Product Data

Optigear™ 1100 Range

High Performance Gear Oils

Description

Castrol Optigear™ 1100 Range (previously called Tribol™ 1100 Range) of high-performance extreme pressure gear oils, developed to tackle wear-related problems in heavily loaded industrial gears and bearings. Developed for service in enclosed gear drives, sliding and rolling bearings, the Optigear 1100 gear oils are typically used where heavy and shock load conditions prevail.

Optigear 1100 is formulated with Tribol Gear Oil Additive (TGOA) Plastic Deformation (PD) additive. TGOA PD helps improve performance when operating temperature and loads reach a certain level of activation energy, by enabling the microsmoothing 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.
Specific grades within the Optigear 1100 range meet the requirements of DIN 51517 part 3 CLP and the requirements of a wide range of industrial bodies and equipment manufacturers.

Application

Optigear 1100 oils are particularly valuable in the running-in phase as well as in applications where surfaces have already been damaged in the micro-range.
Typical applications are spur, helical, herringbone, bevel and planetary gears as well as in geared couplings. Optigear 1100 gear oils may be used in rolling and sliding bearings. Particularly suitable for Heavy duty reciprocating pumps for drilling mud or cement placement offshore and onshore drilling sites. Optigear 1100 oils have good water separation properties.

Advantages

Compared to conventional non-PD oils, Castrol Optigear 1100 can deliver the following advantages:

- Tests have shown a reduction in the coefficient of friction of up to 60% over conventional oils without PD technology[1] which can deliver energy savings, lower lubricant and component temperatures and improve operational efficiency
- In laboratory tests Castrol PD additives were shown to prevent the progression of micro-pitting in pre-damaged gears. Non-PD oils used in pre-damaged gears showed existing wear levels increased up to three times[2]
- Smoothing existing gear damage reduces the cost of repairs and replacements and improves operating efficiency by increasing equipment reliability
- Friction, heat and vibration are reduced
- Oil with Castrol PD additives provides superior protection with wear levels of less than half those observed in tests with conventional non-PD oil[3] to help extend planned gear and bearing life
- Extended lubricant service life and relubrication intervals can help to reduce costs and waste oil disposal
- Full load operation is achieved in a short time, virtually eliminating the running-in period

[1]In-house testing on SRV test rig; steel ball against steel plate.
[2]In-house modified FZG micro-pitting test.
[3]Independent MPR testing carried out by Powertrib showed weight loss was less than half that recorded through use of a conventional non-PD oil.

Typical Characteristics

Name	Method	Units	1100 / 100	1100 / 150	1100 / 220	1100 / 320	1100 / 460	1100 / 680	1100 / 1000	1100 / 1500
ISO Viscosity Grade	ISO 3448	-	100	150	220	320	460	680	1000	1500
Density @ 15°C	ASTM D4052/ ISO 12185	kg/m³	895	901	902	912	915	920	930	940
Kinematic Viscosity @ 40 °C / 104 °F	ASTM D445/ ISO 3104	mm²/s	100	151	222	317	465	680	1030	1480
Kinematic Viscosity @ 100 °C / 212 °F	ASTM D445/ ISO 3104	mm²/s	11.4	14.7	18.9	23.6	29.9	35.9	43.7	55.7
Viscosity Index	ASTM D2270/ ISO 2909	-	100	97	96	95	95	87	83	86
Flash Point	ASTM D92/ ISO 2592	°C/°F	230/ 446	250/ 482	250/ 482	250/ 482	250/ 482	250/ 482	250/ 482	250/ 482
Pour Point	ASTM D97/ ISO 3016	°C/°F	-27/ -16.6	-27/ -16.6	-24/ -11.2	-21/ -5.8	-21/ -5.8	-18/ -0.4	-18/ -0.4	-15/ 5
Water Separation @ 82 °C / 180 °F (40/37/3)	ASTM D1401/ ISO 6614	minutes	<30	< 30	< 30	< 30	< 45	-	-	-
Rust Test (Method A, 24 hrs)	ASTM D665/ ISO 7120	-	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass
Copper Corrosion (Corrosion Degree, 100 A3)	ASTM D130/ ISO 2160	Class	1	1	1	1	1	1	1	1
Four Ball Wear Test (1 h, 40 kg, 1800 min-1, 75 °C) Wear Scar Diameter	ASTM D2266	mm	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
FZG Test (A / 8.3 / 90) Scoring Load Stage	ISO 14635-1	Failure Load Stage	>14	>14	>14	>14	>14	>14	>14	>14
FZG Micropitting Test, Micropitting Load Carrying Capacity: High	FVA No. 54	-	-	-	10	10	10	10	10	10
Foaming Properties, Sequence I, II and II	ASTM D892/ ISO 6247	ml/ml	< 50/0	< 50/0	< 50/0	< 50/0	< 50/0	< 50/0	< 50/0	<50/0

Subject to usual manufacturing tolerances.

Additional Information

- Optigear 1100 gear oils are compatible with other petroleum gear oils. This means that traces of previous oil remaining in the gear case after draining will not pose any problems.
- However, the beneficial effects of the TGOA PD additives are reduced when Optigear 1100 gear oils are mixed with other gear oils.
- A thorough cleaning of the gearbox is highly recommended to achieve the maximum benefits.

This product was previously known as Tribol 1100 Range. The name changed in 2015.

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