

LINEAR LUBRICANTS

High Quality Lubricants For Linear Products



LINEAR LUBRICANTS



INTRODUCTION

Many factors must be considered when designing or selecting a lead screw or acme screw. Operating load, speed, accuracy, environment, and power requirements all play major roles in the design decision. A properly selected lubricant minimizes friction, reduces torque, increases the screw's efficiency, and extends performance life.

Here is what Helix has to offer.

Greases for All Purpose Applications

Part Number	Volume	Temp Range (C)	Applications
APG-2G	2 Gram Packet	-54 to 125	A lithium soap thickened, light viscosity, synthetic hydrocarbon grease for instruments and bearings. Excellent for wide temperature performance.
APG-50G	50 Gram Jar		

Greases for Medical Grade Applications

Part Number	Volume	Temp Range (C)	Applications
MLG-4G	4 Gram Packet	-65 to 250	A PTFE thickened, high viscosity, completely fluorinated grease for use in high temperature applications exposed to aggressive chemicals. It possesses excellent thermo-oxidative stability and low vapor pressure characteristics.
MLG-100G	100 Gram Jar		

Greases for Semiconductor/Static Dissipative Applications

Part Number	Volume	Temp Range (C)	Applications
SSG-3.5G	3.5 Gram Pipette	-65 to 250	A PTFE thickened, heavy viscosity, perfluoropolyether grease intended for high vacuum and clean room applications, spacecraft and semiconductor manufacturing equipment. Benefits include very low vapor pressure.
SSG-50G	50 Gram Jar		

Greases for Military and Aerospace Applications

Part Number	Volume	Temp Range (C)	Applications
MAG-4G	4 Gram Packet	-80 to 200	A PTFE thickened, medium viscosity, completely fluorinated grease intended for components where wide temperature and low torque are critical. Meets MIL-RRF-27617F, Type IV specifications for aircraft ANO instrument; fuel and oxidizer resistant.
MAG-100G	100 Gram Jar		

Greases for General Industrial Applications

Product Name	NLGI Grade Number	Gelling Agent	Temp. Range	Oil Viscosity			Benefits
				Net Contents Per Unit	Part No.	Total Weight	
PAG-1 Grease	2	Calcium	15°F to 400°F	1	NLU-1001	1 lb.	<ul style="list-style-type: none"> • Sheer stability • High temperature resistant • Corrosion protection • Separation resistant • Extreme pressure properties • Shelf stable • Water resistant
				Case of 12	NLU-2001	13 lb.	
E-100 Spray	2	Calcium	15°F to 400°F	1	NLU-1002	1 lb.	
				Case of 12	NLU-2002	12 lb.	

The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, and is not to be considered a warranty or quality specification.

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LINEAR LUBRICANTS - ALL PURPOSE GRADE

All-Purpose Grade

A lithium soap thickened, light viscosity, synthetic hydrocarbon grease for ilinear products. Excellent for wide temperature performance.

Lubricant Properties		Typical Value	Test Method
Recommended Service Range (°C)		-54 to 125	
Thickener		Lithium Soap	
Base Oil	Type	Polyalphaolefin	
	Kinematic Viscosity, -40°C	8400 cSt	ASTM D-445
	40°C	32.6 cSt	
	100°C	5.7 cSt	
	Viscosity Index	135	ASTM D-2270
	Pour Point, °C	-60	ASTM D-97
	Apparent Viscosity		

Typical Properties of the Grease		Typical Value	Test Method
Color, Appearance		Off-White, Smooth	
Penetration (1/10 mm)	NLGI Grade	2	ASTM D-217
	Unworked	272	ASTM D-217
	Worked, 60X	278	ASTM D-217
Density	25°C	0.92 g/cm ³	NYE CTM
Dropping Point		207	ASTM D-2265
Oil Separation	24 hours, 100°C	2.4	ASTM D-6184
Evaporation	24 hours, 100°C	0.1	
4 Ball Wear	60 minute(s), 1200RPM, 40kg load, 75°C	0.6 mm	ASTM D-2266
Low Temp Torque	Starting Torque, -40°C	1180 g/cm	
	Running Torque, 10 minute(s), -40°C	796 g/cm	
	60 minute(s), -40°C	236 g/cm	
SRV, Step Load		700 N	ASTM D-5706
Load Wear Index			ASTM D-2596

The typical properties shown on this product data sheet should not be used as a basis for preparing specifications. Refer to our product MSDS for detailed safety information on this product.



APG-50G



APG-2G

Medical Grade

A PTFE thickened, heavy viscosity, completely fluorinated grease for use in high temperature applications exposed to aggressive chemicals. It possesses excellent thermo-oxidative stability and low vapor pressure characteristics.

Lubricant Properties		Typical Value	Test Method
Recommended Service Range (°C)		-65 to 250	
Thickener		PTFE	
Base Oil	Type	Perfluoropolyether	
	Kinematic Viscosity, 100°C	40 cSt	ASTM D-445
	40°C	135 cSt	ASTM D-445
	Viscosity Index	334	ASTM D-2270
	Flash Point, °C	None, Non-Flammable	ASTM D-92
	Pour Point, °C	-73	ASTM D-97

Typical Properties of the Grease		Typical Value	Test Method
Color, Appearance		White	
Penetration (1/10 mm)	Unworked	269	ASTM D-217
	Worked, 60X	295	ASTM D-217
	NLGI Grade	2	ASTM D-217
Density	25°C	1.83 g/cm ³	ASTM D-1480
Oil Separation	24 hour(s), 100°C	4.7%	ASTM D-6184
Evaporation	24 hour(s), 200°C	0.1%	ASTM D-972

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MLG-100G



MLG-4G

Semiconductor/Static Dissipative

A PTFE thickened, heavy viscosity, perfluoropolyether grease intended for high vacuum and clean room applications, spacecraft and semiconductor manufacturing equipment. Benefits include very low vapor pressure.

Lubricant Properties		Typical Value	Test Method
Recommended Service Range (°C)		-65 to 250	
Thickener		PTFE	
Base Oil	Type	Perfluoropolyether	
	Kinematic Viscosity, -40°C	2300 cSt	ASTM D-445
	40°C	140 cSt	
	100°C	45 cSt	
	Viscosity Index	345	ASTM D-2270
	Pour Point, °C	-75	ASTM D-97

Typical Properties of the Grease		Typical Value	Test Method
Color, Appearance		White, Smooth	
Penetration (1/10 mm)	Unworked	255	ASTM D-217
	Worked, 60X	273	ASTM D-217
	NLGI Grade	1.5	ASTM D-217
Density	25°C	1.91 g/cm ³	NYE CTM
Oil Separation	24 hours, 100°C	5.8	ASTM D-6184
Evaporation	24 hours, 100°C	0.02	
Low Temp Torque	Starting Torque, -25°C	236g/cm	
	Running Torque, 10 minute(s), -25°C	142 g/cm	
	60 minute(s), -25°C	100 g/cm	
SRV, Step Load		100 N	ASTM D-5706
Load Wear Index			ASTM D-2596
Weld Load		620	

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SSG-50G



SSG-3.5G

Aerospace & Military Grade

A PTFE thickened, medium viscosity, completely fluorinated grease intended for components where wide temperature and low torque are critical. Meets MIL-RRF-27617F, Type IV specifications for aircraft ANO instruments.

Lubricant Properties		Typical Value	Test Method
Recommended Service Range (°C)		-80 to 200	
Thickener		PTFE	
Base Oil	Type	Perfluoropolyether	
	Kinematic Viscosity, 100°C	21.7 cSt	ASTM D-445
	40°C	71 cSt	ASTM D-445
	Viscosity Index	330	ASTM D-2270
	Flash Point, °C	300	ASTM D-92
	Pour Point, °C	-80	ASTM D-97

Typical Properties of the Grease		Typical Value	Test Method
Color, Appearance		White	
Penetration (1/10 mm)	Unworked	297	ASTM D-217
	Worked, 60X	300	ASTM D-217
	NLGI Grade	1-2	ASTM D-217
Density	25°C	1.9 g/cm ³	NYE CTM
Oil Separation	30 hour(s), 204°C	15.4	ASTM D-6184
Evaporation	22 hour(s), 204°C	3.31%	ASTM D-972
4 Ball Wear	60 minute(s), 1200RPM, 40 kg load, 240°C	0.72mm	ASTM D-4172
Low Temp Torque	Starting Torque, -73°C	1416 g/cm	
	Running Torque, 10 minute(s), -73°C	472.9 g/cm	
	60 minute(s), -73°C	456.2 g/cm	
Load Wear Index			ASTM D-2596

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MAG-100G



MAG-4G

General Industrial Application Grade

Proper Lubrication is the key to continued performance and reliability of Acme screw assemblies. Use E-100 spray and PAG-1 grease lubricants to maximize the life of your Acme screw assembly.

Product Name	NLGI Grade Number	Gelling Agent	Temp. Range	Net Contents Per Unit	Part No.	Total Weight	Benefits
PAG-1 Grease	2	Calcium	10°F to +400°F	1	NLU-1001	1 lb.	<ul style="list-style-type: none"> • Sheer stability • High temperature resistant • Corrosion protection • Separation resistant • Extreme pressure properties • Shelf stable • Water resistant
				Case of 12	NLU-2001	13 lb.	
E-100 Spray				1	NLU-1002	1 lb.	
				Case of 12	NLU-2002	12 lb.	

E-100 Spray



PAG-1 Grease

ADDITIONAL INFORMATION

Enhancing Grease Performance

High quality synthetic greases offer many performance advantages over mineral-based lubricants. Synthetic lubricants function over wider temperature ranges; they offer greater thermo-oxidative stability and lower volatility; and they retain the viscosity needed to provide an adequate film thickness through a specified range of operating temperatures, speeds and loads.

Specifying a Lubricant

Proper lubrication plays an especially vital role in the performance and life of Acme lead screws with bronze or polymer nuts. Even with self-lubricated nuts, lead screw performance can be significantly enhanced with light greases. Additional lubrication can also reduce heat in these units. Our Helix Co-polymer or plastic nuts benefit from silicone-based greases and PTFE additives, which lower friction, increase efficiency and prolong performance life.

Ultrafiltration

Ultrafiltration removes virtually all particulate matter from grease and oil. For greases, it also improves the homogeneity of the thickening agent.

Lead screw applications, where precise motion and smooth, quiet operation are desired, can take advantage of this ultrafiltration technology. Ultrafiltration of grease and oil results in lubricants with unsurpassed cleanliness.

For greases, ultrafiltration also improves the homogeneity of the thickening agent.