MSUSZ440

Size ϕ 1 ～ ϕ 6

Premium ≦40 HRC

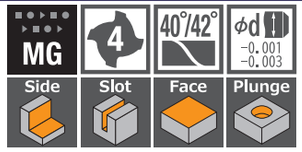
MUGEN COATING PREMIUM 4-Flute High Efficient "Z" End Mill for Stainless Steels

Total 62 sizes

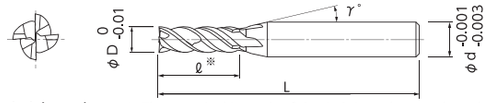
MSUSZ440

High Efficient Milling

For machining on stainless steels and heat resistant alloy
Continuous machining from plunging to slotting
Unequal flute spacing and unequal helix angle design

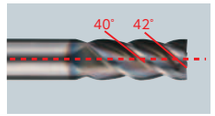


Plunge depth is refered to recommended milling conditions

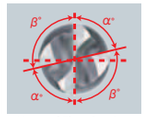


※ The practical Length of Cut is 0.1mm longer than the specification table.

- Unequal flute spacing, unequal helix angle and high rigid end profile design to minimize chatter realize high efficient machining.
- New developed special edge profile realized multi-functional performance of side milling, slot milling and plunging approaches on stainless steel.
- Optimized high heat-resistance MUGEN COATING PREMIUM to realize stable long time machining.
- Total 62 sizes, some sizes line up with L/D=2 or 3.



Unequal Helix Angle



Unequal Flute Spacing

Unit : mm

Code No.	Dia. (D)	Length of Cut (ℓ)	Neck Taper Angle (γ)	Shank Dia. (d)	Overall Length (L)
08-00152-01020	1	2	12°	4	50
08-00152-01030		3	12°	4	50
08-00152-01120	1.1	2.2	12°	4	50
08-00152-01220	1.2	2.4	12°	4	50
08-00152-01320	1.3	2.6	12°	4	50
08-00152-01420	1.4	2.8	12°	4	50
08-00152-01520	1.5	3	12°	4	50
08-00152-01530		4.5	12°	4	50
08-00152-01620	1.6	3.2	12°	6	50
08-00152-01720	1.7	3.4	12°	6	50
08-00152-01820	1.8	3.6	12°	6	50
08-00152-01920	1.9	3.8	12°	6	50
08-00152-02020	2	4	12°	6	50
08-00152-02030		6	12°	6	60
08-00152-02120	2.1	4.2	12°	6	50
08-00152-02220	2.2	4.4	12°	6	50
08-00152-02320	2.3	4.6	12°	6	50
08-00152-02420	2.4	4.8	12°	6	50
08-00152-02520	2.5	5	12°	6	50
08-00152-02530		7.5	12°	6	60
08-00152-02620	2.6	5.2	12°	6	50
08-00152-02720	2.7	5.4	12°	6	50
08-00152-02820	2.8	5.6	12°	6	50
08-00152-02920	2.9	5.8	12°	6	50
08-00152-03020	3	6	12°	6	50
08-00152-03030		9	12°	6	60
08-00152-03120	3.1	6.2	12°	6	50
08-00152-03220	3.2	6.4	12°	6	50
08-00152-03320	3.3	6.6	12°	6	50
08-00152-03420	3.4	6.8	12°	6	50

Code No.	Dia. (D)	Length of Cut (ℓ)	Neck Taper Angle (γ)	Shank Dia. (d)	Overall Length (L)
08-00152-03520	3.5	7	12°	6	50
08-00152-03530		10.5	12°	6	60
08-00152-03620	3.6	7.2	12°	6	50
08-00152-03720	3.7	7.4	12°	6	50
08-00152-03820	3.8	7.6	12°	6	50
08-00152-03920	3.9	7.8	12°	6	50
08-00152-04020	4	8	12°	6	50
08-00152-04030		12	12°	6	60
08-00152-04120	4.1	8.2	12°	6	50
08-00152-04220	4.2	8.4	12°	6	50
08-00152-04320	4.3	8.6	12°	6	50
08-00152-04420	4.4	8.8	12°	6	50
08-00152-04520	4.5	9	12°	6	50
08-00152-04530		13.5	12°	6	60
08-00152-04620	4.6	9.2	12°	6	50
08-00152-04720	4.7	9.4	12°	6	50
08-00152-04820	4.8	9.6	12°	6	50
08-00152-04920	4.9	9.8	12°	6	50
08-00152-05020	5	10	12°	6	50
08-00152-05030		15	12°	6	60
08-00152-05120	5.1	10.2	12°	6	50
08-00152-05220	5.2	10.4	12°	6	50
08-00152-05320	5.3	10.6	12°	6	50
08-00152-05420	5.4	10.8	12°	6	50
08-00152-05520	5.5	11	12°	6	50
08-00152-05530		16.5	12°	6	60
08-00152-05620	5.6	11.2	12°	6	50
08-00152-05720	5.7	11.4	12°	6	50
08-00152-05820	5.8	11.6	12°	6	50
08-00152-05920	5.9	11.8	12°	6	50
08-00152-06020	6	12	–	6	60
08-00152-06030		18	–	6	60

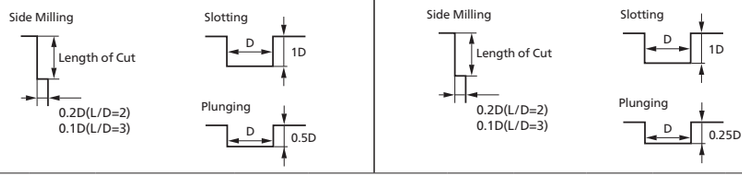
How to Order When you order, indicate MSUSZ440 (D)×(ℓ).
※(γ) is reference value.

Machining case S-026

Recommended Milling Conditions

Work Material			Stainless Steels SUS304						Titanium Alloy Ti-6Al-4V					
			Side Milling		Slotting		Plunging		Side Milling		Slotting		Plunging	
Dia.	Length of Cut	L/D	Spindle Speed	Feed	Spindle Speed	Feed	Spindle Speed	Feed	Spindle Speed	Feed	Spindle Speed	Feed	Spindle Speed	Feed
			min⁻¹	mm/min	min⁻¹	mm/min	min⁻¹	mm/min	min⁻¹	mm/min	min⁻¹	mm/min	min⁻¹	mm/min
1	2	2	18,000	600	15,000	200	15,000	50	16,800	600	13,500	200	13,500	50
	3	3	16,000	500	12,000	150	12,000	30	14,900	500	10,800	150	10,800	30
1.5	3	2	12,500	700	11,000	220	11,000	50	11,700	700	10,000	220	10,000	50
	4.5	3	11,000	550	8,500	160	8,500	30	10,300	550	7,700	160	7,700	30
2	4	2	10,000	850	8,600	240	8,600	50	9,300	850	7,800	240	7,800	50
	6	3	8,500	650	7,300	180	7,300	30	7,900	650	6,600	180	6,600	30
2.5	5	2	8,200	1,000	7,600	280	7,600	50	7,600	1,000	6,900	280	6,900	50
	7.5	3	7,100	750	6,300	200	6,300	30	6,600	750	5,700	200	5,700	30
3	6	2	7,200	1,100	6,800	300	6,800	50	6,700	1,100	6,200	300	6,200	50
	9	3	6,000	800	5,400	220	5,400	30	5,600	800	4,900	220	4,900	30
3.5	7	2	6,700	1,150	5,700	330	5,700	50	6,200	1,150	5,200	330	5,200	50
	10.5	3	5,500	900	4,800	230	4,800	30	5,100	900	4,400	230	4,400	30
4	8	2	6,400	1,200	5,300	330	5,300	50	6,000	1,200	4,800	330	4,800	50
	12	3	5,400	920	4,400	230	4,400	30	5,000	920	4,000	230	4,000	30
4.5	9	2	6,000	1,200	4,900	350	4,900	50	5,600	1,200	4,500	350	4,500	50
	13.5	3	5,200	1,000	4,000	240	4,000	30	4,800	1,000	3,700	240	3,700	30
5	10	2	5,600	1,200	4,600	360	4,600	50	5,200	1,200	4,200	360	4,200	50
	15	3	5,000	1,000	3,700	240	3,700	30	4,700	1,000	3,400	240	3,400	30
5.5	11	2	5,300	1,200	4,400	380	4,400	50	4,900	1,200	4,000	380	4,000	50
	16.5	3	4,800	1,000	3,400	250	3,400	30	4,500	1,000	3,100	250	3,100	30
6	12	2	5,000	1,200	4,200	400	4,200	50	4,600	1,200	3,800	400	3,800	50
	18	3	4,500	1,000	3,200	250	3,200	30	4,200	1,000	2,900	250	2,900	30

Depth of Cut (D:Dia.)



Notes

※1 Please choose the short end tooth when measure the tool length.
※2 Adjust milling condition conforming with machine rigidity and clamping condition.
Final milling conditions are subject to machining profile, purpose and machine status.
※3 Adjust both Spindle Speed and Feed at the same rate.
※4 Water-soluble fluid is recommended.
※5 Please increasing the coolant flow rate and pressure as much as possible, and supply it sufficiently to the machining point and flute.
※6 Please change the Depth of Cut or Feed when chips could not remove smoothly during plunging.
※7 Please be noted there would be a possible tool chipping or breakage when the chip removal is insufficient.
※8 Use a rigid and precise machine and chuck holder.
※9 Overhang of end mill should be as short as possible from spindle nose.

M Stainless Steel
S Titanium Alloy Heat Resistant Alloy
Square Coating