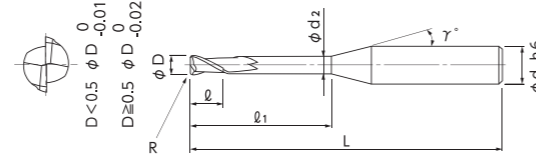
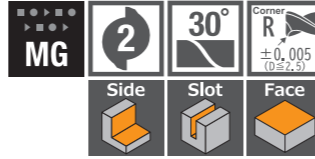


MUGEN COATING 2-Flute Long Neck Radius End Mill

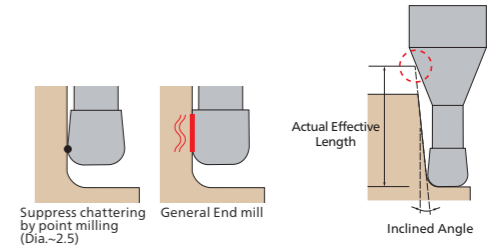
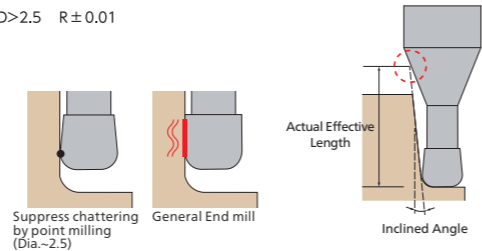
Total 387 sizes

MUGEN COATING 2-Flute Long Neck Radius End Mill

2-flute long neck corner radius end mill. Maximum L/D=20



$D \leq 2.5$ $R \pm 0.005$
 $D > 2.5$ $R \pm 0.01$



- Minimized chattering by peripheral cutting edge designed for minimal contact to work material.
- Realized high efficiency milling by obtaining larger radial depth of cutting comparing with Ball End Mill.
- Corner R accuracy : $\pm 5\mu\text{m}$ (Dia. ~ 2.5)
- Better performance in wide range of machining of direct carving on Hardened Steels, Prehardened Steels and Copper Electrode.

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°
08-00221-02050	0.2	R0.05	0.5	0.15	0.18	12°	4	45	0.56	0.59	0.61	0.64	0.71
08-00220-02001									0.56	0.59	0.61	0.64	0.71
08-00221-02051									1.08	1.13	1.18	1.24	1.37
08-00220-02002									1.08	1.13	1.18	1.24	1.37
08-00221-02052									1.61	1.68	1.75	1.84	2.03
08-00221-02053									2.13	2.22	2.32	2.43	2.70
08-00221-03050	0.3	R0.05	1	0.25	0.28	12°	4	45	1.08	1.13	1.18	1.24	1.37
08-00220-03001									1.08	1.13	1.18	1.24	1.37
08-00221-03051									1.61	1.68	1.75	1.84	2.03
08-00221-03052									2.13	2.22	2.32	2.43	2.70
08-00220-03002									2.13	2.22	2.32	2.43	2.70
08-00221-03053									2.65	2.77	2.89	3.03	3.36
08-00221-03054	3.17	3.31	3.46	3.63	4.02								
08-00221-04050	0.4	R0.05	1	0.3	0.37	12°	4	45	1.11	1.16	1.21	1.27	1.40
08-00221-04051									1.63	1.70	1.78	1.86	2.06
08-00221-04052									2.15	2.25	2.35	2.46	2.73
08-00220-04005									2.15	2.25	2.35	2.46	2.73
08-00221-04053									3.19	3.34	3.49	3.66	4.05
08-00220-04006									3.19	3.34	3.49	3.66	4.05
08-00221-04054		4.24	4.43	4.63	4.86	5.38							
08-00220-04007		4.24	4.43	4.63	4.86	5.38							
08-00221-04100		R0.1	1	0.3	0.37	12°	4	45	1.11	1.15	1.20	1.26	1.38
08-00221-04101									1.63	1.70	1.77	1.86	2.05
08-00221-04102									2.15	2.24	2.34	2.45	2.71
08-00220-04011									2.15	2.24	2.34	2.45	2.71
08-00221-04103	3.19								3.33	3.48	3.65	4.04	
08-00220-04013	3.19								3.33	3.48	3.65	4.04	
08-00221-04104	4.24	4.42	4.62	4.85	5.37								
08-00220-04012	4.24	4.42	4.62	4.85	5.37								

How to Order

When you order, indicate MHR230R (D)×(R)×(l₁)×(d). ※(γ) is reference value.

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°								
08-00221-05050	0.5	R0.05	1	0.4	0.46	12°	4	45	1.13	1.18	1.24	1.29	1.43								
08-00221-05051									2.18	2.27	2.38	2.49	2.76								
08-00220-05005									2	6	50	2.18	2.27	2.38	2.49	2.76					
08-00221-05052									3	4	45	3.22	3.36	3.52	3.69	4.09					
08-00220-05006									3	6	50	3.22	3.36	3.52	3.69	4.09					
08-00221-05053									4	4	45	4.26	4.45	4.66	4.88	5.41					
08-00220-05007									4	6	50	4.26	4.45	4.66	4.88	5.41					
08-00221-05054									5	4	45	5.31	5.54	5.80	6.08	6.74					
08-00220-05008									5	6	50	5.31	5.54	5.80	6.08	6.74					
08-00221-05055									6	4	45	6.35	6.63	6.94	7.28	8.07					
08-00221-05100									R0.1	1	0.4	0.46	12°	4	45	1.13	1.18	1.23	1.28	1.42	
08-00221-05101																2.17	2.27	2.37	2.48	2.74	
08-00220-05011		2	6	50	2.17	2.27	2.37	2.48								2.74					
08-00221-05102		3	4	45	3.22	3.36	3.51	3.68								4.07					
08-00220-05013		3	6	50	3.22	3.36	3.51	3.68								4.07					
08-00221-05103		4	4	45	4.26	4.45	4.65	4.87								5.40					
08-00220-05012		4	6	50	4.26	4.45	4.65	4.87								5.40					
08-00221-05104		5	4	45	5.30	5.54	5.79	6.07								6.72					
08-00220-05014		5	6	50	5.30	5.54	5.79	6.07								6.72					
08-00221-05105		6	4	45	6.35	6.63	6.93	7.27								8.05					
08-00221-06050		0.6	R0.05	2	0.5	0.56	12°	4								45	2.18	2.27	2.38	2.49	2.76
08-00220-06005																	2.18	2.27	2.38	2.49	2.76
08-00221-06051									3	4	45	3.22	3.36	3.52	3.69		4.09				
08-00221-06052									4	4	45	4.26	4.45	4.66	4.88		5.41				
08-00220-06007	4								6	50	4.26	4.45	4.66	4.88	5.41						
08-00221-06053	6								4	45	6.35	6.63	6.94	7.28	8.07						
08-00220-06009	6		6	50	6.35	6.63	6.94	7.28	8.07												
08-00221-06054	8		4	50	8.43	8.81	9.22	9.67	10.72												
08-00221-06100	R0.1		2	0.5	0.56	12°	4	45	2.17	2.27	2.37	2.48	2.74								
08-00221-06101									3	4	45	3.22	3.36	3.51	3.68	4.07					
08-00221-06102									4	4	45	4.26	4.45	4.65	4.87	5.40					
08-00220-06011									4	6	50	4.26	4.45	4.65	4.87	5.40					
08-00221-06103									6	4	45	6.35	6.63	6.93	7.27	8.05					
08-00220-06012									6	6	50	6.35	6.63	6.93	7.27	8.05					
08-00221-06104	8		4	50	8.43	8.80	9.21	9.66	10.71												
08-00221-06200	R0.2		2	0.5	0.56	12°	4	45	2.17	2.26	2.36	2.46	2.71								
08-00221-06201									3	4	45	3.21	3.35	3.50	3.66	4.04					

- M Stainless Steel
- N Aluminium Alloy
- N Copper
- O Resin



MHR230R

MUGEN COATING 2-Flute Long Neck Radius End Mill

MHR230R

MUGEN COATING 2-Flute Long Neck Radius End Mill

Carbon Steel **P**

Alloy Steel **P**

Prehardened Steel **P**

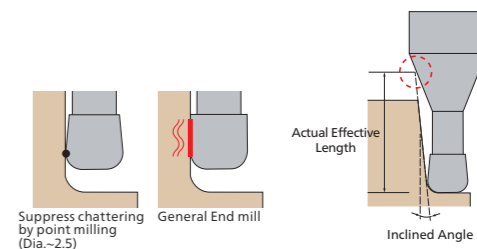
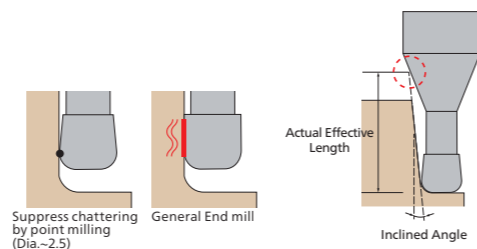
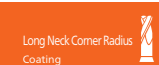
Hardened Steel ~55 HRC **H**

Stainless Steel **M**

Aluminium Alloy **N**

Copper **N**

Resin **O**



Unit : 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°	
08-00221-06202	0.6	R0.2	4	0.5	0.56	12°	4	45	4.26	4.44	4.64	4.86	5.37	
08-00221-06203									6.34	6.62	6.92	7.25	8.02	
08-00221-06204									8.43	8.80	9.20	9.64	10.67	
08-00221-07050									4.26	4.45	4.66	4.88	5.41	
08-00220-07005	0.7	R0.05	4	0.55	0.66	12°	6	50	4.26	4.45	4.66	4.88	5.41	
08-00221-07051									6.35	6.63	6.94	7.28	8.07	
08-00220-07006									6.35	6.63	6.94	7.28	8.07	
08-00221-07100									4.26	4.45	4.65	4.87	5.40	
08-00220-07011									6.35	6.63	6.93	7.27	8.05	
08-00221-07101									6.35	6.63	6.93	7.27	8.05	
08-00220-07012		4.26	4.45	4.65	4.87	5.40								
08-00221-08050		0.8	R0.05	4	0.65	0.76	12°	4	45	4.26	4.45	4.66	4.88	5.41
08-00220-08005										6.35	6.63	6.94	7.28	8.07
08-00221-08051										6.35	6.63	6.94	7.28	8.07
08-00220-08006										4.26	4.45	4.65	4.87	5.40
08-00221-08052										8.43	8.81	9.22	9.67	10.72
08-00220-08007	8.43									8.81	9.22	9.67	10.72	
08-00221-08100	4.26									4.45	4.65	4.87	5.40	
08-00220-08011	6.35									6.63	6.93	7.27	8.05	
08-00221-08101	6.35									6.63	6.93	7.27	8.05	
08-00220-08012	4.26									4.45	4.65	4.87	5.40	
08-00221-08102	8.43									8.80	9.21	9.66	10.71	
08-00220-08013	8.43									8.80	9.21	9.66	10.71	
08-00221-08200	4.26		4.44	4.64	4.86	5.37								
08-00220-08021	4.26		4.44	4.64	4.86	5.37								
08-00221-08201	6.34		6.62	6.92	7.25	8.02								
08-00220-08022	6.34		6.62	6.92	7.25	8.02								
08-00221-08202	8.43		8.80	9.20	9.64	10.67								
08-00220-08023	8.43		8.80	9.20	9.64	10.67								
08-00221-09100	0.9		R0.1	4	0.7	0.85	12°	4	45	4.28	4.47	4.68	4.90	5.43
08-00220-09011										6.35	6.63	6.93	7.27	8.05
08-00221-09101										8.46	8.83	9.24	9.69	10.74
08-00220-09012										8.46	8.83	9.24	9.69	10.74
08-00221-10050	1		R0.05	2	0.8	0.95	12°	4	50	2.20	2.30	2.40	2.52	2.79
08-00221-10051										3.24	3.39	3.54	3.72	4.12
08-00220-10001		3.24								3.39	3.54	3.72	4.12	
08-00221-10052		4.29								4.48	4.68	4.91	5.44	

Carbon Steel **P**

Alloy Steel **P**

Prehardened Steel **P**

Hardened Steel ~55 HRC **H**

Stainless Steel **M**

Aluminium Alloy **N**

Copper **N**

Resin **O**



Unit : 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°			
08-00220-10002	1	R0.05	4	0.8	0.95	12°	6	50	5.33	5.57	5.82	6.11	6.77			
08-00221-10053									4	50	5.33	5.57	5.82	6.11	6.77	
08-00220-10003									6	50	6.37	6.66	6.97	7.31	8.10	
08-00221-10054									4	50	6.37	6.66	6.97	7.31	8.10	
08-00220-10004									6	50	8.46	8.83	9.25	9.70	10.75	
08-00221-10055									4	50	8.46	8.83	9.25	9.70	10.75	
08-00220-10006									6	50	10.54	11.01	11.53	12.09	13.41	
08-00221-10056									4	50	10.54	11.01	11.53	12.09	13.41	
08-00220-10008									6	50	12.63	13.19	13.81	14.49	16.06	
08-00221-10057									4	50	12.63	13.19	13.81	14.49	16.06	
08-00220-10009									6	50	16.80	17.55	18.37	19.27	21.37	
08-00221-10058									4	60	20.97	21.91	22.93	24.06	26.68	
08-00220-10009									4	60	2.20	2.29	2.40	2.51	2.77	
08-00221-10100									R0.1	4	50	3.24	3.38	3.54	3.71	4.10
08-00221-10101																
08-00220-10010		3	50	4.28	4.47	4.68	4.90	5.43								
08-00221-10102		4	50	4.28	4.47	4.68	4.90	5.43								
08-00220-10011		6	50	5.33	5.56	5.82	6.10	6.76								
08-00221-10103		4	50	5.33	5.56	5.82	6.10	6.76								
08-00220-10014		6	50	6.37	6.65	6.96	7.30	8.08								
08-00221-10104		4	50	6.37	6.65	6.96	7.30	8.08								
08-00220-10015		6	50	8.46	8.83	9.24	9.69	10.74								
08-00221-10105		4	50	8.46	8.83	9.24	9.69	10.74								
08-00220-10012		6	50	10.54	11.01	11.52	12.08	13.39								
08-00221-10106		4	50	10.54	11.01	11.52	12.08	13.39								
08-00220-10016		6	50	12.63	13.19	13.80	14.48	16.05								
08-00221-10107		4	50	12.63	13.19	13.80	14.48	16.05								
08-00220-10013		6	50	16.80	17.55	18.36	19.26	21.36								
08-00221-10108		4	60	20.97	21.90	22.93	24.05	26.66								
08-00220-10108		4	60	2.19	2.28	2.38	2.49	2.74								
08-00221-10109		R0.2	4	50	3.24	3.37	3.52	3.69	4.07							
08-00221-10200	2									50	3.24	3.37	3.52	3.69	4.07	
08-00221-10201	3									50	3.24	3.37	3.52	3.69	4.07	
08-00220-10024	6									50	4.28	4.46	4.66	4.88	5.40	
08-00221-10202	4									50	4.28	4.46	4.66	4.88	5.40	
08-00220-10021	6									50	5.32	5.55	5.80	6.08	6.72	
08-00221-10203	4									50	5.32	5.55	5.80	6.08	6.72	
08-00220-10025	6									50	5.33	5.56	5.81	6.09	6.75	

How to Order

When you order, indicate MHR230R (D)×(R)×(ℓ₁)×(d).

※(γ) is reference value.

MHR230R

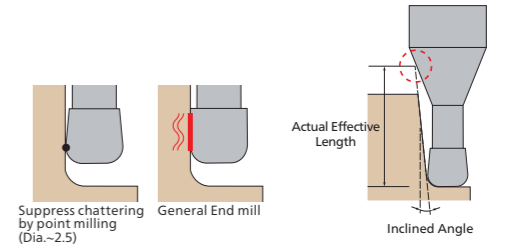
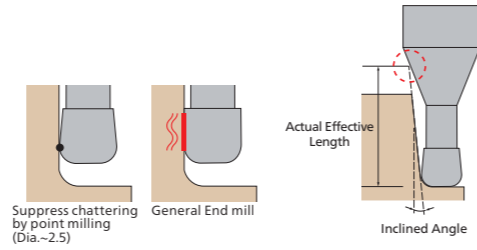
MUGEN COATING 2-Flute Long Neck Radius End Mill

MHR230R

MUGEN COATING 2-Flute Long Neck Radius End Mill

- Carbon Steel **P**
- Alloy Steel **P**
- Prehardened Steel **P**
- Hardened Steel ~55 HRC **H**

- Carbon Steel **P**
- Alloy Steel **P**
- Prehardened Steel **P**
- ~55 HRC Hardened Steel **H**



- Stainless Steel **M**

- Stainless Steel **M**

- Aluminium Alloy **N**
- Copper **N**
- Resin **O**

- Aluminium Alloy **N**
- Copper **N**
- Resin **O**

Unit : 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°				
08-00221-10204	1	R0.2	6	0.8	0.95	12°	4	50	6.37	6.64	6.94	7.28	8.05				
08-00220-10026			6				50	6.37	6.64	6.94	7.28	8.05					
08-00221-10205			8				4	50	8.45	8.82	9.23	9.67	10.71				
08-00220-10022			8				6	50	8.45	8.82	9.23	9.67	10.71				
08-00221-10206			10				4	50	10.54	11.00	11.51	12.06	13.36				
08-00220-10027			10				6	50	10.54	11.00	11.51	12.06	13.36				
08-00221-10207			12				4	50	12.62	13.18	13.79	14.46	16.01				
08-00220-10023			12				6	50	12.62	13.18	13.79	14.46	16.01				
08-00221-10208			16				4	60	16.79	17.54	18.35	19.24	21.32				
08-00221-10209			20				4	60	20.97	21.89	22.91	24.03	26.63				
08-00221-10300			2				4	50	2.19	2.28	2.37	2.47	2.71				
08-00221-10301			3				4	50	3.23	3.36	3.51	3.67	4.04				
08-00220-10034		3	6				50	3.23	3.36	3.51	3.67	4.04					
08-00221-10302		4	4				50	4.28	4.45	4.65	4.86	5.36					
08-00220-10031		4	6				50	4.28	4.45	4.65	4.86	5.36					
08-00221-10303		5	4				50	5.32	5.54	5.79	6.06	6.69					
08-00220-10035		5	6				50	5.32	5.54	5.79	6.06	6.69					
08-00221-10304		6	4				50	6.36	6.63	6.93	7.26	8.02					
08-00220-10036		6	6				50	6.36	6.63	6.93	7.26	8.02					
08-00221-10305		8	4				50	8.45	8.81	9.21	9.65	10.67					
08-00220-10032		8	6				50	8.45	8.81	9.21	9.65	10.67					
08-00221-10306		10	4				50	10.53	10.99	11.49	12.04	13.33					
08-00220-10037		10	6				50	10.53	10.99	11.49	12.04	13.33					
08-00221-10307		12	4				50	12.62	13.17	13.77	14.44	15.98					
08-00220-10033		12	6				50	12.62	13.17	13.77	14.44	15.98					
08-00221-10308		16	4				60	16.79	17.53	18.34	19.22	21.29					
08-00221-10309		20	4				60	20.96	21.89	22.90	24.01	26.60					
08-00220-12011		1.2	R0.1				5	1	1.14	12°	6	50	5.35	5.59	5.84	6.13	6.79
08-00221-12100							6				4	50	6.39	6.68	6.99	7.32	8.11
08-00221-12101							8				4	50	8.48	8.86	9.27	9.72	10.77
08-00221-12102							10				4	50	10.57	11.03	11.55	12.11	13.42
08-00220-12013							10				6	50	10.57	11.03	11.55	12.11	13.42
08-00221-12103							12				4	50	12.65	13.21	13.83	14.50	16.08
08-00220-12015	15			6	60	15.78	16.48				17.25	18.09	20.06				
08-00221-12104	16			4	60	16.82	17.57				18.39	19.29	21.39				
08-00221-12105	20			4	60	20.99	21.93				22.95	24.08	26.70				
08-00220-12021	R0.2			5	6	50	5.35				5.58	5.83	6.11	6.75			

Unit : 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°				
08-00221-12200	1.2	R0.2	6	1	1.14	12°	4	50	6.39	6.67	6.97	7.30	8.08				
08-00221-12201			8				4	50	8.48	8.85	9.25	9.70	10.74				
08-00221-12202			10				4	50	10.56	11.03	11.53	12.09	13.39				
08-00220-12022			10				6	50	10.56	11.03	11.53	12.09	13.39				
08-00221-12203			12				4	50	12.65	13.20	13.81	14.48	16.05				
08-00220-12023			15				6	60	15.78	16.47	17.24	18.07	20.03				
08-00221-12204			16				4	60	16.82	17.56	18.38	19.27	21.35				
08-00221-12205			20				4	60	20.99	21.92	22.94	24.06	26.66				
08-00220-12031			5				6	50	5.34	5.57	5.82	6.09	6.72				
08-00221-12300			6				4	50	6.39	6.66	6.96	7.29	8.05				
08-00221-12301			8				4	50	8.47	8.84	9.24	9.68	10.70				
08-00221-12302			10				4	50	10.56	11.02	11.52	12.07	13.36				
08-00220-12032		10	6				50	10.56	11.02	11.52	12.07	13.36					
08-00221-12303		12	4				50	12.64	13.20	13.80	14.46	16.01					
08-00220-12033		15	6				60	15.77	16.46	17.22	18.05	20.00					
08-00221-12304		16	4				60	16.81	17.55	18.36	19.25	21.32					
08-00221-12305		20	4				60	20.99	21.91	22.92	24.04	26.63					
08-00221-15100		1.5	R0.1				4	1.2	1.45	12°	4	50	4.28	4.47	4.68	4.90	5.43
08-00221-15101							6				4	50	6.37	6.65	6.96	7.30	8.08
08-00220-15011							6				6	50	6.37	6.65	6.96	7.30	8.08
08-00221-15102							8				4	50	8.46	8.83	9.24	9.69	10.74
08-00221-15103							10				4	50	10.54	11.01	11.52	12.08	13.39
08-00221-15104	12			4	50	12.63	13.19				13.80	14.48	16.05				
08-00220-15013	12			6	50	12.63	13.19				13.80	14.48	16.05				
08-00221-15105	16			4	60	16.80	17.55				18.36	19.26	21.36				
08-00221-15106	18			4	60	18.88	19.72				20.64	21.65	Free				
08-00220-15015	18			6	60	18.88	19.72				20.64	21.65	24.01				
08-00221-15107	20			4	60	20.97	21.90				22.93	24.05	Free				
08-00221-15200	4			4	50	4.28	4.46				4.66	4.88	5.40				
08-00221-15201	6		4	50	6.37	6.64	6.94				7.28	8.05					
08-00220-15021	6		6	50	6.37	6.64	6.94				7.28	8.05					
08-00221-15202	8		4	50	8.45	8.82	9.23				9.67	10.71					
08-00221-15203	10		4	50	10.54	11.00	11.51				12.06	13.36					
08-00221-15204	12	4	50	12.62	13.18	13.79	14.46	16.01									
08-00220-15023	12	6	50	12.62	13.18	13.79	14.46	16.01									
08-00221-15205	16	4	60	16.79	17.54	18.35	19.24	21.32									
08-00221-15206	18	4	60	18.88	19.72	20.63	21.64	23.98									

How to Order When you order, indicate MHR230R (D)×(R)×(ℓ1)×(d). ※(γ) is reference value.

MHR230R

MUGEN COATING 2-Flute Long Neck Radius End Mill

MHR230R

MUGEN COATING 2-Flute Long Neck Radius End Mill

P Carbon Steel

P Alloy Steel

P Prehardened Steel

H ~55 HRC Hardened Steel

M Stainless Steel

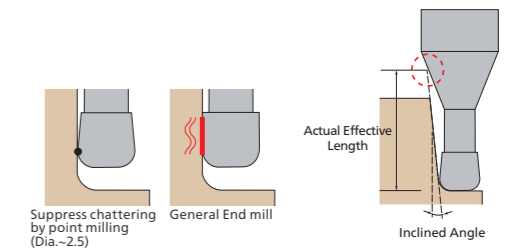
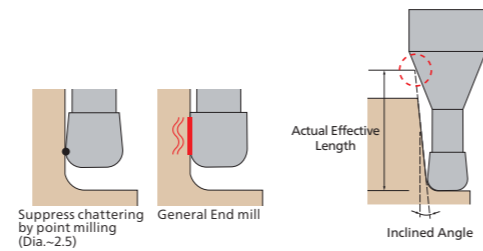
N Aluminium Alloy

N Copper

O Resin

Long Neck Corner Radius
Coating

Long Neck Corner Radius
Coating



Unit : mm

Unit : 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°				
08-00220-15025	1.5	R0.2	18	1.2	1.45	12°	6	60	18.89	19.73	20.65	21.67	24.05				
08-00221-15207			20				4	60	20.97	21.91	22.93	24.06	26.71				
08-00221-15300			4				4	50	4.28	4.46	4.66	4.87	5.38				
08-00221-15301			6				4	50	6.37	6.64	6.94	7.27	8.04				
08-00220-15031			6				6	50	6.37	6.64	6.94	7.27	8.04				
08-00221-15302			8				4	50	8.45	8.82	9.22	9.67	10.71				
08-00221-15303		10	4				50	10.54	11.00	11.51	12.06	13.37					
08-00221-15304		12	4				50	12.62	13.18	13.79	14.46	16.03					
08-00220-15032		12	6				50	12.62	13.18	13.79	14.46	16.03					
08-00221-15305		16	4				60	16.80	17.54	18.35	19.25	21.35					
08-00221-15306		18	4				60	18.88	19.72	20.64	21.65	24.01					
08-00220-15033		18	6				60	18.88	19.72	20.64	21.65	24.01					
08-00221-15307		20	4				60	20.97	21.90	22.92	24.04	26.68					
08-00221-15500		4	4				50	4.27	4.44	4.63	4.83	5.32					
08-00221-15501		6	4				50	6.36	6.62	6.91	7.23	7.98					
08-00220-15051		6	6				50	6.36	6.62	6.91	7.23	7.98					
08-00221-15502		8	4				50	8.44	8.80	9.19	9.63	10.64					
08-00221-15503		10	4				50	10.53	10.98	11.48	12.02	13.30					
08-00221-15504		12	4				50	12.62	13.16	13.76	14.42	15.96					
08-00220-15052		12	6				50	12.62	13.16	13.76	14.42	15.96					
08-00221-15505		16	4				60	16.79	17.52	18.32	19.21	21.29					
08-00221-15506		18	4				60	18.87	19.70	20.61	21.61	23.95					
08-00220-15053		18	6				60	18.87	19.70	20.61	21.61	23.95					
08-00221-15507		20	4				60	20.96	21.88	22.89	24.00	26.61					
08-00221-20100		2	R0.1				4	1.6	1.91	12°	4	50	4.31	4.50	4.71	4.94	5.48
08-00221-20101							6				4	50	6.40	6.68	7.00	7.34	8.14
08-00221-20102							8				4	50	8.49	8.86	9.28	9.73	10.80
08-00220-20011							8				6	50	8.49	8.86	9.28	9.73	10.80
08-00221-20103							10				4	50	10.57	11.04	11.56	12.13	13.47
08-00221-20104							12				4	50	12.66	13.22	13.84	14.53	16.13
08-00220-20014	12			6	50	12.66	13.22				13.84	14.53	16.13				
08-00221-20105	16			4	60	16.83	17.58				18.41	19.32	21.45				
08-00220-20012	16			6	60	16.83	17.58				18.41	19.32	21.45				
08-00221-20106	20			4	60	21.00	21.94				22.97	24.11	26.77				
08-00220-20015	20			6	60	21.00	21.94				22.97	24.11	26.77				
08-00221-20107	24			4	70	25.17	26.30				27.54	28.90	32.10				
08-00220-20013	24			6	70	25.17	26.30				27.54	28.90	32.10				

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°
08-00221-20108	2	R0.1	26	1.6	1.91	12°	4	70	27.32	28.54	29.88	Free	Free
08-00221-20109			30				4	70	31.50	32.90	34.44	Free	Free
08-00221-20200			4				4	50	4.38	4.57	4.77	5.00	5.52
08-00221-20201			6				4	50	6.46	6.74	7.05	7.39	8.18
08-00221-20202			8				4	50	8.55	8.92	9.33	9.78	10.83
08-00220-20021			8				6	50	8.55	8.92	9.33	9.78	10.83
08-00221-20203		10	4				50	10.64	11.10	11.61	12.18	13.48	
08-00221-20204		12	4				50	12.72	13.28	13.89	14.57	16.14	
08-00220-20023		12	6				50	12.72	13.28	13.89	14.57	16.14	
08-00221-20205		16	4				60	16.89	17.64	18.46	19.36	Free	
08-00220-20025		16	6				60	16.89	17.64	18.46	19.36	21.45	
08-00221-20206		20	4				60	21.06	22.00	23.02	24.14	Free	
08-00220-20027		20	6				60	21.06	22.00	23.02	24.14	26.76	
08-00221-20207		24	4				70	25.23	26.36	27.58	Free	Free	
08-00220-20029		24	6				70	25.23	26.36	27.58	28.93	32.07	
08-00221-20208		26	4				70	27.32	28.53	29.86	Free	Free	
08-00221-20209		30	4				70	31.49	32.89	34.42	Free	Free	
08-00221-20300		4	4				50	4.37	4.56	4.76	4.98	5.49	
08-00221-20301		6	4				50	6.46	6.74	7.04	7.37	8.14	
08-00221-20302		8	4				50	8.55	8.91	9.32	9.76	10.80	
08-00220-20031		8	6				50	8.55	8.91	9.32	9.76	10.80	
08-00221-20303		10	4				50	10.63	11.09	11.60	12.16	13.45	
08-00221-20304		12	4				50	12.72	13.27	13.88	14.55	16.11	
08-00220-20034		12	6				50	12.72	13.27	13.88	14.55	16.11	
08-00221-20305		16	4				60	16.89	17.63	18.44	19.34	Free	
08-00220-20032		16	6				60	16.89	17.63	18.44	19.34	21.42	
08-00221-20306		20	4				60	21.06	21.99	23.00	24.12	Free	
08-00220-20035		20	6				60	21.06	21.99	23.00	24.12	26.73	
08-00221-20307		24	4				70	25.23	26.35	27.57	28.91	Free	
08-00220-20033		24	6				70	25.23	26.35	27.57	28.91	32.03	
08-00221-20308		26	4				70	27.32	28.53	29.85	Free	Free	
08-00221-20309		30	4				70	31.49	32.88	34.41	Free	Free	
08-00221-20500		R0.5	4				4	50	4.37	4.54	4.73	4.94	5.43
08-00221-20501	6		4	50	6.45	6.72	7.01	7.33	8.08				
08-00221-20502	8		4	50	8.54	8.90	9.29	9.72	10.73				
08-00220-20051	8		6	50	8.54	8.90	9.29	9.72	10.73				
08-00221-20503	10		4	50	10.62	11.08	11.57	12.12	13.39				

How to Order When you order, indicate MHR230R (D)×(R)×(ℓ1)×(d). ※(γ) is reference value.

- Carbon Steel **P**
- Alloy Steel **P**
- Prehardened Steel **P**
- Hardened Steel \sim 55 HRC **H**

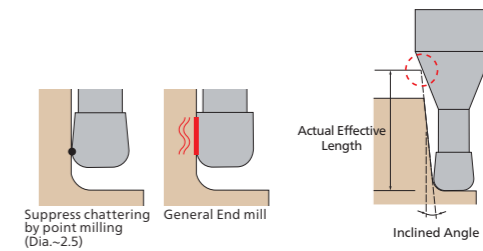
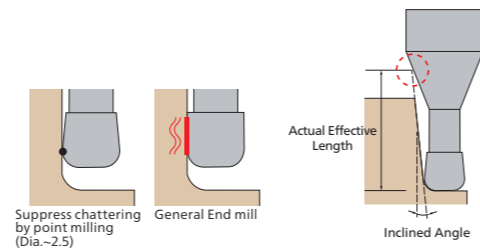
- Carbon Steel **P**
- Alloy Steel **P**
- Prehardened Steel **P**
- Hardened Steel \sim 55 HRC **H**

- Stainless Steel **M**

- Stainless Steel **M**

- Aluminium Alloy **N**
- Copper **N**
- Resin **O**

- Aluminium Alloy **N**
- Copper **N**
- Resin **O**



Unit : 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°									
08-00221-20504	2	R0.5	1.6	1.91	12°	4	50	12.71	13.25	13.85	14.51	16.04										
08-00220-20054								6	50	12.71	13.25	13.85	14.51	16.04								
08-00221-20505								4	60	16.88	17.61	18.42	19.30	Free								
08-00220-20052								6	60	16.88	17.61	18.42	19.30	21.35								
08-00221-20506								4	60	21.05	21.97	22.98	24.08	Free								
08-00220-20055								6	60	21.05	21.97	22.98	24.08	26.66								
08-00221-20507								4	70	25.22	26.33	27.54	28.87	Free								
08-00220-20053								6	70	25.22	26.33	27.54	28.87	31.97								
08-00221-20508								4	70	27.31	28.51	29.82	Free	Free								
08-00221-20509								4	70	31.48	32.87	34.38	Free	Free								
08-00221-25100								2.5	R0.1	2	2.39	12°	4	50	10.69	11.16	11.68	12.25	13.58			
08-00220-25011															6	50	10.69	11.16	11.68	12.25	13.58	
08-00221-25101	4	60	21.12	22.06	23.09	Free	Free															
08-00220-25013	6	60	21.12	22.06	23.09	24.22	26.85															
08-00221-25102	4	70	31.55	32.95	Free	Free	Free															
08-00220-25015	6	70	31.55	32.95	34.49	36.18	Free															
08-00221-25200	R0.2	10	10	10.68	11.15	11.67	12.23								13.55							
08-00220-25021																6	50	10.68	11.15	11.67	12.23	13.55
08-00221-25201																4	60	21.11	22.05	23.07	Free	Free
08-00220-25023																6	60	21.11	22.05	23.07	24.20	26.82
08-00221-25202																4	70	31.54	32.94	Free	Free	Free
08-00220-25025																6	70	31.54	32.94	34.48	36.16	Free
08-00221-25300	R0.3	10	10	10.68	11.14	11.65	12.21		13.52													
08-00220-25031										6	50	10.68	11.14	11.65	12.21	13.52						
08-00221-25301										4	60	21.11	22.04	23.06	Free	Free						
08-00220-25032										6	60	21.11	22.04	23.06	24.18	26.79						
08-00221-25302										4	70	31.54	32.93	Free	Free	Free						
08-00220-25033										6	70	31.54	32.93	34.46	36.14	Free						
08-00221-25500	R0.5	10	10	10.67	11.13	11.63	12.17		13.45													
08-00220-25051										6	50	10.67	11.13	11.63	12.17	13.45						
08-00221-25501										4	60	21.10	22.02	23.03	Free	Free						
08-00220-25052		6	60	21.10	22.02	23.03	24.14		26.72													
08-00221-25502		4	70	31.53	32.92	Free	Free		Free													
08-00220-25053		6	70	31.53	32.92	34.44	36.11		Free													

How to Order When you order, indicate MHR230R (D)×(R)×(ℓ1)×(d). ※(γ) is reference value.

Unit : 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°				
08-00220-30011	3	R0.1	12	4.5	2.85	12°	6	50	12.87	13.44	14.07	14.76	16.36				
08-00220-30013									6	60	19.13	19.98	20.91	21.94	24.32		
08-00220-30015									6	70	25.39	26.52	27.76	29.12	Free		
08-00220-30017									6	70	31.64	33.05	34.60	36.30	Free		
08-00220-30019									6	80	37.90	39.59	41.44	Free	Free		
08-00220-30021									6	50	12.87	13.44	14.06	14.74	16.33		
08-00220-30023		R0.2	18	6	60	19.13	19.97	20.90	21.92	24.29							
08-00220-30025											6	70	25.38	26.51	27.74	29.10	Free
08-00220-30027											6	70	31.64	33.05	34.58	36.28	Free
08-00220-30029											6	80	37.90	39.58	41.43	Free	Free
08-00220-30031		R0.3	24	6	50	12.86	13.43	14.04	14.72	16.29							
08-00220-30034											6	60	19.12	19.96	20.88	21.90	24.26
08-00220-30032											6	70	25.38	26.50	27.73	29.08	Free
08-00220-30035											6	70	31.63	33.04	34.57	36.26	Free
08-00220-30033											6	80	37.89	39.57	41.41	Free	Free
08-00220-30051											6	50	12.86	13.41	14.01	14.68	16.23
08-00220-30054		R0.5	18	6	60	19.11	19.95	20.86	21.86	24.19							
08-00220-30052											6	70	25.37	26.48	27.70	29.04	Free
08-00220-30055											6	70	31.63	33.02	34.54	36.22	Free
08-00220-30053											6	80	37.88	39.56	41.39	43.40	Free
08-00220-30101		R1	12	6	50	12.83	13.36	13.94	14.58	16.07							
08-00220-30104											6	60	19.09	19.90	20.79	21.76	24.04
08-00220-30102											6	70	25.35	26.44	27.63	28.94	Free
08-00220-30105											6	70	31.60	32.97	34.47	36.12	Free
08-00220-30103		6	80	37.86	39.51	41.32	43.30	Free									
08-00220-40011		4	R0.1	16	6	3.8	12°	6	60	17.17	17.93	18.77	19.68	Free			
08-00220-40013										6	70	25.51	26.65	27.89	Free	Free	
08-00220-40015										6	70	33.85	35.36	37.01	Free	Free	
08-00220-40017										6	100	50.54	52.79	Free	Free	Free	
08-00220-40021										R0.2	16	6	60	17.16	17.92	18.75	19.66
08-00220-40023	6																
08-00220-40025	6		70	33.85	35.35	37.00	Free	Free									
08-00220-40027	6		100	50.53	52.78	Free	Free	Free									
08-00220-40031	R0.3		16	6	60	17.16	17.91	18.74	19.65	Free							
08-00220-40034											6	70	25.50	26.63	27.86	Free	Free
08-00220-40032											6	70	33.84	35.34	36.99	Free	Free
08-00220-40033											6	100	50.53	52.78	Free	Free	Free



Regular Line
MUGEN COATING
Long Neck Type

Carbon Steel **P**

Alloy Steel **P**

Prehardened Steel **P**

Hardened Steel ~55 HRC **H**

MHR230R

MUGEN COATING 2-Flute Long Neck Radius End Mill

MHR230R

Recommended Milling Conditions

Regular Line
MUGEN COATING
Long Neck Type

Carbon Steel **P**

Alloy Steel **P**

Prehardened Steel **P**

Hardened Steel ~55 HRC **H**

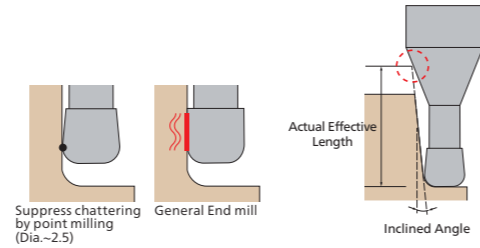
Stainless Steel **M**

Aluminium Alloy **N**

Copper **N**

Resin **O**

Long Neck Corner Radius Coating



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°						
									Unit : mm										
08-00220-40051	4	R0.5	16	6	3.8	12°	6	60	17.15	17.89	18.71	19.61	Free						
08-00220-40054			24					25.49	26.61	27.83	Free	Free							
08-00220-40052			32					33.83	35.33	36.96	Free	Free							
08-00220-40053			48					50.52	52.76	Free	Free	Free							
08-00220-40101			R1					16	60	17.13	17.85	18.64	19.51	Free					
08-00220-40104								24	60	25.47	26.57	27.77	29.08	Free					
08-00220-40102		32						60	33.81	35.28	36.89	Free	Free						
08-00220-40103		48						60	50.50	52.71	Free	Free	Free						
08-00220-50011		5						R0.1	20	7.5	4.8	12°	6	70	21.34	22.29	Free	Free	Free
08-00220-50013									40				6	90	42.19	Free	Free	Free	Free
08-00220-50021			20						6				70	21.33	22.28	Free	Free	Free	
08-00220-50023			40					6	90				42.19	Free	Free	Free	Free		
08-00220-50031	R0.3		20	6	70	21.33	22.27	Free	Free				Free						
08-00220-50032			40	6	90	42.19	Free	Free	Free				Free						
08-00220-50051			20	6	70	21.32	22.25	Free	Free				Free						
08-00220-50052	40		6	90	42.18	Free	Free	Free	Free										
08-00220-50101	R1		20	6	70	21.30	22.21	Free	Free				Free						
08-00220-50102			40	6	90	42.16	Free	Free	Free				Free						
08-00220-60011	6		R0.1	24	9	5.8	-	6	90				Free	Free	Free	Free	Free		
08-00220-60013				48				6	110				Free	Free	Free	Free	Free		
08-00220-60021				24				6	90				Free	Free	Free	Free	Free		
08-00220-60023				48				6	110				Free	Free	Free	Free	Free		
08-00220-60031			R0.3	24				6	90				Free	Free	Free	Free	Free		
08-00220-60032				48				6	110				Free	Free	Free	Free	Free		
08-00220-60051			R0.5	24				6	90				Free	Free	Free	Free	Free		
08-00220-60052				48				6	110				Free	Free	Free	Free	Free		
08-00220-60101		24		6				90	Free	Free	Free	Free	Free						
08-00220-60102		48		6				110	Free	Free	Free	Free	Free						

How to Order When you order, indicate MHR230R (D)×(R)×(L1)×(d). ※(γ) is reference value.

Dia.	Corner Radius	Under Neck Length	Carbon Steels·Prehardened Steels S50C·NAK55·NAK80·HPM1 (~43HRC)				Hardened Steels HPM38·STAVAX·SKD61 (~55HRC)				Aluminium Alloy·Copper					
			Spindle Speed min ⁻¹	Feed mm/min	Depth of Cut ap mm	ae mm	Spindle Speed min ⁻¹	Feed mm/min	Depth of Cut ap mm	ae mm	Spindle Speed min ⁻¹	Feed mm/min	Depth of Cut ap mm	ae mm		
0.2	0.05	0.5	30,000	200	0.01	0.05	30,000	150	0.003	0.04	30,000	250	0.012	0.05		
		1	30,000	150	0.007	0.05	30,000	100	0.003	0.04	30,000	200	0.008	0.05		
		1.5	30,000	100	0.005	0.05	30,000	80	0.002	0.04	30,000	135	0.006	0.05		
		2	30,000	50	0.003	0.05	30,000	50	0.002	0.04	30,000	75	0.004	0.05		
0.3	0.05	1	30,000	200	0.02	0.1	30,000	180	0.003	0.08	30,000	300	0.024	0.1		
		1.5	30,000	180	0.015	0.1	30,000	130	0.003	0.08	30,000	260	0.018	0.1		
		2	30,000	150	0.01	0.1	30,000	100	0.003	0.08	30,000	250	0.012	0.1		
		2.5	30,000	120	0.007	0.1	25,000	80	0.002	0.08	30,000	240	0.008	0.1		
		3	30,000	100	0.005	0.1	25,000	50	0.002	0.08	30,000	220	0.006	0.1		
0.4	0.05 0.1	1	30,000	350	0.025	0.12	30,000	300	0.005	0.1	30,000	450	0.03	0.12		
		1.5	30,000	300	0.022	0.12	30,000	270	0.005	0.1	30,000	400	0.027	0.12		
		2	30,000	250	0.02	0.12	25,000	180	0.005	0.1	30,000	360	0.024	0.12		
		3	30,000	220	0.015	0.12	25,000	150	0.004	0.1	30,000	300	0.018	0.12		
		4	25,000	160	0.01	0.12	20,000	100	0.003	0.1	30,000	240	0.012	0.12		
0.5	0.05 0.1	1	30,000	500	0.03	0.14	25,000	400	0.01	0.12	30,000	650	0.036	0.14		
		2	30,000	400	0.025	0.14	25,000	300	0.01	0.12	30,000	600	0.03	0.14		
		3	30,000	340	0.02	0.14	25,000	250	0.008	0.12	30,000	480	0.024	0.14		
		4	25,000	280	0.015	0.14	20,000	180	0.005	0.12	30,000	430	0.018	0.14		
		5	25,000	230	0.01	0.14	20,000	150	0.004	0.12	30,000	360	0.012	0.14		
		6	20,000	180	0.008	0.14	16,000	100	0.003	0.12	25,000	270	0.01	0.14		
0.6	0.05 0.1 0.2	2	30,000	600	0.035	0.16	25,000	400	0.02	0.13	30,000	800	0.04	0.16		
		3	30,000	500	0.03	0.16	25,000	350	0.015	0.13	30,000	750	0.035	0.16		
		4	25,000	400	0.025	0.16	20,000	250	0.015	0.13	30,000	650	0.03	0.16		
		6	20,000	250	0.015	0.16	16,000	150	0.008	0.13	25,000	400	0.018	0.16		
0.7	0.05 0.1	4	25,000	600	0.03	0.2	20,000	400	0.02	0.16	30,000	1,000	0.04	0.2		
		6	20,000	450	0.02	0.2	16,000	250	0.01	0.16	25,000	700	0.025	0.2		
0.8	0.05 0.1 0.2	4	25,000	1,000	0.045	0.25	20,000	600	0.025	0.2	30,000	1,400	0.055	0.25		
		6	20,000	700	0.03	0.25	16,000	400	0.02	0.2	25,000	1,000	0.04	0.25		
		8	18,000	400	0.02	0.25	14,000	250	0.01	0.2	22,000	600	0.025	0.25		
0.9	0.1	4	25,000	1,100	0.05	0.3	20,000	700	0.03	0.24	30,000	1,500	0.06	0.3		
		8	18,000	500	0.03	0.3	14,000	350	0.01	0.24	22,000	800	0.04	0.3		
1	0.05 0.1 0.2 0.3	2	25,000	1,600	0.065	0.35	20,000	900	0.05	0.28	30,000	2,200	0.08	0.35		
		3	25,000	1,500	0.06	0.35	20,000	850	0.05	0.28	30,000	2,100	0.07	0.35		
		4	25,000	1,400	0.055	0.35	20,000	800	0.04	0.28	30,000	2,000	0.065	0.35		
		5	22,000	1,200	0.05	0.35	18,000	700	0.03	0.28	27,000	1,700	0.06	0.35		
		6	20,000	1,000	0.045	0.35	16,000	600	0.02	0.28	25,000	1,500	0.055	0.35		
		8	18,000	700	0.035	0.35	14,000	450	0.02	0.28	22,000	1,000	0.045	0.35		
		10	16,000	600	0.025	0.35	13,000	350	0.01	0.28	20,000	800	0.03	0.35		
		12	14,000	350	0.02	0.35	12,000	250	0.008	0.28	18,000	600	0.025	0.35		
		16	12,000	250	0.01	0.35	10,000	150	0.005	0.28	14,000	350	0.012	0.35		
		20	11,000	150	0.005	0.35	9,000	100	0.003	0.28	13,000	250	0.006	0.35		
		1.2	0.1 0.2 0.3	5	22,000	1,500	0.055	0.4	18,000	850	0.03	0.32	26,000	2,200	0.065	0.4
				6	20,000	1,300	0.05	0.4	17,000	750	0.03	0.32	25,000	2,000	0.06	0.4
8	18,000			1,100	0.04	0.4	15,000	600	0.025	0.32	22,000	1,600	0.05	0.4		
10	16,000			900	0.03	0.4	13,000	500	0.02	0.32	20,000	1,400	0.04	0.4		
12	14,000			700	0.025	0.4	11,000	400	0.015	0.32	17,000	1,000	0.03	0.4		
15	12,000			360	0.018	0.4	10,000	210	0.01	0.32	14,000	520	0.022	0.4		
16	12,000			350	0.015	0.4	10,000	200	0.008	0.32	14,000	500	0.02	0.4		
20	10,000			230	0.01	0.4	8,000	150	0.005	0.32	12,000	330	0.012	0.4		

Stainless Steel **M**

Aluminium Alloy **N**

Copper **N**

Resin **O**

Long Neck Corner Radius Coating

Regular Line
MUGEN COATING
Long Neck Type

Carbon Steel P

Alloy Steel P

Prehardened Steel P

Hardened Steel ~55 HRC H

MHR230R

Recommended Milling Conditions

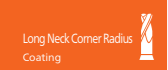
Work Material			Carbon Steels·Prehardened Steels S50C·NAK55·NAK80·HPM1 (~43HRC)				Hardened Steels HPM38·STAVAX·SKD61 (~55HRC)				Aluminium Alloy·Copper			
Dia.	Corner Radius	Under Neck Length	Spindle Speed	Feed	Depth of Cut		Spindle Speed	Feed	Depth of Cut		Spindle Speed	Feed	Depth of Cut	
			min ⁻¹	mm/min	ap mm	ae mm	min ⁻¹	mm/min	ap mm	ae mm	min ⁻¹	mm/min	ap mm	ae mm
1.5	0.1 0.2 0.3 0.5	4	22,000	1,600	0.09	0.45	18,000	1,000	0.05	0.36	26,000	2,300	0.1	0.45
		6	20,000	1,400	0.08	0.45	16,000	850	0.045	0.36	24,000	2,000	0.09	0.45
		8	18,000	1,200	0.07	0.45	15,000	700	0.04	0.36	22,000	1,800	0.08	0.45
		10	16,000	1,000	0.06	0.45	13,000	550	0.035	0.36	20,000	1,500	0.07	0.45
		12	14,000	800	0.05	0.45	11,000	450	0.03	0.36	17,000	1,200	0.06	0.45
		16	12,000	600	0.035	0.45	10,000	350	0.018	0.36	15,000	900	0.04	0.45
		18	11,000	450	0.03	0.45	9,000	280	0.01	0.36	13,000	650	0.035	0.45
		20	10,000	300	0.02	0.45	8,000	200	0.005	0.36	12,000	450	0.025	0.45
2	0.1 0.2 0.3 0.5	4	16,000	2,200	0.13	0.5	14,000	1,000	0.06	0.4	20,000	3,000	0.15	0.5
		6	16,000	2,100	0.12	0.5	14,000	900	0.055	0.4	20,000	2,800	0.14	0.5
		8	16,000	2,000	0.11	0.5	13,000	800	0.05	0.4	20,000	2,600	0.13	0.5
		10	16,000	1,800	0.1	0.5	13,000	750	0.045	0.4	20,000	2,300	0.12	0.5
		12	14,000	1,500	0.09	0.5	11,000	600	0.04	0.4	17,000	1,900	0.11	0.5
		16	12,000	1,200	0.07	0.5	10,000	500	0.03	0.4	15,000	1,600	0.085	0.5
		20	10,000	800	0.05	0.5	8,000	350	0.02	0.4	12,000	1,000	0.06	0.5
		24	9,000	700	0.03	0.5	7,000	280	0.01	0.4	11,000	900	0.04	0.5
2.5	0.1 0.2 0.3 0.5	10	13,000	1,800	0.14	0.8	11,000	900	0.07	0.65	16,000	3,000	0.17	0.8
		20	9,000	1,000	0.08	0.8	7,000	450	0.05	0.65	11,000	1,600	0.1	0.8
		30	7,000	500	0.03	0.8	5,600	250	0.01	0.65	8,500	850	0.035	0.8
3	0.1 0.2 0.3 0.5 1	12	11,000	1,800	0.16	0.9	9,000	900	0.08	0.75	13,000	3,000	0.2	0.9
		18	10,000	1,400	0.12	0.9	8,000	700	0.07	0.75	12,000	2,400	0.14	0.9
		24	8,000	1,000	0.08	0.9	6,400	500	0.05	0.75	10,000	1,800	0.1	0.9
		30	7,000	800	0.06	0.9	5,600	400	0.03	0.75	8,500	1,300	0.07	0.9
		36	6,000	500	0.03	0.9	4,800	300	0.01	0.75	7,200	1,000	0.04	0.9
4	0.1 0.2 0.3 0.5 1	16	8,000	2,000	0.2	1.2	6,400	850	0.1	1	10,000	3,200	0.3	1.2
		24	7,000	1,500	0.12	1.2	5,600	700	0.08	1	8,500	2,400	0.18	1.2
		32	6,000	800	0.08	1.2	4,800	500	0.04	1	8,000	1,800	0.14	1.2
		48	4,000	400	0.04	1.2	3,200	300	0.01	1	4,800	700	0.05	1.2

Stainless Steel M

Aluminium Alloy N

Copper N

Resin O



MHR230R

Recommended Milling Conditions

Work Material			Carbon Steels·Prehardened Steels S50C·NAK55·NAK80·HPM1 (~43HRC)				Hardened Steels HPM38·STAVAX·SKD61 (~55HRC)				Copper·Aluminium Alloy			
Dia.	Corner Radius	Under Neck Length	Spindle Speed	Feed	Depth of Cut		Spindle Speed	Feed	Depth of Cut		Spindle Speed	Feed	Depth of Cut	
			min ⁻¹	mm/min	ap mm	ae mm	min ⁻¹	mm/min	ap mm	ae mm	min ⁻¹	mm/min	ap mm	ae mm
5	0.1 0.2 0.3 0.5 1	20	6,000	1,800	0.25	1.6	4,800	800	0.1	1.3	7,200	3,000	0.36	1.6
		40	4,000	700	0.07	1.6	3,200	400	0.05	1.3	4,800	1,300	0.16	1.6
6	0.1 0.2 0.3 0.5 1	24	4,500	1,500	0.3	2.1	3,600	700	0.15	1.7	5,400	2,600	0.48	2.1
		48	3,000	600	0.1	2.1	2,400	350	0.05	1.7	3,600	1,000	0.18	2.1
Notes			<p>※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.</p>											

Regular Line
MUGEN COATING
Long Neck Type

Carbon Steel P

Alloy Steel P

Prehardened Steel P

Hardened Steel ~55 HRC H

Stainless Steel M

Aluminium Alloy N

Copper N

Resin O

