

Size $\phi 1 \sim \phi 6$ **HLS4000**Super
MGHARD
MAX

30°

Flatland

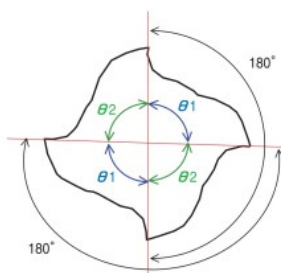
Shank Dia
0/-0.005Back Taper
GeometryVariable
Pitch

Material Applications (★ Highly Recommended ● Recommended ○ Suggested)

Work Material																	
Carbon Steels S45C S55C	Alloy Steels SK / SCM SUS	Prehardened Steels NAK HPM	Hardened Steels					Cast Iron	Aluminum Alloys	Graphite	Copper	Plastics	Glass Filled Plastics	Titanium Alloys	Heat Resistant Alloys	Cemented Carbide	Hard Brittle (Non-Metallic) Materials
			~ 50HRC	~ 55HRC	~ 60HRC	~ 65HRC	~ 70HRC										
○	○	●	●	●	○			○			○			○	○		

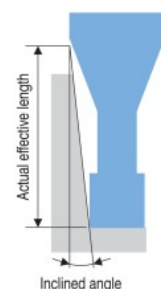
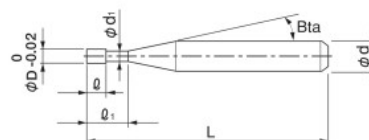
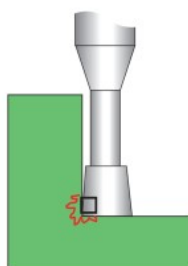
Features

Feature1 : Variable pitch

 $\theta 1 > \theta 2$: The unequal division reduces chattering and tip damage. $\theta 1 + \theta 2 = 180^\circ$: Easy to measure diameter.

Feature2 : Back taper geometry

Back taper geometry reduces cutting force.



Feature3 : HARDMAX coating with high level of heat resistance, durability and lubrication.

Feature4 : Improved new 4 flute design offers improved chip evacuation and achieves high feed and milling precision.

The shank taper angle shown is not an exact value and to avoid contact with the work piece, we recommend the user controls the precise value of this angle. Shank taper angle should not make contact with the work piece.

Refer to page 242 for 2 flute HLS.

Total 84 models

Unit (mm)

Model Number	Outside Diameter ϕD	Effective Length ℓ_1	Length of Cut ℓ	Neck Diameter ϕd_1	Shank Taper Angle Bta	Overall Length L	Shank Diameter ϕd	Suggested Retail Price ¥	Effective Length by Inclined Angles				
									30'	1°	1° 30'	2°	3°
HLS 4010-040	1	4	1	0.95	16°	50	4	4,800	4.66	4.93	5.15	5.34	5.74
HLS 4010-060		6				50	4	4,800	6.78	7.10	7.36	7.62	8.19
HLS 4010-080		8				50	4	4,800	8.88	9.25	9.56	9.90	10.64
HLS 4010-100		10				50	4	4,800	10.97	11.38	11.76	12.17	13.09
HLS 4010-120		12				50	4	4,800	13.06	13.51	13.97	14.45	15.53
HLS 4010-160		16				60	4	7,680	17.20	17.77	18.37	19.01	20.43
HLS 4012-060	1.2	6	1.2	1.14	16°	50	4	4,800	6.18	6.38	6.60	6.83	7.34
HLS 4012-080		8				50	4	4,800	8.24	8.51	8.80	9.11	9.79
HLS 4012-100		10				50	4	4,800	10.31	10.64	11.00	11.38	12.24
HLS 4012-120		12				50	4	4,800	12.37	12.77	13.20	13.66	14.68
HLS 4012-160		16				60	4	6,720	16.49	17.03	17.60	18.22	19.58