

MUGEN COATING PREMIUM
4-Flute Long Neck Corner Radius End Mill
for Hardened Steel

MHRH430R



Long neck corner radius end mill supports machining from prehardened steels to hardened steels (~65HRC)
Abundant size variations with total 450 sizes

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4-Flute Long Neck Corner Radius End Mill for Hardened Steel

MHRH430R

φ 0.1 × R0.01 ~ φ 6 × R1 Total 450 sizes



Features

Feature 1

Coating

Performance of MUGEN COATING PREMIUM

MUGEN COATING PREMIUM is a further improvement of the conventional MUGEN COATING that dramatically extends tool life during direct milling on hardened steels
It is effective in machining work materials with hardness from 40 to 65 HRC

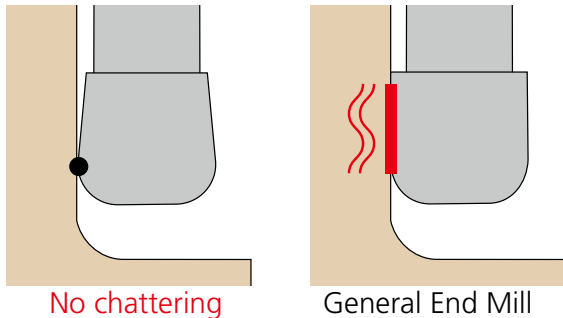


Feature 2

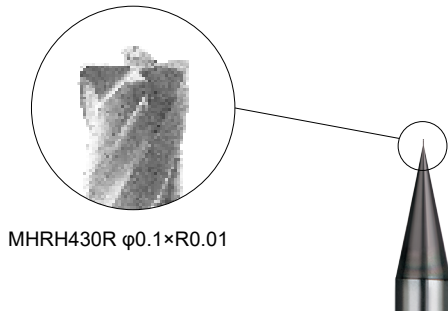
Cutting edge shape

Peripheral edge with back taper shape·4-Flute type from φ0.1

2-1
Adopt back taper shape for the peripheral edge to suppress chattering that occurs due to increasing cutting load
The cutting load is reduced by point cutting that realizes stable machining surface



2-2
Even with a very small outer diameter of φ 0.1 with corner radius R0.01, the 4-flute shape provides a lineup that can support the needs of micro precision machining



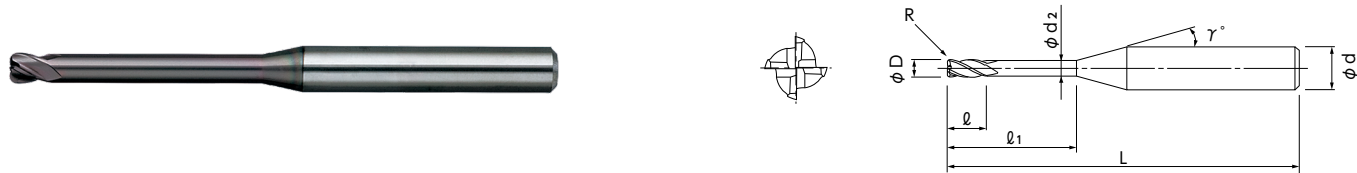
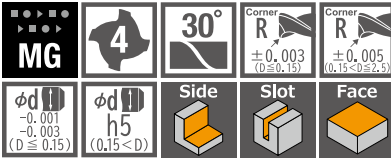
Feature 3

Abundant line up

MUGEN COATING PREMIUM Series

	Square End Mill	Ball End Mill	Corner Radius End Mill
Full Cutting Length Type	MXH225,MXH230,MXH235 MXH240,MXH245 All round type with L/D 1~5 times	MSBH230 Multi-purpose from roughing to finishing	MHDH445R MHDH645R Corner radius end mill suitable for hardened steels (~65HRC)
	MXH225P,MXH230P,MXH235P Sharp edge type with L/D 1~3 times	MSBH345 3-flute strong helix angle ball end mill	
	MHDH445 MHDH645 Suitable for finishing on hardened steels (~65HRC)		
Long Neck Type	MHRH230 MHRH430 Suitable for deep milling on prehardened steels and hardened steels (~65HRC)	MRBH230 Ball end mill suitable for hardened steels (~65HRC)	MHRH230R MHRH430R Support to machining on prehardened steels and hardened steels (~65HRC)
		MACH225 MACH225SF Sharp cutting edge reduces cutting load	
		MRBTNH230 MRBTNH345 Taper neck shape significantly increases tool rigidity	

Long neck corner radius end mill supports machining from prehardened steels to hardened steels ($\sim 65\text{HRC}$)
Abundant size variations with total 450 sizes



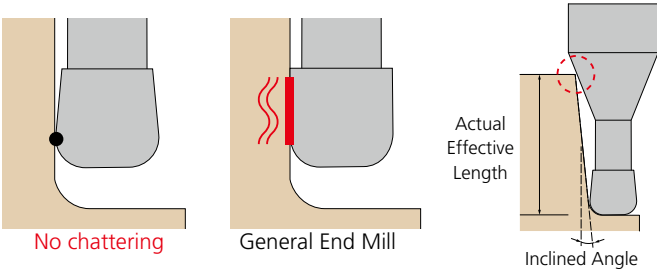
Please be aware of stock since there is no cutting edge from the center to the bottom.

- MUGEN COATING PREMIUM for hardened steels and unique new design excel in chipping prevention and resolve chattering to realize excellent finished surface.
- 4-flute end mill for high efficiency machining.
- 4-flute end mill has 450 sizes in total that lineup from the smallest diameter $\phi 0.1$ to $\phi 6$.

Size	Diameter Tolerance	Corner R Tolerance	Shank Dia. Tolerance
$D \leq 0.15$	0 -0.007	± 0.003	-0.001 -0.003
$0.15 < D < 0.5$	0 -0.01	± 0.005	h5
$0.5 \leq D \leq 2.5$	0 -0.02		
$D > 2.5$		± 0.01	

Work Material

Prehardened Steel P	Hardened Steel H	
	40~60HRC	$\sim 65\text{HRC}$
		



Code No.	Dia. (D)	Corner Radius (R)	Under Neck Length (l1)	Length of Cut (l)	Neck Dia. (d2)	Neck Taper Angle (γ)	Shank Dia. (d)	Overall Length (L)	Actual effective length depending on inclined angle of workpiece				
									30°	1°	1°30'	2°	3°
2.08-00237-01013	0.1	R0.01	0.3	0.08	0.085	12°	4	45	0.34	0.36	0.38	0.39	0.44
2.08-00237-01015			0.5					45	0.55	0.58	0.60	0.63	0.70
2.08-00237-01512	0.15	R0.01	0.3	0.12	0.135	12°	4	45	0.34	0.36	0.38	0.39	0.44
2.08-00237-01513			0.5					45	0.55	0.58	0.60	0.63	0.70
2.08-00237-01515			0.75					45	0.81	0.85	0.89	0.93	1.03
2.08-00237-01517			1					45	1.07	1.12	1.17	1.23	1.37
2.08-00237-01522		R0.02	0.3					45	0.34	0.36	0.37	0.39	0.43
2.08-00237-01523			0.5					45	0.55	0.58	0.60	0.63	0.70
2.08-00237-01525			0.75					45	0.81	0.85	0.89	0.93	1.03
2.08-00237-01527			1					45	1.07	1.12	1.17	1.23	1.36
2.08-00237-02020	0.2	R0.02	0.3	0.15	0.18	12°	4	45	0.36	0.37	0.39	0.41	0.45
2.08-00237-02021			0.5					45	0.56	0.59	0.62	0.65	0.71
2.08-00237-02023			1					45	1.09	1.13	1.19	1.24	1.38
2.08-00237-02025			1.5					45	1.61	1.68	1.76	1.84	2.04
2.08-00237-02027		R0.05	2					45	2.13	2.22	2.33	2.44	2.71
2.08-00237-02050			0.3					45	0.35	0.37	0.38	0.40	0.44
2.08-00237-02051			0.5					45	0.56	0.59	0.61	0.64	0.71
2.08-00237-02053			1					45	1.08	1.13	1.18	1.24	1.37
2.08-00237-02055	0.3	R0.02	1.5					45	1.61	1.68	1.75	1.84	2.03
2.08-00237-02057			2					45	2.13	2.22	2.32	2.43	2.70
2.08-00237-03020			0.5	0.25	0.28	12°	4	45	0.56	0.59	0.62	0.65	0.71
2.08-00237-03021			1					45	1.09	1.13	1.19	1.24	1.38
2.08-00237-03022			1.5					45	1.61	1.68	1.76	1.84	2.04

How to Order When you order, indicate MHRH430R (D)×(R)×(l1). ※(γ) is reference value.

Unit [Size : mm]													
Code No.	Dia. (D)	Corner Radius (R)	Under Neck Length (ℓ ₁)	Length of Cut (ℓ)	Neck Dia. (d ₂)	Neck Taper Angle (γ)	Shank Dia. (d)	Overall Length (L)	Actual effective length depending on inclined angle of workpiece				
									30´	1°	1°30´	2°	3°
2.08-00237-03023	0.3	R0.02	2	0.25	0.28	12°	4	45	2.13	2.22	2.33	2.44	2.71
2.08-00237-03024			2.5					45	2.65	2.77	2.90	3.04	3.37
2.08-00237-03025			3					45	3.17	3.31	3.47	3.64	4.03
2.08-00237-03050		R0.05	0.5					45	0.56	0.59	0.61	0.64	0.71
2.08-00237-03051			1					45	1.08	1.13	1.18	1.24	1.37
2.08-00237-03052			1.5					45	1.61	1.68	1.75	1.84	2.03
2.08-00237-03053			2					45	2.13	2.22	2.32	2.43	2.70
2.08-00237-03054			2.5					45	2.65	2.77	2.89	3.03	3.36
2.08-00237-03055			3					45	3.17	3.31	3.46	3.63	4.02
2.08-00237-04020			0.4					R0.02	0.5	0.3	0.37	12°	4
2.08-00237-04021	1	45		1.11	1.16	1.21	1.27		1.41				
2.08-00237-04022	1.5	45		1.63	1.70	1.78	1.87		2.07				
2.08-00237-04023	2	45		2.15	2.25	2.35	2.47		2.74				
2.08-00237-04024	2.5	45		2.67	2.79	2.92	3.07		3.40				
2.08-00237-04025	3	45		3.20	3.34	3.49	3.67		4.06				
2.08-00237-04027	4	45		4.24	4.43	4.63	4.86		5.39				
2.08-00237-04050	R0.05	0.5		45	0.59	0.61	0.64	0.67	0.74				
2.08-00237-04051		1		45	1.11	1.16	1.21	1.27	1.40				
2.08-00237-04052		1.5		45	1.63	1.70	1.78	1.86	2.06				
2.08-00237-04053		2	45	2.15	2.25	2.35	2.46	2.73					
2.08-00237-04054		2.5	45	2.67	2.79	2.92	3.06	3.39					
2.08-00237-04055		3	45	3.19	3.34	3.49	3.66	4.05					
2.08-00237-04057		4	45	4.24	4.43	4.63	4.86	5.38					
2.08-00237-04101	R0.1	1	45	1.11	1.15	1.20	1.26	1.38					
2.08-00237-04103		2	45	2.15	2.24	2.34	2.45	2.71					
2.08-00237-04105		3	45	3.19	3.33	3.48	3.65	4.04					
2.08-00237-04107		4	45	4.24	4.42	4.62	4.85	5.37					
2.08-00237-05021	0.5	R0.02	1	0.4	0.46	12°	4	45	1.14	1.19	1.24	1.30	1.44
2.08-00237-05022			2					45	2.18	2.27	2.38	2.50	2.77
2.08-00237-05023			3					45	3.22	3.36	3.52	3.69	4.10
2.08-00237-05024			4					45	4.26	4.45	4.66	4.89	5.42
2.08-00237-05025			5					45	5.31	5.54	5.80	6.09	6.75
2.08-00237-05026			6					45	6.35	6.63	6.94	7.28	8.08
2.08-00237-05051		R0.05	1					45	1.13	1.18	1.24	1.29	1.43
2.08-00237-05052			2					45	2.18	2.27	2.38	2.49	2.76
2.08-00237-05053			3					45	3.22	3.36	3.52	3.69	4.09
2.08-00237-05054			4					45	4.26	4.45	4.66	4.88	5.41
2.08-00237-05055			5					45	5.31	5.54	5.80	6.08	6.74
2.08-00237-05056			6					45	6.35	6.63	6.94	7.28	8.07
2.08-00237-05101		R0.1	1					45	1.13	1.18	1.23	1.28	1.42
2.08-00237-05102			2					45	2.17	2.27	2.37	2.48	2.74
2.08-00237-05103			3					45	3.22	3.36	3.51	3.68	4.07
2.08-00237-05104			4					45	4.26	4.45	4.65	4.87	5.40
2.08-00237-05105			5					45	5.30	5.54	5.79	6.07	6.72
2.08-00237-05106			6					45	6.35	6.63	6.93	7.27	8.05
2.08-00237-06021	0.6	R0.02	2	0.5	0.56	12°	4	45	2.18	2.27	2.38	2.50	2.77
2.08-00237-06023			4					45	4.26	4.45	4.66	4.89	5.42
2.08-00237-06025			6					45	6.35	6.63	6.94	7.28	8.08
2.08-00237-06027			8					50	8.43	8.81	9.22	9.68	10.73
2.08-00237-06029			10					50	10.52	10.99	11.50	12.07	13.39
2.08-00237-06051		R0.05	2					45	2.18	2.27	2.38	2.49	2.76
2.08-00237-06053			4					45	4.26	4.45	4.66	4.88	5.41
2.08-00237-06055			6					45	6.35	6.63	6.94	7.28	8.07
2.08-00237-06057			8					50	8.43	8.81	9.22	9.67	10.72
2.08-00237-06059			10					50	10.52	10.99	11.50	12.06	13.38
2.08-00237-06101		R0.1	2					45	2.17	2.27	2.37	2.48	2.74
2.08-00237-06103			4					45	4.26	4.45	4.65	4.87	5.40
2.08-00237-06105			6					45	6.35	6.63	6.93	7.27	8.05
2.08-00237-06107			8					50	8.43	8.80	9.21	9.66	10.71
2.08-00237-06109	10		50	10.52	10.98	11.49	12.05	13.36					

Unit [Size : mm]														
Code No.	Dia. (D)	Corner Radius (R)	Under Neck Length (ℓ1)	Length of Cut (ℓ)	Neck Dia. (d2)	Neck Taper Angle (γ)	Shank Dia. (d)	Overall Length (L)	Actual effective length depending on inclined angle of workpiece					
									30´	1°	1°30´	2°	3°	
2.08-00237-07020	0.7	R0.02	2	0.55	0.66	12°	4	45	2.18	2.27	2.38	2.50	2.77	
2.08-00237-07021			4					45	4.26	4.45	4.66	4.89	5.42	
2.08-00237-07023			6					45	6.35	6.63	6.94	7.28	8.08	
2.08-00237-07050		R0.05	2					45	2.18	2.27	2.38	2.49	2.76	
2.08-00237-07051			4					45	4.26	4.45	4.66	4.88	5.41	
2.08-00237-07053			6					45	6.35	6.63	6.94	7.28	8.07	
2.08-00237-07100		R0.1	2					45	2.17	2.27	2.37	2.48	2.74	
2.08-00237-07101			4					45	4.26	4.45	4.65	4.87	5.40	
2.08-00237-07103			6					45	6.35	6.63	6.93	7.27	8.05	
2.08-00237-08020	0.8	R0.02	2	0.65	0.76	12°	4	45	2.18	2.27	2.38	2.50	2.77	
2.08-00237-08021			4					45	4.26	4.45	4.66	4.89	5.42	
2.08-00237-08023			6					45	6.35	6.63	6.94	7.28	8.08	
2.08-00237-08025			8					50	8.43	8.81	9.22	9.68	10.73	
2.08-00237-08050		R0.05	2					45	2.18	2.27	2.38	2.49	2.76	
2.08-00237-08051			4					45	4.26	4.45	4.66	4.88	5.41	
2.08-00237-08053			6					45	6.35	6.63	6.94	7.28	8.07	
2.08-00237-08055			8					50	8.43	8.81	9.22	9.67	10.72	
2.08-00237-08059			12					50	12.60	13.17	13.78	14.46	16.03	
2.08-00237-08100		R0.1	2					45	2.17	2.27	2.37	2.48	2.74	
2.08-00237-08101			4					45	4.26	4.45	4.65	4.87	5.40	
2.08-00237-08103			6					45	6.35	6.63	6.93	7.27	8.05	
2.08-00237-08105			8					50	8.43	8.80	9.21	9.66	10.71	
2.08-00237-08109		R0.2	12					50	12.60	13.16	13.77	14.45	16.01	
2.08-00237-08200			2					45	2.17	2.26	2.36	2.46	2.71	
2.08-00237-08201			4					45	4.26	4.44	4.64	4.86	5.37	
2.08-00237-08203			6					45	6.34	6.62	6.92	7.25	8.02	
2.08-00237-08205			8					50	8.43	8.80	9.20	9.64	10.67	
2.08-00237-08209			12					50	12.60	13.15	13.76	14.43	15.98	
2.08-00237-09101	0.9	R0.1	4	0.7	0.85	12°	4	45	4.28	4.47	4.68	4.90	5.43	
2.08-00237-09105			8					50	8.46	8.83	9.24	9.69	10.74	
2.08-00237-10024	1	R0.02	1.5	0.8	0.95	12°	4	50	1.68	1.76	1.84	1.93	2.14	
2.08-00237-10028			2					50	2.20	2.30	2.41	2.53	2.80	
2.08-00237-10026			2.5					50	2.72	2.85	2.98	3.12	3.46	
2.08-00237-10020			3					50	3.25	3.39	3.55	3.72	4.13	
2.08-00237-10021			4					50	4.29	4.48	4.69	4.92	5.45	
2.08-00237-10022			5					50	5.33	5.57	5.83	6.11	6.78	
2.08-00237-10023			6					50	6.37	6.66	6.97	7.31	8.11	
2.08-00237-10025			8					50	8.46	8.84	9.25	9.70	10.76	
2.08-00237-10027			10					50	10.54	11.02	11.53	12.10	13.42	
2.08-00237-10054		R0.05	1.5					50	1.68	1.75	1.83	1.92	2.13	
2.08-00237-10058			2					50	2.20	2.30	2.40	2.52	2.79	
2.08-00237-10056			2.5					50	2.72	2.84	2.97	3.12	3.45	
2.08-00237-10050			3					50	3.24	3.39	3.54	3.72	4.12	
2.08-00237-10051			4					50	4.29	4.48	4.68	4.91	5.44	
2.08-00237-10052			5					50	5.33	5.57	5.82	6.11	6.77	
2.08-00237-10053			6					50	6.37	6.66	6.97	7.31	8.10	
2.08-00237-10055			8					50	8.46	8.83	9.25	9.70	10.75	
2.08-00237-10057			10					50	10.54	11.01	11.53	12.09	13.41	
2.08-00237-10104		R0.1	1.5					50	1.68	1.75	1.83	1.91	2.11	
2.08-00237-10108			2					50	2.20	2.29	2.40	2.51	2.77	
2.08-00237-10106			2.5					50	2.72	2.84	2.97	3.11	3.44	
2.08-00237-10100			3					50	3.24	3.38	3.54	3.71	4.10	
2.08-00237-10101			4					50	4.28	4.47	4.68	4.90	5.43	
2.08-00237-10102			5					50	5.33	5.56	5.82	6.10	6.76	
2.08-00237-10103			6					50	6.37	6.65	6.96	7.30	8.08	
2.08-00237-10105			8					50	8.46	8.83	9.24	9.69	10.74	
2.08-00237-10107			10					50	10.54	11.01	11.52	12.08	13.39	
2.08-00237-10204		R0.2	1.5					50	1.67	1.74	1.81	1.89	2.08	
2.08-00237-10208			2					50	2.19	2.28	2.38	2.49	2.74	
2.08-00237-10206			2.5					50	2.72	2.83	2.95	3.09	3.41	
2.08-00237-10200			3					50	3.24	3.37	3.52	3.69	4.07	

How to Order When you order, indicate MHRH430R (D)×(R)×(ℓ1). ※(γ) is reference value.

Unit [Size : mm]													
Code No.	Dia. (D)	Corner Radius (R)	Under Neck Length (ℓ ₁)	Length of Cut (ℓ)	Neck Dia. (d ₂)	Neck Taper Angle (γ)	Shank Dia. (d)	Overall Length (L)	Actual effective length depending on inclined angle of workpiece				
									30′	1°	1°30′	2°	3°
2.08-00237-10201	1	R0.2	4	0.8	0.95	12°	4	50	4.28	4.46	4.66	4.88	5.40
2.08-00237-10202			5					50	5.32	5.55	5.80	6.08	6.72
2.08-00237-10203			6					50	6.37	6.64	6.94	7.28	8.05
2.08-00237-10205			8					50	8.45	8.82	9.23	9.67	10.71
2.08-00237-10207			10					50	10.54	11.00	11.51	12.06	13.36
2.08-00237-10304		R0.3	1.5					50	1.67	1.73	1.80	1.87	2.05
2.08-00237-10308			2					50	2.19	2.28	2.37	2.47	2.71
2.08-00237-10306			2.5					50	2.71	2.82	2.94	3.07	3.37
2.08-00237-10300			3					50	3.23	3.36	3.51	3.67	4.04
2.08-00237-10301			4					50	4.28	4.45	4.65	4.86	5.36
2.08-00237-10302			5					50	5.32	5.54	5.79	6.06	6.69
2.08-00237-10303			6					50	6.36	6.63	6.93	7.26	8.02
2.08-00237-10305			8					50	8.45	8.81	9.21	9.65	10.67
2.08-00237-10307			10					50	10.53	10.99	11.49	12.04	13.33
2.08-00237-12101	1.2	R0.1	5	1	1.14	12°	4	50	5.35	5.59	5.84	6.13	6.79
2.08-00237-12103			10					50	10.57	11.03	11.55	12.11	13.42
2.08-00237-12201		R0.2	5					50	5.35	5.58	5.83	6.11	6.75
2.08-00237-12203			10					50	10.56	11.03	11.53	12.09	13.39
2.08-00237-12301		R0.3	5					50	5.34	5.57	5.82	6.09	6.72
2.08-00237-12303			10					50	10.56	11.02	11.52	12.07	13.36
2.08-00237-15020	1.5	R0.02	3	1.2	1.43	12°	4	50	3.29	3.44	3.60	3.78	4.19
2.08-00237-15021			4					50	4.34	4.53	4.74	4.97	5.52
2.08-00237-15023			6					50	6.42	6.71	7.02	7.37	8.17
2.08-00237-15025			8					50	8.51	8.89	9.30	9.76	10.83
2.08-00237-15026			10					50	10.59	11.07	11.59	12.15	13.48
2.08-00237-15027			12					50	12.68	13.25	13.87	14.55	16.13
2.08-00237-15029			15					50	15.81	16.51	17.29	18.14	20.12
2.08-00237-15050			R0.05					3	50	3.29	3.44	3.60	3.77
2.08-00237-15051		4						50	4.34	4.53	4.74	4.97	5.51
2.08-00237-15053		6						50	6.42	6.71	7.02	7.36	8.16
2.08-00237-15055		8						50	8.51	8.89	9.30	9.76	10.82
2.08-00237-15056		10						50	10.59	11.06	11.58	12.15	13.47
2.08-00237-15057		12						50	12.68	13.24	13.86	14.54	16.12
2.08-00237-15059		15						50	15.81	16.51	17.28	18.13	20.11
2.08-00237-15100		R0.1						3	50	3.29	3.43	3.59	3.76
2.08-00237-15101			4					50	4.33	4.52	4.73	4.96	5.49
2.08-00237-15103			6					50	6.42	6.70	7.01	7.35	8.15
2.08-00237-15105			8					50	8.50	8.88	9.29	9.75	10.80
2.08-00237-15106			10					50	10.59	11.06	11.57	12.14	13.45
2.08-00237-15107			12					50	12.68	13.24	13.85	14.53	16.11
2.08-00237-15109			15					60	15.80	16.51	17.28	18.12	20.09
2.08-00237-15200			R0.2					3	50	3.29	3.43	3.58	3.74
2.08-00237-15201		4						50	4.33	4.51	4.72	4.94	5.46
2.08-00237-15203		6						50	6.42	6.69	7.00	7.33	8.11
2.08-00237-15205		8						50	8.50	8.87	9.28	9.73	10.77
2.08-00237-15206		10						50	10.59	11.05	11.56	12.12	13.42
2.08-00237-15207		12						50	12.67	13.23	13.84	14.51	16.08
2.08-00237-15209		15						60	15.80	16.50	17.26	18.10	20.06
2.08-00237-15300		R0.3						3	50	3.28	3.42	3.56	3.72
2.08-00237-15301			4					50	4.33	4.51	4.70	4.92	5.43
2.08-00237-15303			6					50	6.41	6.68	6.98	7.31	8.08
2.08-00237-15305			8					50	8.50	8.86	9.27	9.71	10.74
2.08-00237-15306			10					50	10.58	11.04	11.55	12.10	13.39
2.08-00237-15307			12					50	12.67	13.22	13.83	14.49	16.04
2.08-00237-15309			15					60	15.80	16.49	17.25	18.08	20.03
2.08-00237-15500			R0.5					3	50	3.27	3.40	3.53	3.69
2.08-00237-15501	4	50		4.32	4.49	4.68	4.88	5.36					
2.08-00237-15503	6	50		6.40	6.67	6.96	7.27	8.02					
2.08-00237-15505	8	50		8.49	8.85	9.24	9.67	10.67					
2.08-00237-15506	10	50		10.57	11.02	11.52	12.06	13.33					
2.08-00237-15507	12	50		12.66	13.20	13.80	14.45	15.98					
2.08-00237-15509	15	60		15.79	16.47	17.22	18.04	19.96					

How to Order When you order, indicate MHRH430R (D)x(R)x(l1).

$\otimes(\gamma)$ is reference value.

Unit [Size : mm]														
Code No.	Dia. (D)	Corner Radius (R)	Under Neck Length (ℓ ₁)	Length of Cut (ℓ)	Neck Dia. (d ₂)	Neck Taper Angle (γ)	Shank Dia. (d)	Overall Length (L)	Actual effective length depending on inclined angle of workpiece					
									30°	1°	1°30'	2°	3°	
2.08-00237-31007	3	R1	20	2.5	2.85	12°	6	60	21.18	22.08	23.07	24.16	26.69	
2.08-00237-31009			25					70	26.39	27.53	28.77	30.14	Free	
2.08-00237-31011			30					70	31.60	32.97	34.47	36.12	Free	
2.08-00237-40051	4	R0.05	8	3.2	3.8	12°	6	60	8.83	9.22	9.65	10.12	11.22	
2.08-00237-40053			12					60	13.00	13.58	14.21	14.91	16.53	
2.08-00237-40054			16					60	17.17	17.93	18.77	19.69	Free	
2.08-00237-40055			20					65	21.34	22.29	23.33	24.48	Free	
2.08-00237-40056			24					70	25.51	26.65	27.90	Free	Free	
2.08-00237-40057			28					70	29.68	31.01	32.46	Free	Free	
2.08-00237-40058			32					70	33.85	35.37	37.02	Free	Free	
2.08-00237-40106			R0.1					8	60	8.82	9.21	9.64	10.11	11.21
2.08-00237-40107								10	60	10.91	11.39	11.92	12.50	13.86
2.08-00237-40100		12						60	13.00	13.57	14.20	14.90	16.51	
2.08-00237-40101		16						60	17.17	17.93	18.77	19.68	Free	
2.08-00237-40102		20						65	21.34	22.29	23.33	24.47	Free	
2.08-00237-40103		24						70	25.51	26.65	27.89	Free	Free	
2.08-00237-40104		28						70	29.68	31.00	32.45	Free	Free	
2.08-00237-40105		32						70	33.85	35.36	37.01	Free	Free	
2.08-00237-40108		40						80	42.19	44.08	Free	Free	Free	
2.08-00237-40206		R0.2	8					60	8.82	9.21	9.63	10.09	11.17	
2.08-00237-40207			10					60	10.91	11.38	11.91	12.49	13.83	
2.08-00237-40200			12					60	12.99	13.56	14.19	14.88	16.48	
2.08-00237-40201			16					60	17.16	17.92	18.75	19.66	Free	
2.08-00237-40202			20					65	21.33	22.28	23.31	24.45	Free	
2.08-00237-40203			24					70	25.50	26.64	27.88	Free	Free	
2.08-00237-40204			28					70	29.68	30.99	32.44	Free	Free	
2.08-00237-40205			32					70	33.85	35.35	37.00	Free	Free	
2.08-00237-40208			40					80	42.19	44.07	Free	Free	Free	
2.08-00237-40306		R0.3	8					60	8.82	9.20	9.61	10.07	11.14	
2.08-00237-40307			10					60	10.90	11.38	11.90	12.47	13.80	
2.08-00237-40300			12					60	12.99	13.55	14.18	14.86	16.45	
2.08-00237-40301			16					60	17.16	17.91	18.74	19.65	Free	
2.08-00237-40302			20					65	21.33	22.27	23.30	24.43	Free	
2.08-00237-40303			24					70	25.50	26.63	27.86	Free	Free	
2.08-00237-40304			28					70	29.67	30.99	32.42	Free	Free	
2.08-00237-40305			32					70	33.84	35.34	36.99	Free	Free	
2.08-00237-40308	40		80	42.19	44.06	Free	Free	Free						
2.08-00237-40506	R0.5	8	60	8.81	9.18	9.59	10.03	11.08						
2.08-00237-40507		10	60	10.89	11.36	11.87	12.43	13.73						
2.08-00237-40500		12	60	12.98	13.54	14.15	14.82	16.39						
2.08-00237-40501		16	60	17.15	17.89	18.71	19.61	Free						
2.08-00237-40502		20	65	21.32	22.25	23.27	24.39	Free						
2.08-00237-40503		24	70	25.49	26.61	27.83	Free	Free						
2.08-00237-40504		28	70	29.66	30.97	32.40	Free	Free						
2.08-00237-40505		32	70	33.83	35.33	36.96	Free	Free						
2.08-00237-40508		40	80	42.18	44.04	Free	Free	Free						
2.08-00237-41006	R1	8	60	8.79	9.13	9.52	9.94	10.92						
2.08-00237-41007		10	60	10.87	11.31	11.80	12.33	13.57						
2.08-00237-41000		12	60	12.96	13.49	14.08	14.72	16.23						
2.08-00237-41001		16	60	17.13	17.85	18.64	19.51	Free						
2.08-00237-41002		20	65	21.30	22.21	23.20	24.30	Free						
2.08-00237-41003		24	70	25.47	26.57	27.77	29.08	Free						
2.08-00237-41004		28	70	29.64	30.92	32.33	Free	Free						
2.08-00237-41005		32	70	33.81	35.28	36.89	Free	Free						
2.08-00237-41008		40	80	42.16	44.00	Free	Free	Free						
2.08-00237-50104	5	R0.1	10	4	4.75	12°	6	70	11.03	11.52	12.06	12.65	Free	
2.08-00237-50100			15					70	16.25	16.97	17.76	Free	Free	
2.08-00237-50101			20					70	21.46	22.42	Free	Free	Free	
2.08-00237-50102			30					80	31.89	Free	Free	Free	Free	
2.08-00237-50103			40					90	42.32	Free	Free	Free	Free	

 When you order, indicate MHRH430R (D)×(R)×(ℓ1). ※(γ) is reference value.

Unit [Size : mm]													
Code No.	Dia. (D)	Corner Radius (R)	Under Neck Length (ℓ1)	Length of Cut (ℓ)	Neck Dia. (d2)	Neck Taper Angle (γ)	Shank Dia. (d)	Overall Length (L)	Actual effective length depending on inclined angle of workpiece				
									30´	1°	1°30´	2°	3°
2.08-00237-50204	5	R0.2	10	4	4.75	12°	6	70	11.03	11.51	12.04	12.63	Free
2.08-00237-50200			15					70	16.24	16.96	17.75	Free	Free
2.08-00237-50201			20					70	21.46	22.41	Free	Free	Free
2.08-00237-50202			30					80	31.88	Free	Free	Free	Free
2.08-00237-50203			40					90	42.31	Free	Free	Free	Free
2.08-00237-50304		R0.3	10					70	11.02	11.50	12.03	12.61	Free
2.08-00237-50300			15					70	16.24	16.95	17.73	Free	Free
2.08-00237-50301			20					70	21.45	22.40	Free	Free	Free
2.08-00237-50302			30					80	31.88	Free	Free	Free	Free
2.08-00237-50303			40					90	42.31	Free	Free	Free	Free
2.08-00237-50504		R0.5	10					70	11.02	11.49	12.00	12.57	Free
2.08-00237-50500			15					70	16.23	16.93	17.70	Free	Free
2.08-00237-50501			20					70	21.44	22.38	Free	Free	Free
2.08-00237-50502			30					80	31.87	Free	Free	Free	Free
2.08-00237-50503			40					90	42.30	Free	Free	Free	Free
2.08-00237-51004		R1	10					70	10.99	11.44	11.93	12.47	Free
2.08-00237-51000			15					70	16.21	16.89	17.63	Free	Free
2.08-00237-51001			20					70	21.42	22.34	Free	Free	Free
2.08-00237-51002			30					80	31.85	Free	Free	Free	Free
2.08-00237-51003			40					90	42.28	Free	Free	Free	Free
2.08-00237-60051	6	R0.05	12	5	5.7	-	6	70	Free	Free	Free	Free	Free
2.08-00237-60052			15					70	Free	Free	Free	Free	Free
2.08-00237-60053			18					90	Free	Free	Free	Free	Free
2.08-00237-60054			24					90	Free	Free	Free	Free	Free
2.08-00237-60055			30					90	Free	Free	Free	Free	Free
2.08-00237-60056			40					100	Free	Free	Free	Free	Free
2.08-00237-60057			48					110	Free	Free	Free	Free	Free
2.08-00237-60104			R0.1					12	70	Free	Free	Free	Free
2.08-00237-60105		15						70	Free	Free	Free	Free	Free
2.08-00237-60100		18						90	Free	Free	Free	Free	Free
2.08-00237-60101		24						90	Free	Free	Free	Free	Free
2.08-00237-60102		30						90	Free	Free	Free	Free	Free
2.08-00237-60106		40						100	Free	Free	Free	Free	Free
2.08-00237-60103		48						110	Free	Free	Free	Free	Free
2.08-00237-60204		R0.2						12	70	Free	Free	Free	Free
2.08-00237-60205			15					70	Free	Free	Free	Free	Free
2.08-00237-60200			18					90	Free	Free	Free	Free	Free
2.08-00237-60201			24					90	Free	Free	Free	Free	Free
2.08-00237-60202			30					90	Free	Free	Free	Free	Free
2.08-00237-60206			40					100	Free	Free	Free	Free	Free
2.08-00237-60203			48					110	Free	Free	Free	Free	Free
2.08-00237-60304			R0.3					12	70	Free	Free	Free	Free
2.08-00237-60305		15						70	Free	Free	Free	Free	Free
2.08-00237-60300		18						90	Free	Free	Free	Free	Free
2.08-00237-60301		24						90	Free	Free	Free	Free	Free
2.08-00237-60302		30						90	Free	Free	Free	Free	Free
2.08-00237-60306		40						100	Free	Free	Free	Free	Free
2.08-00237-60303		48						110	Free	Free	Free	Free	Free
2.08-00237-60504		R0.5						12	70	Free	Free	Free	Free
2.08-00237-60505			15					70	Free	Free	Free	Free	Free
2.08-00237-60500			18					90	Free	Free	Free	Free	Free
2.08-00237-60501			24					90	Free	Free	Free	Free	Free
2.08-00237-60502	30		90	Free	Free	Free	Free	Free					
2.08-00237-60506	40		100	Free	Free	Free	Free	Free					
2.08-00237-60503	R1	48	110	Free	Free	Free	Free	Free					
2.08-00237-61004		12	70	Free	Free	Free	Free	Free					
2.08-00237-61005		15	70	Free	Free	Free	Free	Free					
2.08-00237-61000		18	90	Free	Free	Free	Free	Free					
2.08-00237-61001		24	90	Free	Free	Free	Free	Free					
2.08-00237-61002		30	90	Free	Free	Free	Free	Free					
2.08-00237-61006		40	100	Free	Free	Free	Free	Free					
2.08-00237-61003		48	110	Free	Free	Free	Free	Free					

Work Material				Prehardened Steels HPM・NAK (～42HRC)				Hardened Steels HPM38・STAVAX・SKD61 (～55HRC)				Hardened Steels SKD11・PD613 (～62HRC)				High Speed Steels SKH (～65HRC)			
Dia.	Corner Radius	Under Neck Length	L/D	Depth of Cut		Feed	Spindle Speed	Depth of Cut		Feed	Spindle Speed	Depth of Cut		Feed	Spindle Speed	Depth of Cut		Feed	Spindle Speed
				ap mm	ae mm	mm/min	min ⁻¹	ap mm	ae mm	mm/min	min ⁻¹	ap mm	ae mm	mm/min	min ⁻¹	ap mm	ae mm	mm/min	min ⁻¹
0.5	0.05 0.1	1	2.0	0.03	0.14	1,200	30,000	0.01	0.15	1,000	25,000	0.007	0.1	900	23,000	0.005	0.08	800	20,000
		2	4.0	0.025	0.14	1,000	30,000	0.01	0.15	840	25,000	0.007	0.1	720	23,000	0.005	0.08	600	20,000
		3	6.0	0.02	0.14	840	30,000	0.008	0.15	700	25,000	0.005	0.1	640	23,000	0.003	0.08	560	20,000
		4	8.0	0.015	0.14	760	25,000	0.005	0.15	600	25,000	0.003	0.1	480	23,000	0.002	0.08	360	20,000
		5	10.0	0.01	0.14	600	25,000	0.004	0.15	400	20,000	0.003	0.1	300	18,000	0.002	0.08	200	16,000
		6	12.0	0.008	0.14	500	25,000	0.003	0.15	320	20,000	0.002	0.1	200	18,000	0.001	0.08	140	16,000
0.6	0.02	2	3.3	0.016	0.2	1,200	30,000	0.012	0.2	1,000	25,000	0.006	0.15	800	23,000	0.004	0.1	640	20,000
		4	6.7	0.012	0.2	900	25,000	0.007	0.2	800	23,000	0.004	0.15	600	20,000	0.003	0.1	400	18,000
		6	10.0	0.008	0.2	600	23,000	0.005	0.2	400	20,000	0.003	0.15	300	18,000	0.002	0.1	200	12,000
		8	13.3	0.006	0.2	400	18,000	0.003	0.2	300	16,000	0.001	0.15	200	14,000	0.001	0.1	160	10,000
		10	16.7	0.003	0.2	240	16,000	0.001	0.2	200	14,000	0.001	0.15	160	12,000	0.001	0.1	100	8,000
	0.05 0.1	2	3.3	0.035	0.2	1,200	30,000	0.02	0.2	1,000	25,000	0.01	0.15	800	23,000	0.007	0.1	640	20,000
		4	6.7	0.025	0.2	900	25,000	0.015	0.2	800	23,000	0.007	0.15	600	20,000	0.005	0.1	400	18,000
		6	10.0	0.015	0.2	600	23,000	0.008	0.2	400	20,000	0.005	0.15	300	18,000	0.003	0.1	200	12,000
		8	13.3	0.01	0.2	400	18,000	0.005	0.2	300	16,000	0.002	0.15	200	14,000	0.001	0.1	160	10,000
		10	16.7	0.005	0.2	240	16,000	0.002	0.2	200	14,000	0.001	0.15	160	12,000	0.001	0.1	100	8,000
0.7	0.02	2	2.9	0.016	0.25	1,800	30,000	0.012	0.25	1,400	25,000	0.006	0.15	1,200	23,000	0.003	0.12	900	20,000
		4	5.7	0.012	0.25	1,400	28,000	0.008	0.25	1,200	25,000	0.005	0.15	1,000	23,000	0.002	0.12	700	20,000
		6	8.6	0.008	0.25	1,000	25,000	0.005	0.25	700	20,000	0.003	0.15	500	18,000	0.002	0.12	400	16,000
	0.05 0.1	2	2.9	0.04	0.25	1,800	30,000	0.03	0.25	1,400	25,000	0.015	0.15	1,200	23,000	0.01	0.12	900	20,000
		4	5.7	0.03	0.25	1,400	28,000	0.02	0.25	1,200	25,000	0.01	0.15	1,000	23,000	0.007	0.12	700	20,000
		6	8.6	0.02	0.25	1,000	25,000	0.01	0.25	700	20,000	0.007	0.15	500	18,000	0.005	0.12	400	16,000
0.8	0.02	2	2.5	0.016	0.3	2,000	28,000	0.014	0.25	1,600	25,000	0.006	0.16	1,400	23,000	0.005	0.14	1,000	20,000
		4	5.0	0.012	0.3	1,800	28,000	0.008	0.25	1,400	25,000	0.005	0.16	1,200	23,000	0.003	0.14	800	20,000
		6	7.5	0.009	0.3	1,400	23,000	0.006	0.25	1,100	20,000	0.004	0.16	900	18,000	0.002	0.14	650	16,000
		8	10.0	0.006	0.3	1,000	18,000	0.003	0.25	800	16,000	0.002	0.16	600	14,000	0.002	0.14	400	12,000
	0.05 0.1 0.2	2	2.5	0.05	0.3	2,000	28,000	0.03	0.25	1,600	25,000	0.02	0.16	1,400	23,000	0.015	0.14	1,000	20,000
		4	5.0	0.045	0.3	1,800	28,000	0.025	0.25	1,400	25,000	0.015	0.16	1,200	23,000	0.01	0.14	800	20,000
		6	7.5	0.03	0.3	1,400	23,000	0.02	0.25	1,100	20,000	0.01	0.16	900	18,000	0.007	0.14	650	16,000
		8	10.0	0.02	0.3	1,000	18,000	0.01	0.25	800	16,000	0.005	0.16	600	14,000	0.005	0.14	400	12,000
0.9	0.1	2	2.5	0.007	0.3	600	16,000	0.005	0.25	400	14,000	0.003	0.16	240	12,000	0.001	0.14	160	10,000
		4	4.4	0.05	0.3	2,200	25,000	0.03	0.3	1,700	25,000	0.02	0.2	1,400	20,000	0.01	0.15	1,200	18,000
		8	8.9	0.03	0.3	1,000	18,000	0.01	0.3	800	16,000	0.008	0.2	700	14,000	0.005	0.15	500	10,000
		1.5	1.5	0.016	0.35	3,000	30,000	0.012	0.3	2,400	25,000	0.01	0.25	2,100	21,000	0.008	0.2	1,500	17,000
		2	2.0	0.016	0.35	2,800	30,000	0.012	0.3	2,300	25,000	0.01	0.25	2,000	21,000	0.008	0.2	1,400	17,000
		2.5	2.5	0.016	0.35	2,700	29,000	0.012	0.3	2,200	24,000	0.01	0.25	1,900	20,000	0.008	0.2	1,350	16,500
		3	3.0	0.016	0.35	2,500	28,000	0.012	0.3	2,100	23,000	0.01	0.25	1,800	20,000	0.008	0.2	1,300	16,000
		4	4.0	0.014	0.35	2,200	25,000	0.01	0.3	1,800	21,000	0.008	0.25	1,500	18,000	0.005	0.2	1,100	14,000
		5	5.0	0.012	0.35	1,900	23,000	0.008	0.3	1,600	19,000	0.005	0.25	1,400	16,000	0.003	0.2	1,000	13,000
		6	6.0	0.01	0.35	1,700	20,000	0.008	0.3	1,400	16,000	0.005	0.25	1,200	14,000	0.003	0.2	850	11,000
1	0.02 0.05 0.1 0.2 0.3	8	8.0	0.008	0.35	1,400	18,000	0.006	0.3	1,100	15,000	0.005	0.25	900	13,000	0.002	0.2	650	10,000
		10	10.0	0.006	0.35	1,000	16,000	0.004	0.3	800	13,000	0.003	0.25	700	11,000	0.002	0.2	500	9,000
		1.5	1.5	0.065	0.35	3,000	30,000	0.05	0.3	2,400	25,000	0.04	0.25	2,100	21,000	0.03	0.2	1,500	17,000
		2	2.0	0.065	0.35	2,800	30,000	0.05	0.3	2,300	25,000	0.04	0.25	2,000	21,000	0.03	0.2	1,400	17,000
		2.5	2.5	0.06	0.35	2,700	29,000	0.05	0.3	2,200	24,000	0.04	0.25	1,900	20,000	0.03	0.2	1,350	16,500
		3	3.0	0.06	0.35	2,500	28,000	0.05	0.3	2,100	23,000	0.04	0.25	1,800	20,000	0.03	0.2	1,300	16,000
		4	4.0	0.055	0.35	2,200	25,000	0.04	0.3	1,800	21,000	0.03	0.25	1,500	18,000	0.02	0.2	1,100	14,000
		5	5.0	0.05	0.35	1,900	23,000	0.03	0.3	1,600	19,000	0.02	0.25	1,400	16,000	0.01	0.2	1,000	13,000
		6	6.0	0.045	0.35	1,700	20,000	0.02	0.3	1,400	16,000	0.01	0.25	1,200	14,000	0.007	0.2	850	11,000
		8	8.0	0.035	0.35	1,400	18,000	0.015	0.3	1,100	15,000	0.008	0.25	900	13,000	0.005	0.2	650	10,000
1.2	0.1 0.2 0.3	5	4.2	0.06	0.45	2,200	24,000	0.045	0.4	1,800	20,000	0.03	0.3	1,500	17,000	0.02	0.2	1,100	14,000
		10	8.3	0.04	0.45	1,400	16,000	0.03	0.4	1,100	13,000	0.01	0.3	950	11,000	0.005	0.2	700	9,000
1.5	0.02	3	2.0	0.016	0.55	2,800	28,000	0.012	0.5	2,300	23,000	0.01	0.4	2,000	20,000	0.008	0.3	1,400	16,000
		4	2.7	0.016	0.55	2,400	25,000	0.012	0.5	2,000	21,000	0.01	0.4	1,700	18,000	0.008	0.3	1,200	14,000
		6	4.0	0.014	0.55	2,200	23,000	0.01	0.5	1,800	19,000	0.008	0.4	1,500	16,000	0.005	0.3	1,100	13,000

Recommended Milling Conditions (Mertic)

Work Material				Prehardened Steels HPM·NAK (～42HRC)				Hardened Steels HPM38·STAVAX·SKD61 (～55HRC)				Hardened Steels SKD11·PD613 (～62HRC)				High Speed Steels SKH (～65HRC)					
Dia.	Corner Radius	Under Neck Length	L/D	Depth of Cut		Feed		Spindle Speed		Depth of Cut	Feed	Spindle Speed		Depth of Cut	Feed	Spindle Speed		Depth of Cut	Feed	Spindle Speed	
				ap mm	ae mm	mm/min	min ⁻¹	ap mm	ae mm			mm/min	min ⁻¹			ap mm	ae mm			mm/min	min ⁻¹
1.5	0.02	8	5.3	0.014	0.55	1,800	20,000	0.01	0.5	1,500	16,000	0.008	0.4	1,300	14,000	0.003	0.3	900	11,000		
		10	6.7	0.013	0.55	1,600	18,000	0.008	0.5	1,300	15,000	0.006	0.4	1,100	13,000	0.003	0.3	750	10,000		
		12	8.0	0.012	0.55	1,400	16,000	0.008	0.5	1,100	13,000	0.005	0.4	950	11,000	0.002	0.3	650	9,000		
		15	10.0	0.008	0.55	1,000	14,000	0.005	0.5	800	11,000	0.003	0.4	700	9,000	0.002	0.3	500	7,000		
	0.05 0.1 0.2 0.3 0.5	3	2.0	0.1	0.55	2,800	28,000	0.05	0.5	2,300	23,000	0.04	0.4	2,000	20,000	0.03	0.3	1,400	16,000		
		4	2.7	0.08	0.55	2,400	25,000	0.05	0.5	2,000	21,000	0.04	0.4	1,700	18,000	0.03	0.3	1,200	14,000		
		6	4.0	0.08	0.55	2,200	23,000	0.045	0.5	1,800	19,000	0.03	0.4	1,500	16,000	0.02	0.3	1,100	13,000		
		8	5.3	0.06	0.55	1,800	20,000	0.04	0.5	1,500	16,000	0.025	0.4	1,300	14,000	0.01	0.3	900	11,000		
		10	6.7	0.06	0.55	1,600	18,000	0.03	0.5	1,300	15,000	0.02	0.4	1,100	13,000	0.01	0.3	750	10,000		
		12	8.0	0.06	0.55	1,400	16,000	0.03	0.5	1,100	13,000	0.02	0.4	950	11,000	0.007	0.3	650	9,000		
		15	10.0	0.03	0.55	1,000	14,000	0.02	0.5	800	11,000	0.007	0.4	700	9,000	0.005	0.3	500	7,000		
		2	0.02	3	1.5	0.02	0.7	3,000	25,000	0.015	0.6	2,500	22,000	0.012	0.5	2,100	19,000	0.008	0.35	1,500	15,000
4	2.0			0.02	0.7	2,800	24,000	0.015	0.6	2,300	20,000	0.012	0.5	2,000	17,000	0.008	0.35	1,400	14,000		
6	3.0			0.018	0.7	2,500	22,000	0.015	0.6	2,100	18,000	0.012	0.5	1,800	15,000	0.008	0.35	1,300	12,000		
8	4.0			0.016	0.7	2,200	20,000	0.012	0.6	1,800	16,000	0.01	0.5	1,500	14,000	0.005	0.35	1,100	11,000		
10	5.0			0.015	0.7	1,900	18,000	0.012	0.6	1,500	14,000	0.008	0.5	1,300	13,000	0.005	0.35	950	10,000		
12	6.0			0.014	0.7	1,700	16,000	0.01	0.6	1,400	13,000	0.008	0.5	1,200	11,000	0.003	0.35	850	9,000		
16	8.0			0.012	0.7	1,400	14,000	0.008	0.6	1,100	11,000	0.005	0.5	950	9,500	0.002	0.35	650	7,500		
20	10.0			0.01	0.7	800	10,000	0.005	0.6	650	8,000	0.003	0.5	550	7,000	0.002	0.35	400	5,500		
0.05 0.1 0.2 0.3 0.5	3		1.5	0.13	0.7	3,000	25,000	0.06	0.6	2,500	22,000	0.05	0.5	2,100	19,000	0.03	0.35	1,500	15,000		
	4		2.0	0.13	0.7	2,800	24,000	0.06	0.6	2,300	20,000	0.05	0.5	2,000	17,000	0.03	0.35	1,400	14,000		
	6		3.0	0.12	0.7	2,500	22,000	0.06	0.6	2,100	18,000	0.05	0.5	1,800	15,000	0.03	0.35	1,300	12,000		
	8		4.0	0.11	0.7	2,200	20,000	0.05	0.6	1,800	16,000	0.04	0.5	1,500	14,000	0.02	0.35	1,100	11,000		
	10	5.0	0.1	0.7	1,900	18,000	0.05	0.6	1,500	14,000	0.03	0.5	1,300	13,000	0.015	0.35	950	10,000			
	12	6.0	0.09	0.7	1,700	16,000	0.04	0.6	1,400	13,000	0.03	0.5	1,200	11,000	0.01	0.35	850	9,000			
	16	8.0	0.07	0.7	1,400	14,000	0.03	0.6	1,100	11,000	0.02	0.5	950	9,500	0.007	0.35	650	7,500			
	20	10.0	0.05	0.7	800	10,000	0.02	0.6	650	8,000	0.01	0.5	550	7,000	0.005	0.35	400	5,500			
2.5	0.1 0.2 0.3 0.5	5	2.0	0.16	0.85	2,800	20,000	0.08	0.7	2,400	20,000	0.05	0.5	1,800	16,000	0.03	0.5	1,300	13,000		
		10	4.0	0.14	0.85	2,200	16,000	0.07	0.7	1,800	13,000	0.05	0.5	1,500	11,000	0.03	0.5	1,100	9,000		
		15	6.0	0.11	0.85	1,800	14,000	0.05	0.7	1,600	12,000	0.03	0.5	1,100	9,000	0.02	0.5	750	7,000		
		20	8.0	0.08	0.85	1,400	11,000	0.04	0.7	1,100	9,000	0.02	0.5	950	7,500	0.01	0.5	650	6,000		
		30	12.0	0.03	0.85	800	7,000	0.01	0.7	650	5,500	0.01	0.5	550	4,500	0.005	0.5	400	3,500		
		3	0.05	4	1.3	0.18	1	2,800	18,000	0.1	0.8	2,300	15,000	0.07	0.7	2,000	13,000	0.05	0.6	1,400	10,000
6	2.0			0.17	1	2,500	16,000	0.1	0.8	2,100	13,000	0.07	0.7	1,800	11,000	0.05	0.6	1,300	9,000		
8	2.7			0.16	1	2,200	14,000	0.1	0.8	1,800	11,000	0.07	0.7	1,500	9,500	0.05	0.6	1,100	7,500		
10	3.3			0.16	1	2,100	13,800	0.09	0.8	1,700	11,000	0.06	0.7	1,400	9,500	0.04	0.6	1,000	7,500		
12	4.0			0.16	1	2,000	13,500	0.08	0.8	1,600	11,000	0.06	0.7	1,400	9,500	0.04	0.6	1,000	7,500		
14	4.7			0.15	1	1,900	12,800	0.07	0.8	1,500	10,000	0.05	0.7	1,300	9,000	0.03	0.6	940	7,200		
16	5.3			0.14	1	1,800	12,000	0.07	0.8	1,500	10,000	0.05	0.7	1,300	8,500	0.03	0.6	900	7,000		
20	6.7			0.12	1	1,400	10,000	0.05	0.8	1,100	8,000	0.04	0.7	950	7,000	0.02	0.6	700	5,500		
0.1 0.2 0.3 0.5	4		1.3	0.18	1	2,800	18,000	0.1	0.8	2,300	15,000	0.07	0.7	2,000	13,000	0.05	0.6	1,400	10,000		
	6		2.0	0.17	1	2,500	16,000	0.1	0.8	2,100	13,000	0.07	0.7	1,800	11,000	0.05	0.6	1,300	9,000		
	8		2.7	0.16	1	2,200	14,000	0.1	0.8	1,800	11,000	0.07	0.7	1,500	9,500	0.05	0.6	1,100	7,500		
	10		3.3	0.16	1	2,100	13,800	0.09	0.8	1,700	11,000	0.06	0.7	1,400	9,500	0.04	0.6	1,000	7,500		
	12		4.0	0.16	1	2,000	13,500	0.08	0.8	1,600	11,000	0.06	0.7	1,400	9,500	0.04	0.6	1,000	7,500		
	14		4.7	0.15	1	1,900	12,800	0.07	0.8	1,500	10,000	0.05	0.7	1,300	9,000	0.03	0.6	940	7,200		
	16		5.3	0.14	1	1,800	12,000	0.07	0.8	1,500	10,000	0.05	0.7	1,300	8,500	0.03	0.6	900	7,000		
	20		6.7	0.12	1	1,400	10,000	0.05	0.8	1,100	8,000	0.04	0.7	950	7,000	0.02	0.6	700	5,500		
1	6	2.0	0.17	1	2,500	16,000	0.1	0.8	2,100	13,000	0.07	0.7	1,800	11,000	0.05	0.6	1,300	9,000			
	8	2.7	0.16	1	2,200	14,000	0.1	0.8	1,800	11,000	0.07	0.7	1,500	9,500	0.05	0.6	1,100	7,500			
	10	3.3	0.16	1	2,100	13,800	0.09	0.8	1,700	11,000	0.06	0.7	1,400	9,500	0.04	0.6	1,000	7,500			
	12	4.0	0.16	1	2,000	13,500	0.08	0.8	1,600	11,000	0.06	0.7	1,400	9,500	0.04	0.6	1,000	7,500			
	14	4.7	0.15	1	1,900	12,800	0.07	0.8	1,500	10,000	0.05	0.7	1,300	9,000	0.03	0.6	940	7,200			
16	5.3	0.14	1	1,800	12,000	0.07	0.8	1,500	10,000	0.05	0.7	1,300	8,500	0.03	0.6	900	7,000				

Recommended Milling Conditions (Inch)

Recommended Milling Conditions (Inch)

Work Material				Prehardened Steels HPM・NAK (～42HRC)					Hardened Steels HPM38・STAVAX・SKD61 (～55HRC)					Hardened Steels SKD11・PD613 (～62HRC)					High Speed Steels SKH (～65HRC)						
Dia.	Corner Radius	Under Neck Length	L/D	Depth of Cut		Feed per tooth	Feed	Spindle Speed	Depth of Cut		Feed per tooth	Feed	Spindle Speed	Depth of Cut		Feed per tooth	Feed	Spindle Speed	Depth of Cut		Feed per tooth	Feed	Spindle Speed		
				ap Inch	ae Inch	IPT fz	IPM	RPM	ap Inch	ae Inch	IPT fz	IPM	RPM	ap Inch	ae Inch	IPT fz	IPM	RPM	ap Inch	ae Inch	IPT fz	IPM	RPM		
0.1	0.01	0.3	3.0	.00016	.00118	.00006	9.45	40,000	.00012	.00079	.00005	7.87	40,000	.00008	.00039	.00004	6.30	40,000	.00008	.00039	.00003	4.72	40,000		
		0.5	5.0	.00012	.00118	.00004	7.09	40,000	.00008	.00079	.00004	5.91	40,000	.00004	.00039	.00003	4.72	40,000	.00004	.00039	.00002	3.54	40,000		
0.15	0.01	0.3	2.0	.00016	.00157	.00009	14.17	40,000	.00012	.00118	.00007	11.81	40,000	.00008	.00059	.00006	9.45	40,000	.00008	.00039	.00004	7.09	40,000		
		0.5	3.3	.00016	.00157	.00006	9.45	40,000	.00012	.00118	.00005	7.87	40,000	.00008	.00059	.00004	6.30	40,000	.00008	.00039	.00003	4.72	40,000		
		0.75	5.0	.00012	.00157	.00004	7.09	40,000	.00008	.00118	.00004	5.91	40,000	.00004	.00059	.00003	4.72	40,000	.00004	.00039	.00002	3.54	40,000		
		1	6.7	.00012	.00157	.00002	3.94	40,000	.00008	.00118	.00002	3.15	40,000	.00004	.00059	.00002	2.56	40,000	.00004	.00039	.00001	1.97	40,000		
	0.02	0.3	2.0	.00016	.00157	.00009	14.17	40,000	.00012	.00118	.00007	11.81	40,000	.00008	.00059	.00006	9.45	40,000	.00008	.00039	.00004	7.09	40,000		
		0.5	3.3	.00016	.00157	.00006	9.45	40,000	.00012	.00118	.00005	7.87	40,000	.00008	.00059	.00004	6.30	40,000	.00008	.00039	.00003	4.72	40,000		
		0.75	5.0	.00012	.00157	.00004	7.09	40,000	.00008	.00118	.00004	5.91	40,000	.00004	.00059	.00003	4.72	40,000	.00004	.00039	.00002	3.54	40,000		
		1	6.7	.00012	.00157	.00002	3.94	40,000	.00008	.00118	.00002	3.15	40,000	.00004	.00059	.00002	2.56	40,000	.00004	.00039	.00001	1.97	40,000		
		0.2	0.02	0.3	1.5	.00020	.00197	.00018	22.05	30,000	.00012	.00157	.00016	18.90	30,000	.00012	.00079	.00012	14.96	30,000	.00012	.00039	.00009	11.02	30,000
				0.5	2.5	.00020	.00197	.00016	18.90	30,000	.00012	.00157	.00013	15.75	30,000	.00012	.00079	.00011	12.60	30,000	.00012	.00039	.00008	9.45	30,000
1	5.0			.00020	.00197	.00012	14.17	30,000	.00012	.00157	.00010	11.81	30,000	.00008	.00079	.00008	9.45	30,000	.00008	.00039	.00005	6.30	30,000		
1.5	7.5			.00016	.00197	.00008	9.45	30,000	.00008	.00157	.00007	7.87	30,000	.00008	.00079	.00005	6.30	30,000	.00004	.00039	.00004	4.72	30,000		
0.05	2		10.0	.00012	.00197	.00005	5.51	30,000	.00008	.00157	.00003	3.94	30,000	.00004	.00079	.00003	3.15	30,000	.00004	.00039	.00002	2.36	30,000		
	0.3		1.5	.00039	.00197	.00018	22.05	30,000	.00012	.00157	.00016	18.90	30,000	.00012	.00079	.00012	14.96	30,000	.00012	.00039	.00009	11.02	30,000		
	0.5		2.5	.00039	.00197	.00016	18.90	30,000	.00012	.00157	.00013	15.75	30,000	.00012	.00079	.00011	12.60	30,000	.00012	.00039	.00008	9.45	30,000		
	1		5.0	.00028	.00197	.00012	14.17	30,000	.00012	.00157	.00010	11.81	30,000	.00012	.00079	.00008	9.45	30,000	.00012	.00039	.00005	6.30	30,000		
	1.5		7.5	.00020	.00197	.00008	9.45	30,000	.00008	.00157	.00007	7.87	30,000	.00008	.00079	.00005	6.30	30,000	.00008	.00039	.00004	4.72	30,000		
	2		10.0	.00012	.00197	.00005	5.51	30,000	.00008	.00157	.00003	3.94	30,000	.00008	.00079	.00003	3.15	30,000	.00008	.00039	.00002	2.36	30,000		
0.3	0.02	0.5	1.7	.00059	.00394	.00026	31.50	30,000	.00012	.00315	.00022	26.77	30,000	.00012	.00157	.00018	22.05	30,000	.00012	.00118	.00015	17.72	30,000		
		1	3.3	.00059	.00394	.00023	27.56	30,000	.00012	.00315	.00020	23.62	30,000	.00012	.00157	.00016	19.69	30,000	.00012	.00118	.00013	15.75	30,000		
		1.5	5.0	.00039	.00394	.00016	18.90	30,000	.00012	.00315	.00013	15.75	30,000	.00012	.00157	.00011	12.60	30,000	.00012	.00118	.00008	9.45	30,000		
		2	6.7	.00028	.00394	.00012	14.17	30,000	.00012	.00315	.00010	11.81	30,000	.00012	.00157	.00008	9.45	30,000	.00012	.00118	.00008	7.87	25,000		
		2.5	8.3	.00020	.00394	.00010	11.81	30,000	.00008	.00315	.00008	7.87	25,000	.00008	.00157	.00006	6.30	25,000	.00008	.00118	.00006	4.72	20,000		
	0.05	3	10.0	.00016	.00394	.00005	5.51	30,000	.00008	.00315	.00004	3.94	25,000	.00008	.00157	.00003	3.15	25,000	.00008	.00118	.00003	2.36	20,000		
		0.5	1.7	.00079	.00394	.00026	31.50	30,000	.00012	.00315	.00022	26.77	30,000	.00012	.00157	.00018	22.05	30,000	.00012	.00118	.00015	17.72	30,000		
		1	3.3	.00079	.00394	.00023	27.56	30,000	.00012	.00315	.00020	23.62	30,000	.00012	.00157	.00016	19.69	30,000	.00012	.00118	.00013	15.75	30,000		
		1.5	5.0	.00059	.00394	.00016	18.90	30,000	.00012	.00315	.00013	15.75	30,000	.00012	.00157	.00011	12.60	30,000	.00012	.00118	.00008	9.45	30,000		
		2	6.7	.00039	.00394	.00012	14.17	30,000	.00012	.00315	.00010	11.81	30,000	.00012	.00157	.00008	9.45	30,000	.00012	.00118	.00008	7.87	25,000		
0.4	0.02	2.5	8.3	.00028	.00394	.00010	11.81	30,000	.00008	.00315	.00008	7.87	25,000	.00008	.00157	.00006	6.30	25,000	.00008	.00118	.00006	4.72	20,000		
		3	10.0	.00020	.00394	.00005	5.51	30,000	.00008	.00315	.00004	3.94	25,000	.00008	.00157	.00003	3.15	25,000	.00008	.00118	.00003	2.36	20,000		
		0.5	1.3	.00059	.00472	.00033	39.37	30,000	.00020	.00394	.00030	35.43	30,000	.00020	.00197	.00027	30.71	28,000	.00016	.00157	.00026	25.98	25,000		
		1	2.5	.00059	.00472	.00030	35.43	30,000	.00020	.00394	.00026	31.50	30,000	.00020	.00197	.00025	27.56	28,000	.00016	.00157	.00024	23.62	25,000		
		1.5	3.8	.00047	.00472	.00026	31.50	30,000	.00020	.00394	.00023	27.56	30,000	.00020	.00197	.00021	23.62	28,000	.00016	.00157	.00020	20.47	25,000		
		2	5.0	.00039	.00472	.00024	28.35	30,000	.00020	.00394	.00020	23.62	30,000	.00020	.00197	.00020	19.69	25,000	.00012	.00157	.00017	17.32	25,000		
	0.05	2.5	6.3	.00031	.00472	.00022	26.77	30,000	.00016	.00394	.00020	22.05	28,000	.00016	.00197	.00019	18.90	25,000	.00012	.00157	.00018	14.17	20,000		
		3	7.5	.00031	.00472	.00021	25.20	30,000	.00016	.00394	.00020	19.69	25,000	.00012	.00197	.00019	17.32	23,000	.00008	.00157	.00018	12.60	18,000		
		0.1	4	10.0	.00024	.00472	.00016	19.69	30,000	.00012	.00394	.00016	15.75	25,000	.00008	.00197	.00016	12.60	20,000	.00008	.00157	.00013	9.45	18,000	
			0.5	1.3	.00098	.00472	.00033	39.37	30,000	.00020	.00394	.00030	35.43	30,000	.00020	.00197	.00027	30.71	28,000	.00020	.00157	.00026	25.98	25,000	
0.5	0.02		1	2.5	.00098	.00472	.00030	35.43	30,000	.00020	.00394	.00026	31.50	30,000	.00020	.00197	.00025	27.56	28,000	.00020	.00157	.00024	23.62	25,000	
			1.5	3.8	.00087	.00472	.00026	31.50	30,000	.00020	.00394	.00023	27.56	30,000	.00020	.00197	.00021	23.62	28,000	.00020	.00157	.00020	20.47	25,000	
		2	5.0	.00079	.00472	.00024	28.35	30,000	.00020	.00394	.00020	23.62	30,000	.00020	.00197	.00020	19.69	25,000	.00020	.00157	.00017	17.32	25,000		
		2.5	6.3	.00059	.00472	.00022	26.77	30,000	.00016	.00394	.00020	22.05	28,000	.00016	.00197	.00019	18.90	25,000	.00016	.00157	.00018	14.17	20,000		
		3	7.5	.00059	.00472	.00021	25.20	30,000	.00016	.00394	.00020	19.69	25,000	.00012	.00197	.00019	17.32	23,000	.00012	.00157	.00018	12.60	18,000		
		4	10.0	.00039	.00472	.00016	19.69	30,000	.00012	.00394	.00016	15.75	25,000	.00008	.00197	.00016	12.60	20,000	.00008	.00157	.00013	9.45	18,000		
0.5	0.02	1	2.5	.00098	.00472	.00030	35.43	30,000	.00020	.00394	.00026	31.50</													

Recommended Milling Conditions (Inch)

Recommended Milling Conditions (Inch)

Work Material				Prehardened Steels HPM·NAK (～42HRC)					Hardened Steels HPM38·STAVAX·SKD61 (～55HRC)					Hardened Steels SKD11·PD613 (～62HRC)					High Speed Steels SKH (～65HRC)				
Dia.	Corner Radius	Under Neck Length	L/D	Depth of Cut		Feed per tooth	Feed	Spindle Speed	Depth of Cut		Feed per tooth	Feed	Spindle Speed	Depth of Cut		Feed per tooth	Feed	Spindle Speed	Depth of Cut		Feed per tooth	Feed	Spindle Speed
				ap Inch	ae Inch	IPT fz	IPM	RPM	ap Inch	ae Inch	IPT fz	IPM	RPM	ap Inch	ae Inch	IPT fz	IPM	RPM	ap Inch	ae Inch	IPT fz	IPM	RPM
1.5	0.02	8	5.3	.00055	.02165	.00089	70.87	20,000	.00039	.01969	.00092	59.06	16,000	.00031	.01575	.00091	51.18	14,000	.00012	.01181	.00081	35.43	11,000
		10	6.7	.00051	.02165	.00087	62.99	18,000	.00031	.01969	.00085	51.18	15,000	.00024	.01575	.00083	43.31	13,000	.00012	.01181	.00074	29.53	10,000
		12	8.0	.00047	.02165	.00086	55.12	16,000	.00031	.01969	.00083	43.31	13,000	.00020	.01575	.00085	37.40	11,000	.00008	.01181	.00071	25.59	9,000
		15	10.0	.00031	.02165	.00070	39.37	14,000	.00020	.01969	.00072	31.50	11,000	.00012	.01575	.00077	27.56	9,000	.00008	.01181	.00070	19.69	7,000
	0.05 0.1 0.2 0.3 0.5	3	2.0	.00394	.02165	.00098	110.24	28,000	.00197	.01969	.00098	90.55	23,000	.00157	.01575	.00098	78.74	20,000	.00118	.01181	.00086	55.12	16,000
		4	2.7	.00315	.02165	.00094	94.49	25,000	.00197	.01969	.00094	78.74	21,000	.00157	.01575	.00093	66.93	18,000	.00118	.01181	.00084	47.24	14,000
		6	4.0	.00315	.02165	.00094	86.61	23,000	.00177	.01969	.00093	70.87	19,000	.00118	.01575	.00092	59.06	16,000	.00079	.01181	.00083	43.31	13,000
		8	5.3	.00236	.02165	.00089	70.87	20,000	.00157	.01969	.00092	59.06	16,000	.00098	.01575	.00091	51.18	14,000	.00039	.01181	.00081	35.43	11,000
		10	6.7	.00236	.02165	.00087	62.99	18,000	.00118	.01969	.00085	51.18	15,000	.00079	.01575	.00083	43.31	13,000	.00039	.01181	.00074	29.53	10,000
		12	8.0	.00236	.02165	.00086	55.12	16,000	.00118	.01969	.00083	43.31	13,000	.00079	.01575	.00085	37.40	11,000	.00028	.01181	.00071	25.59	9,000
15	10.0	.00118	.02165	.00070	39.37	14,000	.00079	.01969	.00072	31.50	11,000	.00028	.01575	.00077	27.56	9,000	.00020	.01181	.00070	19.69	7,000		
2	0.02	3	1.5	.00079	.02756	.00118	118.11	25,000	.00059	.02362	.00112	98.43	22,000	.00047	.01969	.00109	82.68	19,000	.00031	.01378	.00098	59.06	15,000
		4	2.0	.00079	.02756	.00115	110.24	24,000	.00059	.02362	.00113	90.55	20,000	.00047	.01969	.00116	78.74	17,000	.00031	.01378	.00098	55.12	14,000
		6	3.0	.00071	.02756	.00112	98.43	22,000	.00059	.02362	.00115	82.68	18,000	.00047	.01969	.00118	70.87	15,000	.00031	.01378	.00107	51.18	12,000
		8	4.0	.00063	.02756	.00108	86.61	20,000	.00047	.02362	.00111	70.87	16,000	.00039	.01969	.00105	59.06	14,000	.00020	.01378	.00098	43.31	11,000
		10	5.0	.00059	.02756	.00104	74.80	18,000	.00047	.02362	.00105	59.06	14,000	.00031	.01969	.00098	51.18	13,000	.00020	.01378	.00094	37.40	10,000
		12	6.0	.00055	.02756	.00105	66.93	16,000	.00039	.02362	.00106	55.12	13,000	.00031	.01969	.00107	47.24	11,000	.00012	.01378	.00093	33.46	9,000
		16	8.0	.00047	.02756	.00098	55.12	14,000	.00031	.02362	.00098	43.31	11,000	.00020	.01969	.00098	37.40	9,500	.00008	.01378	.00085	25.59	7,500
		20	10.0	.00039	.02756	.00079	31.50	10,000	.00020	.02362	.00080	25.59	8,000	.00012	.01969	.00077	21.65	7,000	.00008	.01378	.00072	15.75	5,500
	0.05 0.1 0.2 0.3 0.5	3	1.5	.00512	.02756	.00118	118.11	25,000	.00236	.02362	.00112	98.43	22,000	.00197	.01969	.00109	82.68	19,000	.00118	.01378	.00098	59.06	15,000
		4	2.0	.00512	.02756	.00115	110.24	24,000	.00236	.02362	.00113	90.55	20,000	.00197	.01969	.00116	78.74	17,000	.00118	.01378	.00098	55.12	14,000
6		3.0	.00472	.02756	.00112	98.43	22,000	.00236	.02362	.00115	82.68	18,000	.00197	.01969	.00118	70.87	15,000	.00118	.01378	.00107	51.18	12,000	
8		4.0	.00433	.02756	.00108	86.61	20,000	.00197	.02362	.00111	70.87	16,000	.00157	.01969	.00105	59.06	14,000	.00079	.01378	.00098	43.31	11,000	
2.5	0.1 0.2 0.3 0.5	5	2.0	.00630	.03346	.00138	110.24	20,000	.00315	.02756	.00118	94.49	20,000	.00197	.01969	.00111	70.87	16,000	.00118	.01969	.00098	51.18	13,000
		10	4.0	.00551	.03346	.00135	86.61	16,000	.00276	.02756	.00136	70.87	13,000	.00197	.01969	.00134	59.06	11,000	.00118	.01969	.00120	43.31	9,000
		15	6.0	.00433	.03346	.00127	70.87	14,000	.00197	.02756	.00131	62.99	12,000	.00118	.01969	.00120	43.31	9,000	.00079	.01969	.00105	29.53	7,000
		20	8.0	.00315	.03346	.00125	55.12	11,000	.00157	.02756	.00120	43.31	9,000	.00079	.01969	.00125	37.40	7,500	.00039	.01969	.00107	25.59	6,000
		30	12.0	.00118	.03346	.00113	31.50	7,000	.00039	.02756	.00116	25.59	5,500	.00039	.01969	.00120	21.65	4,500	.00020	.01969	.00113	15.75	3,500
	0.05	4	1.3	.00709	.03937	.00153	110.24	18,000	.00394	.03150	.00151	90.55	15,000	.00276	.02756	.00151	78.74	13,000	.00197	.02362	.00138	55.12	10,000
		6	2.0	.00669	.03937	.00154	98.43	16,000	.00394	.03150	.00159	82.68	13,000	.00276	.02756	.00161	70.87	11,000	.00197	.02362	.00142	51.18	9,000
		8	2.7	.00630	.03937	.00155	86.61	14,000	.00394	.03150	.00161	70.87	11,000	.00276	.02756	.00155	59.06	9,500	.00197	.02362	.00144	43.31	7,500
		10	3.3	.00630	.03937	.00150	82.68	13,800	.00354	.03150	.00152	66.93	11,000	.00236	.02756	.00145	55.12	9,500	.00157	.02362	.00131	39.37	7,500
		12	4.0	.00630	.03937	.00146	78.74	13,500	.00315	.03150	.00143	62.99	11,000	.00236	.02756	.00145	55.12	9,500	.00157	.02362	.00131	39.37	7,500
3	0.1 0.2 0.3 0.5	14	4.7	.00591	.03937	.00146	74.80	12,800	.00276	.03150	.00148	59.06	10,000	.00197	.02756	.00142	51.18	9,000	.00118	.02362	.00129	37.01	7,200
		16	5.3	.00551	.03937	.00148	70.87	12,000	.00276	.03150	.00148	59.06	10,000	.00197	.02756	.00151	51.18	8,500	.00118	.02362	.00127	35.43	7,000
		20	6.7	.00472	.03937	.00138	55.12	10,000	.00197	.03150	.00135	43.31	8,000	.00157	.02756	.00134	37.40	7,000	.00079	.02362	.00125	27.56	5,500
		4	1.3	.00709	.03937	.00153	110.24	18,000	.00394	.03150	.00151	90.55	15,000	.00276	.02756	.00151	78.74	13,000	.00197	.02362	.00138	55.12	10,000
		6	2.0	.00669	.03937	.00154	98.43	16,000	.00394	.03150	.00159	82.68	13,000	.00276	.02756	.00161	70.87	11,000	.00197	.02362	.00142	51.18	9,000
		8	2.7	.00630	.03937	.00155	86.61	14,000	.00394	.03150	.00161	70.87	11,000	.00276	.02756	.00155	59.06	9,500	.00197	.02362	.00144	43.31	7,500
		10	3.3	.00630	.03937	.00150	82.68	13,800	.00354	.03150	.00152	66.93	11,000	.00236	.02756	.00145	55.12	9,500	.00157	.02362	.00131	39.37	7,500
		12	4.0	.00630	.03937	.00146	78.74	13,500	.00315	.03150	.00143	62.99	11,000	.00236	.02756	.00145	55.12	9,500	.00157	.02362	.00131	39.37	7,500
	0.1 0.2 0.3 0.5	14	4.7	.00591	.03937	.00146	74.80	12,800	.00276	.03150	.00148	59.06	10,000	.00197	.02756	.00142	51.18	9,000	.00118	.02362	.00129	37.01	7,200
		16	5.3	.00551	.03937	.00148	70.87	12,000	.00276	.03150	.00148	59.06	10,000	.00197	.02756	.00151	51.18	8,500	.00118	.02362	.00127	35.43	7,000
		20	6.7	.00472	.03937	.00138	55.12	10,000	.00197	.03150	.00135	43.31	8,000	.00157	.02756	.00134	37.40	7,000	.00079	.02362	.00125	27.56	5,500
		25	8.3	.00315	.03937	.00131	47.24	9,000	.00157	.03150	.00131	39.37	7,500	.00079	.02756	.00129	33.46	6,500	.00039	.02362	.00118	23.62	5,000
		30	10.0	.00236	.03937	.00098	31.50	8,000	.00118	.03150	.00098	25.59	6,500	.00079	.02756	.00098	21.65	5,500	.00028	.02362	.00088	15.75	4,500
		6	2.0	.00669	.03937	.00154	98.43	16,000	.00394	.03150	.00159	82.68	13,000	.00276	.02756	.00161	70.87	11,000	.00197	.02362	.00142	51.18	9,00

Exclusive long-term partner for USA and Canada

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CAUTION

Attention on Safety

- 1) When removing tools from cases, be careful of getting-out of tools and don't touch directly the cutting edges.
- 2) Never touch the cutting edges directly with bare hand.
- 3) Use safety covers and eye protection, as tools may be broken.
- 4) Use holders, etc. that match the tools and nature of the processing operations. The tool should be firmly attached to the holder to prevent shaking.
- 5) The work materials clamp firmly.
- 6) Make sure of dimensions of tools and work pieces before starting operation.
- 7) It is necessary to adjust conditions according to the dimensions of work materials and the machine.
- 8) Select a cutting fluid appropriate to the particular usage. Using a non-water cutting fluid could lead to fires due to sparks generated during processing or heat caused by breakage. Ensure that you take proper fire-prevention measures.
- 9) If abnormal sound, etc. occurs during processing, stop the machine immediately.
- 10) Don't modify tools.



2.MKTG.00753

Specifications may change without notice for improvement.



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