Product Data

Castrol Optigear BM 68

Gear Oils with MFT

Description

Castrol OptigearTM BM are solid-free high performance gear oils containing the additive combination Microflux TransTM (MFT). Designed to reduce wear caused by surface fatigue, pitting, spalling, scuffing, scoring or irregularities during running-in period and during normal operations.
Microflux Trans (TRANS=TRiple Action Non-sacrificial Surface engineering) improves friction surfaces to an extent not possible with normal machining processes and conventional Extreme Pressure (EP) lubricants. In a tribological system, the polarized MFT additives instantaneously create a passive film on friction surfaces before friction occurs. At a given load level, the MFT additives create a resistant protective layer on friction surfaces. Under severe load, components of the MFT additive combination are activated and diffuse into the surfaces initiating an improvement of their friction characteristics through plastic deformation. The organic reaction products become a component of the tribopolymer system. Unlike the case with conventional lubricants, the tribopolymers formed by MFT are long-chained compounds with excellent lubricity and adhesion. The load carrying area is improved and the hydrodynamic lubrication film is easier to maintain. This unique physical-chemical reaction is Castrol surface engineering and achieves a non-sacrificial micro-smoothing of the friction surfaces. The MFT additive technology provides optimum wear protection and an extremely low coefficient of friction even under extremes of pressure, vibration, shock loads, at high or low speeds or varying operational conditions.
Optigear BM gear oils are in conformity with and even exceed the requirements of DIN 51517 part 3 CLP and AGMA specifications 9005-D94 for EP Gear Oil.

Application

In all types of industrial gears, especially operating under extremely heavy loads, where conventional EP oils fail.

- Long term lubrication under the most extreme mechanical conditions, vibrations and elevated temperatures.
- Spur and bevel gears, worm gears up to the medium load range
- Gears exposed to high sliding friction and high Hertzian surface pressures up to 2000 N/mm2 (elevators, rolling mills, belt conveyors, extruders, vibrating equipment, crushers, high speed looms and separators).
- Eccentrics, cam shafts and planetary gears.
- Variable speed drives (PIV).
- Sealed gear couplings.
- In all types of bearings, especially for spherical roller bearings, full complement cylindrical roller bearings and thrust bearings.
- Circulation systems.

Advantages

- Extended life time of machine elements and wear parts, lower maintenance and labour costs by minimised wear and friction.
- Full load operation within shortest time, virtually eliminating the running-in period.
- Lower costs for lubricants and waste oil disposal because of significant extensions of both service life and re-lubrication intervals.
- Energy savings due to reduced coefficient of friction, lower temperature of lubricant and component and improvement in operating efficiency.
- Product consolidation, i.e. simplification and reduction of lubricants and spare parts.
- Reduction of noise resulting from high frequency stick-slip for "life" lubrication in some applications.
- Smoothing of existing pittings.

Typical Physical Characteristics

Test	Method	Units	BM 68	BM 100	BM 150	BM 220	BM 320	BM 460	BM 680	BM 1000	BM1500	BM 3000
Colour	Visual	-	brown	brown	brown	brown	brown	brown	brown	brown	brown	brown
ISO viscosity group	-	-	68	100	150	220	320	460	680	1000	1500	3000
AGMA Lubricant Number	-	-	2EP	3EP	4EP	5EP	6EP	7EP	8EP	8AEP	-	-
Density @ 15ºC / 60ºF	ISO 12185 / ASTM D4052	g/ml	0,890	0,895	0,900	0,905	0,910	0,910	0,920	0,930	0,930	0,930
Kin.viscosity @ 40°C / 104°F	ISO 3104 / ASTM D445	mm^2/s	68	100	150	220	320	460	680	1000	1500	3000
Kin.viscosity @ 100°C / 212°F	ISO 3104 / ASTM D445	mm^2/s	9,1	11,7	15,0	19,4	24,9	31,8	38,3	47,4	64,2	119,8
Viscosity index	ISO 2909 / ASTM 2270	-	110	105	100	100	100	100	93	90	95	110
Flash Point, COC	ISO 2592 / ASTM D92	°C/°F	220/428	220/428	225/437	230/446	235/455	240/464	245/473	250/482	235/455	220/428
Pour Point	ISO 3016 / ASTM D97	°C/°F	-24/-11	-21/-6	-18/-0	-15/5	-15/5	-12/10	-9/16	-9/16	-3/27	0/32
Copper Corrosion (3 hrs @ 100ºC)	ISO 2160 / ASTM D130	-	1a	1a	1a	1a	1a	1a	1a	1a	1a	1a
Rust Test	ISO 7120 / ASTM D665											
Procedure A (24 hrs Distilled Water)			Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass
Procedure B (24 hrs Synthetic Sea Water)			Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass
SRV-Test mode 5 ae:	DIN 51834											
Wear scar diameter		mm	0,55	0,55	0,55	0,55	0,55	0,55	0,55	0,55	0,55	0,55
Min. friction coefficient m		-	0,06	0,06	0,06	0,06	0,06	0,06	0,06	0,06	0,06	0,06
Max.friction coefficient m		-	0,08	0,08	0,08	0,08	0,08	0,08	0,08	0,08	0,08	0,08
FZG Test Procedure A/8.3/90	DIN 51354		>12									
FVA Micro-Pitting Test GT-C/8.3 at 60 + 90°C	FVA No. 54		failure load stage >10, GFT-classification: high (tested on ISO VG 320)									

subject to normal manufacturing tolerances

Additional Information

Miscible and compatible with unleaded gear oils based on mineral oil. However, maximum performance is only guaranteed if not mixed with any other product.
Compatible with non-ferrous metals.
Compatible with paints and conventional sealing materials.
Mechanical cleaning with all known filtering installations and separators possible.

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