _p (mm)	3.0	6.0	0.1 – 0.3	4.0	8.0	0.1 – 0.3	5.0	10.0	0.1 – 0.3
		a _e (mm)	12.0	0.6	0.1 – 0.3	16.0	0.8	0.1 – 0.3	20.0	1.0	0.1 – 0.3
	Copper, Aluminium & Cast Iron	V _c (m/min)	180	200	250	180	200	250	180	200	250
		n (min ⁻¹)	4,780	5,300	6,640	3,580	3,980	4,980	2,870	3,190	3,980
		f _z (mm/tooth)	0.09	0.09	0.18	0.1	0.1	0.22	0.12	0.12	0.25
		V _f (mm/min)	1,720	1,900	4,780	1,430	1,590	4,380	1,380	1,530	3,980
		a _p (mm)	6.0	12.0	0.2 – 0.5	8.0	16.0	0.2 – 0.5	10.0	20.0	0.2 – 0.5
		a _e (mm)	12.0	1.2	0.2 – 0.5	16.0	1.6	0.2 – 0.5	20.0	2.0	0.2 – 0.5

HGOH-6 | Recommended Cutting Conditions

			D6/CR 0.5			D8/CR 0.5			D10/CR 0.5		
											
			Side	Side HSC	2D/3D HSC	Side	Side HSC	2D/3D HSC	Side	Side HSC	2D/3D HSC
D 6 - 10	Mild steel, Carbon steel & Alloy steel (HB180 ~ HRC30)	V _c (m/min)	110	200	200	110	200	200	110	200	200
		n (min ⁻¹)	5,800	10,600	10,600	4,400	8,000	8,000	3,500	6,400	6,400
		f _z (mm/tooth)	0.06	0.06	0.09	0.07	0.07	0.12	0.08	0.08	0.15
		V _f (mm/min)	2,090	3,820	5,720	1,850	3,360	5,760	1,680	3,070	5,760
		a _p (mm)	9.0	9.0	0.2 – 0.5	12.0	12.0	0.2 – 0.5	15.0	15.0	0.2 – 0.5
		a _e (mm)	0.3	0.3	0.2 – 0.5	0.4	0.4	0.2 – 0.5	0.5	0.5	0.2 – 0.5
	Pre-Hardened & Hardened tool steel (HRC30~50)	V _c (m/min)	80	180	180	80	180	180	80	180	180
		n (min ⁻¹)	4,200	9,500	9,500	3,200	7,200	7,200	2,500	5,700	5,700
		f _z (mm/tooth)	0.06	0.06	0.09	0.07	0.07	0.12	0.08	0.08	0.15
		V _f (mm/min)	1,510	3,420	5,130	1,340	3,020	5,180	1,200	2,740	5,130
		a _p (mm)	9.0	9.0	0.1 – 0.3	12.0	12.0	0.1 – 0.3	15.0	15.0	0.1 – 0.3
		a _e (mm)	0.06	0.06	0.1 – 0.3	0.08	0.08	0.1 – 0.3	0.1	0.1	0.1 – 0.3
	Cast Iron (HB150 ~ 200) GG, GGG	V _c (m/min)	160	250	250	160	250	250	160	250	250
		n (min ⁻¹)	8,500	13,200	13,200	6,400	9,900	9,900	5,100	8,000	8,000
		f _z (mm/tooth)	0.08	0.08	0.09	0.1	0.1	0.12	0.12	0.12	0.15
		V _f (mm/min)	4,080	6,340	7,130	3,840	5,940	7,130	3,670	5,760	7,200
		a _p (mm)	9.0	9.0	0.2 – 0.5	12.0	12.0	0.2 – 0.5	15.0	15.0	0.2 – 0.5
		a _e (mm)	0.6	0.6	0.2 – 0.5	0.8	0.8	0.2 – 0.5	1.0	1.0	0.2 – 0.5

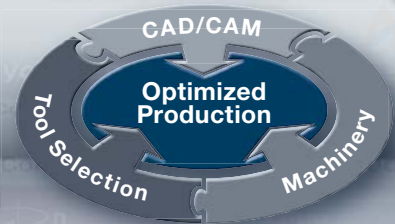
			D12/CR 1.0			D16/CR 1.0			D20/CR 1.0		
											
			Side	Side HSC	2D/3D HSC	Side	Side HSC	2D/3D HSC	Side	Side HSC	2D/3D HSC
D 12 - 20	Mild steel, Carbon steel & Alloy steel (HB180 ~ HRC30)	V _c (m/min)	110	200	200	110	200	200	110	200	200
		n (min ⁻¹)	2,900	5,300	5,300	2,200	4,000	4,000	1,800	3,200	3,200
		f _z (mm/tooth)	0.1	0.1	0.18	0.12	0.12	0.22	0.13	0.13	0.25
		V _f (mm/min)	1,740	3,180	5,720	1,580	2,880	5,280	1,400	2,500	4,800
		a _p (mm)	18.0	18.0	0.2 – 0.5	24.0	24.0	0.2 – 0.5	30.0	30.0	0.2 – 0.5
		a _e (mm)	0.6	0.6	0.2 – 0.5	0.8	0.8	0.2 – 0.5	1.0	1.0	0.2 – 0.5
	Pre-Hardened & Hardened tool steel (HRC30~50)	V _c (m/min)	80	180	180	80	180	180	80	180	180
		n (min ⁻¹)	2,100	4,800	4,800	1,600	3,600	3,600	1,300	2,900	2,900
		f _z (mm/tooth)	0.1	0.1	0.18	0.12	0.12	0.22	0.13	0.13	0.25
		V _f (mm/min)	1,260	2,880	5,180	1,150	2,590	4,750	1,010	2,260	4,350
		a _p (mm)	18.0	18.0	0.1 – 0.3	24.0	24.0	0.1 – 0.3	30.0	30.0	0.1 – 0.3
		a _e (mm)	0.12	0.12	0.1 – 0.3	0.16	0.16	0.1 – 0.3	0.2	0.2	0.1 – 0.3
	Cast Iron (HB150 ~ 200) GG, GGG	V _c (m/min)	160	250	250	160	250	250	160	250	250
		n (min ⁻¹)	4,200	6,600	6,600	3,200	5,000	5,000	2,500	4,000	4,000
		f _z (mm/tooth)	0.13	0.13	0.18	0.13	0.13	0.22	0.14	0.14	0.25
		V _f (mm/min)	3,280	5,150	7,130	2,500	3,900	6,600	2,100	3,360	6,000
		a _p (mm)	18.0	18.0	0.2 – 0.5	24.0	24.0	0.2 – 0.5	30.0	30.0	0.2 – 0.5
		a _e (mm)	1.2	1.2	0.2 – 0.5	1.6	1.6	0.2 – 0.5	2.0	2.0	0.2 – 0.5

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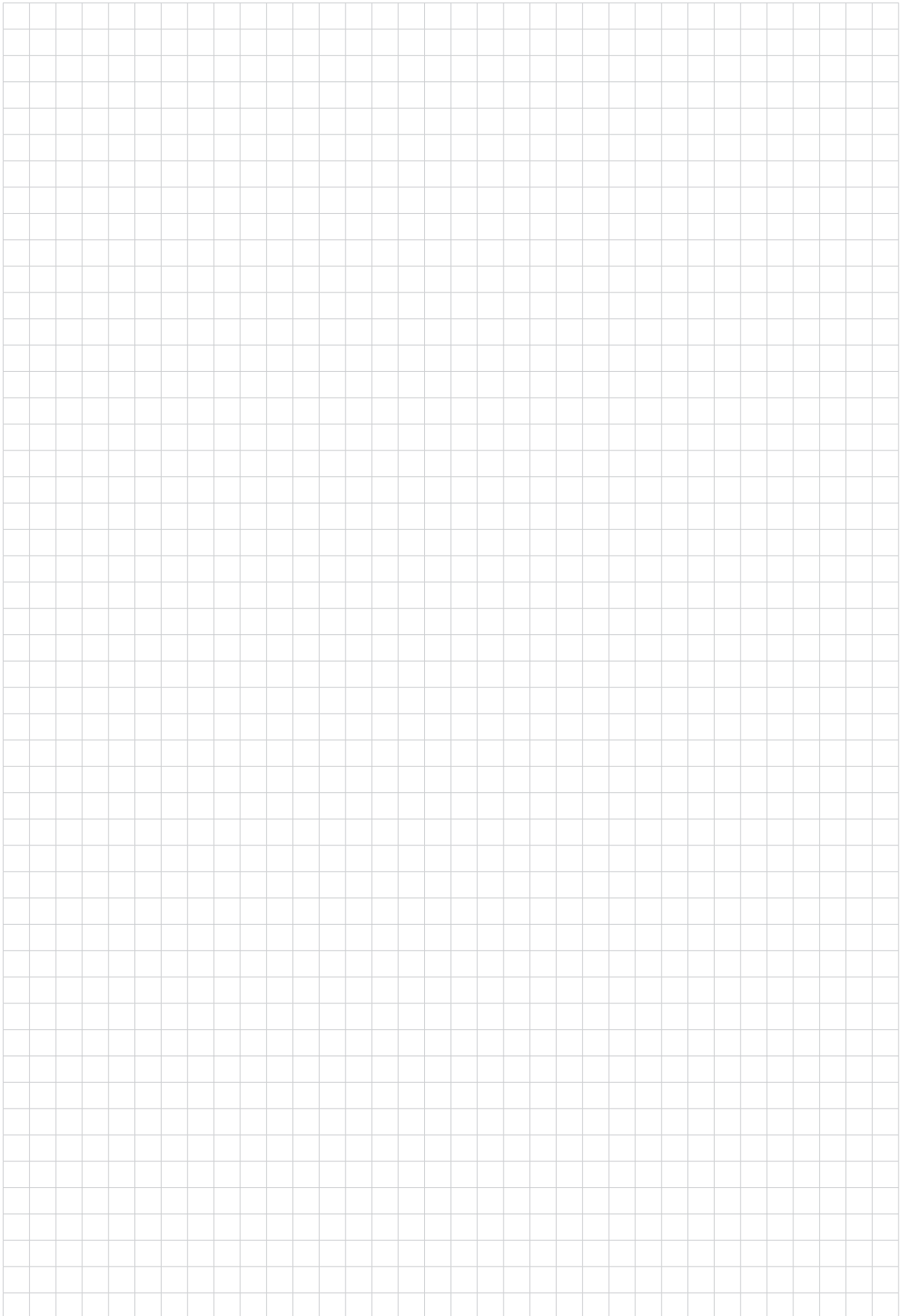
Filtering by contour shape
Gefiltert nach Bearbeitungs-Kontur

Additional search parameters
Zusätzliche Parameter-Suche

Selected product
Ausgewähltes Produkt

ID code	Item code	Z	ØD	ØH	CH	Ln	s	I	Ødn	L	Ød	Grade	Inserts1	Inserts2	Inserts3
EP697	ETMP-4040-40-10	4	4		1	40	1	6		90	6				
EP370	ETMP-4050-12	4	5	1.2	15		10			70	6				
EP598	ETMP-4050-30-12	4	5	1.2	30		1	7.5		90	6				
EP599	ETMP-4050-40-12	4	5	1.2	40		1	7.5		100	8				
EP600	ETMP-4050-50-12	4	5	1.2	50		1	7.5		110	8				
EP371	ETMP-4050-15	4	6	1.5			12			90	6				
EP379	ETMLN-4060-30-15	4	6	1.5	30		9	5.7		75	6				
EP380	ETMLN-4060-42-15	4	6	1.5	42		9	5.7		90	6				
EP381	ETMLN-4060-54-15	4	6	1.5	54		9	5.7		100	8				
EP601	ETMP-4060-40-15	4	6	1.5	40		1	9		100	8				
EP602	ETMP-4060-55-15	4	6	1.5	55		1	9		110	8				
EP603	ETMP-4060-67-15	4	6	1.5	67		1	9		125	8				
EP372	ETMP-4030-20	4	8	2			16			100	8				
EP382	ETMLN-4080-40-20	4	8	2	40		12	7.6		85	8				
EP383	ETMLN-4080-60-20	4	8	2	60		12	7.6		100	9				
EP384	ETMLN-4080-72-20	4	8	2	72		12	7.6		120	8				
EP373	ETMP-4100-20	4	10	2			20			110	10				

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Attentions on Safety

1. Cautions regarding handling

- (1) When removing the tool from its case (packaging), be careful that the tool does not pop out or is dropped. Be particularly careful regarding contact with the tool flutes.
- (2) When handling tools with sharp cutting flutes, be careful not to touch the cutting flutes directly with your bare hands.

2. Cautions regarding mounting

- (1) Before use, check the outside appearance of the tool for scratches, cracks, etc. and that it is firmly mounted in the collet chuck, etc.
- (2) When preparing for use, be sure that the inserts are firmly mounted in place and that they are firmly mounted on the arbor, etc.
- (3) If abnormal chattering, etc. occurs during use, stop the machine immediately and remove the cause of the chattering.

3. Cautions during use

- (1) Before use, confirm the dimensions and direction of rotation of the tool and milling work material.
- (2) The numerical values in the standard cutting conditions table should be used as criteria when starting new work. The cutting conditions should be adjusted as appropriate when the cutting depth is large, the rigidity of the machine being used is low, or according to the conditions of the work material.
- (3) Cutting tools are made of a hard material. During use, they may break and fly off. In addition, cutting chips may also fly off. Since there is a danger of injury to workers, fire, or eye damage from such flying pieces, a safety cover should be attached when work is performed and safety equipment such as safety goggles should be worn to create a safe environment for work.
- (4) There is a risk of fire or inflammation due to sparks, heat due to breakage, and cutting chips. Do not use where there is a risk of fire or explosion. Please caution of fire while using oil base coolant, fire prevention is necessary.
- (5) Do not use the tool for any purpose other than that for which it is intended.

4. Cautions regarding regrinding

- (1) If regrinding is not performed at the proper time, there is a risk of the tool breaking. Replace the tool with one in good condition, or perform regrinding.
- (2) Grinding dust will be created when regrinding a tool. When regrinding, be sure to attach a safety cover over the work area and wear safety clothes such as safety goggles, etc.
- (3) This product contains the specified chemical substance cobalt and its inorganic compounds. When performing regrinding or similar processing, be sure to handle the processing in accordance with the local laws and regulations regarding prevention of hazards due to specified chemical substances.

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