MHR430

Size ϕ1 ~ ϕ10

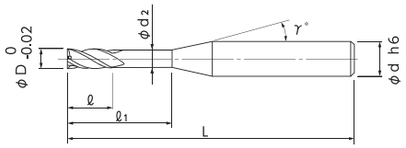
≦55 HRC

MUGEN COATING 4 -Flute Long Neck End Mill

Total 103 sizes

4-flute long neck sqaure end mill. Maximum L/D=20

MG | 4 | 30°
Side | Slot | Face

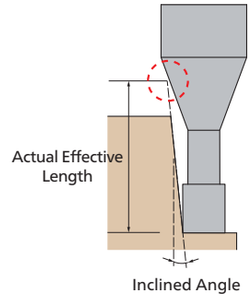


- MUGEN COATING has been put on our original end mill for deep rib.
- The Long Neck type is suitable for narrow and deep machining.

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°
08-00210-01004	1	4	1.5	0.95	12°	4	50	4.29	4.48	4.69	4.92	5.46
08-00210-01006		6					50	6.37	6.66	6.97	7.32	8.11
08-00210-01008		8					50	8.46	8.84	9.25	9.71	10.77
08-00210-01010		10					50	10.55	11.02	11.53	12.10	13.42
08-00210-01012		12					50	12.63	13.20	13.82	14.49	16.08
08-00210-01016		16					50	16.80	17.55	18.38	19.28	21.39
08-00210-01106	1.1	6	1.7	1.05	12°	4	50	6.37	6.66	6.97	7.32	8.11
08-00210-01110		10					50	10.55	11.02	11.53	12.10	13.42
08-00210-01116		16					60	16.80	17.55	18.38	19.28	21.39
08-00210-01206	1.2	6	1.8	1.15	12°	4	50	6.37	6.66	6.97	7.32	8.11
08-00210-01208		8					50	8.46	8.84	9.25	9.71	10.77
08-00210-01210		10					50	10.55	11.02	11.53	12.10	13.42
08-00210-01212		12					50	12.63	13.20	13.82	14.49	16.08
08-00210-01216		16					60	16.80	17.55	18.38	19.28	21.39
08-00210-01306	1.3	6	1.9	1.25	12°	4	50	6.37	6.66	6.97	7.32	8.11
08-00210-01312		12					50	12.63	13.20	13.82	14.49	16.08
08-00210-01318		18					60	18.89	19.73	20.66	21.67	24.04
08-00210-01406	1.4	6	2.1	1.35	12°	4	50	6.37	6.66	6.97	7.32	8.11
08-00210-01408		8					50	8.46	8.84	9.25	9.71	10.77
08-00210-01410		10					50	10.55	11.02	11.53	12.10	13.42
08-00210-01412		12					50	12.63	13.20	13.82	14.49	16.08
08-00210-01414		14					60	14.72	15.38	16.10	16.89	18.73
08-00210-01416		16					60	16.80	17.55	18.38	19.28	21.39
08-00210-01422		22					60	23.06	24.09	25.22	26.46	Free
08-00210-01506	1.5	6	2.3	1.45	12°	4	50	6.37	6.66	6.97	7.32	8.11
08-00210-01508		8					50	8.46	8.84	9.25	9.71	10.77
08-00210-01510		10					50	10.55	11.02	11.53	12.10	13.42
08-00210-01512		12					50	12.63	13.20	13.82	14.49	16.08
08-00210-01514		14					60	14.72	15.38	16.10	16.89	18.73
08-00210-01516		16					60	16.80	17.55	18.38	19.28	21.39
08-00210-01518		18					60	18.89	19.73	20.66	21.67	Free
08-00210-01520		20					60	20.97	21.91	22.94	24.07	Free

How to Order — When you order, indicate MHR430 (D)×(ℓ1). ※(γ) is reference value.

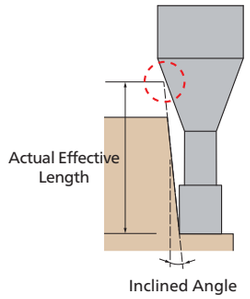


Unit : mm

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°
08-00210-01606	1.6	6	2.4	1.55	12°	4	50	6.37	6.66	6.97	7.32	8.11
08-00210-01608		8					50	8.46	8.84	9.25	9.71	10.77
08-00210-01610		10					50	10.55	11.02	11.53	12.10	13.42
08-00210-01612		12					50	12.63	13.20	13.82	14.49	16.08
08-00210-01614		14					60	14.72	15.38	16.10	16.89	18.73
08-00210-01616		16					60	16.80	17.55	18.38	19.28	21.39
08-00210-01618		18					60	18.89	19.73	20.66	21.67	Free
08-00210-01620		20					60	20.97	21.91	22.94	24.07	Free
08-00210-01626		26					70	27.23	28.45	29.78	31.25	Free
08-00210-01706	1.7	6	2.5	1.65	12°	4	50	6.37	6.66	6.97	7.32	8.11
08-00210-01714		14					60	14.72	15.38	16.10	16.89	18.73
08-00210-01724		24					70	25.15	26.27	27.50	28.85	Free
08-00210-01806	1.8	6	2.7	1.74	12°	4	50	6.40	6.69	7.00	7.34	8.15
08-00210-01808		8					50	8.48	8.86	9.28	9.74	10.80
08-00210-01810		10					50	10.57	11.04	11.56	12.13	13.45
08-00210-01812		12					50	12.66	13.22	13.84	14.52	16.11
08-00210-01814		14					60	14.74	15.40	16.12	16.92	18.76
08-00210-01816		16					60	16.83	17.58	18.40	19.31	Free
08-00210-01818		18					60	18.91	19.76	20.69	21.70	Free
08-00210-01820		20					60	21.00	21.94	22.97	24.10	Free
08-00210-01825		25					70	26.21	27.39	28.67	30.08	Free
08-00210-01906	1.9	6	2.8	1.84	12°	4	50	6.40	6.69	7.00	7.34	8.15
08-00210-01916		16					60	16.83	17.58	18.40	19.31	Free
08-00210-01928		28					70	29.34	30.65	32.09	Free	Free
08-00210-02006	2	6	3	1.94	12°	4	50	6.40	6.69	7.00	7.34	8.15
08-00210-02008		8					50	8.48	8.86	9.28	9.74	10.80
08-00210-02010		10					50	10.57	11.04	11.56	12.13	13.45
08-00210-02012		12					50	12.66	13.22	13.84	14.52	16.11
08-00210-02014		14					60	14.74	15.40	16.12	16.92	18.76
08-00210-02016		16					60	16.83	17.58	18.40	19.31	Free
08-00210-02018		18					60	18.91	19.76	20.69	21.70	Free
08-00210-02020		20					60	21.00	21.94	22.97	24.10	Free

MHR430

MUGEN COATING 4 -Flute Long Neck End Mill



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°
08-00210-02025	2	25	3	1.94	12°	4	70	26.21	27.39	28.67	Free	Free
08-00210-02030		30					70	31.43	32.83	34.37	Free	Free
08-00210-02508	2.5	8	3.7	2.4	12°	4	50	8.58	8.97	9.39	9.85	10.93
08-00210-02512		12					50	12.75	13.32	13.95	14.64	Free
08-00210-02516		16					60	16.93	17.68	18.51	19.42	Free
08-00210-02520		20					60	21.10	22.04	23.07	Free	Free
08-00210-02525		25					70	26.31	27.49	Free	Free	Free
08-00210-03008	3	8	4.5	2.85	12°	6	50	8.71	9.10	9.52	9.99	11.08
08-00210-03012		12					50	12.88	13.45	14.08	14.78	16.39
08-00210-03016		16					60	17.05	17.81	18.65	19.56	21.70
08-00210-03020		20					60	21.22	22.17	23.21	24.35	27.01
08-00210-03025		25					70	26.43	27.62	28.91	30.33	Free
08-00210-03030		30					70	31.65	33.06	34.61	36.31	Free
08-00210-03515	3.5	15	5.5	3.35	12°	6	60	16.01	16.72	17.50	18.37	20.37
08-00210-03525		25					70	26.43	27.62	28.91	30.33	Free
08-00210-03535		35					80	36.86	38.51	40.32	Free	Free
08-00210-04012	4	12	6	3.8	12°	6	50	13.00	13.58	14.22	14.92	16.55
08-00210-04016		16					60	17.17	17.94	18.78	19.70	Free
08-00210-04020		20					60	21.34	22.30	23.34	24.49	Free
08-00210-04025		25					70	26.56	27.74	29.04	Free	Free
08-00210-04030		30					70	31.77	33.19	34.75	Free	Free
08-00210-04035		35					80	36.98	38.64	Free	Free	Free
08-00210-04040		40					90	42.20	44.09	Free	Free	Free
08-00210-04045		45					90	47.41	49.53	Free	Free	Free
08-00210-04050		50					100	52.63	54.98	Free	Free	Free
08-00210-05016	5	16	7.5	4.8	12°	6	60	17.17	17.94	18.78	Free	Free
08-00210-05025		25					70	26.56	27.74	Free	Free	Free
08-00210-05035		35					80	36.98	Free	Free	Free	Free
08-00210-05050		50					110	52.63	Free	Free	Free	Free
08-00210-06020	6	20	9	5.8	–	6	80	Free	Free	Free	Free	Free
08-00210-06030		30					90	Free	Free	Free	Free	Free
08-00210-06040		40					100	Free	Free	Free	Free	Free

How to Order When you order, indicate MHR430 (D)×(ℓ1). ※(γ) is reference value.

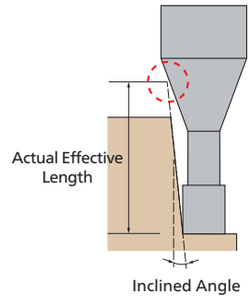
MHR430

MUGEN COATING 4 -Flute Long Neck End Mill

Regular Line
MUGEN COATING
Long Neck Type

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 Square Coating



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°
08-00210-06050	6	50	9	5.8	–	6	110	Free	Free	Free	Free	Free
08-00210-08030	8	30	12	7.8	–	8	100	Free	Free	Free	Free	Free
08-00210-08050		50					120	Free	Free	Free	Free	Free
08-00210-08060		60					130	Free	Free	Free	Free	Free
08-00210-10040	10	40	15	9.8	–	10	110	Free	Free	Free	Free	Free
08-00210-10060		60					130	Free	Free	Free	Free	Free
08-00210-10080		80					150	Free	Free	Free	Free	Free

Work Material		Carbon Steels・Alloy Steels＊1・Stainless Steels＊1 S50C・SCM＊1・SKD＊1・SUS＊1				Prehardened Steels NAK55・NAK80・HPM1 (～43HRC)			
Dia.	Under Neck Length	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
1	4	25,000	1,700	0.055	0.6	22,000	1,100	0.045	0.6
	6	20,000	1,200	0.045	0.6	18,000	750	0.035	0.6
	8	18,000	1,050	0.035	0.6	15,000	600	0.025	0.6
	10	16,000	900	0.025	0.6	14,000	520	0.018	0.6
	12	14,000	750	0.02	0.6	12,000	450	0.014	0.6
	16	12,000	450	0.01	0.6	10,000	300	0.007	0.6
1.1	6	20,000	1,300	0.05	0.66	18,000	820	0.04	0.66
	10	16,000	1,000	0.03	0.66	14,000	600	0.02	0.66
	16	12,000	550	0.015	0.66	10,000	330	0.01	0.66
1.2	6	20,000	1,400	0.05	0.72	18,000	900	0.04	0.72
	8	18,000	1,200	0.04	0.72	15,000	750	0.03	0.72
	10	16,000	1,050	0.03	0.72	14,000	670	0.02	0.72
	12	14,000	900	0.025	0.72	12,000	530	0.018	0.72
	16	12,000	600	0.015	0.72	10,000	380	0.01	0.72
1.3	6	20,000	1,500	0.06	0.78	17,000	1,000	0.05	0.78
	12	14,000	1,000	0.03	0.78	12,000	600	0.025	0.78
	18	11,000	600	0.015	0.78	9,000	380	0.01	0.78
1.4	6	20,000	1,800	0.07	0.84	16,000	1,100	0.06	0.84
	8	18,000	1,500	0.06	0.84	14,000	900	0.05	0.84
	10	16,000	1,300	0.05	0.84	13,000	780	0.04	0.84
	12	14,000	1,050	0.04	0.84	12,000	670	0.03	0.84
	14	13,000	900	0.035	0.84	11,000	530	0.025	0.84
	16	12,000	750	0.025	0.84	10,000	450	0.018	0.84
	22	10,000	550	0.015	0.84	8,000	320	0.01	0.84
1.5	6	20,000	1,800	0.08	0.9	16,000	1,100	0.07	0.9
	8	18,000	1,500	0.07	0.9	14,000	900	0.06	0.9
	10	16,000	1,300	0.06	0.9	13,000	780	0.05	0.9
	12	14,000	1,050	0.05	0.9	12,000	670	0.04	0.9
	14	13,000	900	0.04	0.9	11,000	570	0.03	0.9
	16	12,000	750	0.035	0.9	10,000	480	0.025	0.9
	18	11,000	680	0.03	0.9	9,000	420	0.02	0.9
	20	10,000	600	0.02	0.9	8,000	360	0.014	0.9
1.6	6	20,000	1,800	0.09	0.96	16,000	1,100	0.08	0.96
	8	18,000	1,500	0.08	0.96	14,000	900	0.07	0.96
	10	16,000	1,300	0.07	0.96	13,000	780	0.06	0.96
	12	14,000	1,050	0.06	0.96	12,000	670	0.05	0.96
	14	13,000	900	0.05	0.96	11,000	570	0.04	0.96
	16	12,000	750	0.04	0.96	10,000	480	0.03	0.96
	18	11,000	680	0.03	0.96	9,000	420	0.025	0.96
	20	10,000	600	0.025	0.96	8,000	360	0.018	0.96
	26	9,000	530	0.02	0.96	7,000	300	0.014	0.96
1.7	6	19,000	1,900	0.095	1.02	15,000	1,150	0.085	1.02
	14	13,000	950	0.055	1.02	11,000	630	0.045	1.02
	24	9,000	550	0.025	1.02	7,000	330	0.018	1.02

＊1 Reference value for Alloy and Stainless Steels are 80% of recommended cutting conditions.

Work Material		Carbon Steels・Alloy Steels＊1・Stainless Steels＊1 S50C・SCM＊1・SKD＊1・SUS＊1				Prehardened Steels NAK55・NAK80・HPM1 (～43HRC)			
Dia.	Under Neck Length	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
1.8	6	18,000	2,000	0.1	1.08	14,000	1,200	0.09	1.08
	8	18,000	1,700	0.09	1.08	14,000	1,000	0.08	1.08
	10	16,000	1,400	0.08	1.08	13,000	850	0.07	1.08
	12	14,000	1,100	0.07	1.08	12,000	720	0.06	1.08
	14	13,000	1,000	0.06	1.08	11,000	630	0.05	1.08
	16	12,000	850	0.05	1.08	10,000	530	0.04	1.08
	18	11,000	750	0.04	1.08	9,000	470	0.03	1.08
	20	10,000	680	0.035	1.08	8,000	400	0.025	1.08
	25	9,000	600	0.025	1.08	7,000	340	0.018	1.08
1.9	6	17,000	2,100	0.11	1.14	14,000	1,250	0.095	1.14
	16	12,000	1,000	0.06	1.14	10,000	630	0.045	1.14
	28	8,000	550	0.02	1.14	6,000	300	0.014	1.14
2	6	16,000	2,100	0.12	1.2	13,000	1,300	0.1	1.2
	8	16,000	2,000	0.11	1.2	13,000	1,200	0.09	1.2
	10	16,000	1,800	0.1	1.2	13,000	1,100	0.08	1.2
	12	14,000	1,500	0.09	1.2	12,000	1,000	0.07	1.2
	14	13,000	1,350	0.08	1.2	11,000	850	0.06	1.2
	16	12,000	1,200	0.07	1.2	10,000	750	0.05	1.2
	18	11,000	1,000	0.06	1.2	9,000	650	0.04	1.2
	20	10,000	900	0.05	1.2	8,000	550	0.035	1.2
	25	9,000	750	0.03	1.2	7,000	450	0.02	1.2
	30	8,000	600	0.02	1.2	6,000	330	0.014	1.2
2.5	8	13,000	2,100	0.15	1.5	11,000	1,400	0.12	1.5
	12	13,000	1,800	0.13	1.5	11,000	1,100	0.1	1.5
	16	11,000	1,400	0.1	1.5	9,000	850	0.07	1.5
	20	9,000	1,100	0.08	1.5	7,000	600	0.05	1.5
	25	8,000	900	0.05	1.5	6,000	500	0.035	1.5
3	8	11,000	2,300	0.2	1.8	9,000	1,500	0.16	1.8
	12	11,000	2,000	0.16	1.8	9,000	1,200	0.12	1.8
	16	10,000	1,500	0.12	1.8	8,000	900	0.09	1.8
	20	9,000	1,200	0.1	1.8	7,000	680	0.07	1.8
	25	8,000	1,050	0.08	1.8	6,000	570	0.06	1.8
	30	7,000	900	0.06	1.8	5,000	450	0.045	1.8
3.5	15	9,000	2,000	0.18	2.1	7,000	1,200	0.15	2.1
	25	7,500	1,500	0.12	2.1	6,000	850	0.08	2.1
	35	6,000	1,000	0.07	2.1	4,500	520	0.05	2.1
4	12	8,000	2,200	0.3	2.4	6,000	1,300	0.25	2.4
	16	8,000	2,100	0.25	2.4	6,000	1,200	0.2	2.4
	20	8,000	2,000	0.2	2.4	6,000	1,100	0.15	2.4
	25	7,000	1,700	0.15	2.4	5,000	900	0.1	2.4
	30	7,000	1,500	0.12	2.4	5,000	800	0.08	2.4
	35	6,000	1,200	0.1	2.4	4,500	670	0.07	2.4
	40	5,000	900	0.08	2.4	4,000	540	0.06	2.4
	45	4,500	750	0.06	2.4	3,500	450	0.04	2.4
	50	4,000	600	0.04	2.4	3,000	330	0.03	2.4
5	16	6,000	2,100	0.35	3	4,500	1,200	0.3	3
	25	6,000	1,800	0.25	3	4,500	1,000	0.2	3
	35	5,000	1,200	0.15	3	3,500	630	0.1	3
	50	3,500	680	0.07	3	2,500	360	0.05	3

＊1 Reference value for Alloy and Stainless Steels are 80% of recommended cutting conditions.

MHR430

MHR430

Recommended Milling Conditions

Work Material		Carbon Steels・Alloy Steels※1・Stainless Steels※1 S50C・SCM※1・SKD※1・SUS※1				Prehardened Steels NAK55・NAK80・HPM1 (～43HRC)			
Dia.	Under Neck Length	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
6	20	5,000	1,800	0.4	3.6	3,500	1,000	0.35	3.6
	30	4,000	1,400	0.35	3.6	3,000	750	0.3	3.6
	40	3,500	1,000	0.25	3.6	2,700	570	0.2	3.6
	50	3,000	750	0.15	3.6	2,200	420	0.1	3.6
8	30	3,800	1,400	0.6	4.8	2,800	900	0.45	4.8
	50	2,800	820	0.4	4.8	2,100	600	0.3	4.8
	60	2,400	680	0.3	4.8	1,800	450	0.2	4.8
10	40	3,000	1,200	0.8	6	2,200	750	0.55	6
	60	2,200	750	0.6	6	1,600	520	0.45	6
	80	1,800	520	0.4	6	1,300	360	0.3	6

Notes

※1 Reference value for Alloy and Stainless Steels are 80% of recommended cutting conditions.
※2 These recommended cutting conditions indicate just reference. It should be adjusted according to milling shape and machine type.
※3 ap:Axial Depth of Cut, ae:Radial Depth of Cut.
※4 Select a cutting fluid appropriate to work material, milling shape and machining content.
※5 Coolant supply and chip disposal in the deep portion are very important.
※6 Recommend to apply herical or ramping for approaching into axial direction.
※7 Reduction of feed and Depth of Cut to reduce machining load around side wall.
※8 For slotting, recommend reciprocating milling by adjusting feed at 80% of recommended milling conditions as a reference value.
Recommend guide slotting process with short neck tool before milling with L/D 5 time or longer neck tool.
※9 Reduce both spindle speed and feed at same rate for chattering and also for insufficient spindle speed of a machine.
※10 Major adjustment of milling conditions, e.g. adjust spindle and feed speed at same rate, required on condition of a tool overhang length exceeding a shank diameter 5 times due to possible accuracy impact by chuck runout etc.