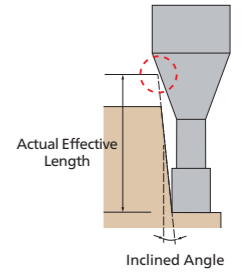
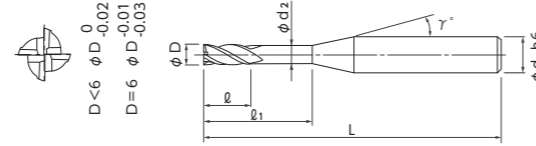
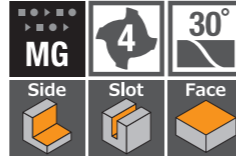


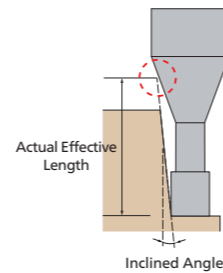
MUGEN COATING PREMIUM 4 -Flute Long Neck End Mill for Hardened Steel Total 55 sizes

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

4-flute long neck square end mill for prehardened steels and hardened steels up to 65HRC  
Maximum L/D=10



- MUGEN COATING PREMIUM to improve accuracy and tool life on machining hardened steels!
- Improve tool rigidity for precision machining!
- Total 55 sizes!



Prehardened Steel P  
Hardened Steel ~55 HRC H  
Hardened Steel ~65 HRC H

Stainless Steel M  
Titanium Alloy Heat Resistant Alloy S

Prehardened Steel P  
Hardened Steel ~55 HRC H  
Hardened Steel ~65 HRC H

Stainless Steel M  
Titanium Alloy Heat Resistant Alloy S

Unit : mm

Code No.	Dia. (D)	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°				
08-00217-01004	1	4	0.8	0.95	12°	4	50	4.29	4.48	4.69	4.92	5.46				
08-00217-01006		6					50	6.37	6.66	6.97	7.32	8.11				
08-00217-01008		8					50	8.46	8.84	9.25	9.71	10.77				
08-00217-01010		10					50	10.55	11.02	11.53	12.10	13.42				
08-00217-01206		6					1	1.15	12°	4	50	6.37	6.66	6.97	7.32	8.11
08-00217-01208	8	50	8.46	8.84	9.25	9.71					10.77					
08-00217-01210	10	50	10.55	11.02	11.53	12.10					13.42					
08-00217-01212	12	50	12.63	13.20	13.82	14.49					16.08					
08-00217-01506	6	1.2	1.45	12°	4	50					6.37	6.66	6.97	7.32	8.11	
08-00217-01508	8					50	8.46	8.84	9.25	9.71	10.77					
08-00217-01510	10					50	10.55	11.02	11.53	12.10	13.42					
08-00217-01512	12					50	12.63	13.20	13.82	14.49	16.08					
08-00217-01514	14					60	14.72	15.38	16.10	16.89	18.73					
08-00217-01516	16					60	16.80	17.55	18.38	19.28	21.39					
08-00217-01806	6					1.4	1.74	12°	4	50	6.40	6.69	7.00	7.34	8.15	
08-00217-01808	8	50	8.48	8.86	9.28					9.74	10.80					
08-00217-01810	10	50	10.57	11.04	11.56					12.13	13.45					
08-00217-01812	12	50	12.66	13.22	13.84					14.52	16.11					
08-00217-01814	14	60	14.74	15.40	16.12					16.92	18.76					
08-00217-01816	16	60	16.83	17.58	18.40					19.31	Free					
08-00217-01818	18	60	18.91	19.76	20.69					21.70	Free					
08-00217-02006	2	6	1.6	1.94	12°					4	50	6.40	6.69	7.00	7.34	8.15
08-00217-02008		8									50	8.48	8.86	9.28	9.74	10.80
08-00217-02010		10				50	10.57	11.04	11.56		12.13	13.45				
08-00217-02012		12				50	12.66	13.22	13.84		14.52	16.11				
08-00217-02014		14				60	14.74	15.40	16.12		16.92	18.76				
08-00217-02016		16				60	16.83	17.58	18.40		19.31	Free				
08-00217-02018		18				60	18.91	19.76	20.69		21.70	Free				
08-00217-02020		20				60	21.00	21.94	22.97		24.10	Free				
08-00217-02508		8				2	2.4	12°	4		50	8.58	8.97	9.39	9.85	10.93
08-00217-02512	12	50	12.75	13.32	13.95					14.64	Free					
08-00217-02516	16	60	16.93	17.68	18.51					19.42	Free					
08-00217-02520	20	60	21.10	22.04	23.07					Free	Free					
08-00217-02525	25	70	26.31	27.49	Free					Free	Free					
08-00217-03008	8	3	4.5	2.85	12°	6	50	8.71	9.10	9.52	9.99	11.08				
08-00217-03012	12						50	12.88	13.45	14.08	14.78	16.39				
08-00217-03016	16						60	17.05	17.81	18.65	19.56	21.70				
08-00217-03020	20						60	21.22	22.17	23.21	24.35	27.01				
08-00217-03025	25						70	26.43	27.62	28.91	30.33	Free				
08-00217-03030	30						70	31.65	33.06	34.61	36.31	Free				
08-00217-04012	12	4	6	3.8	12°	6	50	13.00	13.58	14.22	14.92	16.55				
08-00217-04016	16						60	17.17	17.94	18.78	19.70	Free				
08-00217-04020	20						60	21.34	22.30	23.34	24.49	Free				
08-00217-04025	25						70	26.56	27.74	29.04	Free	Free				
08-00217-04030	30						70	31.77	33.19	34.75	Free	Free				
08-00217-04035	35						80	36.98	38.64	Free	Free	Free				
08-00217-04040	40						90	42.20	44.09	Free	Free	Free				
08-00217-05016	16						5	7.5	4.8	12°	6	60	17.17	17.94	18.78	Free
08-00217-05025	25	70	26.56	27.74	Free	Free						Free				
08-00217-05035	35	80	36.98	Free	Free	Free						Free				
08-00217-05050	50	110	52.63	Free	Free	Free						Free				
08-00217-06020	20	6	9	5.8	-	6	80	Free	Free	Free	Free	Free				
08-00217-06030	30						90	Free	Free	Free	Free	Free				
08-00217-06040	40						100	Free	Free	Free	Free	Free				
08-00217-06050	50						110	Free	Free	Free	Free	Free				

How to Order When you order, indicate MHRH430 (D)×(l1). ※(γ) is reference value.

Unit : mm

Code No.	Dia. (D)	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°
08-00217-02006	2	6	1.6	1.94	12°	4	50	6.40	6.69	7.00	7.34	8.15
08-00217-02008		8					50	8.48	8.86	9.28	9.74	10.80
08-00217-02010		10					50	10.57	11.04	11.56	12.13	13.45
08-00217-02012		12					50	12.66	13.22	13.84	14.52	16.11
08-00217-02014		14					60	14.74	15.40	16.12	16.92	18.76
08-00217-02016		16					60	16.83	17.58	18.40	19.31	Free
08-00217-02018		18					60	18.91	19.76	20.69	21.70	Free
08-00217-02020		20					60	21.00	21.94	22.97	24.10	Free
08-00217-02508		8					2	2.4	12°	4	50	8.58
08-00217-02512	12	50	12.75	13.32	13.95	14.64					Free	
08-00217-02516	16	60	16.93	17.68	18.51	19.42					Free	
08-00217-02520	20	60	21.10	22.04	23.07	Free					Free	
08-00217-02525	25	70	26.31	27.49	Free	Free					Free	
08-00217-03008	8	3	4.5	2.85	12°	6	50	8.71	9.10	9.52	9.99	11.08
08-00217-03012	12						50	12.88	13.45	14.08	14.78	16.39
08-00217-03016	16						60	17.05	17.81	18.65	19.56	21.70
08-00217-03020	20						60	21.22	22.17	23.21	24.35	27.01
08-00217-03025	25						70	26.43	27.62	28.91	30.33	Free
08-00217-03030	30						70	31.65	33.06	34.61	36.31	Free
08-00217-04012	12	4	6	3.8	12°	6	50	13.00	13.58	14.22	14.92	16.55
08-00217-04016	16						60	17.17	17.94	18.78	19.70	Free
08-00217-04020	20						60	21.34	22.30	23.34	24.49	Free
08-00217-04025	25						70	26.56	27.74	29.04	Free	Free
08-00217-04030	30						70	31.77	33.19	34.75	Free	Free
08-00217-04035	35						80	36.98	38.64	Free	Free	Free
08-00217-04040	40						90	42.20	44.09	Free	Free	Free
08-00217-05016	16						5	7.5	4.8	12°	6	60
08-00217-05025	25	70	26.56	27.74	Free	Free						Free
08-00217-05035	35	80	36.98	Free	Free	Free						Free
08-00217-05050	50	110	52.63	Free	Free	Free						Free
08-00217-06020	20	6	9	5.8	-	6	80	Free	Free	Free	Free	Free
08-00217-06030	30						90	Free	Free	Free	Free	Free
08-00217-06040	40						100	Free	Free	Free	Free	Free
08-00217-06050	50						110	Free	Free	Free	Free	Free

Long Neck Square Coating

Long Neck Square Coating

Prehardened Steel P  
Hardened Steel ~55 HRC H  
Hardened Steel ~65 HRC H

Stainless Steel M  
Titanium Alloy Heat Resistant Alloy S

Long Neck Square Coating

Work Material	Carbon Steels·Prehardened Steels S50C·NAK55·NAK80·HPM1 (~43HRC)				Hardened Steels HPM38·STAVAX·SKD61 (~55HRC)				Hardened Steels SKD11·PD613 (~62HRC)				High Speed Steels SKH (~65HRC)				
	Dia.	Under Neck Length	Spindle Speed	Feed	Depth of Cut		Spindle Speed	Feed	Depth of Cut		Spindle Speed	Feed	Depth of Cut		Spindle Speed	Feed	Depth of Cut
		min <sup>-1</sup>	mm/min	ap mm	ae mm	min <sup>-1</sup>	mm/min	ap mm	ae mm	min <sup>-1</sup>	mm/min	ap mm	ae mm	min <sup>-1</sup>	mm/min	ap mm	ae mm
1	4	25,000	2,000	0.05	0.6	23,000	1,800	0.04	0.5	18,000	1,600	0.03	0.4	14,000	1,000	0.02	0.3
	6	20,000	1,800	0.03	0.6	18,000	1,400	0.02	0.5	14,000	1,200	0.01	0.4	10,000	800	0.007	0.3
	8	18,000	1,600	0.03	0.6	16,000	1,200	0.02	0.5	12,000	1,000	0.01	0.4	8,000	680	0.005	0.3
	10	16,000	1,200	0.02	0.6	14,000	1,000	0.01	0.5	10,000	800	0.007	0.4	6,000	500	0.005	0.3
1.2	6	20,000	1,800	0.04	0.7	18,000	1,400	0.03	0.6	14,000	1,200	0.02	0.5	10,000	800	0.01	0.4
	8	18,000	1,600	0.04	0.7	16,000	1,200	0.02	0.6	12,000	1,000	0.01	0.5	8,000	680	0.007	0.4
	10	16,000	1,200	0.03	0.7	12,000	1,000	0.02	0.6	10,000	850	0.01	0.5	8,000	600	0.005	0.4
	12	14,000	1,200	0.02	0.7	10,000	1,000	0.01	0.6	9,000	800	0.007	0.5	7,000	500	0.005	0.4
1.5	6	23,000	2,000	0.06	0.9	20,000	1,600	0.04	0.75	18,000	1,400	0.03	0.6	14,000	1,000	0.02	0.45
	8	20,000	1,800	0.06	0.9	18,000	1,200	0.03	0.75	14,000	1,200	0.03	0.6	10,000	750	0.01	0.45
	10	20,000	1,600	0.04	0.9	16,000	1,000	0.03	0.75	14,000	1,000	0.02	0.6	10,000	700	0.01	0.45
	12	16,000	1,400	0.04	0.9	14,000	1,000	0.02	0.75	12,000	850	0.02	0.6	8,000	620	0.007	0.45
	14	14,000	1,200	0.03	0.9	12,000	800	0.02	0.75	10,000	750	0.01	0.6	7,500	500	0.007	0.45
	16	12,000	1,000	0.02	0.9	10,000	720	0.01	0.75	9,000	600	0.007	0.6	6,800	400	0.005	0.45
1.8	6	20,000	2,000	0.07	1	18,000	1,800	0.05	0.9	15,000	1,500	0.04	0.7	12,000	1,200	0.03	0.5
	8	18,000	1,800	0.06	1	16,000	1,600	0.04	0.9	12,000	1,200	0.03	0.7	9,500	1,000	0.02	0.5
	10	16,000	1,600	0.06	1	14,000	1,400	0.04	0.9	12,000	1,000	0.03	0.7	9,500	900	0.02	0.5
	12	14,000	1,400	0.05	1	12,000	1,200	0.03	0.9	10,000	1,000	0.02	0.7	8,200	800	0.01	0.5
	14	14,000	1,400	0.05	1	12,000	1,200	0.03	0.9	10,000	860	0.02	0.7	8,200	720	0.01	0.5
	16	12,000	1,200	0.04	1	10,000	1,000	0.02	0.9	9,200	800	0.01	0.7	7,500	680	0.007	0.5
2	18	10,000	1,000	0.04	1	9,200	820	0.02	0.9	8,500	740	0.01	0.7	6,000	640	0.007	0.5
	6	20,000	2,000	0.08	1.2	18,000	1,800	0.06	1	15,000	1,500	0.05	0.8	12,000	1,200	0.03	0.6
	8	18,000	1,800	0.07	1.2	16,000	1,600	0.05	1	12,000	1,200	0.04	0.8	9,500	1,000	0.02	0.6
	10	16,000	1,600	0.06	1.2	14,000	1,400	0.05	1	12,000	1,000	0.04	0.8	9,500	900	0.02	0.6
	12	14,000	1,400	0.05	1.2	12,000	1,200	0.04	1	10,000	1,000	0.03	0.8	8,200	800	0.01	0.6
	14	14,000	1,400	0.04	1.2	12,000	1,200	0.03	1	10,000	860	0.02	0.8	8,200	720	0.007	0.6
	16	12,000	1,200	0.04	1.2	10,000	1,000	0.03	1	9,200	800	0.02	0.8	7,500	680	0.007	0.6
	18	10,000	1,000	0.03	1.2	9,200	820	0.02	1	8,500	740	0.01	0.8	6,000	640	0.005	0.6
2.5	20	10,000	800	0.03	1.2	9,200	760	0.02	1	8,500	680	0.01	0.8	6,000	520	0.005	0.6
	8	16,000	2,000	0.08	1.5	14,000	1,600	0.07	1.25	10,000	1,400	0.05	1	8,000	1,000	0.03	0.75
	12	14,000	1,600	0.07	1.5	12,000	1,400	0.06	1.25	9,600	1,200	0.04	1	7,500	960	0.02	0.75
	16	12,000	1,400	0.06	1.5	10,000	1,200	0.05	1.25	8,500	1,000	0.02	1	7,000	800	0.01	0.75
	20	10,000	1,200	0.06	1.5	8,200	1,000	0.05	1.25	7,500	1,000	0.02	1	5,000	800	0.01	0.75
25	8,000	1,000	0.05	1.5	7,000	800	0.03	1.25	6,500	680	0.01	1	4,500	550	0.005	0.75	

Work Material	Carbon Steels·Prehardened Steels S50C·NAK55·NAK80 HPM1 (~43HRC)				Hardened Steels HPM38·STAVAX·SKD61 (~55HRC)				Hardened Steels SKD11·PD613 (~62HRC)				High Speed Steels SKH (~65HRC)				
	Dia.	Under Neck Length	Spindle Speed	Feed	Depth of Cut		Spindle Speed	Feed	Depth of Cut		Spindle Speed	Feed	Depth of Cut		Spindle Speed	Feed	Depth of Cut
		min <sup>-1</sup>	mm/min	ap mm	ae mm	min <sup>-1</sup>	mm/min	ap mm	ae mm	min <sup>-1</sup>	mm/min	ap mm	ae mm	min <sup>-1</sup>	mm/min	ap mm	ae mm
3	8	16,000	2,000	0.15	1.8	14,000	1,800	0.1	1.5	10,000	1,600	0.07	1.2	8,000	1,200	0.05	0.9
	12	14,000	1,800	0.1	1.8	12,000	1,600	0.08	1.5	9,200	1,400	0.06	1.2	7,200	1,000	0.04	0.9
	16	12,000	1,600	0.08	1.8	10,000	1,400	0.07	1.5	8,500	1,200	0.05	1.2	6,500	800	0.03	0.9
	20	10,000	1,600	0.08	1.8	9,000	1,400	0.07	1.5	7,800	1,200	0.04	1.2	5,800	800	0.02	0.9
	25	9,000	1,400	0.07	1.8	8,200	1,200	0.06	1.5	7,000	1,000	0.03	1.2	5,000	720	0.01	0.9
	30	8,000	1,400	0.05	1.8	7,000	1,200	0.03	1.5	6,500	1,000	0.02	1.2	4,500	650	0.007	0.9
4	12	12,000	2,000	0.2	2.5	9,500	2,000	0.15	2	8,000	1,600	0.08	1.6	7,000	1,000	0.06	1.2
	16	10,000	2,000	0.15	2.5	8,000	1,800	0.1	2	7,000	1,400	0.06	1.6	6,000	1,200	0.05	1.2
	20	8,500	1,800	0.12	2.5	7,000	1,600	0.08	2	6,500	1,200	0.05	1.6	5,500	1,000	0.04	1.2
	25	8,000	1,600	0.1	2.5	6,000	1,400	0.07	2	5,200	1,200	0.04	1.6	4,500	1,000	0.03	1.2
	30	6,800	1,400	0.08	2.5	4,800	1,000	0.05	2	4,200	850	0.03	1.6	3,500	620	0.02	1.2
	35	5,500	1,000	0.07	2.5	4,200	880	0.04	2	3,800	720	0.02	1.6	3,000	550	0.01	1.2
5	40	4,000	860	0.05	2.5	3,600	720	0.03	2	3,000	600	0.01	1.6	2,500	400	0.007	1.2
	16	10,000	2,000	0.2	3	7,000	1,800	0.12	2.5	5,500	1,600	0.08	2	4,500	1,000	0.06	1.5
	25	8,000	1,600	0.15	3	5,800	1,400	0.07	2.5	4,200	1,200	0.05	2	3,000	800	0.03	1.5
	35	6,000	1,200	0.1	3	4,200	900	0.05	2.5	3,500	800	0.03	2	2,500	600	0.02	1.5
6	50	3,500	750	0.07	3	2,800	620	0.03	2.5	2,500	500	0.02	2	1,500	350	0.01	1.5
	20	8,000	2,000	0.25	4	6,500	1,600	0.18	3	4,500	1,400	0.08	2.4	3,500	920	0.06	1.8
	30	7,000	1,600	0.2	4	4,500	1,200	0.12	3	3,500	1,000	0.06	2.4	2,500	660	0.04	1.8
	40	4,500	1,200	0.15	4	3,000	1,000	0.08	3	2,500	800	0.03	2.4	2,000	550	0.02	1.8
	50	3,000	850	0.1	4	2,500	700	0.05	3	2,000	500	0.02	2.4	1,500	380	0.01	1.8
Notes	<p>※1 These recommended cutting conditions indicate just reference. It should be adjusted 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 steel.                  ※4 Recommend to apply herical 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 &amp; 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>																

Prehardened Steel P  
Hardened Steel ~55 HRC H  
Hardened Steel ~65 HRC H

Stainless Steel M  
Titanium Alloy Heat Resistant Alloy S

Long Neck Square Coating