

Tribol 1710

Semi-synthetic gear oils

Description

CASTROL TRIBOL™ 1710 gear oils with TGOA represent a significant advancement in gear oil technology. Developed for service in enclosed gear drives, rolling and sliding bearings, CASTROL TRIBOL 1710 gear oils are typically used where heavy and shock load conditions prevail.

- CASTROL TRIBOL 1710 gear oils are manufactured from the highest quality mineral base oils and synthetic polyalphaolefins. Blended into these oils is TGOA, the latest development in the field of surface improving additives.
- The TGOA additive package is activated by high specific loads and corresponding temperatures, causing a chemical-physical reaction. This results in an equalization of surface roughness without creating abrasion.
- The results of the TGOA additives may be compared with a rolling process in the micro-range. Surface roughness is gradually leveled and smoothed.
- Through smoothing of the working surfaces, the loads are distributed over larger areas.
- If due to shock loads or stop-and-go operation surface roughness peaks redevelop, the TGOA additive package is automatically reactivated. Surface roughness is again equalized and lubrication optimized.

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 CASTROL TRIBOL 1710 may be used in a temperature range from -30°C up to $+95^{\circ}\text{C}$
- CASTROL TRIBOL 1710 semi-synthetic gear oils are compatible with mineral oils and esters.
- This means that traces 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 CASTROL TRIBOL 1710 oils are mixed with other gear oils.
- CASTROL TRIBOL 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.
- Quality Standard: CASTROL TRIBOL® 1710 are CLP-HC gear oils (DIN 51502) and exceed minimum requirements according to DIN 51517 T.3.

Advantages

- Load stage >14 is being passed in the FZG test.
- High load carrying capacity (FZG micropitting test passed)
- 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.
- Regeneration of damaged friction surfaces occurs on a micro-scale.
- Lower operating temperature and noise level.
- Extended service life of gears and bearings as well as reduced 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	100	220	320	460
ISO Viscosity Grade	-	-	100	220	320	460
Density @ 15°C / 59°F	ISO 12185 / ASTM D4052	kg/m ³	861	365	875	874
Kinematic Viscosity @ 40°C / 104°F	ISO 3104 / ASTM D 445	mm ² /s	100	220	320	460
Kinematic Viscosity @ 100°C / 212°F	ISO 3104 / ASTM D 445	mm ² /s	13.5	23.9	31.2	42.4
Viscosity Index	ISO 2909 / ASTM D2270	-	135	135	135	135
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	-	0-A	0-A	0-A	0-A
Copper corrosion (3 hrs @ 100°C/212°F)	ISO 2160 / ASTM D130	Rating	1	1	1	1
SRV Friction Test	ASTM D6425 / DIN 51834	coeff. of friction	0.09	0.09	0.09	0.09
FZG Gear Scuffing test - A/8.3/90	ISO 14635-1	Failure Load Stage	>12	>12	>12	>12
FZG Gear Scuffing test - A/16.6/90	ISO 14635-1 (modified)	Failure Load Stage	>14	>14	>14	>14
FZG Micropitting test @ 90°C/194°F	ASTM D5182 / FVA 54-7	Failure Load Stage / Micropitting Rating	>10/High	>10/High	>10/High	>10/High
Water Content - Dean-Stark distillation test	ISO 3733 / ASTM D95	%wt	Below measurable content			
Foam Sequence I - tendency / stability	ISO 6247 / ASTM D892	ml/ml	<50/0	<50/0	<50/0	<50/0
Foam Sequence II - tendency / stability	ISO 6247 / ASTM D892	ml/ml	<50/0	<50/0	<50/0	<50/0
Foam Sequence III - tendency / stability	ISO 6247 / ASTM D892	ml/ml	<50/0	<50/0	<50/0	<50/0
Flender Foaming test	Flender in-house	% vol	Pass	Pass	Pass	Pass

Subject to usual manufacturing tolerances.

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