Product Data

Tribol™ GR ALR 100-1PD

Robot Grease

Description

Castrol Tribol™ GR ALR 100-1 PD high-performance grease is based on fully synthetic base oil and a Lithium complex thickener system, enhanced with the MicroFlux Trans (MFT) additive system.

Castrol's Microflux Trans (MFT) Plastic Deformation (PD) additive helps improve performance when operating temperature and loads reach a certain level of activation energy, by enabling the micro-smoothing of surface roughness without increasing wear. The smoothed surface delivers optimum wear protection and an extremely low coefficient of friction, especially in applications which experience extreme pressure, shock loads, vibrations or low speeds. This helps with extended lubricant life and prolong relubrication intervals.

MFT PD helps to protect against scuffing and shock loading, while maintaining a high load carrying capacity, and can help prevent the progression of micro-pitting in pre-damaged gears.

Application

Tribol GR ALR 100-1 PD was developed for use in robot gear systems where grease lubrication is preferred over lubrication by gear oil. The combination of synthetic base fluid and lithium complex thickener system and the MFT-PD additive system makes it particularly suited to a wide application temperature range.

Low temperature performance is accurately measured for this type of flow grease by Rheometer measurement down to -40°C designed for easier start up at low temperatures (Also measured in the low temperature torque test).

The MFT-PD additive system will help to maintain a stable backlash, which is required for high-precision robot-gears. Tribol GR ALR 100-1PD has a base oil viscosity of 100 mm²/s and an NLGI grade of 1. This combination provides a lower bleed rate than other commercially available greases avoiding oil leakages and a high base oil viscosity giving the gear box more protection.

Tested with various elastomer seal material (95°C for 1008 hours), Tribol GR ALR 100-1 PD has excellent elastomer compatibility.

Advantages

Compared to other commercially available robot greases Tribol GR ALR 100-1 PD has the following advantages:

- MFT-PD technology shown to reduce wear, friction and protect gear surfaces.
- Very low friction torque levels particularly suited for start-stop motion in robots, including at low temperatures.
- Very low oil separation reducing the potential for leakage.
- Excellent elastomer compatibility to prevent seal damage.
- Extended lubrication life-time and relubrication intervals.

Typical Characteristics

Name	Method	Units	Tribol GR ALR 100-1 PD
Colour	Visual	-	Brow n
Thickner Type			Lithium Complex
Dropping Point, Grease	IP 396	°C	> 220
Base Oil	-	-	Synthetic
Base Oil Viscosity @ 40 °C / 104 °F	ISO 3104 / ASTM D445	mm²/s	100
Consistency	ISO 2137 / ASTM D217	NLGI Grade	1
Worked Penetration (60 strokes @ 25°C / 77°F)	ISO 2137 / ASTM D217	1/10 mm	310-340
Worked Penetration - 100,000 strokes; change from 60 strokes	ISO 2137 / ASTM D217	1/10 mm	+20
Roll Stability test - Shear Stability (50 hrs, 60°C / 140°F)	ASTM D1831 mod	1/10 mm	+20
Oil Separation (168 hrs @ 80°C / 176°F)	ASTM D6184	% w t	< 7
Evaporation Loss (24 hrs @ 100°C / 212°F)	DIN 58397-1	% w t	1
Oxidation Stability	ASTM D942	Psi	8
Copper Corrosion (24 hrs,100°C / 212°F)	ASTM D4048	rating	1a
Rheometer Dynamic Viscosity @ -20°C / -4°F	In-house method	Pas	51
Low Temperature Torque @-40°C / -40°F - Starting / Running Torque	ASTM D1478	Nm	0.22/0.03
Four Ball EP Properties, Weld Point (Kg)	SO 11008 / ASTM D2596	Kgf	250
Four Ball Weld Load test - Last Non Seizure Load	SO 11008 / ASTM D2596	Kgf	126
Four Ball Weld Load test - Load Wear Index (27°C / 80°F / 1770 rpm)	SO 11008 / ASTM D2596	Kgf	56
FE-8 Bearing Wear test (C/75/50) Rolling Elements (Mw 50)	DIN 51819-2	mg	< 5
FE-8 Bearing Wear test (C/75/50) Friction Torque	DIN 51819-2	Nm	4

Subject to usual manufacturing tolerances

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