



Gulf Harmony ZF Plus

Premium quality ashless anti-wear hydraulic oil

Product Description

Gulf Harmony ZF Plus series are premium quality ashless anti-wear hydraulic oils specially developed to meet the requirements of the most demanding modern hydraulic systems in industrial and mobile service. They are formulated with an advanced ashless anti-wear technology and severely hydroprocessed Group II base oils to provide reduced environmental impact in case of an accidental release into the environment. They are specially designed to satisfy the performance requirements of a wide range of hydraulic equipment subjected to high operating pressures & temperatures and to provide extended drain intervals. They possess outstanding thermo-oxidative stability, anti-wear property, rust & corrosion protection, water separation & air-release properties and hydrolytic stability to prolong the equipment and oil life. They are available in ISO 10 through ISO 100 viscosity grades and exceed the performance requirements of global industry standards viz. DIN 51524 Part 2-HLP, AFNOR NFE 48-603 (HM) & ISO 11158 HM and majority of the international OEMs viz. Denison, FIVES CINCINNATI (Former MAG IAS, LLC) & Eaton (Vickers).

Features & Benefits

- Outstanding thermo-oxidative stability reduces deposit formation, improves pump & valve performance and allows extension of oil and filter change intervals.
- Exceptional anti-wear property results in fewer breakdowns, longer pump life and reduced maintenance costs.
- Advanced ashless additive technology reduces environmental impact in case of accidental spillage or leakage.
- Excellent demulsibility helps in faster separation of water from oil and resists formation of emulsions.
- Special rust & corrosion inhibitors protect multi-metallurgy components against negative effects of moisture presence in the system.
- Rapid air release property minimises chances of pump cavitation and thus prevents component damage, reduces vibration and maintains efficiency especially in modern hydraulic systems where sump sizes are becoming smaller.
- Offers long term hydrolytic stability and yellow metal compatibility in presence of water.
- Compatible with multi-metals and sealing materials commonly used in hydraulic systems.

Applications

- Most demanding hydraulic systems subjected to high pressures and loads and requiring in environmentally sensitive applications.
- Applications requiring extended oil change intervals.
- Hydraulic systems in industrial and mobile service employing gear, vane and piston pumps where anti-wear hydraulic oils are recommended.
- Mobile hydraulic fluid power transmission systems and general machine lubrication.
- Older design hydraulic pumps containing silver or silver-plated parts.

Specifications, Approvals & Typical Properties

Refer next page

Properties mentioned are typical only and minor variations, which do not affect product performance, are expected to arise in normal manufacturing processes. Please follow equipment manufacturer's recommendations for performance level and viscosity grade. The Safety Data Sheet for this product is available from your nearest Gulf Distributor. Please consult our local representative if any further information is required.

The information contained herein is believed to be correct at the time of publication and may be subject to modification from time to time. It is the user's responsibility to verify that this data sheet is current prior to using the product. No warranty expressed or implied is given concerning the accuracy of the information or the suitability of products. Gulf Oil International reserves the right to modify and change its products and specifications without prior notice.

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|--|--------------------|-----------------------|-------|-------|-------|-------|-------|-------|
| ISO Viscosity grades | | 10 | 15 | 22 | 32 | 46 | 68 | 100 |
| Meet the following Specifications | | | | | | | | |
| DIN 51524 Part 2-HLP | | X | X | X | X | X | X | X |
| AFNOR NFE 48-603 (HM), ISO 11158 HM | | X | X | X | X | X | X | X |
| Denison HF-0, HF-1, HF-2 | | | | | X | X | X | |
| FIVES CINCINNATI (Former MAG IAS, LLC) | | | | | P-68 | P-70 | P-69 | |
| Eaton (Vickers) M-2950-S, I-286-S | | | | | X | X | X | |
| Typical Properties | | | | | | | | |
| Test Parameters | ASTM Method | Typical Values | | | | | | |
| Viscosity @ 40 °C, cSt | D 445 | 10 | 15 | 22 | 32 | 46 | 68 | 100 |
| Viscosity Index | D 2270 | 109 | 109 | 108 | 105 | 104 | 100 | 99 |
| Flash Point, °C | D 92 | 142 | 168 | 192 | 206 | 218 | 226 | 238 |
| Pour Point, °C | D 97 | -33 | -27 | -27 | -24 | -24 | -24 | -21 |
| Density @ 15 °C, Kg/l | D 1298 | 0.837 | 0.843 | 0.848 | 0.852 | 0.855 | 0.858 | 0.861 |
| Rust Test | D 665A/B | Pass | Pass | Pass | Pass | Pass | Pass | Pass |
| Emulsion Test 30 minutes max | @ 54 °C | D 1401 | Pass | Pass | Pass | Pass | Pass | - |
| | @ 82 °C | | - | - | - | - | - | Pass |
| Foam Test, foam after 10 minutes of settling for all sequences | D 892 | Nil | Nil | Nil | Nil | Nil | Nil | Nil |
| Turbine Oil Stability Test, hrs | D 943 | 5000+ | | 5500+ | 6500+ | | 6000+ | 5000+ |
| FZG, fls, minimum | DIN 51354 Part II | - | - | - | 12 | 12 | 12 | - |

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