NS TOOL

For Crafting Tomorrow

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

MHRH430R

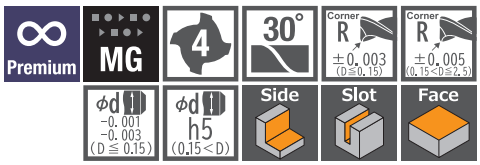
Premium

NS TOOL USA, INC.

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

MUGEN COATING PREMIUM
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

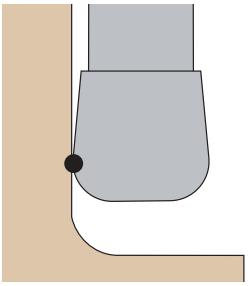
MUGEN COATING PREMIUM is a further improvement of the conventional MUGEN COATING that dramatically extends tool life during direct milling on hardened steels
It is effective in machining work materials with hardness from 40 to 65 HRC

Feature 2 Cutting edge shape

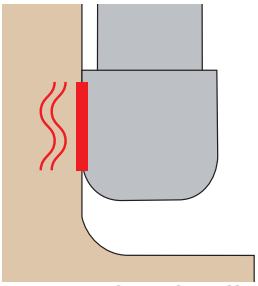
Peripheral edge with back taper shape・4-Flute type from ϕ0.1

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



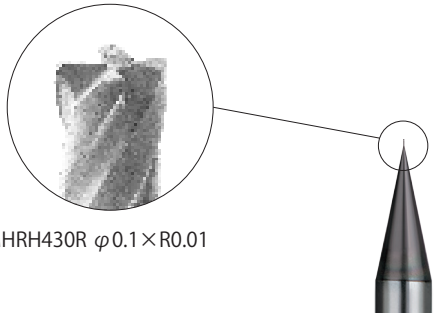
No chattering



General End Mill

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



MHRH430R φ0.1×R0.01

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	

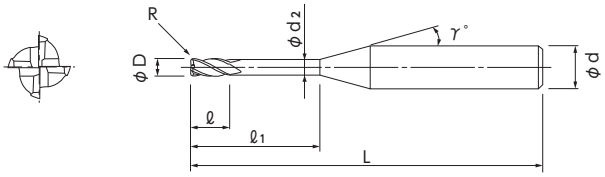
MHRH430R

Size ϕ 0.1 × R0.01 ~ ϕ 6 × R1

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

Total 450 sizes

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



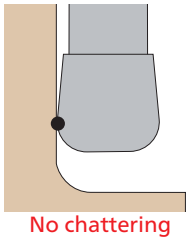
Please be aware of stock since there is no cutting edge from the center to the bottom.

- 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 ϕ 0.1 to ϕ 6.

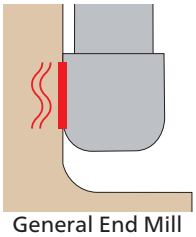
Size	Diameter Tolerance	Corner R Tolerance	Shank Dia. Tolerance
D ≦ 0.15	0 -0.007	± 0.003	-0.001 -0.003
0.15 < D < 0.5	0 -0.01	± 0.005	h5
0.5 ≦ D ≦ 2.5	0 -0.02		
D > 2.5		± 0.01	

Work Material

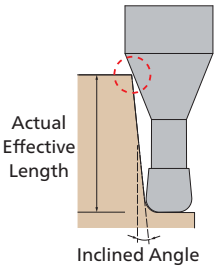
Prehardened Steel P	Hardened Steel H	
	40~60HRC	~65HRC
◎	◎	○



No chattering



General End Mill



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°
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
08-00237-01015			0.5					45	0.55	0.58	0.60	0.63	0.70
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
08-00237-01513			0.5					45	0.55	0.58	0.60	0.63	0.70
08-00237-01515			0.75					45	0.81	0.85	0.89	0.93	1.03
08-00237-01517			1					45	1.07	1.12	1.17	1.23	1.37
08-00237-01522		R0.02	0.3					45	0.34	0.36	0.37	0.39	0.43
08-00237-01523			0.5					45	0.55	0.58	0.60	0.63	0.70
08-00237-01525			0.75					45	0.81	0.85	0.89	0.93	1.03
08-00237-01527			1					45	1.07	1.12	1.17	1.23	1.36
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
08-00237-02021			0.5					45	0.56	0.59	0.62	0.65	0.71
08-00237-02023			1					45	1.09	1.13	1.19	1.24	1.38
08-00237-02025			1.5					45	1.61	1.68	1.76	1.84	2.04
08-00237-02027			2					45	2.13	2.22	2.33	2.44	2.71
08-00237-02050		R0.05	0.3					45	0.35	0.37	0.38	0.40	0.44
08-00237-02051			0.5					45	0.56	0.59	0.61	0.64	0.71
08-00237-02053			1					45	1.08	1.13	1.18	1.24	1.37
08-00237-02055			1.5					45	1.61	1.68	1.75	1.84	2.03
08-00237-02057			2					45	2.13	2.22	2.32	2.43	2.70
08-00237-03020	0.3	R0.02	0.5	0.25	0.28	12°	4	45	0.56	0.59	0.62	0.65	0.71
08-00237-03021			1					45	1.09	1.13	1.19	1.24	1.38
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 (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°
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
08-00237-03024			2.5					45	2.65	2.77	2.90	3.04	3.37
08-00237-03025			3					45	3.17	3.31	3.47	3.64	4.03
08-00237-03050		R0.05	0.5					45	0.56	0.59	0.61	0.64	0.71
08-00237-03051			1					45	1.08	1.13	1.18	1.24	1.37
08-00237-03052			1.5					45	1.61	1.68	1.75	1.84	2.03
08-00237-03053			2					45	2.13	2.22	2.32	2.43	2.70
08-00237-03054			2.5					45	2.65	2.77	2.89	3.03	3.36
08-00237-03055			3					45	3.17	3.31	3.46	3.63	4.02
08-00237-04020	0.4	R0.02	0.5	0.3	0.37	12°	4	45	0.59	0.61	0.64	0.67	0.75
08-00237-04021			1					45	1.11	1.16	1.21	1.27	1.41
08-00237-04022			1.5					45	1.63	1.70	1.78	1.87	2.07
08-00237-04023			2					45	2.15	2.25	2.35	2.47	2.74
08-00237-04024			2.5					45	2.67	2.79	2.92	3.07	3.40
08-00237-04025			3					45	3.20	3.34	3.49	3.67	4.06
08-00237-04027			4					45	4.24	4.43	4.63	4.86	5.39
08-00237-04050		R0.05	0.5					45	0.59	0.61	0.64	0.67	0.74
08-00237-04051			1					45	1.11	1.16	1.21	1.27	1.40
08-00237-04052			1.5					45	1.63	1.70	1.78	1.86	2.06
08-00237-04053			2					45	2.15	2.25	2.35	2.46	2.73
08-00237-04054			2.5					45	2.67	2.79	2.92	3.06	3.39
08-00237-04055			3					45	3.19	3.34	3.49	3.66	4.05
08-00237-04057			4					45	4.24	4.43	4.63	4.86	5.38
08-00237-04101		R0.1	1					45	1.11	1.15	1.20	1.26	1.38
08-00237-04103			2					45	2.15	2.24	2.34	2.45	2.71
08-00237-04105			3					45	3.19	3.33	3.48	3.65	4.04
08-00237-04107			4					45	4.24	4.42	4.62	4.85	5.37
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
08-00237-05022			2					45	2.18	2.27	2.38	2.50	2.77
08-00237-05023			3					45	3.22	3.36	3.52	3.69	4.10
08-00237-05024			4					45	4.26	4.45	4.66	4.89	5.42
08-00237-05025			5					45	5.31	5.54	5.80	6.09	6.75
08-00237-05026			6					45	6.35	6.63	6.94	7.28	8.08
08-00237-05051		R0.05	1					45	1.13	1.18	1.24	1.29	1.43
08-00237-05052			2					45	2.18	2.27	2.38	2.49	2.76
08-00237-05053			3					45	3.22	3.36	3.52	3.69	4.09
08-00237-05054			4					45	4.26	4.45	4.66	4.88	5.41
08-00237-05055			5					45	5.31	5.54	5.80	6.08	6.74
08-00237-05056			6					45	6.35	6.63	6.94	7.28	8.07
08-00237-05101		R0.1	1					45	1.13	1.18	1.23	1.28	1.42
08-00237-05102			2					45	2.17	2.27	2.37	2.48	2.74
08-00237-05103			3					45	3.22	3.36	3.51	3.68	4.07
08-00237-05104			4					45	4.26	4.45	4.65	4.87	5.40
08-00237-05105			5					45	5.30	5.54	5.79	6.07	6.72
08-00237-05106			6					45	6.35	6.63	6.93	7.27	8.05
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
08-00237-06023			4					45	4.26	4.45	4.66	4.89	5.42
08-00237-06025			6					45	6.35	6.63	6.94	7.28	8.08
08-00237-06027			8					50	8.43	8.81	9.22	9.68	10.73
08-00237-06029			10					50	10.52	10.99	11.50	12.07	13.39
08-00237-06051		R0.05	2					45	2.18	2.27	2.38	2.49	2.76
08-00237-06053			4					45	4.26	4.45	4.66	4.88	5.41
08-00237-06055			6					45	6.35	6.63	6.94	7.28	8.07
08-00237-06057			8					50	8.43	8.81	9.22	9.67	10.72
08-00237-06059			10					50	10.52	10.99	11.50	12.06	13.38
08-00237-06101		R0.1	2					45	2.17	2.27	2.37	2.48	2.74
08-00237-06103			4					45	4.26	4.45	4.65	4.87	5.40
08-00237-06105			6					45	6.35	6.63	6.93	7.27	8.05
08-00237-06107			8					50	8.43	8.80	9.21	9.66	10.71
08-00237-06109			10					50	10.52	10.98	11.49	12.05	13.36

MHRH430R

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

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°
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
08-00237-07021			4					45	4.26	4.45	4.66	4.89	5.42
08-00237-07023			6					45	6.35	6.63	6.94	7.28	8.08
08-00237-07050		R0.05	2					45	2.18	2.27	2.38	2.49	2.76
08-00237-07051			4					45	4.26	4.45	4.66	4.88	5.41
08-00237-07053			6					45	6.35	6.63	6.94	7.28	8.07
08-00237-07100		R0.1	2					45	2.17	2.27	2.37	2.48	2.74
08-00237-07101			4					45	4.26	4.45	4.65	4.87	5.40
08-00237-07103			6					45	6.35	6.63	6.93	7.27	8.05
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
08-00237-08021			4					45	4.26	4.45	4.66	4.89	5.42
08-00237-08023			6					45	6.35	6.63	6.94	7.28	8.08
08-00237-08025			8					50	8.43	8.81	9.22	9.68	10.73
08-00237-08050		R0.05	2					45	2.18	2.27	2.38	2.49	2.76
08-00237-08051			4					45	4.26	4.45	4.66	4.88	5.41
08-00237-08053			6					45	6.35	6.63	6.94	7.28	8.07
08-00237-08055			8					50	8.43	8.81	9.22	9.67	10.72
08-00237-08059			12					50	12.60	13.17	13.78	14.46	16.03
08-00237-08100		R0.1	2					45	2.17	2.27	2.37	2.48	2.74
08-00237-08101			4					45	4.26	4.45	4.65	4.87	5.40
08-00237-08103			6					45	6.35	6.63	6.93	7.27	8.05
08-00237-08105			8					50	8.43	8.80	9.21	9.66	10.71
08-00237-08109			12					50	12.60	13.16	13.77	14.45	16.01
08-00237-08200		R0.2	2					45	2.17	2.26	2.36	2.46	2.71
08-00237-08201			4					45	4.26	4.44	4.64	4.86	5.37
08-00237-08203			6					45	6.34	6.62	6.92	7.25	8.02
08-00237-08205			8					50	8.43	8.80	9.20	9.64	10.67
08-00237-08209			12					50	12.60	13.15	13.76	14.43	15.98
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
08-00237-09105			8					50	8.46	8.83	9.24	9.69	10.74
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
08-00237-10028			2					50	2.20	2.30	2.41	2.53	2.80
08-00237-10026			2.5					50	2.72	2.85	2.98	3.12	3.46
08-00237-10020			3					50	3.25	3.39	3.55	3.72	4.13
08-00237-10021			4					50	4.29	4.48	4.69	4.92	5.45
08-00237-10022			5					50	5.33	5.57	5.83	6.11	6.78
08-00237-10023			6					50	6.37	6.66	6.97	7.31	8.11
08-00237-10025			8					50	8.46	8.84	9.25	9.70	10.76
08-00237-10027			10					50	10.54	11.02	11.53	12.10	13.42
08-00237-10054		R0.05	1.5					50	1.68	1.75	1.83	1.92	2.13
08-00237-10058			2					50	2.20	2.30	2.40	2.52	2.79
08-00237-10056			2.5					50	2.72	2.84	2.97	3.12	3.45
08-00237-10050			3					50	3.24	3.39	3.54	3.72	4.12
08-00237-10051			4					50	4.29	4.48	4.68	4.91	5.44
08-00237-10052			5					50	5.33	5.57	5.82	6.11	6.77
08-00237-10053			6					50	6.37	6.66	6.97	7.31	8.10
08-00237-10055			8					50	8.46	8.83	9.25	9.70	10.75
08-00237-10057			10					50	10.54	11.01	11.53	12.09	13.41
08-00237-10104		R0.1	1.5					50	1.68	1.75	1.83	1.91	2.11
08-00237-10108			2					50	2.20	2.29	2.40	2.51	2.77
08-00237-10106			2.5					50	2.72	2.84	2.97	3.11	3.44
08-00237-10100			3					50	3.24	3.38	3.54	3.71	4.10
08-00237-10101			4					50	4.28	4.47	4.68	4.90	5.43
08-00237-10102			5					50	5.33	5.56	5.82	6.10	6.76
08-00237-10103			6					50	6.37	6.65	6.96	7.30	8.08
08-00237-10105			8					50	8.46	8.83	9.24	9.69	10.74
08-00237-10107			10					50	10.54	11.01	11.52	12.08	13.39
08-00237-10204		R0.2	1.5					50	1.67	1.74	1.81	1.89	2.08
08-00237-10208			2					50	2.19	2.28	2.38	2.49	2.74
08-00237-10206			2.5					50	2.72	2.83	2.95	3.09	3.41
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.

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

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°
08-00237-10201	1	R0.2	4	0.8	0.95	12°	4	50	4.28	4.46	4.66	4.88	5.40
08-00237-10202			5					50	5.32	5.55	5.80	6.08	6.72
08-00237-10203			6					50	6.37	6.64	6.94	7.28	8.05
08-00237-10205			8					50	8.45	8.82	9.23	9.67	10.71
08-00237-10207			10					50	10.54	11.00	11.51	12.06	13.36
08-00237-10304		R0.3	1.5					50	1.67	1.73	1.80	1.87	2.05
08-00237-10308			2					50	2.19	2.28	2.37	2.47	2.71
08-00237-10306			2.5					50	2.71	2.82	2.94	3.07	3.37
08-00237-10300			3					50	3.23	3.36	3.51	3.67	4.04
08-00237-10301			4					50	4.28	4.45	4.65	4.86	5.36
08-00237-10302			5					50	5.32	5.54	5.79	6.06	6.69
08-00237-10303			6					50	6.36	6.63	6.93	7.26	8.02
08-00237-10305			8					50	8.45	8.81	9.21	9.65	10.67
08-00237-10307			10					50	10.53	10.99	11.49	12.04	13.33
08-00237-12101	1.2	R0.1	5	1	1.14	12°	4	50	5.35	5.59	5.84	6.13	6.79
08-00237-12103			10					50	10.57	11.03	11.55	12.11	13.42
08-00237-12201		R0.2	5					50	5.35	5.58	5.83	6.11	6.75
08-00237-12203			10					50	10.56	11.03	11.53	12.09	13.39
08-00237-12301		R0.3	5					50	5.34	5.57	5.82	6.09	6.72
08-00237-12303			10					50	10.56	11.02	11.52	12.07	13.36
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
08-00237-15021			4					50	4.34	4.53	4.74	4.97	5.52
08-00237-15023			6					50	6.42	6.71	7.02	7.37	8.17
08-00237-15025			8					50	8.51	8.89	9.30	9.76	10.83
08-00237-15026			10					50	10.59	11.07	11.59	12.15	13.48
08-00237-15027			12					50	12.68	13.25	13.87	14.55	16.13
08-00237-15029			15					50	15.81	16.51	17.29	18.14	20.12
08-00237-15050		R0.05	3					50	3.29	3.44	3.60	3.77	4.18
08-00237-15051			4					50	4.34	4.53	4.74	4.97	5.51
08-00237-15053			6					50	6.42	6.71	7.02	7.36	8.16
08-00237-15055			8					50	8.51	8.89	9.30	9.76	10.82
08-00237-15056			10					50	10.59	11.06	11.58	12.15	13.47
08-00237-15057			12					50	12.68	13.24	13.86	14.54	16.12
08-00237-15059			15					50	15.81	16.51	17.28	18.13	20.11
08-00237-15100		R0.1	3					50	3.29	3.43	3.59	3.76	4.16
08-00237-15101			4					50	4.33	4.52	4.73	4.96	5.49
08-00237-15103			6					50	6.42	6.70	7.01	7.35	8.15
08-00237-15105			8					50	8.50	8.88	9.29	9.75	10.80
08-00237-15106			10					50	10.59	11.06	11.57	12.14	13.45
08-00237-15107			12					50	12.68	13.24	13.85	14.53	16.11
08-00237-15109			15					60	15.80	16.51	17.28	18.12	20.09
08-00237-15200		R0.2	3					50	3.29	3.43	3.58	3.74	4.13
08-00237-15201			4					50	4.33	4.51	4.72	4.94	5.46
08-00237-15203			6					50	6.42	6.69	7.00	7.33	8.11
08-00237-15205			8					50	8.50	8.87	9.28	9.73	10.77
08-00237-15206			10					50	10.59	11.05	11.56	12.12	13.42
08-00237-15207			12					50	12.67	13.23	13.84	14.51	16.08
08-00237-15209			15					60	15.80	16.50	17.26	18.10	20.06
08-00237-15300		R0.3	3					50	3.28	3.42	3.56	3.72	4.10
08-00237-15301			4					50	4.33	4.51	4.70	4.92	5.43
08-00237-15303			6					50	6.41	6.68	6.98	7.31	8.08
08-00237-15305			8					50	8.50	8.86	9.27	9.71	10.74
08-00237-15306			10					50	10.58	11.04	11.55	12.10	13.39
08-00237-15307			12					50	12.67	13.22	13.83	14.49	16.04
08-00237-15309			15					60	15.80	16.49	17.25	18.08	20.03
08-00237-15500		R0.5	3					50	3.27	3.40	3.53	3.69	4.04
08-00237-15501			4					50	4.32	4.49	4.68	4.88	5.36
08-00237-15503			6					50	6.40	6.67	6.96	7.27	8.02
08-00237-15505			8					50	8.49	8.85	9.24	9.67	10.67
08-00237-15506			10					50	10.57	11.02	11.52	12.06	13.33
08-00237-15507			12					50	12.66	13.20	13.80	14.45	15.98
08-00237-15509			15					60	15.79	16.47	17.22	18.04	19.96

MHRH430R

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

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°
08-00237-20022	2	R0.02	3	1.6	1.91	12°	4	50	3.34	3.49	3.66	3.83	4.25
08-00237-20020			4					50	4.39	4.58	4.80	5.03	5.58
08-00237-20021			6					50	6.47	6.76	7.08	7.42	8.23
08-00237-20023			8					50	8.56	8.94	9.36	9.82	10.89
08-00237-20024			10					50	10.64	11.12	11.64	12.21	13.54
08-00237-20025			12					50	12.73	13.30	13.92	14.60	16.20
08-00237-20027			16					60	16.90	17.66	18.48	19.39	Free
08-00237-20029			20					60	21.07	22.01	23.04	24.18	Free
08-00237-20052		R0.05	3					50	3.34	3.49	3.65	3.83	4.24
08-00237-20050			4					50	4.38	4.58	4.79	5.03	5.57
08-00237-20051			6					50	6.47	6.76	7.07	7.42	8.22
08-00237-20053			8					50	8.56	8.94	9.35	9.81	10.88
08-00237-20054			10					50	10.64	11.12	11.63	12.20	13.53
08-00237-20055			12					50	12.73	13.29	13.92	14.60	16.19
08-00237-20057			16					60	16.90	17.65	18.48	19.38	Free
08-00237-20059			20					60	21.07	22.01	23.04	24.17	Free
08-00237-20102		R0.1	3					50	3.34	3.49	3.64	3.82	4.23
08-00237-20100			4					50	4.38	4.57	4.78	5.02	5.55
08-00237-20101			6					50	6.47	6.75	7.07	7.41	8.21
08-00237-20103			8					50	8.55	8.93	9.35	9.80	10.86
08-00237-20104			10					50	10.64	11.11	11.63	12.19	13.52
08-00237-20105			12					50	12.73	13.29	13.91	14.59	16.17
08-00237-20107			16					60	16.90	17.65	18.47	19.37	Free
08-00237-20109			20					60	21.07	22.01	23.03	24.16	Free
08-00237-20202		R0.2	3					50	3.34	3.48	3.63	3.80	4.19
08-00237-20200			4					50	4.38	4.57	4.77	5.00	5.52
08-00237-20201			6					50	6.46	6.74	7.05	7.39	8.18
08-00237-20203			8					50	8.55	8.92	9.33	9.78	10.83
08-00237-20204			10					50	10.64	11.10	11.61	12.18	13.48
08-00237-20205			12					50	12.72	13.28	13.89	14.57	16.14
08-00237-20207			16					60	16.89	17.64	18.46	19.36	Free
08-00237-20209			20					60	21.06	22.00	23.02	24.14	Free
08-00237-20302		R0.3	3					50	3.33	3.47	3.62	3.78	4.16
08-00237-20300			4					50	4.37	4.56	4.76	4.98	5.49
08-00237-20301			6					50	6.46	6.74	7.04	7.37	8.14
08-00237-20303			8					50	8.55	8.91	9.32	9.76	10.80
08-00237-20304			10					50	10.63	11.09	11.60	12.16	13.45
08-00237-20305			12					50	12.72	13.27	13.88	14.55	16.11
08-00237-20307			16					60	16.89	17.63	18.44	19.34	Free
08-00237-20309			20					60	21.06	21.99	23.00	24.12	Free
08-00237-20502		R0.5	3					50	3.32	3.45	3.59	3.74	4.10
08-00237-20500			4					50	4.37	4.54	4.73	4.94	5.43
08-00237-20501			6					50	6.45	6.72	7.01	7.33	8.08
08-00237-20503			8					50	8.54	8.90	9.29	9.72	10.73
08-00237-20504			10					50	10.62	11.08	11.57	12.12	13.39
08-00237-20505			12					50	12.71	13.25	13.85	14.51	16.04
08-00237-20507			16					60	16.88	17.61	18.42	19.30	Free
08-00237-20509			20					60	21.05	21.97	22.98	24.08	Free
08-00237-25100	2.5	R0.1	5	2	2.39	12°	4	50	5.47	5.72	5.98	6.27	6.94
08-00237-25101			10					50	10.69	11.16	11.68	12.25	13.58
08-00237-25102			15					60	15.90	16.61	17.38	18.23	Free
08-00237-25103			20					60	21.12	22.06	23.09	Free	Free
08-00237-25105			30					70	31.55	32.95	Free	Free	Free
08-00237-25200		R0.2	5					50	5.47	5.71	5.96	6.25	6.91
08-00237-25201			10					50	10.68	11.15	11.67	12.23	13.55
08-00237-25202			15					60	15.90	16.60	17.37	18.21	Free
08-00237-25203			20					60	21.11	22.05	23.07	Free	Free
08-00237-25205			30					70	31.54	32.94	Free	Free	Free
08-00237-25300		R0.3	5					50	5.47	5.70	5.95	6.23	6.88
08-00237-25301			10					50	10.68	11.14	11.65	12.21	13.52
08-00237-25302			15					60	15.89	16.59	17.36	18.20	Free

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 (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°
08-00237-25303	2.5	R0.3	20	2	2.39	12°	4	60	21.11	22.04	23.06	Free	Free
08-00237-25305			30					70	31.54	32.93	Free	Free	Free
08-00237-25500		R0.5	5					50	5.46	5.68	5.92	6.19	6.82
08-00237-25501			10					50	10.67	11.13	11.63	12.17	13.45
08-00237-25502			15					60	15.89	16.57	17.33	18.16	Free
08-00237-25503			20					60	21.10	22.02	23.03	Free	Free
08-00237-25505			30					70	31.53	32.92	Free	Free	Free
08-00237-30058	3	R0.05	4	2.5	2.85	12°	6	50	4.53	4.73	4.95	5.19	5.76
08-00237-30050			6					50	6.62	6.91	7.23	7.59	8.41
08-00237-30051			8					50	8.70	9.09	9.51	9.98	11.07
08-00237-30052			10					50	10.79	11.27	11.80	12.37	13.72
08-00237-30053			12					50	12.87	13.45	14.08	14.77	16.37
08-00237-30054			14					50	14.96	15.63	16.36	17.16	19.03
08-00237-30055			16					60	17.05	17.81	18.64	19.55	21.68
08-00237-30057			20					60	21.22	22.16	23.20	24.34	26.99
08-00237-30112		R0.1	4					50	4.53	4.73	4.95	5.18	5.74
08-00237-30100			6					50	6.62	6.91	7.23	7.58	8.39
08-00237-30101			8					50	8.70	9.09	9.51	9.97	11.05
08-00237-30102			10					50	10.79	11.27	11.79	12.36	13.70
08-00237-30103			12					50	12.87	13.44	14.07	14.76	16.36
08-00237-30104			14					50	14.96	15.62	16.35	17.15	19.01
08-00237-30105			16					60	17.04	17.80	18.63	19.54	21.67
08-00237-30107			20					60	21.21	22.16	23.19	24.33	26.98
08-00237-30109			25					70	26.43	27.61	28.90	30.31	Free
08-00237-30111			30					70	31.64	33.05	34.60	36.30	Free
08-00237-30212		R0.2	4					50	4.53	4.72	4.93	5.16	5.71
08-00237-30200			6					50	6.61	6.90	7.21	7.56	8.36
08-00237-30201			8					50	8.70	9.08	9.49	9.95	11.02
08-00237-30202			10					50	10.78	11.26	11.77	12.34	13.67
08-00237-30203			12					50	12.87	13.44	14.06	14.74	16.33
08-00237-30204			14					50	14.95	15.61	16.34	17.13	18.98
08-00237-30205			16					60	17.04	17.79	18.62	19.52	21.64
08-00237-30207			20					60	21.21	22.15	23.18	24.31	26.94
08-00237-30209			25					70	26.42	27.60	28.88	30.29	Free
08-00237-30211			30					70	31.64	33.05	34.58	36.28	Free
08-00237-30312		R0.3	4					50	4.52	4.71	4.92	5.15	5.68
08-00237-30300			6					50	6.61	6.89	7.20	7.54	8.33
08-00237-30301			8					50	8.69	9.07	9.48	9.93	10.99
08-00237-30302			10					50	10.78	11.25	11.76	12.33	13.64
08-00237-30303			12					50	12.86	13.43	14.04	14.72	16.29
08-00237-30304			14					50	14.95	15.61	16.32	17.11	18.95
08-00237-30305			16					60	17.04	17.78	18.60	19.50	21.60
08-00237-30307			20					60	21.21	22.14	23.17	24.29	26.91
08-00237-30309			25					70	26.42	27.59	28.87	30.27	Free
08-00237-30311			30					70	31.63	33.04	34.57	36.26	Free
08-00237-30512		R0.5	4					50	4.51	4.69	4.89	5.11	5.61
08-00237-30500			6					50	6.60	6.87	7.17	7.50	8.27
08-00237-30501			8					50	8.68	9.05	9.45	9.89	10.92
08-00237-30502			10					50	10.77	11.23	11.73	12.29	13.58
08-00237-30503			12					50	12.86	13.41	14.01	14.68	16.23
08-00237-30504			14					50	14.94	15.59	16.30	17.07	18.89
08-00237-30505			16					60	17.03	17.77	18.58	19.47	21.54
08-00237-30507			20					60	21.20	22.12	23.14	24.25	26.85
08-00237-30509			25					70	26.41	27.57	28.84	30.24	Free
08-00237-30511			30					70	31.63	33.02	34.54	36.22	Free
08-00237-31000		R1	6					50	6.58	6.83	7.10	7.40	8.11
08-00237-31001			8					50	8.66	9.01	9.38	9.80	10.76
08-00237-31002			10					50	10.75	11.19	11.66	12.19	13.42
08-00237-31003			12					50	12.83	13.36	13.94	14.58	16.07
08-00237-31004			14					50	14.92	15.54	16.23	16.98	18.73
08-00237-31005			16					60	17.01	17.72	18.51	19.37	21.38

MHRH430R

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

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°
08-00237-31007	3	R1	20	2.5	2.85	12°	6	60	21.18	22.08	23.07	24.16	26.69
08-00237-31009			25					70	26.39	27.53	28.77	30.14	Free
08-00237-31011			30					70	31.60	32.97	34.47	36.12	Free
08-00237-40051	4	R0.05	8	3.2	3.8	12°	6	60	8.83	9.22	9.65	10.12	11.22
08-00237-40053			12					60	13.00	13.58	14.21	14.91	16.53
08-00237-40054			16					60	17.17	17.93	18.77	19.69	Free
08-00237-40055			20					65	21.34	22.29	23.33	24.48	Free
08-00237-40056			24					70	25.51	26.65	27.90	Free	Free
08-00237-40057			28					70	29.68	31.01	32.46	Free	Free
08-00237-40058			32					70	33.85	35.37	37.02	Free	Free
08-00237-40106		R0.1	8					60	8.82	9.21	9.64	10.11	11.21
08-00237-40107			10					60	10.91	11.39	11.92	12.50	13.86
08-00237-40100			12					60	13.00	13.57	14.20	14.90	16.51
08-00237-40101			16					60	17.17	17.93	18.77	19.68	Free
08-00237-40102			20					65	21.34	22.29	23.33	24.47	Free
08-00237-40103			24					70	25.51	26.65	27.89	Free	Free
08-00237-40104			28					70	29.68	31.00	32.45	Free	Free
08-00237-40105			32					70	33.85	35.36	37.01	Free	Free
08-00237-40108			40					80	42.19	44.08	Free	Free	Free
08-00237-40206		R0.2	8					60	8.82	9.21	9.63	10.09	11.17
08-00237-40207			10					60	10.91	11.38	11.91	12.49	13.83
08-00237-40200			12					60	12.99	13.56	14.19	14.88	16.48
08-00237-40201			16					60	17.16	17.92	18.75	19.66	Free
08-00237-40202			20					65	21.33	22.28	23.31	24.45	Free
08-00237-40203			24					70	25.50	26.64	27.88	Free	Free
08-00237-40204			28					70	29.68	30.99	32.44	Free	Free
08-00237-40205			32					70	33.85	35.35	37.00	Free	Free
08-00237-40208			40					80	42.19	44.07	Free	Free	Free
08-00237-40306		R0.3	8					60	8.82	9.20	9.61	10.07	11.14
08-00237-40307			10					60	10.90	11.38	11.90	12.47	13.80
08-00237-40300			12					60	12.99	13.55	14.18	14.86	16.45
08-00237-40301			16					60	17.16	17.91	18.74	19.65	Free
08-00237-40302			20					65	21.33	22.27	23.30	24.43	Free
08-00237-40303			24					70	25.50	26.63	27.86	Free	Free
08-00237-40304			28					70	29.67	30.99	32.42	Free	Free
08-00237-40305			32					70	33.84	35.34	36.99	Free	Free
08-00237-40308			40					80	42.19	44.06	Free	Free	Free
08-00237-40506		R0.5	8					60	8.81	9.18	9.59	10.03	11.08
08-00237-40507			10					60	10.89	11.36	11.87	12.43	13.73
08-00237-40500			12					60	12.98	13.54	14.15	14.82	16.39
08-00237-40501			16					60	17.15	17.89	18.71	19.61	Free
08-00237-40502			20					65	21.32	22.25	23.27	24.39	Free
08-00237-40503			24					70	25.49	26.61	27.83	Free	Free
08-00237-40504			28					70	29.66	30.97	32.40	Free	Free
08-00237-40505			32					70	33.83	35.33	36.96	Free	Free
08-00237-40508			40					80	42.18	44.04	Free	Free	Free
08-00237-41006		R1	8					60	8.79	9.13	9.52	9.94	10.92
08-00237-41007			10					60	10.87	11.31	11.80	12.33	13.57
08-00237-41000			12					60	12.96	13.49	14.08	14.72	16.23
08-00237-41001			16					60	17.13	17.85	18.64	19.51	Free
08-00237-41002			20					65	21.30	22.21	23.20	24.30	Free
08-00237-41003			24					70	25.47	26.57	27.77	29.08	Free
08-00237-41004			28					70	29.64	30.92	32.33	Free	Free
08-00237-41005			32					70	33.81	35.28	36.89	Free	Free
08-00237-41008			40					80	42.16	44.00	Free	Free	Free
08-00237-50104	5	R0.1	10	4	4.75	12°	6	70	11.03	11.52	12.06	12.65	Free
08-00237-50100			15					70	16.25	16.97	17.76	Free	Free
08-00237-50101			20					70	21.46	22.42	Free	Free	Free
08-00237-50102			30					80	31.89	Free	Free	Free	Free
08-00237-50103			40					90	42.32	Free	Free	Free	Free

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 (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°
08-00237-50204	5	R0.2	10	4	4.75	12°	6	70	11.03	11.51	12.04	12.63	Free
08-00237-50200			15					70	16.24	16.96	17.75	Free	Free
08-00237-50201			20					70	21.46	22.41	Free	Free	Free
08-00237-50202			30					80	31.88	Free	Free	Free	Free
08-00237-50203			40					90	42.31	Free	Free	Free	Free
08-00237-50304		R0.3	10					70	11.02	11.50	12.03	12.61	Free
08-00237-50300			15					70	16.24	16.95	17.73	Free	Free
08-00237-50301			20					70	21.45	22.40	Free	Free	Free
08-00237-50302			30					80	31.88	Free	Free	Free	Free
08-00237-50303			40					90	42.31	Free	Free	Free	Free
08-00237-50504		R0.5	10					70	11.02	11.49	12.00	12.57	Free
08-00237-50500			15					70	16.23	16.93	17.70	Free	Free
08-00237-50501			20					70	21.44	22.38	Free	Free	Free
08-00237-50502			30					80	31.87	Free	Free	Free	Free
08-00237-50503			40					90	42.30	Free	Free	Free	Free
08-00237-51004		R1	10					70	10.99	11.44	11.93	12.47	Free
08-00237-51000			15					70	16.21	16.89	17.63	Free	Free
08-00237-51001			20					70	21.42	22.34	Free	Free	Free
08-00237-51002			30					80	31.85	Free	Free	Free	Free
08-00237-51003			40					90	42.28	Free	Free	Free	Free
08-00237-60051	6	R0.05	12	5	5.7	–	6	70	Free	Free	Free	Free	Free
08-00237-60052			15					70	Free	Free	Free	Free	Free
08-00237-60053			18					90	Free	Free	Free	Free	Free
08-00237-60054			24					90	Free	Free	Free	Free	Free
08-00237-60055			30					90	Free	Free	Free	Free	Free
08-00237-60056			40					100	Free	Free	Free	Free	Free
08-00237-60057			48					110	Free	Free	Free	Free	Free
08-00237-60104		R0.1	12					70	Free	Free	Free	Free	Free
08-00237-60105			15					70	Free	Free	Free	Free	Free
08-00237-60100			18					90	Free	Free	Free	Free	Free
08-00237-60101			24					90	Free	Free	Free	Free	Free
08-00237-60102			30					90	Free	Free	Free	Free	Free
08-00237-60106			40					100	Free	Free	Free	Free	Free
08-00237-60103			48					110	Free	Free	Free	Free	Free
08-00237-60204		R0.2	12					70	Free	Free	Free	Free	Free
08-00237-60205			15					70	Free	Free	Free	Free	Free
08-00237-60200			18					90	Free	Free	Free	Free	Free
08-00237-60201			24					90	Free	Free	Free	Free	Free
08-00237-60202			30					90	Free	Free	Free	Free	Free
08-00237-60206			40					100	Free	Free	Free	Free	Free
08-00237-60203			48					110	Free	Free	Free	Free	Free
08-00237-60304		R0.3	12					70	Free	Free	Free	Free	Free
08-00237-60305			15					70	Free	Free	Free	Free	Free
08-00237-60300			18					90	Free	Free	Free	Free	Free
08-00237-60301			24					90	Free	Free	Free	Free	Free
08-00237-60302			30					90	Free	Free	Free	Free	Free
08-00237-60306			40					100	Free	Free	Free	Free	Free
08-00237-60303			48					110	Free	Free	Free	Free	Free
08-00237-60504		R0.5	12					70	Free	Free	Free	Free	Free
08-00237-60505			15					70	Free	Free	Free	Free	Free
08-00237-60500			18					90	Free	Free	Free	Free	Free
08-00237-60501			24					90	Free	Free	Free	Free	Free
08-00237-60502			30					90	Free	Free	Free	Free	Free
08-00237-60506			40					100	Free	Free	Free	Free	Free
08-00237-60503			48					110	Free	Free	Free	Free	Free
08-00237-61004		R1	12					70	Free	Free	Free	Free	Free
08-00237-61005			15					70	Free	Free	Free	Free	Free
08-00237-61000			18					90	Free	Free	Free	Free	Free
08-00237-61001			24					90	Free	Free	Free	Free	Free
08-00237-61002			30					90	Free	Free	Free	Free	Free
08-00237-61006			40					100	Free	Free	Free	Free	Free
08-00237-61003			48					110	Free	Free	Free	Free	Free

MHRH430R

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
				a_p mm	a_e mm	mm/min	min^{-1}	a_p mm	a_e mm	mm/min	min^{-1}	a_p mm	a_e mm	mm/min	min^{-1}	a_p mm	a_e mm	mm/min	min^{-1}
0.1	0.01	0.3	3.0	0.004	0.03	240	40,000	0.003	0.02	200	40,000	0.002	0.01	160	40,000	0.002	0.01	120	40,000
		0.5	5.0	0.003	0.03	180	40,000	0.002	0.02	150	40,000	0.001	0.01	120	40,000	0.001	0.01	90	40,000
0.15	0.01	0.3	2.0	0.004	0.04	360	40,000	0.003	0.03	300	40,000	0.002	0.015	240	40,000	0.002	0.01	180	40,000
		0.5	3.3	0.004	0.04	240	40,000	0.003	0.03	200	40,000	0.002	0.015	160	40,000	0.002	0.01	120	40,000
		0.75	5.0	0.003	0.04	180	40,000	0.002	0.03	150	40,000	0.001	0.015	120	40,000	0.001	0.01	90	40,000
		1	6.7	0.003	0.04	100	40,000	0.002	0.03	80	40,000	0.001	0.015	65	40,000	0.001	0.01	50	40,000
	0.02	0.3	2.0	0.004	0.04	360	40,000	0.003	0.03	300	40,000	0.002	0.015	240	40,000	0.002	0.01	180	40,000
		0.5	3.3	0.004	0.04	240	40,000	0.003	0.03	200	40,000	0.002	0.015	160	40,000	0.002	0.01	120	40,000
		0.75	5.0	0.003	0.04	180	40,000	0.002	0.03	150	40,000	0.001	0.015	120	40,000	0.001	0.01	90	40,000
		1	6.7	0.003	0.04	100	40,000	0.002	0.03	80	40,000	0.001	0.015	65	40,000	0.001	0.01	50	40,000
0.2	0.02	0.3	1.5	0.005	0.05	560	30,000	0.003	0.04	480	30,000	0.003	0.02	380	30,000	0.003	0.01	280	30,000
		0.5	2.5	0.005	0.05	480	30,000	0.003	0.04	400	30,000	0.003	0.02	320	30,000	0.003	0.01	240	30,000
		1	5.0	0.005	0.05	360	30,000	0.003	0.04	300	30,000	0.002	0.02	240	30,000	0.002	0.01	160	30,000
		1.5	7.5	0.004	0.05	240	30,000	0.002	0.04	200	30,000	0.002	0.02	160	30,000	0.001	0.01	120	30,000
		2	10.0	0.003	0.05	140	30,000	0.002	0.04	100	30,000	0.001	0.02	80	30,000	0.001	0.01	60	30,000
	0.05	0.3	1.5	0.01	0.05	560	30,000	0.003	0.04	480	30,000	0.003	0.02	380	30,000	0.003	0.01	280	30,000
		0.5	2.5	0.01	0.05	480	30,000	0.003	0.04	400	30,000	0.003	0.02	320	30,000	0.003	0.01	240	30,000
		1	5.0	0.007	0.05	360	30,000	0.003	0.04	300	30,000	0.003	0.02	240	30,000	0.003	0.01	160	30,000
		1.5	7.5	0.005	0.05	240	30,000	0.002	0.04	200	30,000	0.002	0.02	160	30,000	0.002	0.01	120	30,000
		2	10.0	0.003	0.05	140	30,000	0.002	0.04	100	30,000	0.002	0.02	80	30,000	0.002	0.01	60	30,000
0.3	0.02	0.5	1.7	0.015	0.1	800	30,000	0.003	0.08	680	30,000	0.003	0.04	560	30,000	0.003	0.03	450	30,000
		1	3.3	0.015	0.1	700	30,000	0.003	0.08	600	30,000	0.003	0.04	500	30,000	0.003	0.03	400	30,000
		1.5	5.0	0.01	0.1	480	30,000	0.003	0.08	400	30,000	0.003	0.04	320	30,000	0.003	0.03	240	30,000
		2	6.7	0.007	0.1	360	30,000	0.003	0.08	300	30,000	0.003	0.04	240	30,000	0.003	0.03	200	25,000
		2.5	8.3	0.005	0.1	300	30,000	0.002	0.08	200	25,000	0.002	0.04	160	25,000	0.002	0.03	120	20,000
		3	10.0	0.004	0.1	140	30,000	0.002	0.08	100	25,000	0.002	0.04	80	25,000	0.002	0.03	60	20,000
	0.05	0.5	1.7	0.02	0.1	800	30,000	0.003	0.08	680	30,000	0.003	0.04	560	30,000	0.003	0.03	450	30,000
		1	3.3	0.02	0.1	700	30,000	0.003	0.08	600	30,000	0.003	0.04	500	30,000	0.003	0.03	400	30,000
		1.5	5.0	0.015	0.1	480	30,000	0.003	0.08	400	30,000	0.003	0.04	320	30,000	0.003	0.03	240	30,000
		2	6.7	0.01	0.1	360	30,000	0.003	0.08	300	30,000	0.003	0.04	240	30,000	0.003	0.03	200	25,000
		2.5	8.3	0.007	0.1	300	30,000	0.002	0.08	200	25,000	0.002	0.04	160	25,000	0.002	0.03	120	20,000
		3	10.0	0.005	0.1	140	30,000	0.002	0.08	100	25,000	0.002	0.04	80	25,000	0.002	0.03	60	20,000
0.4	0.02	0.5	1.3	0.015	0.12	1,000	30,000	0.005	0.1	900	30,000	0.005	0.05	780	28,000	0.004	0.04	660	25,000
		1	2.5	0.015	0.12	900	30,000	0.005	0.1	800	30,000	0.005	0.05	700	28,000	0.004	0.04	600	25,000
		1.5	3.8	0.012	0.12	800	30,000	0.005	0.1	700	30,000	0.005	0.05	600	28,000	0.004	0.04	520	25,000
		2	5.0	0.01	0.12	720	30,000	0.005	0.1	600	30,000	0.005	0.05	500	25,000	0.003	0.04	440	25,000
		2.5	6.3	0.008	0.12	680	30,000	0.004	0.1	560	28,000	0.004	0.05	480	25,000	0.003	0.04	360	20,000
		3	7.5	0.008	0.12	640	30,000	0.004	0.1	500	25,000	0.003	0.05	440	23,000	0.002	0.04	320	18,000
		4	10.0	0.006	0.12	500	30,000	0.003	0.1	400	25,000	0.002	0.05	320	20,000	0.002	0.04	240	18,000
	0.05	0.5	1.3	0.025	0.12	1,000	30,000	0.005	0.1	900	30,000	0.005	0.05	780	28,000	0.005	0.04	660	25,000
		1	2.5	0.025	0.12	900	30,000	0.005	0.1	800	30,000	0.005	0.05	700	28,000	0.005	0.04	600	25,000
		1.5	3.8	0.022	0.12	800	30,000	0.005	0.1	700	30,000	0.005	0.05	600	28,000	0.005	0.04	520	25,000
		2	5.0	0.02	0.12	720	30,000	0.005	0.1	600	30,000	0.005	0.05	500	25,000	0.005	0.04	440	25,000
		2.5	6.3	0.015	0.12	680	30,000	0.004	0.1	560	28,000	0.004	0.05	480	25,000	0.004	0.04	360	20,000
		3	7.5	0.015	0.12	640	30,000	0.004	0.1	500	25,000	0.003	0.05	440	23,000	0.003	0.04	320	18,000
		4	10.0	0.01	0.12	500	30,000	0.003	0.1	400	25,000	0.002	0.05	320	20,000	0.002	0.04	240	18,000
	0.1	1	2.5	0.025	0.12	900	30,000	0.005	0.1	800	30,000	0.005	0.05	700	28,000	0.005	0.04	600	25,000
		2	5.0	0.02	0.12	720	30,000	0.005	0.1	600	30,000	0.005	0.05	500	25,000	0.005	0.04	440	25,000
		3	7.5	0.015	0.12	640	30,000	0.004	0.1	500	25,000	0.003	0.05	440	23,000	0.003	0.04	320	18,000
		4	10.0	0.01	0.12	500	30,000	0.003	0.1	400	25,000	0.002	0.05	320	20,000	0.002	0.04	240	18,000
0.5	0.02	1	2.0	0.016	0.14	1,200	30,000	0.008	0.15	1,000	25,000	0.006	0.1	900	23,000	0.004	0.08	800	20,000
		2	4.0	0.014	0.14	1,000	30,000	0.007	0.15	840	25,000	0.005	0.1	720	23,000	0.003	0.08	600	20,000
		3	6.0	0.012	0.14	840	30,000	0.006	0.15	700	25,000	0.004	0.1	640	23,000	0.003	0.08	560	20,000
		4	8.0	0.01	0.14	760	25,000	0.004	0.15	600	25,000	0.002	0.1	480	23,000	0.002	0.08	360	20,000
		5	10.0	0.008	0.14	600	25,000	0.003	0.15	400	20,000	0.002	0.1	300	18,000	0.002	0.08	200	16,000
		6	12.0	0.004	0.14	500	25,000	0.002	0.15	320	20,000	0.001	0.1	200	18,000	0.001	0.08	140	16,000

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
				a_p mm	a_e mm	mm/min	min^{-1}	a_p mm	a_e mm	mm/min	min^{-1}	a_p mm	a_e mm	mm/min	min^{-1}	a_p mm	a_e 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
		12	15.0	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
0.9	0.1	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	0.02	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
		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
	0.05 0.1 0.2 0.3	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
		10	10.0	0.025	0.35	1,000	16,000	0.01	0.3	800	13,000	0.006	0.25	700	11,000	0.005	0.2	500	9,000
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

MHRH430R

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
				a_p mm	a_e mm	mm/min	min^{-1}	a_p mm	a_e mm	mm/min	min^{-1}	a_p mm	a_e mm	mm/min	min^{-1}	a_p mm	a_e 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
		25	8.3	0.08	1	1,200	9,000	0.04	0.8	1,000	7,500	0.02	0.7	850	6,500	0.01	0.6	600	5,000
		30	10.0	0.06	1	800	8,000	0.03	0.8	650	6,500	0.02	0.7	550	5,500	0.007	0.6	400	4,500
	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 (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
				a_p mm	a_e mm	mm/min	min^{-1}	a_p mm	a_e mm	mm/min	min^{-1}	a_p mm	a_e mm	mm/min	min^{-1}	a_p mm	a_e mm	mm/min	min^{-1}
3	1	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
		25	8.3	0.08	1	1,200	9,000	0.04	0.8	1,000	7,500	0.02	0.7	850	6,500	0.01	0.6	600	5,000
		30	10.0	0.06	1	800	8,000	0.03	0.8	650	6,500	0.02	0.7	550	5,500	0.007	0.6	400	4,500
4	0.05	8	2.0	0.25	1.4	2,600	12,000	0.15	1.2	2,100	10,000	0.08	1	1,800	8,500	0.06	0.8	1,300	7,000
		12	3.0	0.25	1.4	2,600	12,000	0.15	1.2	2,100	10,000	0.08	1	1,800	8,500	0.06	0.8	1,300	7,000
		16	4.0	0.17	1.4	2,200	10,000	0.1	1.2	1,800	8,000	0.06	1	1,500	7,000	0.05	0.8	1,100	5,500
		20	5.0	0.15	1.4	1,900	9,000	0.09	1.2	1,500	7,200	0.06	1	1,300	6,300	0.04	0.8	950	5,000
		24	6.0	0.14	1.4	1,600	8,000	0.08	1.2	1,300	6,500	0.05	1	1,100	5,500	0.03	0.8	750	4,500
		28	7.0	0.11	1.4	1,400	7,200	0.05	1.2	1,200	6,000	0.03	1	1,000	5,000	0.02	0.8	700	4,000
		32	8.0	0.08	1.4	1,300	6,500	0.04	1.2	1,100	5,500	0.02	1	950	4,500	0.01	0.8	650	3,500
	0.1 0.2 0.3 0.5 1	8	2.0	0.25	1.4	2,600	12,000	0.15	1.2	2,100	10,000	0.08	1	1,800	8,500	0.06	0.8	1,300	7,000
		10	2.5	0.25	1.4	2,600	12,000	0.15	1.2	2,100	10,000	0.08	1	1,800	8,500	0.06	0.8	1,300	7,000
		12	3.0	0.25	1.4	2,600	12,000	0.15	1.2	2,100	10,000	0.08	1	1,800	8,500	0.06	0.8	1,300	7,000
		16	4.0	0.17	1.4	2,200	10,000	0.1	1.2	1,800	8,000	0.06	1	1,500	7,000	0.05	0.8	1,100	5,500
		20	5.0	0.15	1.4	1,900	9,000	0.09	1.2	1,500	7,200	0.06	1	1,300	6,300	0.04	0.8	950	5,000
		24	6.0	0.14	1.4	1,600	8,000	0.08	1.2	1,300	6,500	0.05	1	1,100	5,500	0.03	0.8	750	4,500
		28	7.0	0.11	1.4	1,400	7,200	0.05	1.2	1,200	6,000	0.03	1	1,000	5,000	0.02	0.8	700	4,000
		32	8.0	0.08	1.4	1,300	6,500	0.04	1.2	1,100	5,500	0.02	1	950	4,500	0.01	0.8	650	3,500
		40	10.0	0.05	1.4	1,000	5,500	0.025	1.2	830	4,600	0.01	1	640	3,600	0.005	0.8	420	2,400
5	0.1 0.2 0.3 0.5 1	10	2.0	0.3	2.2	2,500	9,800	0.18	2	2,100	8,500	0.08	1.6	1,800	7,400	0.06	1.2	1,400	6,000
		15	3.0	0.25	2.2	2,400	9,500	0.15	2	2,000	8,000	0.08	1.6	1,700	7,000	0.06	1.2	1,200	5,500
		20	4.0	0.18	2.2	2,000	8,000	0.1	2	1,600	6,500	0.07	1.6	1,400	5,500	0.05	1.2	1,000	4,500
		30	6.0	0.14	2.2	1,600	6,400	0.07	2	1,300	5,300	0.03	1.6	1,100	4,500	0.02	1.2	850	3,800
		40	8.0	0.09	2.2	1,200	5,000	0.05	2	1,000	4,000	0.02	1.6	850	3,500	0.01	1.2	600	3,000
6	0.05 0.1 0.2 0.3 0.5 1	12	2.0	0.35	2.7	2,500	8,000	0.18	2.5	2,100	6,500	0.08	2	1,800	5,500	0.06	1.5	1,300	4,500
		15	2.5	0.32	2.7	2,400	7,700	0.18	2.5	1,900	6,000	0.08	2	1,600	5,000	0.06	1.5	1,200	4,000
		18	3.0	0.3	2.7	2,200	7,000	0.18	2.5	1,800	5,500	0.08	2	1,500	4,500	0.06	1.5	1,100	3,500
		24	4.0	0.2	2.7	1,800	6,000	0.15	2.5	1,500	5,000	0.07	2	1,300	4,000	0.05	1.5	900	3,000
		30	5.0	0.16	2.7	1,600	5,300	0.13	2.5	1,300	4,300	0.06	2	1,080	3,600	0.04	1.5	870	2,700
		40	6.7	0.12	2.7	1,300	4,300	0.08	2.5	960	3,200	0.04	2	800	2,700	0.03	1.5	700	2,300
		48	8.0	0.1	2.7	900	3,000	0.05	2.5	750	2,500	0.03	2	650	2,000	0.02	1.5	450	2,000

Notes

※Recommended RPM based upon ideal conditions.
RPM may be adjusted to match the capabilities of your machine while maintaining constant feed rate per cutting tooth.

※1 Adjust milling conditions according to milling shape and machine type.
※2 ap : Axial Depth of Cut, ae : Radial Depth of Cut.
※3 Recommend to use oil mist coolant for machining hardened steels.
※4 Recommend to apply helical or ramping for approaching into axial direction.
※5 Adjust feed rate 50% lower and cutting depth (ae) 30% lower for milling deep wall area when L/D exceeds 8 for stable milling.
※6 For slotting, recommend reciprocating milling by adjusting feed & ap in below 50% of recommended milling condition.
※7 Reduce both spindle speed and feed at same rate for chattering and also for insufficient spindle speed of a machine.

MHRH430R

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
				a_p Inch	a_e Inch	IPT fz	IPM	RPM	a_p Inch	a_e Inch	IPT fz	IPM	RPM	a_p Inch	a_e Inch	IPT fz	IPM	RPM	a_p Inch	a_e 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
		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
	0.05	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
		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
	0.05	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
		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
0.4	0.02	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
		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
		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
	0.05	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
		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
	0.1	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
		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
		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	2.0	.00063	.00551	.00039	47.24	30,000	.00031	.00591	.00039	39.37	25,000	.00024	.00394	.00039	35.43	23,000	.00016	.00315	.00039	31.50	20,000
		2	4.0	.00055	.00551	.00033	39.37	30,000	.00028	.00591	.00033	33.07	25,000	.00020	.00394	.00031	28.35	23,000	.00012	.00315	.00030	23.62	20,000
		3	6.0	.00047	.00551	.00028	33.07	30,000	.00024	.00591	.00028	27.56	25,000	.00016	.00394	.00027	25.20	23,000	.00012	.00315	.00028	22.05	20,000
		4	8.0	.00039	.00551	.00030	29.92	25,000	.00016	.00591	.00024	23.62	25,000	.00008	.00394	.00021	18.90	23,000	.00008	.00315	.00018	14.17	20,000
		5	10.0	.00031	.00551	.00024	23.62	25,000	.00012	.00591	.00020	15.75	20,000	.00008	.00394	.00016	11.81	18,000	.00008	.00315	.00012	7.87	16,000
		6	12.0	.00016	.00551	.00020	19.69	25,000	.00008	.00591	.00016	12.60	20,000	.00004	.00394	.00011	7.87	18,000	.00004	.00315	.00009	5.51	16,000

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
				a_p Inch	a_e Inch	IPT fz	IPM	RPM	a_p Inch	a_e Inch	IPT fz	IPM	RPM	a_p Inch	a_e Inch	IPT fz	IPM	RPM	a_p Inch	a_e Inch	IPT fz	IPM	RPM
0.5	0.05 0.1	1	2.0	.00118	.00551	.00039	47.24	30,000	.00039	.00591	.00039	39.37	25,000	.00028	.00394	.00039	35.43	23,000	.00020	.00315	.00039	31.50	20,000
		2	4.0	.00098	.00551	.00033	39.37	30,000	.00039	.00591	.00033	33.07	25,000	.00028	.00394	.00031	28.35	23,000	.00020	.00315	.00030	23.62	20,000
		3	6.0	.00079	.00551	.00028	33.07	30,000	.00031	.00591	.00028	27.56	25,000	.00020	.00394	.00027	25.20	23,000	.00012	.00315	.00028	22.05	20,000
		4	8.0	.00059	.00551	.00030	29.92	25,000	.00020	.00591	.00024	23.62	25,000	.00012	.00394	.00021	18.90	23,000	.00008	.00315	.00018	14.17	20,000
		5	10.0	.00039	.00551	.00024	23.62	25,000	.00016	.00591	.00020	15.75	20,000	.00012	.00394	.00016	11.81	18,000	.00008	.00315	.00012	7.87	16,000
		6	12.0	.00031	.00551	.00020	19.69	25,000	.00012	.00591	.00016	12.60	20,000	.00008	.00394	.00011	7.87	18,000	.00004	.00315	.00009	5.51	16,000
0.6	0.02	2	3.3	.00063	.00787	.00039	47.24	30,000	.00047	.00787	.00039	39.37	25,000	.00024	.00591	.00034	31.50	23,000	.00016	.00394	.00032	25.20	20,000
		4	6.7	.00047	.00787	.00035	35.43	25,000	.00028	.00787	.00034	31.50	23,000	.00016	.00591	.00030	23.62	20,000	.00012	.00394	.00022	15.75	18,000
		6	10.0	.00031	.00787	.00026	23.62	23,000	.00020	.00787	.00020	15.75	20,000	.00012	.00591	.00016	11.81	18,000	.00008	.00394	.00016	7.87	12,000
		8	13.3	.00024	.00787	.00022	15.75	18,000	.00012	.00787	.00018	11.81	16,000	.00004	.00591	.00014	7.87	14,000	.00004	.00394	.00016	6.30	10,000
		10	16.7	.00012	.00787	.00015	9.45	16,000	.00004	.00787	.00014	7.87	14,000	.00004	.00591	.00013	6.30	12,000	.00004	.00394	.00012	3.94	8,000
	0.05 0.1	2	3.3	.00138	.00787	.00039	47.24	30,000	.00079	.00787	.00039	39.37	25,000	.00039	.00591	.00034	31.50	23,000	.00028	.00394	.00032	25.20	20,000
		4	6.7	.00098	.00787	.00035	35.43	25,000	.00059	.00787	.00034	31.50	23,000	.00028	.00591	.00030	23.62	20,000	.00020	.00394	.00022	15.75	18,000
		6	10.0	.00059	.00787	.00026	23.62	23,000	.00031	.00787	.00020	15.75	20,000	.00020	.00591	.00016	11.81	18,000	.00012	.00394	.00016	7.87	12,000
		8	13.3	.00039	.00787	.00022	15.75	18,000	.00020	.00787	.00018	11.81	16,000	.00008	.00591	.00014	7.87	14,000	.00004	.00394	.00016	6.30	10,000
		10	16.7	.00020	.00787	.00015	9.45	16,000	.00008	.00787	.00014	7.87	14,000	.00004	.00591	.00013	6.30	12,000	.00004	.00394	.00012	3.94	8,000
0.7	0.02	2	2.9	.00063	.00984	.00059	70.87	30,000	.00047	.00984	.00055	55.12	25,000	.00024	.00591	.00051	47.24	23,000	.00012	.00472	.00044	35.43	20,000
		4	5.7	.00047	.00984	.00049	55.12	28,000	.00031	.00984	.00047	47.24	25,000	.00020	.00591	.00043	39.37	23,000	.00008	.00472	.00034	27.56	20,000
		6	8.6	.00031	.00984	.00039	39.37	25,000	.00020	.00984	.00034	27.56	20,000	.00012	.00591	.00027	19.69	18,000	.00008	.00472	.00025	15.75	16,000
	0.05 0.1	2	2.9	.00157	.00984	.00059	70.87	30,000	.00118	.00984	.00055	55.12	25,000	.00059	.00591	.00051	47.24	23,000	.00039	.00472	.00044	35.43	20,000
		4	5.7	.00118	.00984	.00049	55.12	28,000	.00079	.00984	.00047	47.24	25,000	.00039	.00591	.00043	39.37	23,000	.00028	.00472	.00034	27.56	20,000
		6	8.6	.00079	.00984	.00039	39.37	25,000	.00039	.00984	.00034	27.56	20,000	.00028	.00591	.00027	19.69	18,000	.00020	.00472	.00025	15.75	16,000
0.8	0.02	2	2.5	.00063	.01181	.00070	78.74	28,000	.00055	.00984	.00063	62.99	25,000	.00024	.00630	.00060	55.12	23,000	.00020	.00551	.00049	39.37	20,000
		4	5.0	.00047	.01181	.00063	70.87	28,000	.00031	.00984	.00055	55.12	25,000	.00020	.00630	.00051	47.24	23,000	.00012	.00551	.00039	31.50	20,000
		6	7.5	.00035	.01181	.00060	55.12	23,000	.00024	.00984	.00054	43.31	20,000	.00016	.00630	.00049	35.43	18,000	.00008	.00551	.00040	25.59	16,000
		8	10.0	.00024	.01181	.00055	39.37	18,000	.00012	.00984	.00049	31.50	16,000	.00008	.00630	.00042	23.62	14,000	.00008	.00551	.00033	15.75	12,000
	0.05 0.1 0.2	2	2.5	.00197	.01181	.00070	78.74	28,000	.00118	.00984	.00063	62.99	25,000	.00079	.00630	.00060	55.12	23,000	.00059	.00551	.00049	39.37	20,000
		4	5.0	.00177	.01181	.00063	70.87	28,000	.00098	.00984	.00055	55.12	25,000	.00059	.00630	.00051	47.24	23,000	.00039	.00551	.00039	31.50	20,000
		6	7.5	.00118	.01181	.00060	55.12	23,000	.00079	.00984	.00054	43.31	20,000	.00039	.00630	.00049	35.43	18,000	.00028	.00551	.00040	25.59	16,000
		8	10.0	.00079	.01181	.00055	39.37	18,000	.00039	.00984	.00049	31.50	16,000	.00020	.00630	.00042	23.62	14,000	.00020	.00551	.00033	15.75	12,000
		12	15.0	.00028	.01181	.00037	23.62	16,000	.00020	.00984	.00028	15.75	14,000	.00012	.00630	.00020	9.45	12,000	.00004	.00551	.00016	6.30	10,000
0.9	0.1	4	4.4	.00197	.01181	.00087	86.61	25,000	.00118	.01181	.00067	66.93	25,000	.00079	.00787	.00069	55.12	20,000	.00039	.00591	.00066	47.24	18,000
		8	8.9	.00118	.01181	.00055	39.37	18,000	.00039	.01181	.00049	31.50	16,000	.00031	.00787	.00049	27.56	14,000	.00020	.00591	.00049	19.69	10,000
1	0.02	1.5	1.5	.00063	.01378	.00098	118.11	30,000	.00047	.01181	.00094	94.49	25,000	.00039	.00984	.00098	82.68	21,000	.00031	.00787	.00087	59.06	17,000
		2	2.0	.00063	.01378	.00092	110.24	30,000	.00047	.01181	.00091	90.55	25,000	.00039	.00984	.00094	78.74	21,000	.00031	.00787	.00081	55.12	17,000
		2.5	2.5	.00063	.01378	.00092	106.30	29,000	.00047	.01181	.00090	86.61	24,000	.00039	.00984	.00094	74.80	20,000	.00031	.00787	.00081	53.15	16,500
		3	3.0	.00063	.01378	.00088	98.43	28,000	.00047	.01181	.00090	82.68	23,000	.00039	.00984	.00089	70.87	20,000	.00031	.00787	.00080	51.18	16,000
		4	4.0	.00055	.01378	.00087	86.61	25,000	.00039	.01181	.00084	70.87	21,000	.00031	.00984	.00082	59.06	18,000	.00020	.00787	.00077	43.31	14,000
		5	5.0	.00047	.01378	.00081	74.80	23,000	.00031	.01181	.00083	62.99	19,000	.00020	.00984	.00086	55.12	16,000	.00012	.00787	.00076	39.37	13,000
		6	6.0	.00039	.01378	.00084	66.93	20,000	.00031	.01181	.00086	55.12	16,000	.00020	.00984	.00084	47.24	14,000	.00012	.00787	.00076	33.46	11,000
		8	8.0	.00031	.01378	.00077	55.12	18,000	.00024	.01181	.00072	43.31	15,000	.00020	.00984	.00068	35.43	13,000	.00008	.00787	.00064	25.59	10,000
		10	10.0	.00024	.01378	.00062	39.37	16,000	.00016	.01181	.00061	31.50	13,000	.00012	.00984	.00063	27.56	11,000	.00008	.00787	.00055	19.69	9,000
	0.05 0.1 0.2 0.3	1.5	1.5	.00256	.01378	.00098	118.11	30,000	.00197	.01181	.00094	94.49	25,000	.00157	.00984	.00098	82.68	21,000	.00118	.00787	.00087	59.06	17,000
		2	2.0	.00256	.01378	.00092	110.24	30,000	.00197	.01181	.00091	90.55	25,000	.00157	.00984	.00094	78.74	21,000	.00118	.00787	.00081	55.12	17,000
		2.5	2.5	.00236	.01378	.00092	106.30	29,000	.00197	.01181	.00090	86.61	24,000	.00157	.00984	.00094	74.80	20,000	.00118	.00787	.00081	53.15	16,500
		3	3.0	.00236	.01378	.00088	98.43	28,000	.00197	.01181	.00090	82.68	23,000	.00157	.00984	.00089	70.87	20,000	.00118	.00787	.00080	51.18	16,000
		4	4.0	.00217	.01378	.00087	86.61	25,000	.00157	.01181	.00084	70.87	21,000	.00118	.00984	.00082	59.06	18,000	.00079	.00787	.00077	43.31	14,000
		5	5.0	.00197	.01378	.00081	74.80	23,000	.00118	.01181	.00083	62.99	19,000	.00079	.00984	.00086	55.12	16,000	.00039	.00787	.00076	39.37	13,000
		6	6.0	.00177	.01378	.00084	66.93	20,000	.00079	.01181	.00086	55.12	16,000	.00039	.00984	.00084	47.24	14,000	.00028	.00787	.00076	33.46	11,000
		8	8.0	.00138	.01378	.00077	55.12	18,000	.00059	.01181	.00072	43.31	15,000	.00031	.00984	.00068	35.43	13,000	.00020	.00787	.00064	25.59	10,000
		10	10.0	.00098	.01378	.00062	39.37	16,000	.00039	.01181	.00061	31.50	13,000	.00024	.00984	.00063	27.56	11,000	.00020	.00787	.00055	19.69	9,000
1.2	0.1 0.2 0.3	5	4.2	.00236	.01772	.00090	86.61	24,000	.00177	.01575	.00089	70.87	20,000	.00118	.01181	.00087	59.06	17,000	.00079	.00787	.00077	43.31	14,000
		10	8.3	.00157	.01772	.00086	55.12	16,000	.00118	.01575	.00083	43.31	13,000	.00039	.01181	.00085	37.40	11,000	.00020	.00787	.00077	27.56	9,000
1.5	0.02	3	2.0	.00063	.02165	.00098	110.24	28,000	.00047	.01969	.00098	90.55	23,000	.00039	.01575	.00098	78.74	20,000	.00031	.01181	.00086	55.12	16,000
		4	2.7	.00063	.02165	.00094	94.49	25,000	.00047	.01969	.00094	78.74	21,000	.00039	.01575	.00093	66.93	18,000	.00031	.01181	.00084	47.24	14,000
		6	4.0	.00055	.02165	.00094	86.61	23,000	.00039	.01969	.00093	70.87	19,000	.00031	.01575	.00092	59.06	16,000	.00020	.01181	.00083	43.31	13,000

MHRH430R

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
				a_p Inch	a_e Inch	IPT fz	IPM	RPM	a_p Inch	a_e Inch	IPT fz	IPM	RPM	a_p Inch	a_e Inch	IPT fz	IPM	RPM	a_p Inch	a_e 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
		10	5.0	.00394	.02756	.00104	74.80	18,000	.00197	.02362	.00105	59.06	14,000	.00118	.01969	.00098	51.18	13,000	.00059	.01378	.00094	37.40	10,000
		12	6.0	.00354	.02756	.00105	66.93	16,000	.00157	.02362	.00106	55.12	13,000	.00118	.01969	.00107	47.24	11,000	.00039	.01378	.00093	33.46	9,000
		16	8.0	.00276	.02756	.00098	55.12	14,000	.00118	.02362	.00098	43.31	11,000	.00079	.01969	.00098	37.40	9,500	.00028	.01378	.00085	25.59	7,500
		20	10.0	.00197	.02756	.00079	31.50	10,000	.00079	.02362	.00080	25.59	8,000	.00039	.01969	.00077	21.65	7,000	.00020	.01378	.00072	15.75	5,500
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
3	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
		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
	0.1 0.2 0.3 0.5	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
		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
	1	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
		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

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
				a_p Inch	a_e Inch	IPT fz	IPM	RPM	a_p Inch	a_e Inch	IPT fz	IPM	RPM	a_p Inch	a_e Inch	IPT fz	IPM	RPM	a_p Inch	a_e Inch	IPT fz	IPM	RPM
3	1	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
4	0.05	8	2.0	.00984	.05512	.00213	102.36	12,000	.00591	.04724	.00207	82.68	10,000	.00315	.03937	.00208	70.87	8,500	.00236	.03150	.00183	51.18	7,000
		12	3.0	.00984	.05512	.00213	102.36	12,000	.00591	.04724	.00207	82.68	10,000	.00315	.03937	.00208	70.87	8,500	.00236	.03150	.00183	51.18	7,000
		16	4.0	.00669	.05512	.00217	86.61	10,000	.00394	.04724	.00221	70.87	8,000	.00236	.03937	.00211	59.06	7,000	.00197	.03150	.00197	43.31	5,500
		20	5.0	.00591	.05512	.00208	74.80	9,000	.00354	.04724	.00205	59.06	7,200	.00236	.03937	.00203	51.18	6,300	.00157	.03150	.00187	37.40	5,000
		24	6.0	.00551	.05512	.00197	62.99	8,000	.00315	.04724	.00197	51.18	6,500	.00197	.03937	.00197	43.31	5,500	.00118	.03150	.00164	29.53	4,500
		28	7.0	.00433	.05512	.00191	55.12	7,200	.00197	.04724	.00197	47.24	6,000	.00118	.03937	.00197	39.37	5,000	.00079	.03150	.00172	27.56	4,000
		32	8.0	.00315	.05512	.00197	51.18	6,500	.00157	.04724	.00197	43.31	5,500	.00079	.03937	.00208	37.40	4,500	.00039	.03150	.00183	25.59	3,500
	0.1 0.2 0.3 0.5 1	8	2.0	.00984	.05512	.00213	102.36	12,000	.00591	.04724	.00207	82.68	10,000	.00315	.03937	.00208	70.87	8,500	.00236	.03150	.00183	51.18	7,000
		10	2.5	.00984	.05512	.00213	102.36	12,000	.00591	.04724	.00207	82.68	10,000	.00315	.03937	.00208	70.87	8,500	.00236	.03150	.00183	51.18	7,000
		12	3.0	.00984	.05512	.00213	102.36	12,000	.00591	.04724	.00207	82.68	10,000	.00315	.03937	.00208	70.87	8,500	.00236	.03150	.00183	51.18	7,000
		16	4.0	.00669	.05512	.00217	86.61	10,000	.00394	.04724	.00221	70.87	8,000	.00236	.03937	.00211	59.06	7,000	.00197	.03150	.00197	43.31	5,500
		20	5.0	.00591	.05512	.00208	74.80	9,000	.00354	.04724	.00205	59.06	7,200	.00236	.03937	.00203	51.18	6,300	.00157	.03150	.00187	37.40	5,000
		24	6.0	.00551	.05512	.00197	62.99	8,000	.00315	.04724	.00197	51.18	6,500	.00197	.03937	.00197	43.31	5,500	.00118	.03150	.00164	29.53	4,500
		28	7.0	.00433	.05512	.00191	55.12	7,200	.00197	.04724	.00197	47.24	6,000	.00118	.03937	.00197	39.37	5,000	.00079	.03150	.00172	27.56	4,000
		32	8.0	.00315	.05512	.00197	51.18	6,500	.00157	.04724	.00197	43.31	5,500	.00079	.03937	.00208	37.40	4,500	.00039	.03150	.00183	25.59	3,500
		40	10.0	.00197	.05512	.00179	39.37	5,500	.00098	.04724	.00178	32.68	4,600	.00039	.03937	.00175	25.20	3,600	.00020	.03150	.00172	16.54	2,400
5	0.1 0.2 0.3 0.5 1	10	2.0	.01181	.08661	.00251	98.43	9,800	.00709	.07874	.00243	82.68	8,500	.00315	.06299	.00239	70.87	7,400	.00236	.04724	.00230	55.12	6,000
		15	3.0	.00984	.08661	.00249	94.49	9,500	.00591	.07874	.00246	78.74	8,000	.00315	.06299	.00239	66.93	7,000	.00236	.04724	.00215	47.24	5,500
		20	4.0	.00709	.08661	.00246	78.74	8,000	.00394	.07874	.00242	62.99	6,500	.00276	.06299	.00251	55.12	5,500	.00197	.04724	.00219	39.37	4,500
		30	6.0	.00551	.08661	.00246	62.99	6,400	.00276	.07874	.00241	51.18	5,300	.00118	.06299	.00241	43.31	4,500	.00079	.04724	.00220	33.46	3,800
		40	8.0	.00354	.08661	.00236	47.24	5,000	.00197	.07874	.00246	39.37	4,000	.00079	.06299	.00239	33.46	3,500	.00039	.04724	.00197	23.62	3,000
6	0.05 0.1 0.2 0.3 0.5 1	12	2.0	.01378	.10630	.00308	98.43	8,000	.00709	.09843	.00318	82.68	6,500	.00315	.07874	.00322	70.87	5,500	.00236	.05906	.00284	51.18	4,500
		15	2.5	.01260	.10630	.00307	94.49	7,700	.00709	.09843	.00312	74.80	6,000	.00315	.07874	.00315	62.99	5,000	.00236	.05906	.00295	47.24	4,000
		18	3.0	.01181	.10630	.00309	86.61	7,000	.00709	.09843	.00322	70.87	5,500	.00315	.07874	.00328	59.06	4,500	.00236	.05906	.00309	43.31	3,500
		24	4.0	.00787	.10630	.00295	70.87	6,000	.00591	.09843	.00295	59.06	5,000	.00276	.07874	.00320	51.18	4,000	.00197	.05906	.00295	35.43	3,000
		30	5.0	.00630	.10630	.00297	62.99	5,300	.00512	.09843	.00298	51.18	4,300	.00236	.07874	.00295	42.52	3,600	.00157	.05906	.00317	34.25	2,700
		40	6.7	.00472	.10630	.00298	51.18	4,300	.00315	.09843	.00295	37.80	3,200	.00157	.07874	.00292	31.50	2,700	.00118	.05906	.00300	27.56	2,300
		48	8.0	.00394	.10630	.00295	35.43	3,000	.00197	.09843	.00295	29.53	2,500	.00118	.07874	.00320	25.59	2,000	.00079	.05906	.00222	17.72	2,000

Notes

※Recommended RPM based upon ideal conditions.
RPM may be adjusted to match the capabilities of your machine while maintaining constant feed rate per cutting tooth.

※1 Adjust milling conditions according to milling shape and machine type.
※2 ap : Axial Depth of Cut, ae : Radial Depth of Cut.
※3 Recommend to use oil mist coolant for machining hardened steels.
※4 Recommend to apply helical or ramping for approaching into axial direction.
※5 Adjust feed rate 50% lower and cutting depth (ae) 30% lower for milling deep wall area when L/D exceeds 8 for stable milling.
※6 For slotting, recommend reciprocating milling by adjusting feed & ap in below 50% of recommended milling condition.
※7 Reduce both spindle speed and feed at same rate for chattering and also for insufficient spindle speed of a machine.

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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.

ISO 9001 JQA-QM6096 ISO 14001 JQA-EM3712

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