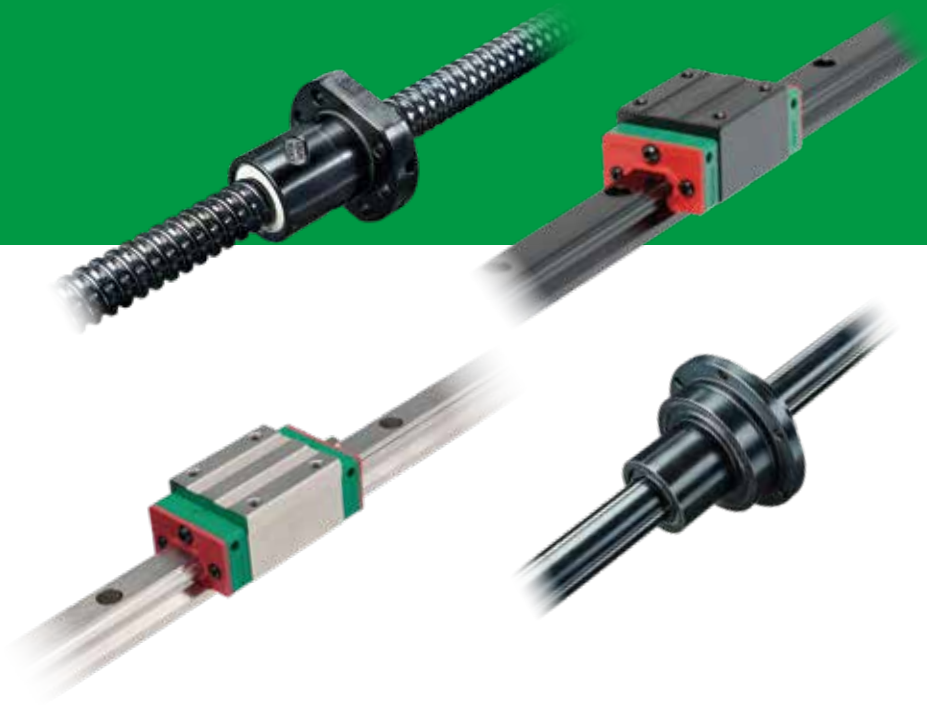


Coating Process Solutions



HIWIN Support



About HIWIN

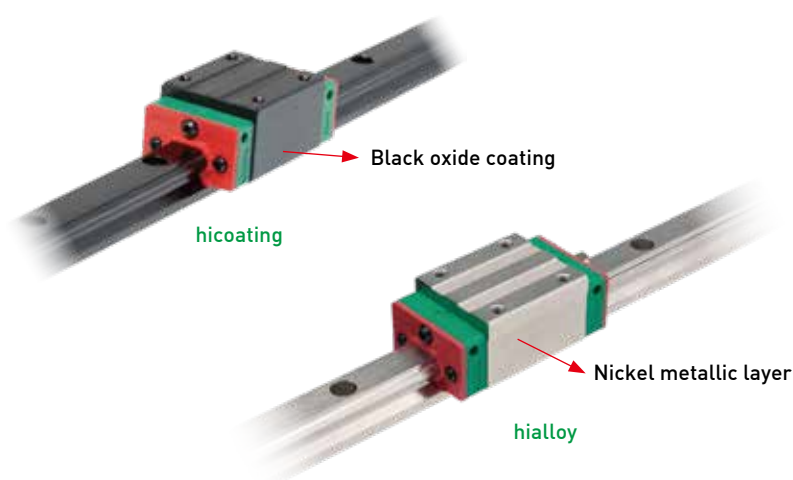
Upgraded Protection Solution for Precision Components

Engineered for robust protection in harsh environments

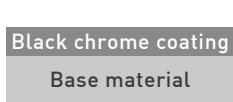
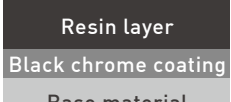
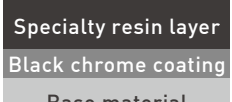
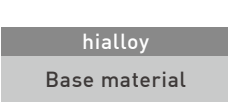
To meet the demands of industries operating in demanding operating environments, such as semiconductor manufacturing equipment, HIWIN has developed surface treatment technologies—hicoating and hialloy. Through different surface treatments, hicoating forms an oxide layer on the metal surface, while hialloy applies a nickel-based hard alloy coating. Both treatments enhance corrosion resistance and protect the base material from chemical exposure.

Features

- Maintains transmission accuracy and dimensional stability
- Surface treatment designed to improve corrosion resistance
- Provides resistance to selected acidic and alkaline environments



Comparison of four coating solutions

Coating Process Solution Item	hicoating			hialloy
Feature	Excellent chemical resistance, capable of withstanding corrosion from acids, alkalis, and various chemical substances			Excellent scratch and wear resistance, while maintaining both appearance and precision.
Coating	HC	HCO	HCF	-
Coating appearance	Matte black 	Matte black 	Glossy black 	Metallic 
Illustration of coating materials				
Corrosion resistance (hr)	6 ~10	> 24	> 96	12~24
Chemical resistance	Medium	Medium to high	high	Medium
Coating thickness (um)	~ 2	5 ~ 7		1 ~ 3
Hardness (Hv)	-	~ 300		750 ~ 850 (HRC 61~66)
Complies with SGS certification	RoHS			• REACH • RoHS • FDA (Compliant with FDA 21 CFR 175.300)*Note
Application industries	• High motion precision • Low particle emission	• Applied to optical components • Semiconductor industry		• Industrial machinery • Secondary processing • Vacuum environments • Semiconductor industry

*Note: For safety reasons, direct food contact is not recommended, as coating particles may detach during use and adhere to food.

Salt spray test

Test sample: Linear Guideway HG15

The salt spray test and its equivalent duration in real-world conditions (for reference only): 24 hours of salt spray testing is approximately equivalent to 120 days in a coastal environment, or 1 year of natural exposure. (Test data is for reference only; corrosion is influenced by many factors.)

Test condition	
Test standard	ASTM B117
Solution	5% NaCl (aq)
Temperature	35±2°C
Spray volume	1~2 ml/hr
Stress	1 bar



Material Test time	Alloy steel	Stainless steel	Hard chrome	hicoating			hialloy
				HC	HCO	HCF	
0 hr							
2 hr							
8 hr							
24 hr							
48 hr							

Chemical solution corrosion test

Test sample: Linear Guideway HG15

Test results are for reference only. For other chemical solution requirements, please contact HIWIN for detailed information.

Chemical solution corrosion result		General steel		hicoating	
Appearance before test					
Test time		24 hr	96 hr	24 hr	96 hr
Acidic solution	5% Sulphuric acid				
	5% Muriatic acid				
	5% Nitric acid				
Alkaline solution	5% Sodium hydroxide				
Organic solution	100% Acetone				

hicoating is applicable for Linear Guideways, Ballscrews, and Ball Splines, with supported lengths up to 4 meters. Avoid using organic solvents before installation. For detailed information, please contact HIWIN. (hialloy is available for Linear Guideway only.)

HG W 25 C A E 2 R 1600 E ZA P HA II

Surface treatment for the rail
HA: hialloy
NC: hicoating

Series	HG	EG	WE	MG	QH	QE	QW	QR	CG	RG	CRG
Spec. size (mm)	15~65	15~35	17、21、 27、35、50	2、3、5、7、 9、12、15	15~45	15~35	17、21、 27、35	20~45	15~45	15~65	15~65
hicoating	●	●	●	●	●	●	●	●	●	●	●
hialloy	15~25	15~25	-	7~15	15~25	15~25	-	-	15~25	-	-

[illegible]

Nominal Dia. (mm)	13 (No FSR or FBR specification)	16	20	25	32
hicoating	●	●	●	●	●

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