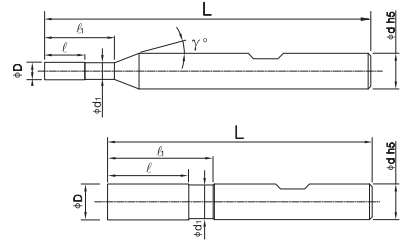


HGHFE 4-Flute HPC 3D End Mill Weldon Shank



φD	D Tol. [mm]
1 < D ≤ 6	0 ~ -0.015
6 < D ≤ 20	0 ~ -0.02

Unit : mm

Type No.	Dia.	Length of Cut	Under Neck Length	Neck Dia.	Neck Taper Angle	Overall Length	Shank Dia.	Shank
	φD	ℓ	ℓ ₁	φd ₁	γ/°	L	φd	
HGHFE4010-3 0656-W	1	2.3	3	0.95	20	56	6	Weldon Shank
HGHFE4020-6 0656-W	2	4.6	6	1.9	20	56	6	Weldon Shank
HGHFE4030-9 0656-W	3	6.9	9	2.9	20	56	6	Weldon Shank
HGHFE4040-12 0656-W	4	9.2	12	3.8	20	56	6	Weldon Shank
HGHFE4050-15 0656-W	5	11.5	15	4.7	20	56	6	Weldon Shank
HGHFE4060-18 0656-W	6	13.8	18	5.6	—	56	6	Weldon Shank
HGHFE4080-24 0862-W	8	18.4	24	7.6	—	62	8	Weldon Shank
HGHFE4100-30 1072-W	10	23.0	30	9.5	—	72	10	Weldon Shank
HGHFE4120-36 1283-W	12	27.6	36	11.5	—	83	12	Weldon Shank
HGHFE4160-48 1698-W	16	36.8	48	15.5	—	98	16	Weldon Shank
HGHFE4200-60 20112-W	20	46.0	60	19.5	—	112	20	Weldon Shank

TABLE OF RECOMMENDED MILLING MATERIALS

○ Very suitable ○ Suitable

CARBON STEELS	ALLOY STEELS	PREHARDENED STEELS, HARDENED STEELS				STAINLESS STEELS	CAST IRON	COPPER ALLOYS	ALUMINUM ALLOY	GRAPHITE	TITANIUM ALLOY	HEAT RESISTANT ALLOYS	PLASTIC
PREHARDENED STEELS	TOOL STEELS						DUCTILE CAST IRON						
~40HRC		~50HRC	~55HRC	~60HRC	~65HRC	~35HRC	~350HB						
○		○	○			○	○	○	○		○	○	



Cutting Parameter

HGHFE HPC End Mill Slot Milling

Workpiece	Pre-Hardened Steels (~30HRC)				Hardened Steels (30~40HRC)			
Type No.	n min^{-1}	V_f mm/min	a_p mm	a_e mm	n min^{-1}	V_f mm/min	a_p mm	a_e mm
HGHFE4010	36000	300	1	1	31800	200	1	1
HGHFE4020	18000	400	2	2	15200	240	2	2
HGHFE4030	12000	500	3	3	10600	320	3	3
HGHFE4040	9000	600	4	4	7960	540	4	4
HGHFE4050	7200	700	5	5	6360	600	5	5
HGHFE4060	6000	800	6	6	5300	650	6	6
HGHFE4080	4450	1000	8	8	3980	800	8	8
HGHFE4100	3600	1200	10	10	3185	900	10	10
HGHFE4120	3000	1200	12	12	2750	1000	12	12
HGHFE4160	2250	1000	16	16	2050	800	16	16
HGHFE4200	1800	800	20	20	1640	600	20	20

- For Z-level and face milling, the recommended axial depth of cut (a_p) is $0.3 \times \text{CR}$.

HGHFE HPC End Mill Trochoidal Milling

Workpiece	Pre-Hardened Steels (~30HRC)				Hardened Steels (35~45HRC)			
Type No.	n min^{-1}	V_f mm/min	a_p mm	a_e mm	n min^{-1}	V_f mm/min	a_p mm	a_e mm
HGHFE4010	40000	300	2	0.2	36000	270	1	0.18
HGHFE4020	20000	400	4	0.4	18000	360	2	0.36
HGHFE4030	13500	600	6	0.6	12150	540	3	0.54
HGHFE4040	10000	1000	8	0.8	9000	900	4	0.72
HGHFE4050	8000	1500	10	1	7200	1350	5	0.9
HGHFE4060	6500	2000	12	1.2	5850	1800	6	1.08
HGHFE4080	5000	2000	16	1.6	4500	1800	8	1.44
HGHFE4100	4000	2500	20	2	3600	2250	10	1.8
HGHFE4120	3350	3000	24	2.4	3015	2700	12	2.16
HGHFE4160	2500	2500	32	2	2250	2250	16	1.8
HGHFE4200	2000	2000	40	2	1800	1800	20	1.8

- For Z-level and face milling, the recommended axial depth of cut (a_p) is $0.3 \times \text{CR}$.