Mobil

# Mobil SHC™ 600 Series

Mobil Industrial , Guam

Exceptional Performance Gear and Bearing Oils




## Product Description

Mobil SHC™ 600 Series lubricants are exceptional performance gear and bearing oils designed to provide outstanding service in terms of equipment protection, oil life and problem-free operation helping to enable increased customer productivity. These scientifically engineered oils are formulated using the latest proprietary and patent pending Mobil SHC technology to provide outstanding and balanced performance in demanding applications at high and low temperatures. Mobil SHC 600 products feature excellent low temperature properties, as well as improved air release performance in the lower viscosity grades. These products are resistant to mechanical shear, even in heavily loaded gear and high shear bearing applications, so that there is virtually no loss of viscosity.

Mobil SHC 600 Series products have low traction coefficients relative to mineral oils which derive from the molecular structure of the base stocks used. This results in low fluid friction in the load zone of non-conforming surfaces such as gears and rolling contact bearings. Low fluid friction produces lower operating temperatures and improved gear efficiency, which translates into reduced power consumption. Mobil SHC 600 Series products have demonstrated up to 3.6% improvement in energy efficiency in controlled laboratory testing(*). Mobil SHC 600 Series formulation also provides excellent resistance to oxidation and deposit formation at elevated temperatures, as well as exceptional resistance to rusting and corrosion, antiwear, demulsibility, foam control and air release properties, and multi-metal compatibility. Mobil SHC 600 Series oils maintain good compatibility with seals and other materials used in equipment normally lubricated with mineral oils.

Mobil SHC 600 Series lubricants are suitable for use in a wide range of equipment, not only as high temperature problem solvers, but also because of the other benefits they offer.

(*) Energy efficiency relates solely to the performance of Mobil SHC 600 when compared to conventional (mineral) reference oils of the same viscosity grade in circulating and gear applications. The technology used allows up to 3.6% efficiency compared to the reference when tested in a worm gearbox under controlled conditions. Efficiency improvements will vary based on operating conditions and application.

## Features and Benefits

The Mobil SHC brand of lubricants are recognized and appreciated around the world for their innovation and outstanding performance. These synthetic products, molecularly designed and pioneered by our research scientists, embody the continuing commitment to using advanced technology to provide outstanding lubricant products. The development of Mobil SHC 600 Series was preceded by close contacts between our scientists and application specialists with key Original Equipment Manufacturers (OEMs) to ensure that the products provide exceptional performance in the continually evolving industrial equipment designs.

Our work with key equipment builders has helped confirm the results from our own laboratory and rig tests showing the exceptional performance of Mobil SHC 600 Series lubricants. Not least among the benefits, shown in work with OEMs, is the potential for energy efficiency improvements up to 3.6% relative to mineral oils (*). These benefits are particularly evident in equipment with a high level of mechanical losses, such as high ratio worm gears.

To develop the latest Mobil SHC technology for Mobil SHC 600 Series oils, our product formulation scientists chose select base oils because of their exceptional thermal/oxidative resistance potential and combined them with a balanced additive system, which complements the inherent benefits of the base oils to provide excellent oil life, deposit control and resistance to thermal/oxidative and chemical degradation. This formulation approach provides low temperature fluidity characteristics exceeding that of many conventional mineral products and is a key benefit for remote, low ambient temperature applications. Mobil SHC 600 Series oils offer the following features and potential benefits:

| Features | Advantages and Potential Benefits |
|---|---|
| Superb high temperature thermal/oxidation resistance | Helps extend equipment high temperature operating capability<br>Long oil life, helps reduce maintenance costs<br>Helps minimize deposits to enable trouble-free operation and long filter life |
| High Viscosity Index and absence of wax | Maintains viscosity and film thickness at high temperatures<br>Helps enable exceptional low temperature performance, including start-up |
| Low traction coefficient | Helps reduce friction and increase efficiency in sliding mechanisms such as gearing, with potential for reduced power consumption and lower steady-state operating temperatures.<br>Helps minimize the effects of micro slip in rolling contact bearings to potentially extend rolling-element life |
| High load carrying capability | Helps protects equipment and extends life; helps minimize unexpected downtime and extends service periods |
| Balanced additive combination | Provides excellent performance in terms of rust and corrosion prevention, water separability, foam control and air release performance enabling problem-free operation in a wide range of industrial applications, and reduced operating costs |

## Applications

While Mobil SHC 600 Series are generally compatible with mineral oil based products, admixture may detract from their performance. Consequently it is recommended that before changing a system to one of Mobil SHC 600 Series products, it should be thoroughly cleaned out and flushed to achieve the maximum performance benefits. Mobil SHC 600 Series oils are compatible with most NBR, FKM and most other elastomeric seal materials that are used with mineral oils. There is the potential for substantial variations in the elastomers. For best results, consult your equipment supplier, seal manufacturer, or your local company representative to verify compatibility.

Mobil SHC 600 Series lubricants are recommended for use in a wide variety of gear and bearing applications where high or low temperatures are encountered or where operating temperatures or bulk oil temperatures are such that conventional lubricants give unsatisfactory life, or where improved efficiency is desired. They are particularly effective in applications where the maintenance costs of component replacement, system cleaning and lubricant changes are high. Specific applications require selection of the appropriate viscosity grade and include:

- Filled for life gearboxes, especially high ratio/ low-efficiency worm gears
- Remotely located gearboxes, where oil change-out is difficult
- Low temperature applications, such as ski lifts where seasonal oil changes can be avoided
- Mixer roll bearings and roll neck bearings where high temperatures are encountered
- Plastic calenders
- Severe centrifuge applications, including marine centrifuges
- Railroad A/C Traction Drives
- Mobil SHC 626, 627, 629 and 630 are suitable for Oil Flooded Rotary Screw Compressors compressing natural gas, field gas gathering, CO2 and other process gasses used in the natural gas industry
- Mobil SHC 629, 630, 632, 634, 636, and 639 are approved by Siemens AG for use in Flender gearboxes

## Specifications and Approvals

| This product has the following approvals: | 624 | 625 | 626 | 627 | 629 | 630 | 632 | 634 | 636 | 639 |
|---|---|---|---|---|---|---|---|---|---|---|
| Flender | | | | | X | X | X | X | X | |
| GE D50E32 AC Traction Motor | | | | | | | | X | | |

| This product has the following approvals: | 624 | 625 | 626 | 627 | 629 | 630 | 632 | 634 | 636 | 639 |
|---|---|---|---|---|---|---|---|---|---|---|
| SEW-Eurodrive | X | | X | | X | X | X | X | X | X |

| This product is recommended for use in applications requiring: | 624 | 625 | 626 | 627 | 629 | 630 | 632 | 634 | 636 | 639 |
|---|---|---|---|---|---|---|---|---|---|---|
| Fives Cincinnati P-34 | | | | | | | | | X | |
| Fives Cincinnati P-63 | | | X | | | | | | | |
| Fives Cincinnati P-76 | | | | X | | | | | | |
| Fives Cincinnati P-77 | | | | | X | | | | | |
| Fives Cincinnati P-78 | | | | | | | | | | X |
| Fives Cincinnati P-80 | | | X | | | | | | | |

| This product meets or exceeds the requirements of: | 624 | 625 | 626 | 627 | 629 | 630 | 632 | 634 | 636 | 639 |
|---|---|---|---|---|---|---|---|---|---|---|
| AGMA 9005-F16 | X | X | X | X | X | X | X | X | X | X |
| DIN 51517-3:2018-09 | | | | X | X | X | X | X | X | X |
| ISO L-CKB (ISO 12925-1:2018) | X | | | | | | | | | |
| ISO L-CKD (ISO 12925-1:2018) | | X | X | X | X | X | X | X | X | X |

Properties and Specifications

| Property | 624 | 625 | 626 | 627 | 629 | 630 | 632 | 634 | 636 | 639 |
|---|---|---|---|---|---|---|---|---|---|---|
| Grade | ISO 32 | ISO 46 | ISO 68 | ISO 100 | ISO 150 | ISO 220 | ISO 320 | ISO 460 | ISO 680 | ISO 1000 |
| Appearance, AMS 1738 | Orange | Orange | Orange | Orange | Orange | Orange | Orange | Orange | Orange | Orange |
| Copper Strip Corrosion, 24 h, 121 C, Rating, ASTM D130 | 1B | 1B | 1B | 1B | 1B | 1B | 1B | 1B | 1B | 1B |
| Density @ 60 F, g/cm3, ASTM D4052 | 0.85 | 0.85 | 0.86 | 0.86 | 0.86 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 |
| Emulsion, Time to 37 mL Water, 54 C, min, ASTM D1401 | 10 | 15 | 15 | | | | | | | |
| Emulsion, Time to 37 mL Water, 82 C, min, ASTM D1401 | | | | 15 | 20 | 20 | 20 | 20 | 20 | 25 |
| FE8 wear test, V50 roller wear, mg, DIN 51819-3 | | | | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| FZG Scuffing, Fail Load Stage, A/8.3/90, ISO 14635-1(mod) | 11 | 12 | 12 | 12 | 13 | 13+ | 13+ | 13+ | 13+ | 13+ |

| Property | 624 | 625 | 626 | 627 | 629 | 630 | 632 | 634 | 636 | 639 |
|---|---|---|---|---|---|---|---|---|---|---|
| Flash Point, Cleveland Open Cup, °C, ASTM D92 | 236 | 225 | 225 | 235 | 220 | 220 | 225 | 228 | 225 | 222 |
| Kinematic Viscosity @ 100 C, mm2/s, ASTM D445 | 6.3 | 8.5 | 11.6 | 15.3 | 21.1 | 28.5 | 38.5 | 50.7 | 69 | 98.8 |
| Kinematic Viscosity @ 40 C, mm2/s, ASTM D445 | 32 | 46 | 68 | 100 | 150 | 220 | 320 | 460 | 680 | 1000 |
| Pour Point, °C, ASTM D5950 | -57 | -54 | -54 | -48 | -48 | -48 | -48 | -45 | -45 | -42 |
| Rotating Pressure Vessel Oxidation Test, min, ASTM D2272 | 2500 | 2500 | 2500 | 2500 | 2500 | 2500 | 2500 | 2500 | 2500 | 2500 |
| Rust Characteristics, Procedure B, ASTM D665 | PASS | PASS | PASS | PASS | PASS | PASS | PASS | PASS | PASS | PASS |
| Turbine Oil Stability Test, Life to 2.0 mg KOH/g, h, ASTM D943 | 10,000+ | 10,000+ | 10,000+ | 10,000+ | 10,000+ | 10,000+ | 10,000+ | 10,000+ | 10,000+ | 10,000+ |
| Viscosity Index, ASTM D2270 | 148 | 161 | 165 | 162 | 166 | 169 | 172 | 174 | 181 | 184 |

### Health and Safety

Health and Safety recommendations for this product can be found on the Material Safety Data Sheet (MSDS) @ http://www.msds.exxonmobil.com/psims/psims.aspx

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