

# Recommendation of Cutting Conditions

## X-STAR series, Fractional

WORKPIECE	LOW CARBON STEELS		LOW CARBON STEELS		MED ALLOY STEELS		MOLD&DIE STEELS		CAST IRON-GRAY		CAST IRON-DUCTILE	
	~HB175		~HB275		~HB275		~HB275		~HB200		~HB300	
	D(Fractional)	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM
1/8	15585	12	12835	10	10695	8	5500	4	14515	11	7335	5
3/16	10360	20	8560	17	7150	14	3670	8	9690	19	4880	9
1/4	7795	24	6420	20	5350	17	2750	8	7260	23	3665	11
5/16	6235	29	5135	24	4280	20	2200	10	5805	27	2935	14
3/8	5195	39	4280	32	3565	27	1835	13	4840	36	2445	18
7/16	4455	38	3665	31	3055	26	1570	13	4145	35	2095	18
1/2	3895	37	3210	30	2675	25	1375	13	3630	34	1835	17
9/16	3465	35	2850	29	2375	24	1220	12	3225	32	1630	16
5/8	3115	33	2565	27	2140	23	1100	11	2905	31	1465	15
3/4	2600	31	2140	25	1785	21	915	11	2420	29	1220	14
1	1950	25	1605	21	1335	17	690	9	1815	24	915	12

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

- ※ Use a rigid and precise machines and holders.
- ※ Use a suitable cutting fluids.

## X-STAR series, Fractional

WORKPIECE	CAST IRON-MALLEABLE		STAINLESS 300 SERIES		STAINLESS 400 SERIES		STAINLESS PH SERIES		TITANIUM ALLOYS		HIGH TEMP ALLOYS	
	~HB300		~HB275		~HB185		~HB325		~HB295		~HB300	
	D(Fractional)	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM
1/8	4585	4	9170	7	12835	10	7640	5	9170	9	2445	2
3/16	3070	6	6080	12	8550	17	5080	10	6080	14	1600	3
1/4	2290	7	4585	14	6420	22	3820	12	4585	16	1220	3
5/16	1835	8	3665	16	5135	25	3055	14	3665	18	980	4
3/8	1530	11	3055	16	4280	25	2545	14	3055	18	815	4
7/16	1310	11	2620	16	3665	25	2185	14	2620	18	700	4
1/2	1145	11	2290	16	3210	25	1910	14	2290	18	610	4
9/16	1020	10	2035	20	2850	29	1700	17	2035	20	545	6
5/8	915	9	1835	16	2565	25	1530	14	1835	18	490	4
3/4	765	9	1520	15	2410	22	1275	12	1520	16	400	4
1	575	7	1145	15	1605	22	955	12	1145	16	305	3

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

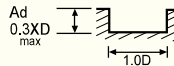
- ※ Use a rigid and precise machines and holders.
- ※ Use a suitable cutting fluids.

# Recommendation of Cutting Conditions

## ■ X-STAR series(Slotting), Fractional

WORKPIECE	HARDENED STEELS	
HARDNESS	HRC30~45	
D(Fractional)	RPM	FEED
1/8	6573	16
3/16	4382	16
1/4	3287	17
5/16	2629	17
3/8	2191	17
7/16	1878	17
1/2	1643	16
9/16	1461	16
5/8	1315	16
3/4	1096	17
1	822	16

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

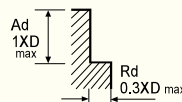


- ※ Use a rigid and precise machines and holders.
- ※ Use a suitable cutting fluids.

## ■ X-STAR series(Side Cutting), Fractional

WORKPIECE	HARDENED STEELS	
HARDNESS	HRC30~45	
D(Fractional)	RPM	FEED
1/8	8102	29
3/16	5401	28
1/4	4051	29
5/16	3241	29
3/8	2701	28
7/16	2315	29
1/2	2025	28
9/16	1800	28
5/8	1620	29
3/4	1350	29
1	1013	26

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



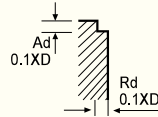
- ※ Use a rigid and precise machines and holders.
- ※ Use a suitable cutting fluids.

# Recommendation of Cutting Conditions

## X-STAR series(High Speed Cutting), Fractional

WORKPIECE HARDNESS D(Fractional)	HARDENED STEELS HRC30~45	
	RPM	FEED
1/8	17121	75
3/16	11414	78
1/4	8561	75
5/16	6848	77
3/8	5707	75
7/16	4892	76
1/2	4280	75
9/16	3805	75
5/8	3424	75
3/4	2854	75
1	2140	73

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

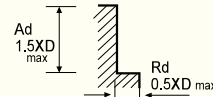
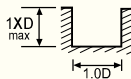


- ※ Use a rigid and precise machines and holders.
- ※ Use a suitable cutting fluids.

## X-STAR series, Metric

WORKPIECE HARDNESS D(mm)	LOW CARBON STEELS ~HB175		LOW CARBON STEELS ~HB275		MED ALLOY STEELS ~HB275		MOLD&DIE STEELS ~HB275		CAST IRON-GRAY ~HB200		CAST IRON-DUCTILE ~HB300	
	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
3	16500	335	13585	276	11320	230	5820	118	15360	300	7765	158
4	12340	326	10190	326	8520	340	4380	175	11550	462	5810	232
5	9895	502	8150	413	6790	345	3490	177	9215	468	4655	236
6	8250	586	6795	483	5660	403	2910	207	7680	546	3880	276
8	6185	754	5095	620	4245	517	2185	266	5760	702	2910	354
10	4950	955	4075	786	3395	656	1745	337	4610	889	2330	449
12	4125	963	3395	793	2830	661	1455	340	3840	897	1940	453
14	3535	890	2910	733	2425	592	1250	314	3290	829	1665	419
16	3095	817	2545	672	2125	561	1090	288	2880	761	1455	384
18	2750	809	2265	667	1885	556	970	285	2560	754	1295	381
20	2475	804	2040	662	1700	552	875	283	2305	749	1165	378
25	1975	631	1630	521	1360	435	700	230	1850	600	930	300

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



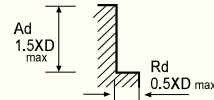
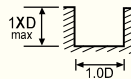
- ※ Use a rigid and precise machines and holders.
- ※ Use a suitable cutting fluids.

# Recommendation of Cutting Conditions

## ■ X-STAR series, Metric

WORKPIECE	CAST IRON-MALLEABLE		STAINLESS 300 SERIES		STAINLESS 400 SERIES		STAINLESS PH SERIES		TITANIUM ALLOYS		HIGH TEMP ALLOYS	
HARDNESS	~HB300		~HB275		~HB185		~HB325		~HB295		~HB300	
D(mm)	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
3	4850	95	9705	175	13585	250	8085	125	9705	225	2590	50
4	3660	146	7245	290	10190	407	6050	242	7245	290	1910	76
5	2910	147	5820	300	8150	430	4850	250	5820	355	1550	75
6	2425	173	4850	355	6795	560	4045	300	4850	405	1295	75
8	1820	221	3640	405	5095	635	3030	355	3640	455	970	100
10	1455	280	2910	405	4075	635	2425	355	2910	455	775	100
12	1215	283	2425	405	3395	635	2020	355	2425	455	645	100
14	1040	262	2080	405	2910	635	1735	355	2080	455	555	100
16	910	240	1820	405	2545	635	1515	355	1820	455	485	100
18	810	238	1615	380	2265	560	1350	300	1615	405	430	100
20	730	236	1455	380	2040	560	1215	300	1455	405	390	100
25	585	187	1160	370	1630	560	970	300	1160	405	305	73

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

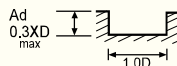


- ※ Use a rigid and precise machines and holders.
- ※ Use a suitable cutting fluids.

## ■ X-STAR series(Slotting), Metric

WORKPIECE	HARDENED STEELS	
HARDNESS	HRC30~45	
D(mm)	RPM	FEED
3	6900	552
4	5175	414
5	4140	331
6	3450	414
8	2588	414
10	2070	414
12	1725	414
14	1479	414
16	1294	414
18	1150	368
20	1035	414
25	828	397

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



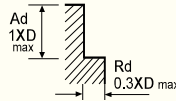
- ※ Use a rigid and precise machines and holders.
- ※ Use a suitable cutting fluids.

# Recommendation of Cutting Conditions

## X-STAR series(Side Cutting), Metric

WORKPIECE	HARDENED STEELS	
HARDNESS	HRC30~45	
D(mm)	RPM	FEED
3	8493	679
4	6369	510
5	5096	611
6	4246	849
8	3185	764
10	2548	713
12	2123	764
14	1820	728
16	1592	701
18	1415	679
20	1274	662
25	1019	611

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

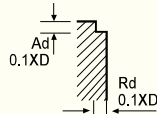


- ※ Use a rigid and precise machines and holders.
- ※ Use a suitable cutting fluids.

## X-STAR series(High Speed Cutting), Metric

WORKPIECE	HARDENED STEELS	
HARDNESS	HRC30~45	
D(mm)	RPM	FEED
3	18047	2166
4	13535	1624
5	10828	1732
6	9023	2166
8	6768	1895
10	5414	1732
12	4512	1985
14	3867	1856
16	3384	1895
18	3008	1805
20	2707	1841
25	2166	1646

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



- ※ Use a rigid and precise machines and holders.
- ※ Use a suitable cutting fluids.