

Optigear™ Synthetic 1710 Range

Semi-synthetic gear oils

Description

Castrol Optigear Synthetic™ 1710 (previously called Tribol 1710) is a range of high-performance extreme pressure gear oils, developed to help tackle wear-related problems in heavily loaded industrial gears and bearings. Optigear Synthetic 1710 is formulated with Castrol's Tribol Gear Oil Additive (TGOA) Plastic Deformation (PD) additive and high quality mineral base oils and synthetic polyalphaolefins.

TGOA 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. TGOA 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

Typical applications are in spur, helical, herringbone, bevel and planetary gears as well as in geared couplings, rolling and sliding bearings and in gear drive circulating systems.

Depending on the application, Optigear Synthetic 1710 may be used in a temperature range from -30°C up to $+95^{\circ}\text{C}$ / -22°F up to 203°F (please contact your Castrol Technical Services team for further information).

Optigear Synthetic 1710 semi-synthetic gear oils are compatible with most mineral oil, ester and synthetic based products. This means that traces of up to 3% of previous oil in the gear case after draining will not pose any problems. However, the beneficial effects of the TGOA additives are reduced when Optigear Synthetic 1710 oils are mixed with other gear oils. Optigear Synthetic 1710 oils are not compatible with polyglycols. After draining a polyglycol fill, the gear case must be flushed well with a mineral oil or flushing oil.

Optigear Synthetic are CLP-HC gear oils (DIN 51502) and exceed minimum requirements according to DIN 51517 T.3 for ISO 320 and 460 grades.

Advantages

Compared to conventional gear oils (of similar class), Optigear Synthetic 170 provides the following advantages:

- High load carrying capacity as demonstrated in Load stage >12 being passed in the FZG test (for ISO 320 and above)
- Excellent wear prevention as demonstrated in the FZG micropitting test (for ISO 220 and above)
- Running-in pitting is prevented or stopped, unless caused by poor design or heavy overloading of the gears
- Lapping of gears is no longer necessary
- Previous pitting or damaged surfaces can be stopped or visibly reduced
- Lower operating temperature and noise level
- Extended service life of gears and bearings, which helps to reduce maintenance costs
- High viscosity-index allows start-ups at low temperatures due to the lower viscosity and allows build-up of a lubricant film with sufficient thickness at high temperatures

Typical Characteristics

Name	Method	Units	Optigear Synthetic 1710/100	Optigear Synthetic 1710/220	Optigear Synthetic 1710/320	Optigear Synthetic 1710/460
ISO Viscosity Grade	-	-	100	220	320	460
Density @ 15°C / 59°F	ISO 12185 / ASTM D4052	kg/m ³	860	870	875	875
Kinematic Viscosity @ 40°C / 104°F	ISO 3104 / ASTM D445	mm ² /s	100	220	320	460
Kinematic Viscosity @ 100°C / 212°F	ISO 3104 / ASTM D445	mm ² /s	13,7	24,3	31.2	42.4
Viscosity Index	ISO 2909 / ASTM D2270	-	138	138	138	140
Flash Point - open cup method	ISO 2592 / ASTM D92	°C/°F	>220/428	>240/464	>240/464	>240/464
Pour Point	ISO 3016 / ASTM D97	°C/°F	-36/-32.8	-33/-27.4	-30/-22	-30/-22
Rust test - distilled water (24 hrs)	ISO 7120 / ASTM D665A	-	pass	pass	pass	pass
Copper corrosion (3hrs@100°C/212°F)	ISO 2160 / ASTM D130	Rating	1	1	1	1
FZG Gear Scuffing test - A/8.3/90	ISO 14635-1	Failure Load Stage	-	-	>12	>12*
FZG Gear Scuffing test - A/16.6/90	ISO 14635-1 (modified)	Failure Load Stage	-	-	>12	>12*
FZG Micropitting test @ 90°C/194°F	FVA 54-7	Failure Load Stage / Micropitting rating	-	=10/High	>10/High	>10/High*
						* Read up from ISO VG 320

Subject to usual manufacturing tolerances.

This product was previously called Tribol 1710. The name was changed in 2015.

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Castrol Industrial, Technology Centre, Whitchurch Hill, Pangbourne, Reading, RG8 7QR, United Kingdom

www.castrol.com/industrial