

Recommended Cutting Condition

Technical Data

[WTE504, WTE514 series]

WORKPIECE	ALLOY STEELS, CARBON STEELS		PREHARDENED STEELS	
	Alloy Steels Carbon Steels (SCM, SNCM, S45C)		Prehardened Steels (NAK, CENA, KP4)	
HARDNESS	~ HRC35		HRC35 ~ HRC45	
STRENGTH	~ 1100N/mm ²		1100 ~ 1500N/mm ²	
DIAMETER(mm)	RPM	FEED	RPM	FEED
3.0	3,969	216	3,213	180
4.0	3,213	252	2,556	207
6.0	2,367	378	1,890	306
8.0	1,800	450	1,422	324
10.0	1,440	450	1,170	333

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



[X-STAR series]

WORKPIECE	LOW CARBON STEELS		LOW CARBON STEELS		MED ALLOY STEELS		MOLD&DIE STEELS		GREY CAST IRON		CAST IRON-DUCTILE	
	~HB175		~HB275		~HB275		~HB275		~HB200		~HB300	
HARDNESS	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
DIAMETER(mm)	16,500	335	13,585	276	11,320	230	5,820	118	15,360	300	7,765	158
3	12,340	326	10,190	326	8,520	340	4,380	175	11,550	462	5,810	232
4	9,895	502	8,150	413	6,790	345	3,490	177	9,215	468	4,655	236
5	8,250	586	6,795	483	5,660	403	2,910	207	7,680	546	3,880	276
6	6,185	754	5,095	620	4,245	517	2,185	266	5,760	702	2,910	354
8	4,950	955	4,075	786	3,395	656	1,745	337	4,610	889	2,330	449
10	4,125	963	3,395	793	2,830	661	1,455	340	3,840	897	1,940	453
12	3,535	890	2,910	733	2,425	592	1,250	314	3,290	829	1,665	419
14	3,095	817	2,545	672	2,125	561	1,090	288	2,880	761	1,455	384
16	2,750	809	2,265	667	1,885	556	970	285	2,560	754	1,295	381
18	2,475	804	2,040	662	1,700	552	875	283	2,305	749	1,165	378
20	1,975	631	1,630	521	1,360	435	700	230	1,850	600	930	300

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




- ※ Use a rigid and precise machines and holders,
- ※ Use a suitable cutting oil,

[WTR504 series]

WORKPIECE	ALLOY STEELS, CARBON STEELS			PREHARDENED STEELS			HARDENED STEELS		
	Alloy Steels Carbon Steels (SCM, SNCM, S45C)			Prehardened Steels (NAK, CENA, KP4)			Hardened Steels (SKD, SKT, STAVAX)		
HARDNESS	~HRC35			HRC35~HRC45			HRC45~HRC55		
STRENGTH	~1100N/mm ²			1100~1500N/mm ²			1500~2000N/mm ²		
DIAMETER(mm)	RPM	FEED	Ap(mm)	RPM	FEED	Ap(mm)	RPM	FEED	Ap(mm)
0.4	40,000	630	0.008-0.016	32,000	450	0.008-0.012	22,000	270	0.004-0.008
0.6	30,000	630	0.012-0.024	23,000	450	0.012-0.018	15,000	270	0.006-0.012
0.8	22,500	630	0.016-0.032	17,000	450	0.016-0.024	11,500	270	0.008-0.016
1.0	18,000	630	0.020-0.040	13,500	450	0.020-0.030	9,000	270	0.010-0.020
1.2	14,400	630	0.025-0.050	11,700	450	0.025-0.040	7,200	270	0.012-0.025
1.5	11,700	630	0.030-0.060	9,000	450	0.030-0.050	5,850	270	0.015-0.030
2.0	9,000	630	0.040-0.080	7,200	450	0.040-0.060	4,500	270	0.020-0.040

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



Recommended Cutting Condition

Technical Data

[X-STAR series]

WORKPIECE		CAST IRON/MALLEABLE		STAINLESS 300 SERIES		STAINLESS 400 SERIES		STAINLESS PH SERIES		TITANIUM ALLOYS		HEAT RESISTANT STEELS	
HARDNESS		~HB300		~HB275		~HB185		~HB325		~HB295		~HB300	
DIAMETER(mm)		RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
3		4,850	95	9,705	175	13,585	250	8,085	125	9,705	225	2,590	50
4		3,660	146	7,245	290	10,190	407	6,050	242	7,245	290	1,910	76
5		2,910	147	5,820	300	8,150	430	4,850	250	5,820	355	1,550	75
6		2,425	173	4,850	355	6,795	560	4,045	300	4,850	405	1,295	75
8		1,820	221	3,640	405	5,095	635	3,030	355	3,640	455	970	100
10		1,455	280	2,910	405	4,075	635	2,425	355	2,910	455	775	100
12		1,215	283	2,425	405	3,395	635	2,020	355	2,425	455	645	100
14		1,040	262	2,080	405	2,910	635	1,735	355	2,080	455	555	100
16		910	240	1,820	405	2,545	635	1,515	355	1,820	455	485	100
18		810	238	1,615	380	2,265	560	1,350	300	1,615	405	430	100
20		730	236	1,455	380	2,040	560	1,215	300	1,455	405	390	100
25		585	187	1,160	370	1,630	560	970	300	1,160	405	305	73

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

Ad 1.5xD max

※ Use a rigid and precise machines and holders,
※ Use a suitable cutting oil.

[X-STAR series] ▶ Side cutting

WORKPIECE		HARDENED STEELS	
HARDNESS		HRC30-45	
DIAMETER(mm)		RPM	FEED
3		8,493	679
4		6,369	510
5		5,096	611
6		4,246	849
8		3,185	764
10		2,548	713
12		2,123	764
14		1,820	728
16		1,592	701
18		1,415	679
20		1,274	662
25		1,019	611

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

※ Use a rigid and precise machines and holders,
※ Use a suitable cutting oil.

[X-STAR series] ▶ High Speed Cutting

WORKPIECE		HARDENED STEELS	
HARDNESS		HRC30-45	
DIAMETER(mm)		RPM	FEED
3		6,900	552
4		5,175	414
5		4,140	331
6		3,450	414
8		2,588	414
10		2,070	414
12		1,725	414
14		1,479	414
16		1,294	414
18		1,150	368
20		1,035	414
25		828	397

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

※ Use a rigid and precise machines and holders,
※ Use a suitable cutting oil.

[X-STAR series] ▶ High Speed Cutting

WORKPIECE		HARDENED STEELS	
HARDNESS		HRC30-45	
DIAMETER(mm)		RPM	FEED
3		18,047	2,166
4		13,535	1,624
5		10,828	1,732
6		9,023	2,166
8		6,768	1,895
10		5,414	1,732
12		4,512	1,985
14		3,867	1,856
16		3,384	1,895
18		3,008	1,805
20		2,707	1,841
25		2,166	1,646

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

※ Use a rigid and precise machines and holders,
※ Use a suitable cutting oil.

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