

NEW

GREASE



- Hiwin G01** - Grease for heavy load conditions
- Hiwin G02** - Grease with low dust generation
- Hiwin G03** - Grease with low dust generation for high speed conditions
- Hiwin G04** - Grease for high speed conditions
- Hiwin G05** - Grease for general purpose
- Hiwin G06** - Grease for High Frequency or Short-stroke Condition
- Hiwin G07** - Grease for Low Temperature Condition



HIWIN G01 Grease for heavy load conditions

Features

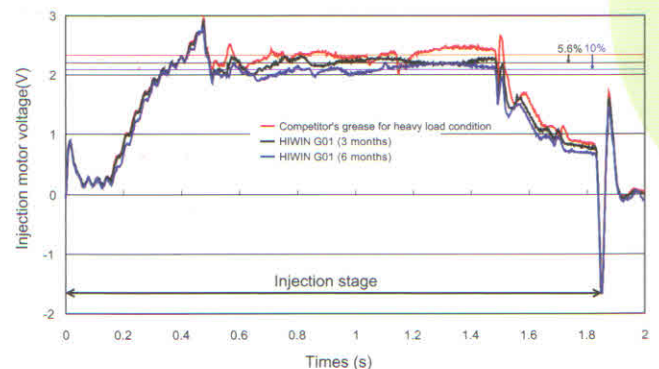
1. Excellent wear resistance and extreme pressure resistance under heavy load conditions
2. Low friction in low temperatures
3. Water resistant
4. Can be applied by a central lubrication system
5. Suitable for all-electric injection molding machines, die-stamping machines, semi-conductor manufacturing equipment, heavy load actuators, industrial machines and forging machines

Basic properties

		HIWIN G01
Color		Light yellow
Base Oil		Mineral oil
Consistency Enhancer		Polyurea
Additive		Solid lubricant
Service Temperature Range(°C)		-15~115
NLGI-grade (0.1mm)		310-340
Viscosity (cSt)	40°C	500
	100°C	30
Drop Point (°C)		>170
4-ball test	Load on boundary lubrication at 900rpm (N)	>1700
	Load on boundary lubrication at 1770rpm (N)	>1300

	HIWIN G01	Other	Notes		
Property of anti-extreme pressure	●	▲	4-ball test	900rpm	42%more
				1770rpm	30%more
Anti-wear	●	▲	4-ball test	80kgf 30rpm	23%more
Low friction	●	▲	Injection motor votage		10%more
Water resistance	●	●			
Rust proof	●	●	Corrosion on copper test		
Service temperature range	-15~115	-20~130			

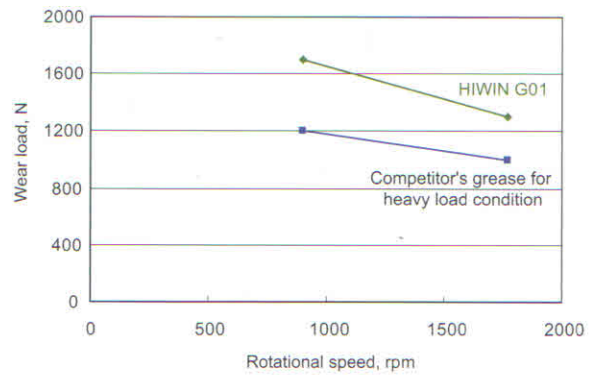
All-electric injection molding machine(80ton) – the voltage of motor which drives the ballscrew on injection unit.



Resistance to extreme pressure test

Test Condition and Measurement

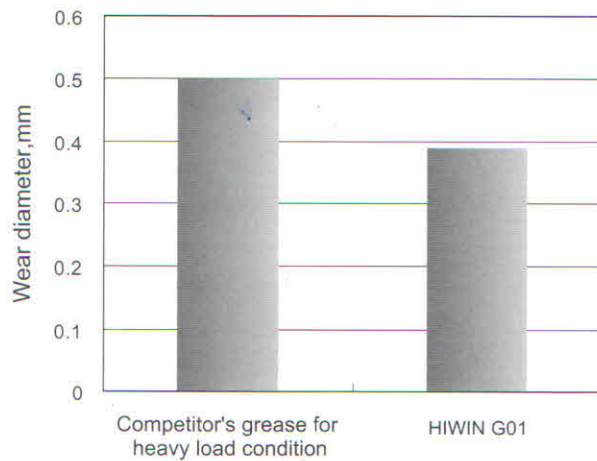
Ball diameter	1/2 in
Temperature	27°C
Test time	10 sec
Rotational speed	900 ~ 1770 rpm
Measurement	Load when ball wear diameter becomes 500µm



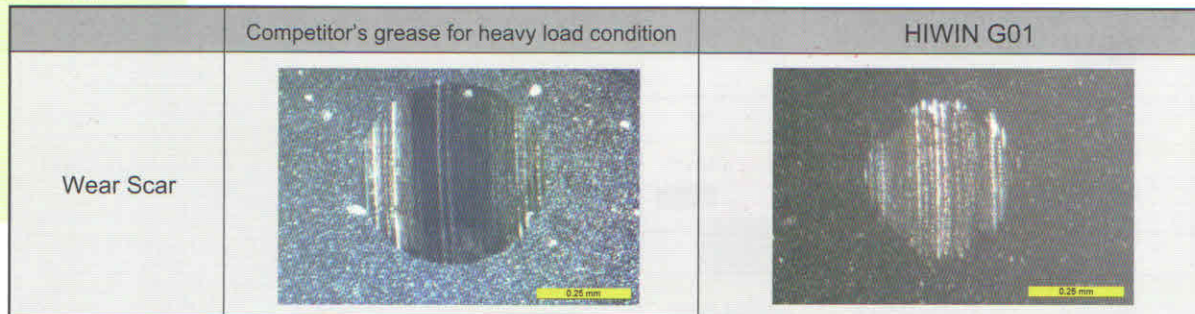
Anti-wear test

Test condition and measurement

Ball diameter	1/2 in
Temperature	75°C
Test time	60 min
Rotational speed	30 rpm
Load	80 kgf
Measurement	Wear diameter of ball contact point



Comparison of wear diameter



Comparison of wear scar

HIWIN G02 Grease with low dust generation

Features

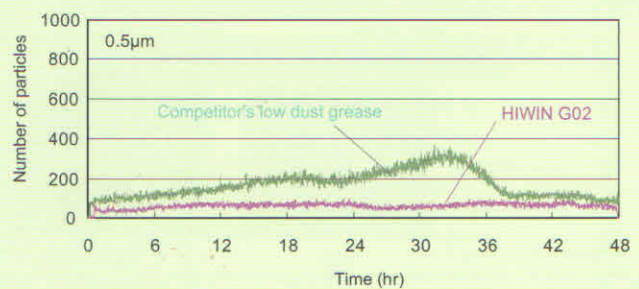
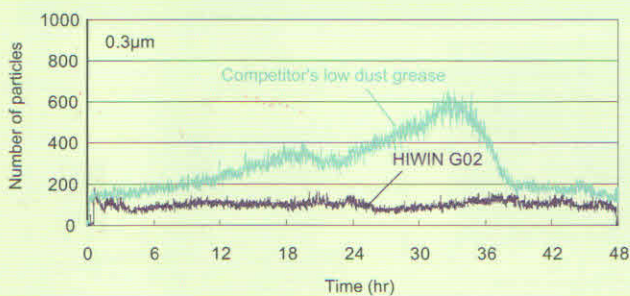
1. Low dust generation, suitable for clean room environments
2. Wear resistant
3. Long term grease, suitable for wide temperature ranges
4. Consists of synthetic hydrocarbon oil and special calcium soap. Resistant to oxidation and ageing
5. Can be used in plastic/steel and plastic/plastic components, compatible with elastomers and plastic materials

Basic properties

		HIWIN G02
Color		Beige
Base Oil		Synthetic hydrocarbon oil
Viscosity Enhancer		Special calcium soap
Service Temperature Range (°C)		-30~140
NLGI grade (0.1mm)		265-295
Viscosity (cSt)	40°C	100
	100°C	15
Drop point (°C)		>180
4-ball test (ASTM D2266)		474µm

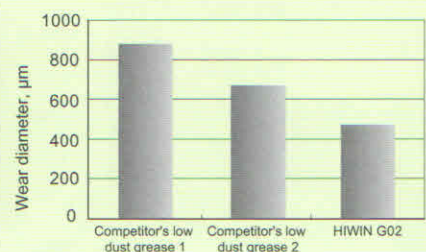
	HIWIN G02	Other	Notes	
Anti-wear	●	▲	4-ball test (ASTM D2266)	46% more
Dust generation	●	▲	Dust generation of KK in clean room	
Anti-corrosion	●	●		
Service temperature range	-30~140	-30~120		

Dust generation



4-ball test (ASTM D2266)

	Competitor's grease-1	Competitor's grease-2	HIWIN G02
Wear Scar			
Diameter (µm)	879	669	474



HIWIN G03 Grease with low dust generation for high speed conditions

Features

1. Low dust generation, suitable for clean room environments
2. Wear resistant under high speed conditions
3. Low starting and running torques particularly at low temperatures to ensure high efficiency and conserve energy
4. Compatible with plastic components

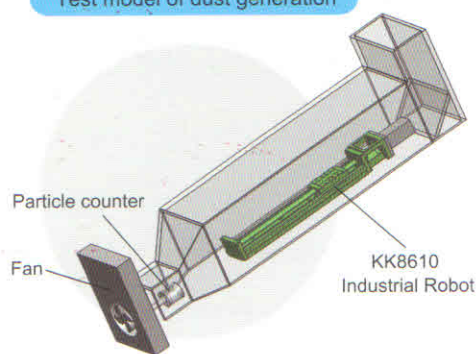
Basic properties

		HIWIN G03
Color		Beige
Base Oil		Synthetic hydrocarbon oil
Consistency Enhancer		Special calcium soap
Service Temperature Range (°C)		-45~125
NLGI grade (0.1mm)		265-295
Viscosity(cSt)	40°C	30
	100°C	5.9
Drop point(°C)		>210
4-ball test (ASTM D2266)		366µm

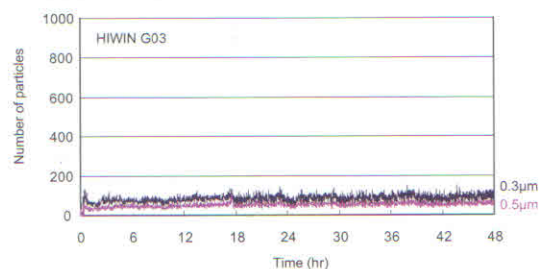
	HIWIN G03	Other	Notes	
Anti-wear	●	●	4-ball test (ASTM D2266)	15% more
Dust generation	●	●	Dust generation of KK in clean room	
Friction torque at low speed	●	▲	7~15 % lower less than 500rpm	
Friction resistance at high speed	●	▲	Motor voltage 1.2~2.6% lower	
Service temperature range	-45~125	-10~80		

Dust generation

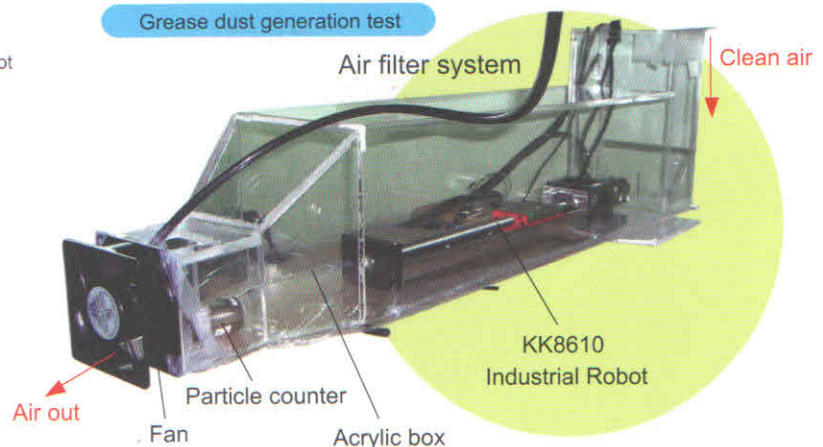
Test model of dust generation




Test condition : Air speed 2.5m/s
 Rotational speed of screw : 1000rpm
 Stroke : 210mm

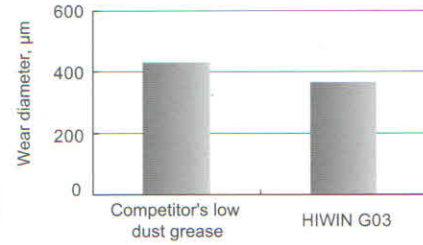


Grease dust generation test

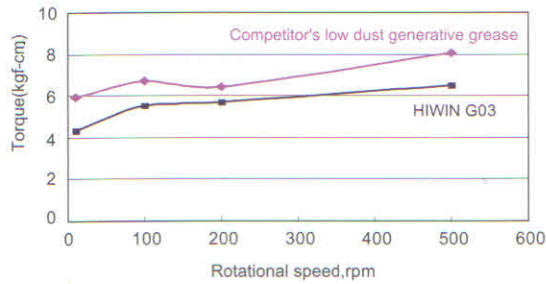


4-ball test (ASTM D2266)

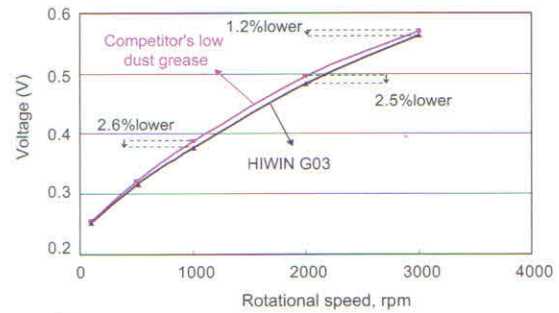
	Competitor's grease	HIWIN G03
Wear Scar		
Diameter (µm)	432	366



Wear resistance



Friction torque of ballscrew under different rotational speeds



Motor driven voltage under different rotational speeds

HIWIN G04 Grease for high speed conditions

Features

1. Wear resistant under high speed conditions
2. Low friction force under high speed conditions
3. Water resistant

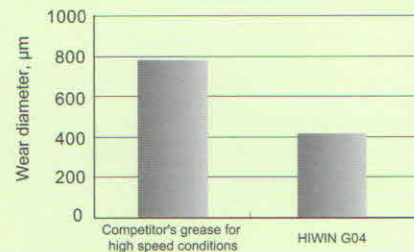
Basic properties

	HIWIN G04	
Color	Beige	
Base Oil	Ester/PAO	
Consistency Enhancer	Lithium soap	
Service Temperature Range (°C)	-35 to 120	
NLGI grade (0.1mm)	260 – 280	
Viscosity (cSt)	40°C	25
	100°C	6
Drop Point (°C)	>225	
4-ball test (ASTM D-2266)	418µm	

	HIWIN G04	Other	Notes
Anti-wear	●	▲	4-ball test (ASTM D2266) 46 %more
Low friction	●	▲	motor voltage 4.6% lower at 3000rpm
Service temperature range	-35 to 120	-50 to 150	

4-ball test(ASTM D2266)

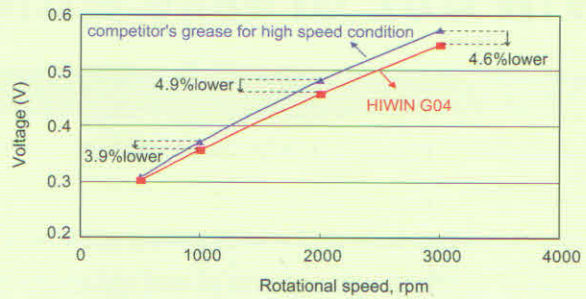
	Competitor's grease	HIWIN G04
Wear Scar		
Diameter (µm)	781	418



Wear resistance

Screw type : 40-10

Test condition : motor driven voltage by different greases and rotational speeds



HIWIN G05 Grease for general purpose

Features

1. Wear resistance under general conditions
2. Low friction resistance under general conditions
3. Long-life
4. Stable to oxidation
5. Water resistant
6. Protects against corrosion

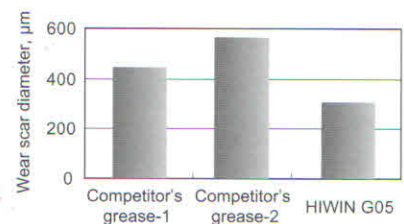
Basic properties

		HIWIN G05
Color		Brown
Base Oil		Mineral
Consistency Enhancer		Lithium soap
Service Temperature Range (°C)		-15 to 120
NLGI grade		2
Viscosity (cst)	40°C	200
Drop Point (°C)		190
4-ball test	Wear scar diameter(μm) (ASTM D-2266)	291
	Welding load (N) (DIN 51350-4)	2600/2800

	HIWIN G05	Other	Notes	
Anti-wear	●	▲	4-ball test (ASTM D2266)	increases 38%~49%
Low friction resistance	●	▲	increases 16%~19%	
Service temperature range	●	●		

4-ball test(ASTM D2266)

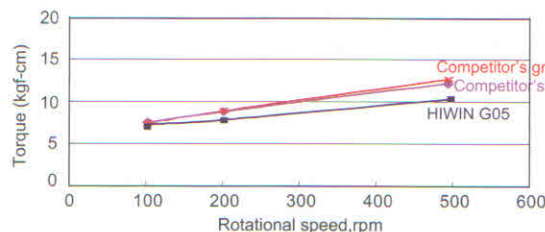
	Competitor's grease-1	Competitor's grease-2	HIWIN G05
Wear Scar			
Diameter (μm)	468	567	291



Friction resistance

Screw diameter : 40mm

Lead : 10mm



Base oil viscosity (cst/40°C)

- 170
- 130
- 200

Friction torque of ballscrew under different rotational speeds

HIWIN G06 - Grease for High Frequency or Short-stroke Condition

Features

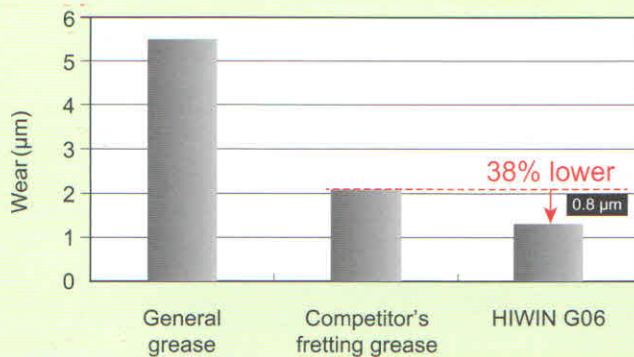
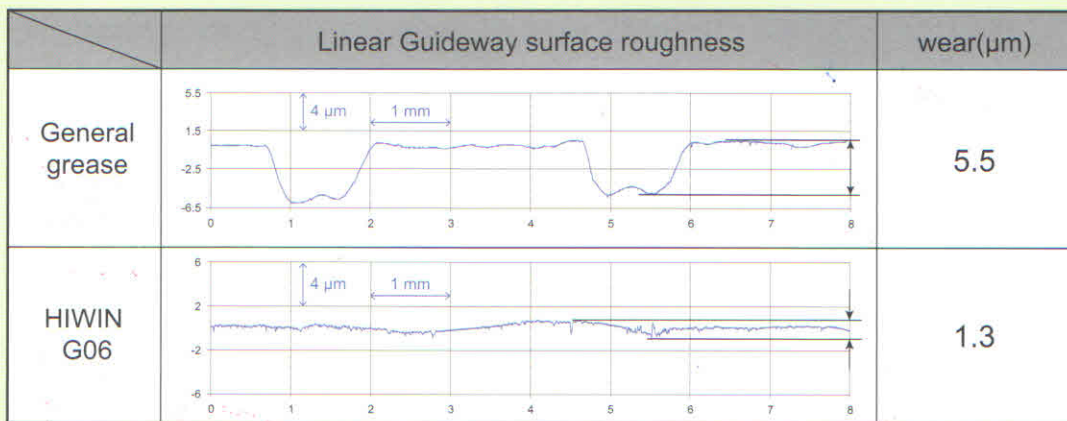
1. Well wear resistance under high frequency (1.5~3G) or short-stroke condition.
2. Long term grease, suitable for wide temperature range
3. Can be used in plastic/steel and plastic/plastic components, compatible with elastomers and plastic materials

Basic properties

		HIWIN G06
Color		Beige
Base oil		PAO
Consistency enhancer		Special Lithium soap
Service temperature range (°C)		-45 to 130
NLGI grade (0.1mm)		265 - 295
Viscosity (cst)	40°C	32
	100°C	6
Drop point (°C)		190

	HIWIN G06	Another general grease	NOTE	
Anti wear	●	X	High frequency & short-stroke 3mm · 600 cycles/min	increases 300%
Service temperature range	●	▲		

High frequency & short-stroke condition test (stroke 3mm · 600 cycles/min)



HIWIN G07 - Grease for Low Temperature Condition

Features

1. For low temperature condition: -50°C to 0°C .
2. Low starting and running torques particularly at low temperatures

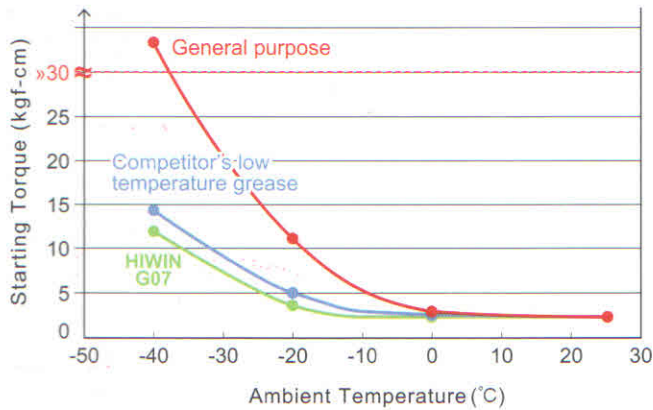
Basic properties

		HIWIN G07
Color		Beige
Base oil		Mineral
Consistency enhancer		Lithium- calcium soap
Service temperature range ($^{\circ}\text{C}$)		-50 to 80
NLGI grade (0.1mm)		310- 340
Viscosity (cst)	40°C	14
	100°C	3

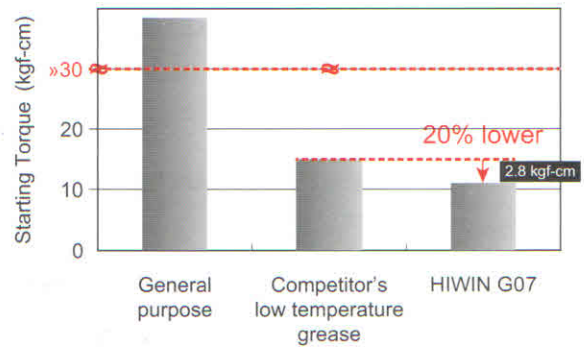
	HIWIN G07	Competitor's low temperature grease	NOTE
Low starting torque (at low temperature condition)	●	▲	Ballscrew starting torque 20% lower at -40°C
Low Temperature Adaptability	●	●	

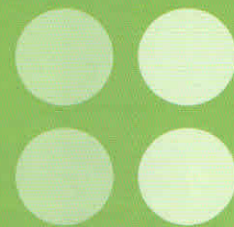
Low temperature torque test

Sample : Ballscrew
 Model : Diameter $\phi 25$ mm \(\cdot\) Lead 5mm :
 Test Conditions : $-40^{\circ}\text{C} \sim 25^{\circ}\text{C}$



Comparison of different starting torque caused by grease at -40°C





HIWIN Grease Capacity



70g Tube

G01 / G02 / G03 / G04 / G05 / G06 / G07



400g Pipe

G01 / G02 / G03 / G04 / G05 / G06 / G07



1kg Can

G01 / G02 / G03 / G04 / G05 / G06 / G07

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