

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

| | Method | Units | GS 220 | GS 320 | GS 460 | GS 680 |
|--|-------------|--------------------|-----------|-----------|-----------|-----------|
| Appearance | Visual | - | Clear | Clear | Clear | Clear |
| Density @ 15°C | ASTM D4052 | g/ml | 1.02 | 1.02 | 1.01 | 1.00 |
| Kinematic Viscosity, at 40°C | DIN 51562-1 | mm ² /s | 227 | 343 | 480 | 721 |
| Kinematic Viscosity, at 100°C | DIN 51562-1 | mm ² /s | 35.5 | 52 | 72 | 107 |
| Viscosity Index | ASTM 2270 | - | 208 | 218 | 231 | 247 |
| Pour Point | ISO 3016 | °C | -42 | -42 | -39 | -36 |
| Flash Point, COC | ASTM D97 | °C | 243 | 287 | 282 | 266 |
| Rust Test, Procedure A | ASTM D665A | - | Pass | Pass | Pass | Pass |
| Copper Corrosion | ASTM D130 | - | 1A | 1A | 1A | 1A |
| 4 Ball – Weld Load | DIN 51350:4 | N | 1700/1800 | 1700/1800 | 1600/1700 | 1600/1700 |
| 4 Ball - Wear | DIN 51350-5 | mm | 0.6 | 0.6 | 0.7 | 0.7 |
| FZG Gear Failure A/16.6/90 & A/8.3/90 | DIN 51354 | Load Stage | >14 | >14 | >14 | >14 |

The above figures are typical of those obtained with normal production tolerance and do not constitute a specification.

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.

Storage

All packages should be stored under cover. Where outside storage is unavoidable drums should be laid horizontally to avoid the possible ingress of water and the obliteration of drum markings. Products should not be stored above 60°C, exposed to hot sun or freezing conditions.

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2 Jan 2018

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