

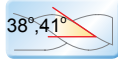
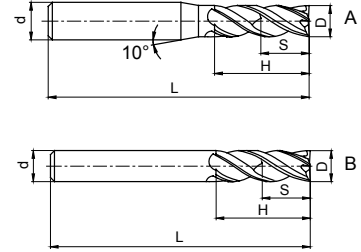
# Milling · Fräsen

Solid Carbide end mills · Vollhartmetallschaftfräser

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



### UM-4E



D	D ≤ 6	-0.020 ~ -0.038	6 < D ≤ 10	-0.025 ~ -0.047
	10 < D ≤ 18	-0.032 ~ -0.059	18 < D	-0.04 ~ -0.073



Type Typ	Dimension(mm) Abmessungen					Teeth Zähne Z	Geometry Ausführung	Stock Lager
	D	d	H	S	L			
UM-4E-D4.0S	4.0	4	11	6.00	50	4	B	○
UM-4E-D4.0	4.0	6	11	6.00	50	4	A	●
UM-4E-D4.5	4.5	6	11	6.75	50	4	A	○
UM-4E-D5.0	5.0	6	13	7.50	50	4	A	●
UM-4E-D5.5	5.5	6	16	8.25	50	4	A	○
UM-4E-D6.0	6.0	6	16	9.00	50	4	B	●
UM-4E-D7.0	7.0	8	20	10.5	60	4	A	●
UM-4E-D8.0	8.0	8	20	12.0	60	4	B	●
UM-4E-D9.0	9.0	10	22	13.5	75	4	A	●
UM-4E-D10.0	10.0	10	25	15.0	75	4	B	●
UM-4E-D11.0	11.0	12	26	16.5	75	4	A	●
UM-4E-D12.0	12.0	12	30	18.0	75	4	B	●
UM-4E-D14.0	14.0	14	32	21.0	75	4	B	●
UM-4E-D16.0	16.0	16	45	24.0	100	4	B	●
UM-4E-D18.0	18.0	18	45	27.0	100	4	B	●
UM-4E-D20.0	20.0	20	45	30.0	100	4	B	●

B

Solid Carbide end mills  
Vollhartmetallschaftfräser

### Material Overview · Material Übersicht

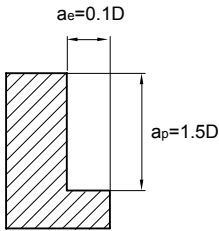
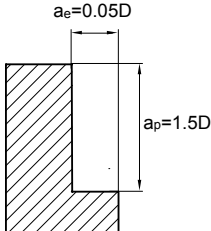
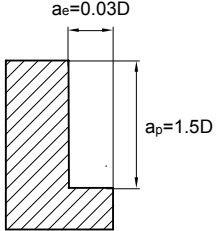
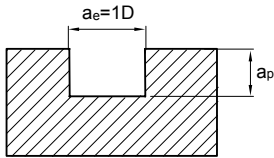
✓ = Very suitable · Sehr empfohlen  
✓ = Suitable · Empfohlen

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

#### UM-4E\*UM-4EL (normal)

Workpiece material Werkstückmaterial	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 Durchmesser (mm)	Rotating Drehzahl (min <sup>-1</sup> )	Feed Vorschub (mm/min)	Rotating Drehzahl (min <sup>-1</sup> )	Feed Vorschub (mm/min)	Rotating Drehzahl (min <sup>-1</sup> )	Feed Vorschub (mm/min)	Rotating Drehzahl (min <sup>-1</sup> )	Feed Vorschub (mm/min)	Rotating Drehzahl (min <sup>-1</sup> )	Feed Vorschub (mm/min)												
4	10800	1000	5500	180	8000	770	6500	605	5570	440													
5	8200	1050	4500	180	6400	810	5000	635	4460	465													
6	7000	1080	3700	195	5300	825	4200	645	3710	465													
8	5200	1065	2800	195	4000	815	3200	665	2785	485													
10	4200	1050	2200	195	3200	810	2500	630	2230	450													
12	3500	1050	1850	195	2650	810	2100	630	1855	450													
14	3000	975	1600	180	2300	755	1800	595	1590	430													
16	2600	975	1400	170	2000	755	1600	595	1390	430													
18	2300	960	1250	150	1800	745	1400	580	1240	420													
20	2050	960	1100	150	1600	745	1250	580	1115	420													
Max. cutting depth max Schnitttiefe																							
	 <table border="1" data-bbox="683 1265 877 1388"> <thead> <tr><th>Ø</th><th>Ap</th></tr> </thead> <tbody> <tr><td>Ø1≤D&lt;Ø3</td><td>0.15D</td></tr> <tr><td>Ø3≤D&lt;Ø6</td><td>0.3D</td></tr> <tr><td>Ø6≤D≤Ø20</td><td>0.5D</td></tr> </tbody> </table>				Ø	Ap	Ø1≤D<Ø3	0.15D	Ø3≤D<Ø6	0.3D	Ø6≤D≤Ø20	0.5D			<table border="1" data-bbox="1093 1276 1284 1377"> <thead> <tr><th>Ø</th><th>Ap</th></tr> </thead> <tbody> <tr><td>Ø1≤D&lt;Ø3</td><td>0.1D</td></tr> <tr><td>Ø3≤D</td><td>0.2D</td></tr> </tbody> </table>		Ø	Ap	Ø1≤D<Ø3	0.1D	Ø3≤D	0.2D	
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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.