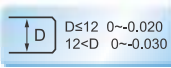
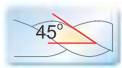
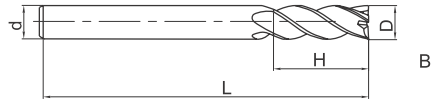
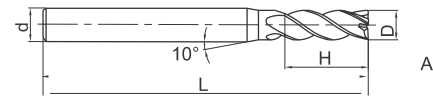


Milling · Fräsen

Solid Carbide end mills · Vollhartmetallschaftfräser

HM-4E series for machining high hardness steel · **HM-4E** Serie für die Hartbearbeitung

4-flute end mills with straight shank
4-Schneiden Schafffräser mit Zylinderschaft



Type Typ	Dimension(mm) Abmessungen				Teeth Zähne Z	Geometry Ausführung	Grade Sorte KMG 555
	D	d	H	L			
HM-4E-D1.0S	1.0	4	3	50	4	A	●
HM-4E-D1.5S	1.5	4	4	50	4	A	●
HM-4E-D2.0S	2.0	4	6	50	4	A	●
HM-4E-D2.5S	2.5	4	8	50	4	A	●
HM-4E-D3.0S	3.0	4	8	50	4	A	●
HM-4E-D4.0S	4.0	4	11	50	4	B	●
HM-4E-D1.0	1.0	6	3	50	4	A	●
HM-4E-D1.5	1.5	6	4	50	4	A	●
HM-4E-D2.0	2.0	6	6	50	4	A	●
HM-4E-D2.5	2.5	6	8	50	4	A	●
HM-4E-D3.0	3.0	6	8	50	4	A	●
HM-4E-D3.5	3.5	6	10	50	4	A	●
HM-4E-D4.0	4.0	6	11	50	4	A	●
HM-4E-D4.5	4.5	6	11	50	4	A	●
HM-4E-D5.0	5.0	6	13	50	4	A	●
HM-4E-D5.5	5.5	6	16	50	4	A	●
HM-4E-D6.0	6.0	6	16	50	4	B	●
HM-4E-D7.0	7.0	8	20	60	4	A	●
HM-4E-D8.0	8.0	8	20	60	4	B	●
HM-4E-D9.0	9.0	10	22	75	4	A	●
HM-4E-D10.0	10.0	10	25	75	4	B	●
HM-4E-D11.0	11.0	12	26	75	4	A	●
HM-4E-D12.0	12.0	12	30	75	4	B	●
HM-4E-D14.0	14.0	14	32	75	4	B	●
HM-4E-D16.0	16.0	16	45	100	4	B	●
HM-4E-D18.0	18.0	18	45	100	4	B	●
HM-4E-D20.0	20.0	20	45	100	4	B	●

Material Overview · Material Übersicht

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

KMG555

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	~60HRC	~68HRC						
			✓	✓	✓		✓				

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

Recommended cutting data · Empfohlene Schnittdaten

HM-4E | HM-4EL

Workpiece material Werkstückmaterial	Pre-hardened steel, Hardened steel Vergüteter Stahl, Gehärteter Stahl 40~50HRC		Hardened steel Gehärteter Stahl 50~60HRC		Hardened steel Gehärteter Stahl 60~68HRC		
	Diameter Ø Durchmesser (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)
1		40000	320	40000	320	32000	260
2		40000	800	24000	480	16000	320
3		32000	1020	16000	510	11000	350
4		24000	1250	12000	620	8000	420
5		19000	1360	9500	680	6400	460
6		16000	1540	8000	770	5300	510
8		12000	1540	6000	770	4000	510
10		9600	1540	4800	770	3200	510
12		8000	1600	4000	800	2700	540
14		6800	1340	3400	680	2300	460
16		6000	1200	3000	600	2000	400
18		5300	1060	2700	530	1800	360
20		4800	960	2400	480	1600	320
Max. cutting depth max Schnitttiefe	<p>Ae=0.05D Ap=1.5D Maximum Ae=1.0mm</p>		<p>Ae=0.03D Ap=1D Maximum Ae=0.5mm</p>		<p>Ae=0.02D Ap=1D Maximum Ae=0.3mm</p>		

1. Please select machine and holder with high precision and rigidity.
2. 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.
3. Please use air blow or MQL (minimum oil mist cooling).
4. Down milling is recommended in side milling.
5. Make overhang as short as possible if no interference.

1. Bitte präzise Maschinen und Werkzeughalter verwenden.
2. Bei Vibrationen oder unüblichen Geräuschen reduzieren Sie die Schnittdaten (wie oben empfohlen) entsprechend.
3. Bitte Luftkühlung oder MQL (Minimalmengen) benutzen.
4. Empfohlene Fräsmethode: Gleichlaufräsen.
5. Werkzeugauskrantung so kurz wie möglich wählen.