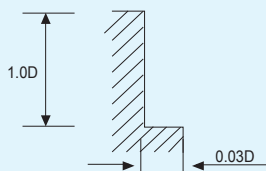


▣ ZS1(2)04, ZS204 series ▶ Side Cutting

MATERIAL	HARDENED STEELS		HARDENED STEELS		HARDENED STEELS		HARDENED STEELS		HARDENED STEELS	
HARDNESS	HRc 40~HRc 50		HRc 50~HRc 55		HRc 55~HRc 60		HRc 60~HRc 65		HRc 65~HRc 70	
DIAMETER(mm)	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
4	17200	1690	11440	1140	9360	700	7280	430	6170	310
6	13450	1820	8970	1230	6890	720	5460	450	4810	330
8	9100	1750	6760	1170	5200	670	4160	420	3640	310
10	8000	1630	5330	1090	4160	620	3320	400	2860	280
12	6830	1630	4550	1010	3450	580	2730	370	2420	260

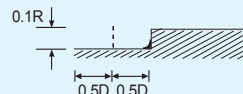
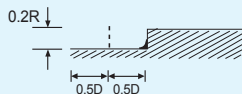
RPM = rev. / min.
FEED = mm / min.



▣ ZSPM4...-.. series

MATERIAL	HARDENED STEELS									
HARDNESS	~HRc40		HRc 40 ~ HRc 50		HRc 50 ~ HRc 55		HRc 55 ~ HRc 60		HRc 60 ~ HRc 65	
D X R(mm)	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
3 X R0.5	9550	6500	6900	4150	4550	2750	2850	1150	1900	610
4 X R0.5	7950	7000	5750	4600	4000	3200	2550	1350	1750	700
6 X R0.5	5800	7650	4100	4900	2900	3500	1850	1850	1350	795
6 X R1.0	5800	7650	4100	4900	2900	3500	1850	1850	1350	795
8 X R1.0	4350	7650	3050	4900	2200	3500	1400	1850	995	795
8 X R2.0	4350	7650	3050	4900	2200	3500	1400	1850	995	795
10 X R1.0	3500	7650	2450	4900	1750	3500	1100	1850	795	795
10 X R2.0	3500	7650	2450	4900	1750	3500	1100	1850	795	795
12 X R2.0	2900	7650	2050	4900	1450	3500	925	1850	665	795
12 X R3.0	2900	7650	2050	4900	1450	3500	925	1850	665	795

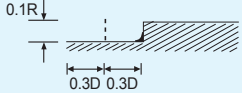
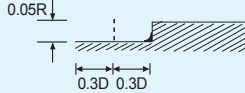
RPM = rev. / min.
FEED = mm / min.



■ ZSPM4...-.. series ▶ High Speed Cutting

MATERIAL	HARDENED STEELS									
HARDNESS	~HRc40		HRc 40 ~ HRc 50		HRc 50 ~ HRc 55		HRc 55 ~ HRc 60		HRc 60 ~ HRc 65	
D X R(mm)	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
3 X R0.5	22000	16000	17000	10000	12500	8000	9500	4600	6900	2500
4 X R0.5	17000	17500	13000	12000	11000	9200	8000	5500	5600	2900
6 X R0.5	13500	18500	10500	13800	9000	11000	6400	6400	4500	3600
6 X R1.0	13500	18500	10500	13800	9000	11000	6400	6400	4500	3600
8 X R1.0	10000	18500	8000	14000	6800	11000	4800	6700	3400	4100
8 X R2.0	10000	18500	8000	14000	6800	11000	4800	6700	3400	4100
10 X R1.0	8000	18500	6400	14000	5400	11000	3800	6800	2700	3800
10 X R2.0	8000	18500	6400	14000	5400	11000	3800	6800	2700	3800
12 X R2.0	6600	18500	5300	14000	4500	11000	3200	7000	2250	3600
12 X R3.0	6600	18500	5300	14000	4500	11000	3200	7000	2250	3600

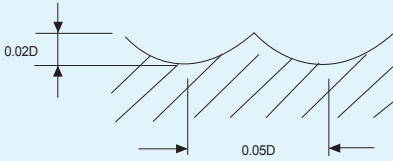
RPM = rev. / min.
FEED = mm / min.

■ DB702, DB712 series

MATERIAL	HARDENED STEELS HEAT RESISTANT STEELS		HARDENED STEELS		HARDENED STEELS		HARDENED STEELS		HARDENED STEELS		HARDENED STEELS	
HARDNESS	HRc 30~ HRc 40		HRc 40~ HRc 50		HRc 50~ HRc 55		HRc 55~ HRc 60		HRc 60~ HRc 65		HRc 65~ HRc 70	
DIAMETER(mm)	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
0.2	50000	1200	50000	1050	45000	960	40000	770	35000	674	31500	570
0.3	50000	1500	50000	1350	45000	1200	40000	965	35000	840	31500	700
0.4	50000	1900	50000	1700	45000	1500	40000	1200	35000	1050	31500	890
0.5	50000	2400	50000	2100	45000	1900	40000	1500	35000	1300	31500	1100
0.6	50000	2900	50000	2500	45000	2200	40000	1800	35000	1600	31500	1400
0.8	50000	3900	50000	3300	45000	3000	40000	2400	35000	2100	31500	1800
1	50000	4800	50000	4200	45000	3800	40000	3000	35000	2600	35000	2300
1.5	50000	5400	48000	4500	43000	4000	37000	3100	33000	2700	29700	2300
2	49700	5700	47800	4800	40000	4000	35000	3150	32000	2800	28500	2300
3	33100	6000	31800	5300	26500	4000	23500	3150	21000	2800	19000	2300
4	24900	6000	23900	5300	20000	4000	17500	3150	16000	2800	14500	2300
5	18600	5800	17800	4900	15000	3750	13500	3050	11500	2550	10500	2100
6	13900	4850	13400	4100	11000	3100	10000	2500	8800	2150	8000	1750
8	11100	4200	10700	3500	9000	2700	8000	2150	7000	1850	6500	1550
10	9300	3700	8900	3100	7500	2400	6600	1900	5800	1650	5300	1380
12	6950	2950	6680	2500	5600	1900	5000	1550	4400	1250	4000	1050

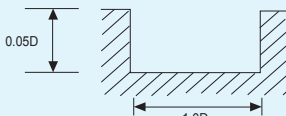
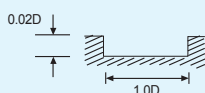
RPM = rev. / min.
FEED = mm / min.



ZE702, ZE712 series ▶ Slotting

MATERIAL	HARDENED STEELS HEAT RESISTANT STEELS		HARDENED STEELS		HARDENED STEELS		HARDENED STEELS		HARDENED STEELS		HARDENED STEELS	
HARDNESS	HRc 30~ HRc 40		HRc 40~ HRc 50		HRc 50~ HRc 55		HRc 55~ HRc 60		HRc 60~ HRc 65		HRc 65~ HRc 70	
DIAMETER(mm)	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
0.2	50000	130	45000	115	40000	95	33000	60	33000	45	26400	30
0.3	50000	190	45000	140	40000	115	33000	70	25000	50	20000	35
0.4	50000	235	45000	180	40000	140	33000	90	25000	55	20000	40
0.5	50000	370	45000	280	40000	220	33000	140	25000	85	20000	60
0.6	50000	470	45000	360	40000	285	30000	160	25000	105	20000	75
0.8	50000	600	40000	440	30000	295	25000	185	19000	110	15200	80
0.9	49000	655	39000	520	27800	330	22700	205	17500	125	14000	90
1	48000	750	38000	570	25500	360	20500	215	16000	135	12500	85
2	33300	850	26000	680	17500	420	14500	260	11000	160	9500	115
3	21800	850	17300	680	11500	420	9500	260	7500	160	6400	115
4	16700	880	13200	700	8800	440	7200	270	5600	170	4750	118
5	15700	1000	12500	805	8300	500	6400	285	5100	180	4450	132
6	13100	950	10350	770	6900	480	5300	280	4200	180	3700	130
8	9880	930	7800	720	5200	445	4000	255	3200	165	2800	120
10	7800	850	6150	680	4100	415	3200	240	2550	155	2200	112
12	6650	850	5250	680	3500	415	2650	240	2100	155	1860	112
16	4900	730	3900	580	2600	365	2000	210	1600	135	1400	95
20	3900	660	3100	525	2050	335	1600	195	1300	125	1100	85

RPM = rev. / min.
FEED = mm / min.

ZE702, ZE712 series ▶ Side Cutting

MATERIAL	HARDENED STEELS HEAT RESISTANT STEELS		HARDENED STEELS		HARDENED STEELS		HARDENED STEELS		HARDENED STEELS		HARDENED STEELS	
HARDNESS	HRc 30~ HRc 40		HRc 40~ HRc 50		HRc 50~ HRc 55		HRc 55~ HRc 60		HRc 60~ HRc 65		HRc 65~ HRc 70	
DIAMETER(mm)	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
1	48000	1050	38000	820	25500	510	20500	310	16000	190	12500	125
2	33300	1200	26000	970	17500	600	14500	370	11000	230	9500	165
3	21800	1200	17300	970	11500	600	9500	370	7500	230	6400	165
4	16700	1250	13200	1000	8800	625	7200	385	5600	240	4750	170
5	15700	1450	12500	1150	8300	710	6400	410	5100	260	4450	190
6	13100	1350	10350	1100	6900	690	5300	400	4200	255	3700	185
8	9880	1320	7800	1030	5200	635	4000	365	3200	235	2800	170
10	7800	1200	6150	970	4100	590	3200	340	2550	220	2200	160
12	6650	1200	5250	970	3500	590	2650	340	2100	220	1860	160
16	4900	1050	3900	840	2600	520	2000	300	1600	190	1400	140
20	3900	950	3100	750	2050	475	1600	275	1300	175	1100	125

RPM = rev. / min.
FEED = mm / min.

