Product Data

Optigear Synthetic X Range

Synthetic Gear Oils

Description

Castrol Optigear™ Synthetic X is based on synthetic hydrocarbons and Castrol's Microflux Trans (MFT) Plastic Deformation (PD) additive and surface improvement additive package.

MFT PD helps improve lubricant 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. 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

Optigear Synthetic X may be used in spur gear, bevel gears or planetary gear units and in heavy loaded gear units, e.g. wind turbine main gears. It is also suitable for the lubrication of oil-lubricated rolling bearings.
Depending on the specific application, Optigear Synthetic X may be used in an operating temperature range from -30°C/-22°F to +100°C/212°F (refer to a Castrol technician for more information, if necessary).
Optigear Synthetic X is a CLP-HC gear oil (according to DIN 51502) and exceeds the minimum requirements according to DIN 51517 (2003), part 3, CLP gear oils, tested on the ISO viscosity class 320.

Advantages

Optigear Synthetic X has the following advantages when compared to product in a similar class:-

- High load carrying capacity.
- Superior micro pitting protection.
- Excellent friction reduction.
- Good filtration properties.
- Excellent bearing lubrication suitability.

Additional Information

Optigear Synthetic X gear oil can be applied by an oil can, oil cup reservoir, splash, spray mist or by automatic dispensing equipment and central or circulation systems.
To achieve an optimum lifetime of your elastomer sealings we recommend the use of Viton (FKM) based materials.
Optigear Synthetic X has excellent detergent and cleaning properties that help ensure clean operation of a gearbox and an additive system designed to give maximum gear and bearing protection. However, to achieve the optimum performance level of these oils, we recommend removal of any previous oil to avoid compatibility issues. (Refer to manufacturer oil change procedures and the Castrol flushing procedure).

Typical Characteristics

Name	Method	Units	X 100	X 150	X 220	X 320	X 460	X 680
ISO Viscosity Grade		-	100	150	220	320	460	680
Density @ 15°C / 59°F	ISO 12185 / ASTM D4052	kg/m	844	847	850	852	856	858
Kinematic Viscosity @ 40°C / 104°F	ISO 3104 / ASTM D445	mm²/s	98.3	146	218	325	459	675
Kinematic Viscosity @ 100°C / 212°F	ISO 3104 / ASTM D445	mm²/s	14.0	19.0	25.9	34.9	45.0	61.2
Viscosity Index	ISO 2909 / ASTM D2270	-	146	148	151	152	153	159
Flash Point - open cup method	ISO 2592 / ASTM D92	°C/°F	>250/ 482	>250/ 482	>250/ 482	>250/ 482	>250/ 482	>250/ 482
Pour Point	ISO 3016 / ASTM D97	°C/°F	-42/- 43.6	-39/- 38.2	-33/- 27.4	-33/- 27.4	-27/- 16.6	-27/- 16.6
Rust test - distilled water (24 hrs)	ISO 7120 / ASTM D665A	-	Pass					
Copper corrosion (3 hrs@100°C/212°F)	ISO 2160 / ASTM D130	Rating	1a					
Foam Sequences I, II and III - tendency / stability	ISO 6247 / ASTM D892	ml/ml	0/0					
FE-8 Bearing Wear test (F.562831.01-7.5/80-80)	DIN 51819-3	roller wear (Mw50), mg	-	-	-	<10	-	<10
FE-8 Bearing Wear test - increased load (F.562831.01-7.5/100-80)	DIN 51819-3 (modified)	roller wear (Mw50), mg	-	-	-	<10	-	-
FE-8 Bearing Fatigue test (F.562831-75/100-70 800 hrs)	DIN 51819-3 (modified)	roller wear (Mw50), mg	-	-	-	<20	-	-
FZG Gear Scuffing test - A/8.3/90	ISO 14635-1	Failure Load Stage	-	-	-	>14	-	-
FZG Micropitting test @ 60°C/ 140°F	FVA 54-7	Failure Load Stage / Micropitting Rating	-	-	-	>10/ High	-	-
FZG Micropitting test @ 90°C/ 194°F	FVA 54-7	Failure Load Stage / Micropitting Rating	-	-	=10/ High	>10/ High	-	-

Subject to usual manufacturing tolerances.

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