

# ***G-Star Endmill***

## Endmill for low hardness

- Suitable for low hardness Steel (HRC10~30): Alloy steel, Carbon steel, Pre-hardened steel etc.
- General purpose suitable for rough machining, finishing and curved and sloped surfaces



Endmill for low hardness

# G-Star Endmill

KORLOY launched G-Star Endmill for low hardness Steel (HRC10~30). G-Star has various shapes and line-up for cutting special shapes.

**G-Star Endmill** has rake angle for low hardness workpieces is designed for optimal performance in cutting. In addition its high toughness substrate has improved chipping resistance and high machinability.

The TiAlN coating maximizes tool life due to increasing oxidation resistance and chipping resistance. KORLOY provides an economical tool, G-Star Endmill for you to achieve your economical tool usage.

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» **Optimal cutting performance**

- Rake angle for low hardness

» **Higher chipping resistance**

- Reduced chipping by high toughness substrate

» **Higher wear resistance**

- Increased oxidation resistance and chipping resistance due to applying TiAlN coating

» **Economical tool cost**

- The best performance and quality of cutting

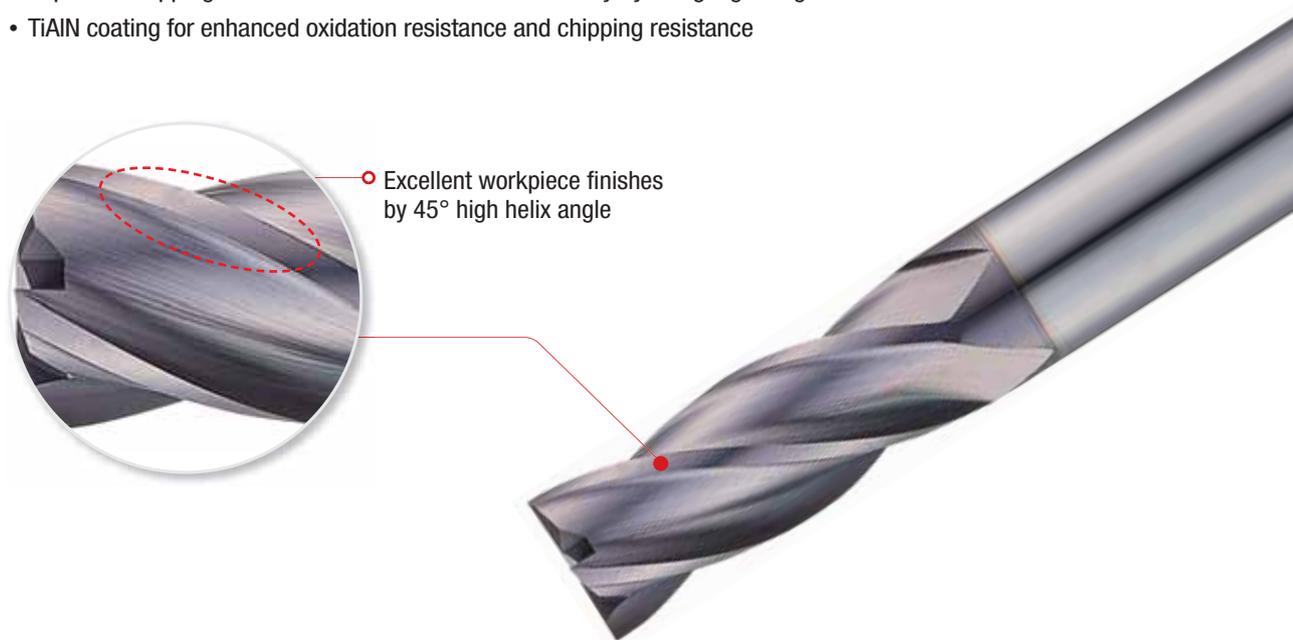


## Code system

<b>Z</b>	<b>R</b>	<b>32</b>	<b>4H</b>	<b>08</b>	<b>-</b>	<b>10</b>	<b>-</b>	<b>S4</b>
<b>Type</b> D: Dynamic Z: G-Star Endmill T: Thunder	<b>Length/shank type</b> 20/30: Straight 21/31: Standard 22/32: Long cutting length 23/33: Long shank 24/34: Tapered neck	<b>Tool dia.</b> 1~20 mm	<b>Shank dia.</b> 4~20 mm	<b>Type</b> B: Ball E: Flat R: Radius X: Flat S: Flat XB: Ball	<b>No. of flute</b> 2: 2 flutes 4: 4 flutes 4H: 4 flutes (Helix 45°)	<b>Corner R</b> 0.2~3 mm		

## Features

- Excellent rake angle and cutting edge considered the characteristics of workpiece
- Improved chipping resistance and enhanced machinability by using high toughness materials
- TiAlN coating for enhanced oxidation resistance and chipping resistance



## Tool selection guide

U-Star Endmill <sup>*</sup> <i>New</i>		S-Star Endmill <sup>*</sup> <i>New</i>		Super Endmill For Ti <sup>*</sup> <i>New</i>		H-Star Endmill <sup>*</sup> <i>New</i>		A-Star Endmill	D Endmill	Composite Router Endmill
G-Star Endmill		Super Endmill For Ti <sup>*</sup> <i>New</i>		Super Endmill For HRSA		S-Star Endmill <sup>*</sup> <i>New</i>				
<b>P</b>	<b>K</b>	<b>M</b>	<b>S</b>		<b>H</b>	<b>N</b>				
Carbon steel, Alloy steel	Cast iron	Stainless steel	Inconel718, Waspaloy, Hastelloy	Titanium	High hardened alloy	Non-ferrous	Graphite	Composite materials (CFRP/GFRP)		

<sup>\*</sup>: 1<sup>st</sup> recommendation

## Performance evaluation

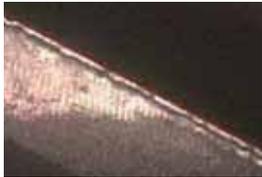
### Chipping resistance



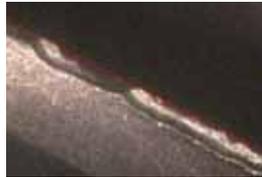
**Workpiece** Carbon steel (STC3)

**Cutting condition**  $vc(m/min) = 140$ ,  $fz(mm/t) = 0.02$ ,  $ap(mm) = 10.0$ ,  $ae(mm) = 0.4$ , dry

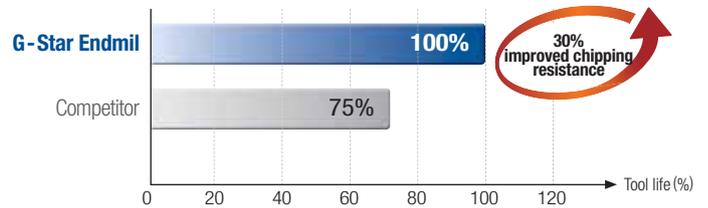
**Tool** ZE304100P (Diameter =  $\varnothing 10$  mm)



[ G-Star Endmill ]



[ Competitor ]



## Line-up

Type	Designation	Picture	Product name	No. of flute	Size ( $\varnothing$ )	
					Min.	Max.
Ball	DB312		2 flutes ball nose Endmill	2	1	20
	DB342		2 flutes tapered neck type ball nose Endmill	2	1	12
Flat	TX202		2 flutes short shank flat Endmill	2	1	20
	TX204		4 flutes short shank flat Endmill	4	1	20
	TX222		2 flutes long flat Endmill	2	3	20
	TX224		4 flutes long flat Endmill	4	3	20
	TX302		2 flutes flat Endmill	2	1	20
	TX304		4 flutes flat Endmill	4	1	20
Ball	TXB202		2 flutes short shank ball nose Endmill	2	1	20
	TXB204		4 flutes short shank ball nose Endmill	4	2	20
	TXB222		2 flutes long ball nose Endmill	2	3	20
	TXB232		2 flutes long shank ball nose Endmill	2	3	20
	TXB302		2 flutes ball nose Endmill	2	1	20
	TXB304		4 flutes ball nose Endmill	4	1	20
Flat	ZE302P		2 flutes flat Endmill	2	1	20
	ZE304P		4 flutes flat Endmill	4	1	20
	ZE322		2 flutes extra long flat Endmill	2	3	20
	ZE324		4 flutes extra long flat Endmill	4	3	20
Radius	ZR304H		4 flutes 45° helix radius Endmill	4	3	12
	ZR322		2 flutes long shank radius Endmill	2	3	12
	ZR324		4 flutes long shank radius Endmill	4	3	12
	ZR324H		4 flutes 45° helix radius Endmill	4	6	12

### ⚠ For the safe metalcutting

- Use safety supplies such as protective gloves to prevent possible injury while touching the edge of tools.
- Use safety glasses or safety cover to hedge possible dangers. Inappropriate usage or excessive cutting condition may lead tool's breakage or even the fragment's scattering.
- Clamp the workpiece tightly enough to prevent its movement while its machining.
- Properly manage the tool change phase because the inordinately used tool can be easily broken under the excessive cutting load or severe wear, and it may threat the operator's safety.
- Use safety cover because chips evacuated during cutting are hot and sharp and may cause burns and cuts. To remove chips safely, stop machining, put on protective gloves, and use a hook or other tools.
- Prepare for fire prevention measures as the use of the non-water soluble cutting oil may cause fire.
- Use safety cover and other safety supplies because the spare parts or the inserts can be pulled out due to centrifugal force while high speed machining.



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