

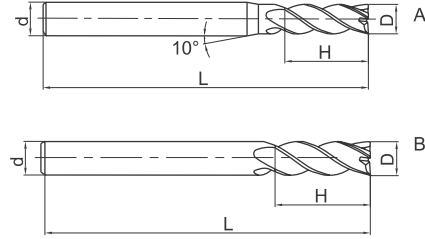
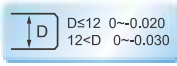
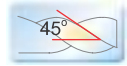
Milling · Fräsen

Solid Carbide end mills · Vollhartmetallschaftfräser

4-flute flattened end mills with straight shank 4-Schneiden Eckfräser mit Zylinderschaft



PM-4E



Type Typ	Dimension(mm) Abmessungen				Teeth Zähne Z	Geometry Ausführung	Grade Sorte KMG 405
	D	d	H	L			
PM-4E-D1.0S	1.0	4	3	50	4	A	●
PM-4E-D1.5S	1.5	4	4	50	4	A	●
PM-4E-D2.0S	2.0	4	6	50	4	A	●
PM-4E-D2.5S	2.5	4	8	50	4	A	●
PM-4E-D3.0S	3.0	4	8	50	4	A	●
PM-4E-D4.0S	4.0	4	11	50	4	B	●
PM-4E-D1.0	1.0	6	3	50	4	A	●
PM-4E-D1.5	1.5	6	4	50	4	A	●
PM-4E-D2.0	2.0	6	6	50	4	A	●
PM-4E-D2.5	2.5	6	8	50	4	A	●
PM-4E-D3.0	3.0	6	8	50	4	A	●
PM-4E-D3.5	3.5	6	10	50	4	A	●
PM-4E-D4.0	4.0	6	11	50	4	A	●
PM-4E-D4.5	4.5	6	11	50	4	A	●
PM-4E-D5.0	5.0	6	13	50	4	A	●
PM-4E-D5.5	5.5	6	16	50	4	A	●
PM-4E-D6.0	6.0	6	16	50	4	B	●
PM-4E-D7.0	7.0	8	20	60	4	A	●
PM-4E-D8.0	8.0	8	20	60	4	B	●
PM-4E-D9.0	9.0	10	22	75	4	A	●
PM-4E-D10.0	10.0	10	25	75	4	B	●
PM-4E-D11.0	11.0	12	26	75	4	A	●
PM-4E-D12.0	12.0	12	30	75	4	B	●
PM-4E-D14.0	14.0	14	32	75	4	B	●
PM-4E-D16.0	16.0	16	45	100	4	B	●
PM-4E-D18.0	18.0	18	45	100	4	B	●
PM-4E-D20.0	20.0	20	45	100	4	B	●

Material Overview · Material Übersicht

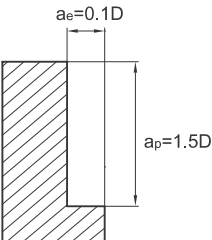
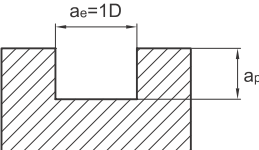
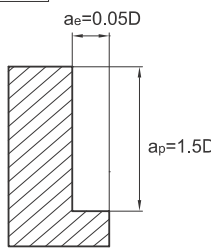
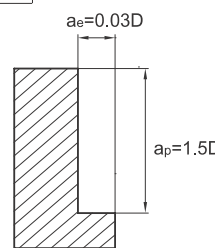
✓ = Very suitable · Sehr empfohlen
✓ = Suitable · Empfohlen

Workpiece material Werkstückstoff											
Carbon steel Kohlenstoff Stahl	Alloy steel Legierter Stahl	Quenched and tempered steel · Vergüteter Stahl		Hardened steel · Gehärteter Stahl		Stainless steel · Rostfreier Stahl	Cast iron, Nodular cast iron Grauguss GGG	Copper alloy Kupfer Leg	Aluminum alloy Alu Leg	Titanium alloy Titan Leg	Heat resist alloy warmfeste Leg
		~40HRC	~50HRC	~55HRC	~68HRC						
✓	✓	✓	✓	✓		✓	✓			✓	✓

● Ex Stock / ab Lager ○ On demand / auf Anfrage

Recommended cutting data · Empfohlene Schnittdaten

PM-4E | PM-4EL

Workpiece material Werkstückmaterial	Cast iron, Carbon steel, Alloy steel Kohlenstoffstahl Leg. Stahl ~30HRC		Stainless steel Rostfreier Stahl		Pre-hardened steel, Quenched and tempered steel Vergüteter Stahl ~40HRC		Pre-hardened steel, Quenched and tempered steel Vergüteter Stahl ~50HRC		Hardened steel Gehärteter Stahl ~55HRC																		
Diameter Ø Durchmesse (mm)	Rotating Drehzahl (min ⁻¹)	Feed Vorschub (mm/min)	Rotating Drehzahl (min ⁻¹)	Feed Vorschub (mm/min)	Rotating Drehzahl (min ⁻¹)	Feed Vorschub (mm/min)	Rotating Drehzahl (min ⁻¹)	Feed Vorschub (mm/min)	Rotating Drehzahl (min ⁻¹)	Feed Vorschub (mm/min)																	
1	20000	300	20000	108	20000	240	20000	180	20000	135																	
2	15000	480	11150	120	15000	420	13000	270	11140	195																	
3	14000	815	7500	145	10600	630	8500	495	7430	360																	
4	10800	840	5500	150	8000	645	6500	505	5570	370																	
5	8200	875	4500	150	6400	675	5000	530	4460	390																	
6	7000	900	3700	165	5300	690	4200	540	3710	390																	
8	5200	890	2800	165	4000	680	3200	555	2785	405																	
10	4200	875	2200	165	3200	675	2500	525	2230	375																	
12	3500	875	1850	165	2650	675	2100	525	1855	375																	
14	3000	815	1600	150	2300	630	1800	495	1590	360																	
16	2600	815	1400	145	2000	630	1600	495	1390	360																	
18	2300	805	1250	125	1800	620	1400	485	1240	350																	
20	2050	805	1100	125	1600	620	1250	485	1115	350																	
Max. cutting depth max Schnitttiefe																											
						 																					
	<table><tr><th>Milling slot</th><th>Nutenfräsen</th></tr><tr><th>Ø</th><th>Ap</th></tr><tr><td>Ø1≤D<Ø3</td><td>0.15D</td></tr><tr><td>Ø3≤D<Ø6</td><td>0.3D</td></tr><tr><td>Ø6≤D<Ø20</td><td>0.5D</td></tr></table>					Milling slot	Nutenfräsen	Ø	Ap	Ø1≤D<Ø3	0.15D	Ø3≤D<Ø6	0.3D	Ø6≤D<Ø20	0.5D	<table><tr><th>Milling slot</th><th>Nutenfräsen</th></tr><tr><th>Ø</th><th>Ap</th></tr><tr><td>Ø1≤D<Ø3</td><td>0.1D</td></tr><tr><td>Ø3≤D</td><td>0.2D</td></tr></table>					Milling slot	Nutenfräsen	Ø	Ap	Ø1≤D<Ø3	0.1D	Ø3≤D
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- The above table shows the standard value of side milling. When slot milling, of rotating speed 50%~70% and feed rate like mentioned above 40%~60%.
- Please select high precise machine and tool holder.
- Please use air blow or cutting liquid with high mist retardant property.
- Down milling is recommended in side milling.
- Vibration and unusual noise may be generated if the machine rigidity and workpiece fixture stability is low, please reduce the rotating speed and feed rate like mentioned above.
- Make overhang as short as possible if no interference.

- Die obige Tabelle zeigt Standard Werte für das Eckfräsen. Bei Nutenfräsen, Schnittgeschwindigkeit auf 50-70% und den Vorschub auf 40-60% reduzieren.
- Bitte präzise Maschinen und Werkzeughalter verwenden.
- Bitte Luftkühlung oder Schneidflüssigkeit benutzen.
- Empfohlene Fräsmethode: Gleichlaufräsen.
- Bei Vibrationen oder unüblichen Geräuschen reduzieren Sie die Schnittdaten (wie oben empfohlen) entsprechend.
- Werkzeugauskragung so kurz wie möglich wählen.