



Alphasyn GS

Synthetic Gear Oils

Description

Castrol Alphasyn™ GS are fully synthetic gear lubricants based on carefully selected polyglycol fluids and containing antioxidant, rust-inhibiting and EP additives of high thermal stability.

Application

The Alphasyn GS range has inherently superior properties relative to mineral lubricants, therefore these grades are especially suitable for the high temperature lubrication of gears and bearings, particularly in large scale mills and calenders.

In worm gears operating with mineral oil at low speeds and high torques, conditions of boundary lubrication tend to promote pitting and consequent rapid wear of bronze worm-wheels. Fatty oils (also known as compounded oils) were found to be effective in reducing pitting, but suffered from rapid oxidation at high running temperatures. Alphasyn GS grades are suitable for these applications and also allow extended drain and change intervals. Some manufacturers employ them for fill-for-life lubricants.

Advantages

- Reduced frictional losses leads to reduced energy consumption and lower sump temperatures.
- Higher thermal stability, hence minimal formation of sludge and deposits.
- Better load-carrying properties and reduced wear compared with conventional mineral oils.
- Inherently higher Viscosity Index (VI) which, with the lower pour point, results in a wider range of service temperatures (-30 °C to 150 °C continuous bulk temperatures, with intermittent operating temperatures of up to 220°C)

Typical Characteristics

Name	Method	Units	GS 150	GS 220	GS 320	GS 460	GS 680
Appearance	Visual	-	Clear	Clear	Clear	Clear	Clear
Density @ 15°C / 59°F	ISO 12185 / ASTM D4052	kg/m ³	1020	1020	1020	1020	1020
Kinematic Viscosity @ 40°C / 104°F	ISO 3104 / ASTM D445	mm ² /s	152	223	318	448	680
Kinematic Viscosity @ 100°C / 212°F	ISO 3104 / ASTM D445	mm ² /s	25	36.3	52	72.7	101
Viscosity Index	ISO 2909 / ASTM 2270	-	199	213	229	242	244
Pour Point	ISO 3016 / ASTM D97	°C/°F	-45/-49	-45/-49	-42/-44	-39/-38	-36/-33
Flash Point - open cup method	ISO 2592 / ASTM D92	°C/°F	286/ 547	280/ 536	280/ 536	280/ 536	290/ 554
Rust test - distilled water (24 hrs)	ISO 7120 / ASTM D665A	-	Pass	Pass	Pass	Pass	Pass
Copper Corrosion	ISO 2160 / ASTM D130	Rating	1a	1a	1a	1a	1a
Timken OK Load test	ASTM D2782	kg/lb	34/75	34/75	34/75	34/75	34/75
Four Ball - Weld scar diameter (1hr/40kg)	ASTM D2783	mm	0.40	0.40	0.35	0.35	0.35
FZG Gear Scuffing test - A/ 8.3/90	ISO 14635-1	Failure Load Stage	>12	>12	>12	>12	>12
FZG Gear Scuffing test - A/ 16.6/90	ISO 14635-1 (modified)	Failure Load Stage	>12	>12	>12	>12	>12

Subject to usual manufacturing tolerances.

Additional Information

Normal industrial paints are not compatible with these lubricants. Gearboxes should be left unpainted internally, or alternatively should be painted with two component coatings such as epoxy resins.

Care must be taken that seal materials are compatible with the Alphasyn GS lubricants. The recommended materials are nitrile rubber (NBR), fluoro-silicone rubber (FVMQ), and vinyl-methyl-polysiloxane rubber (VMQ). Incompatible materials are likely to shrink or swell, thus causing either severe leakage or seizure of the seal. These products are NOT miscible with mineral oils.

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