



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



ZBM4FR							mm	
Type Specification	Basic Dimension						Number of Flute	Figure(1 or 2)
	D(Diameter of Cut)	R	d(Shank Diameter)	H(Flute Length)	S	L(Overall Length)		
ZBM4FR-D4.0R0.3	4.0	0.3	6	10	6	50	4	1
ZBM4FR-D4.0R0.5	4.0	0.5	6	10	6	50	4	1
ZBM4FR-D5.0R0.5	5.0	0.5	6	13	7.5	50	4	1
ZBM4FR-D5.0R1.0	5.0	1.0	6	13	7.5	50	4	1
ZBM4FR-D6.0R0.5	6.0	0.5	6	16	9	50	4	2
ZBM4FR-D6.0R1.0	6.0	1.0	6	16	9	50	4	2
ZBM4FR-D8.0R0.5	8.0	0.5	8	20	12	60	4	2
ZBM4FR-D8.0R1.0	8.0	1.0	8	20	12	60	4	2
ZBM4FR-D10.0R0.5	10.0	0.5	10	25	15	75	4	2
ZBM4FR-D10.0R1.0	10.0	1.0	10	25	15	75	4	2
ZBM4FR-D10.0R2.0	10	2.0	10	25	15	75	4	2
ZBM4FR-D10.0R3.0	10.0	3.0	10	25	15	75	4	2
ZBM4FR-D12.0R0.5	12	0.5	12	30	18	75	4	2
ZBM4FR-D12.0R1.0	12.0	1.0	12	30	18	75	4	2
ZBM4FR-D12.0R2.0	12	2.0	12	30	18	75	4	2
ZBM4FR-D12.0R3.0	12.0	3.0	12	30	18	75	4	2
ZBM4FR-D16.0R1.0	16	1	16	45	24	100	4	2
ZBM4FR-D16.0R2.0	16.0	2.0	16	45	24	100	4	2
ZBM4FR-D16.0R3.0	16	3	16	45	24	100	4	2
ZBM4FR-D20.0R1.0	20.0	1.0	20	45	30	100	4	2
ZBM4FR-D20.0R2.0	20	2	20	45	30	100	4	2
ZBM4FR-D20.0R3.0	20.0	3.0	20	45	30	100	4	2

THE CUTTING PARAMETERS OF ZBM-4FR

ZBM-4FR Cutting Conditions (Standard Conditions)

Processed Material	Cast iron, carbon steel, alloy steel ~ 30HRC		Tempered steel ~ 40HRC		Tempered steel ~ 45HRC		Tempered steel ~ 50HRC		Tempered steel ~ 55HRC	
	Rotational Speed (min-1)	Feed Speed (mm/min)	Rotational Speed (min-1)	Feed Speed (mm/min)	Rotational Speed (min-1)	Feed Speed (mm/min)	Rotational Speed (min-1)	Feed Speed (mm/min)	Rotational Speed (min-1)	Feed Speed (mm/min)
4.0 × R0.3 4.0 × R0.5	7950	3960	6350	2880	5550	2520	4000	1650	2400	755
5.0 × R0.5 5.0 × R1.0	6350	4200	5100	3060	4450	2670	3200	1710	1900	690
6.0 × R0.5 6.0 × R1.0	5300	4200	4250	3060	3700	2670	2650	1710	1600	690
8.0 × R0.5 8.0 × R1.0	4550	420	3200	3060	2800	2670	2000	1710	1200	690
10.0 × R0.5 10.0 × R1.0 10.0 × R2.0 10.0 × R3.0	3200	4200	2550	3060	2250	2670	1600	1710	955	690
12.0 × R0.5 12.0 × R1.0 12.0 × R2.0 12.0 × R3.0	2650	4200	2100	3060	1850	2670	1350	1710	795	690
16.0 × R1.0 16.0 × R2.0 16.0 × R3.0	2200	3485	1745	2540	1535	2215	1140	1420	660	570
20.0 × R1.0 20.0 × R2.0 20.0 × R3.0	1825	2895	1450	2110	1275	1840	960	1180	550	475

THE CUTTING PARAMETERS OF ZBM-4FR

ZBM-4FR Cutting Conditions (High Speed Conditions)

Processed Material	Cast iron, carbon steel, alloy steel ~ 30HRC		Tempered steel ~ 40HRC		Tempered steel ~ 45HRC		Tempered steel ~ 50HRC		Tempered steel ~ 55HRC	
	Rotational Speed (min-1)	Feed Speed (mm/min)	Rotational Speed (min-1)	Feed Speed (mm/min)	Rotational Speed (min-1)	Feed Speed (mm/min)	Rotational Speed (min-1)	Feed Speed (mm/min)	Rotational Speed (min-1)	Feed Speed (mm/min)
4.0 × R0.3 4.0 × R0.5	16000	7800	6350	7200	12000	5400	12000	4920	7950	2130
5.0 × R0.5 5.0 × R1.0	12500	8400	5100	7500	9550	5730	9550	5160	6350	2280
6.0 × R0.5 6.0 × R1.0	10600	8400	4250	7620	7950	5730	7950	5160	5300	2280
8.0 × R0.5 8.0 × R1.0	7950	8400	3200	7620	5950	5730	5950	5160	4000	2280
10.0 × R0.5 10.0 × R1.0 10.0 × R2.0 10.0 × R3.0	6350	8400	2550	7620	4750	5730	4750	5160	3200	2280
12.0 × R0.5 12.0 × R1.0 12.0 × R2.0 12.0 × R3.0	5300	8400	5300	7620	4000	5730	4000	5160	2650	2280
16.0 × R1.0 16.0 × R2.0 16.0 × R3.0	3980	6970	3980	6320	2985	4755	2985	4280	1990	1890
20.0 × R1.0 20.0 × R2.0 20.0 × R3.0	3185	5785	3185	5245	2385	3945	2385	3550	1590	1570