



Castrol Molub-Alloy™ GM 969/320

Leak Resistant Gear Compound

Description

Castrol Molub-Alloy™ GM 969/320 Leak Resistant Gear Compound (previously called Castrol Molub-Alloy™ 969) is specially formulated to help control leaks in gear cases when repairs cannot be immediately performed to eliminate the cause(s) of leakage. The synthetic thickener forms a mat- like matrix at the points of leakage to minimize the flow of oil. Castrol Molub-Alloy GM 969/320 is manufactured by adding a small amount of a synthetic thickener to standard ISO Grade gear oils. The small addition has a moderate thickening effect on the oils, especially in the container, or while not in motion. During the stirring action of gears and bearings, however, Castrol Molub-Alloy GM 969/320 exhibits the rapid flow and film-forming characteristics similar to the original base gear oils.

Leakage from gearcases has traditionally been controlled by the substitution of a grease for the lubricating oil. This is unsatisfactory because grease can channel, and are poor at carrying heat away from the meshing gears and dissipating it from the gearcase. It is the nature of the synthetic thickener to link or gel and bridge the opening with a restricting consistency. Other than this restricting action at small openings, Castrol Molub-Alloy GM 969/320 acts very much like the original base gear oil in service.

Application

Castrol Molub-Alloy GM 969/320 was developed using base oil viscosities of ISO standard grades.

Castrol Molub-Alloy GM 969/320 was originally developed for service in heavy duty earth moving equipment such as shovels and draglines. Surging stress and vibration on these machines inevitably produces some degree of leakage from gearcases. Excessive leakage at shaft seals is not uncommon on hoist, drag, propel and especially swing gearcases of large draglines and swing cases of shovels. Often the tramp oil will contaminate the heavy gear compounds necessary to lubricate the exposed open gear drives.

The use of Castrol Molub-Alloy GM 969/320 can also be extended to control leaks in gearsets in industrial and marine applications.

Typical Characteristics

Name	Test Method	Units	Molub-Alloy GM 969/320
Consistency	-	-	Semi-Fluid
Appearance	Visual	-	Fibrous
Specific Gravity @ 60°C / 140°F	ASTM D1298	-	0.9
Apparent Viscosity - Brookfield @ 72°F, Spindle No.6, 20rpm	ASTM D2983	cP	18,750
Flash Point - open cup method	ASTM D92	°C/°F	229 / 445
Fire Point	ASTM D92	°C/°F	260 / 500
Pour Point	ASTM D97	°C/°F	N/A
Four Ball Wear Test, Scar Diameter (40kg, 75°C/ 167°F, 1800rpm, 1hr)	ASTM D2783	mm	0.45
Four Ball Extreme Pressure Test - Load Wear Index	ASTM D2783	kg	48
Weld Load	ASTM D2783	kg	400
Antiwear test - Falex Pin & V-Block	ASTM D2670	Teeth Wear (number)	3
Foaming Tendency: a tribol test, using a Waring Blender, subjects lubricant to maximum shear for 5 minutes. Measures time to no foam.	Tribol Test	-	No foaming
Castrol Molub-Alloy Solids, Grade Classification	-	-	Fluid Lubrication
BASE OIL PROPERTIES:-			
ISO Viscosity Grade	ASTM D2422	-	320
AGMA Lubricant Number	-	-	6EP
Kinematic Viscosity @ 100°C / 212°F	ASTM D445	cSt	25
SAE Viscosity Classification	-	-	140
Viscosity Index	ASTM D2270	-	100
Pour Point	ASTM D97	°C/°F	-15 / +5
Rust Test - Procedures A & B	ASTM D665		Pass
Copper corrosion (3 hrs@100°C/212°F)	ASTM D130	Rating	1b
FZG Gear Scuffing test - A/8.3/90	ISO 14635-1	Failure Load Stage	12+
FZG Gear Scuffing test - A/16.6/90	ISO 14635-1	Failure Load Stage	12+
Timken Extreme Pressure Test - OK Load	ASTM D2782	kg/lbs	32 / 70
Oxidation Stability @95°C	ASTM D2893	% of viscosity increase	2.25

Subject to usual manufacturing tolerances.

Additional Information

Important Restrictions

Castrol Molub-Alloy GM 969/320 is not for use in units that include a central lubricating system as they will not pump like an oil or nor flow through small lines. 969 will plug filters (See Notes).

Castrol Molub-Alloy GM 969/320 should not be used in gearcases where shaft bearings are lubricated by oil flowing through small lines or orifices as they will seal small openings or seriously restrict oil flow. On the other hand, where bearings are submerged, and oil flow is not unidirectional, flow is not restricted.

Castrol Molub-Alloy GM 969/320 is designed for use in gearboxes where gear oil makeup volumes are unacceptable due to worn shaft seals or other minor causes of leakage. The 969/320 Compounds should be used as gearbox fill only until repair of the leaking condition can be conveniently performed. Castrol Molub-Alloy GM 969/320 Leak Resistant Gear Compounds are not designed to prevent leakage due to gross mechanical defects such as worn bearings and damage causing shafts to experience excessive play which results in excessive lubricant makeup. The Castrol Molub-Alloy GM 969/320 Leak Resistant Gear Compounds should not be used in non-leaking gearboxes as preventive measure.

Notes

Castrol Molub-Alloy GM 969/320 may be metered through grease pumping systems, but would be expected to cavitate in oil circulating pumps.

Castrol Molub-Alloy GM 969/320 will flow readily when agitated but should not be expected to flow by gravity or feed through small lines. Castrol Molub-Alloy GM 969/320 must be stirred vigorously before use.

Since filters must be removed when using Castrol Molub-Alloy GM 969/320 Leak Resistant Gear Compounds, routine oil sampling is strongly recommended. For specific terms, conditions, warranty and availability, refer to Castrol Performance Lubricant' Price List in effect at time of purchase.

This product was previously called Castrol Molub-Alloy™ 969. The name was changed in 2015.

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