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TECHNICAL PRODUCT SHEET

# HYDRAULIC ZF

## ISO 32, 46, 68

## DESCRIPTION

HYDRAULIC ZF series consists of mineral-based oils meeting the international classification ISO Type HM which offer a wide selection of viscosities. They are enhanced by a zinc-free special additive treatment to minimize corrosion, oxidation, foaming and machinery wear. Due to their extreme pressure (EP) additives, they are suitable for applications such as in lightly loaded gears, in some variable speed units and in bearings. They meet all modern hydraulic systems' filtration requirements.

## APPLICATIONS

The series is suitable for use in industrial and marine hydraulic systems fitted with vane, gear axial and pistons pumps, especially those operating under high pressures and with increased wear protection requirements. They can also be used in lifts, presses, coal mining machinery and various machine components. They comply with pump constructors´ requirements for all the metallurgical materials (incl. silver-plated ones, which require a zinc-free hydraulic lubricant).

## SPECIFICATIONS

| | | | |
|---|---|---|---|
| DIN | 51524 Part 2 HLP | SEB | 181222 |
| ISO | 6743-4 (ISO-L-HM) | VDMA | 24318 |
| Parker (Denison) | HF-0, HF-1, HF-2 | U.S. Steel | 127 |
| AFNOR NFE | 48-603 HM | U.S. Steel | 136 |
| SS | 155434:2015 | | |

## PROPERTIES

HYDRAULIC ZF is formulated with zinc-free, ashless chemistry and delivers superior thermal stability together with exceptional anti-wear protection. It exhibits excellent resistance to foam formation, promotes rapid air release, and provides very good water separation properties. The formulation is fully compatible with common seal materials such as Nitrile, Buna-N, Viton, and Silicone, while also offering very good filterability for reliable and efficient system operation.

## BENEFITS

HYDRAULIC ZF is compatible with silver-coated pumps and is formulated to prevent the formation of sticky sludge that can reduce pump life and impair the effective operation of critical components. It supports trouble-free operation while enhancing overall system efficiency and ensuring safety in use along with long service life. In addition, it helps prevent filter blockage, making it well suited for application in advanced hydraulic systems.

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## PHYSICAL-CHEMICAL CHARACTERISTICS

| HYDRAULIC ZF | METHOD | ISO 32 | ISO 46 | ISO 68 |
|---|---|---|---|---|
| Density at 15°C, g/cm$^3$ | ASTM D4052 | 0.870 | 0.865 | 0.878 |
| Viscosity, Kinematic (cSt) 40°C | ASTM D445 | 32 | 46 | 68 |
| Viscosity, Kinematic (cSt) 100°C | ASTM D445 | 5.5 | 6.9 | 8.9 |
| Viscosity index | ASTM D2270 | 105 | 105 | 103 |
| Flash point, COC, °C | ASTM D92 | 210 | 230 | 240 |
| Pour point, °C | ASTM D97 | -30 | -30 | -24 |
| Copper corrosion | ASTM D 130 | 1a | 1a | 1a |
| Foam Tendency / Stability, ml<br>Sequence I<br>Sequence II<br>Sequence III | ASTM D892 | <br>20 / 0<br>20 / 0<br>20 / 0 | <br>20 / 0<br>20 / 0<br>20 / 0 | <br>30 / 0<br>30 / 0<br>30 / 0 |
| Demulsibility, min. | ASTM D1401 | 5 | 5 | 15 |
| Air release, min | ASTM D3427 | 3.5 | 3.8 | 4.0 |

The above mentioned characteristics represent mean values.

## STORAGE

All packages must be stored in covered, well-ventilated areas. If outdoor storage cannot be avoided, barrels must be placed horizontally to prevent water ingress and to protect labels and markings from damage. Products must not be stored at temperatures above 60 °C and must not be exposed to direct sunlight, freezing conditions, or extreme temperature fluctuations.

## HEALTH & SAFETY

This product is not considered to pose significant risks to health or safety when used as intended and in accordance with recommended personal hygiene practices. It must not be applied for purposes other than those for which it has been formulated. For detailed guidance on safe handling and use, refer to the Safety Data Sheet (SDS).

## USED OILS

Used lubricants must be collected at designated collection points to prevent environmental contamination. They must not be mixed with solvents, brake fluids, or antifreeze.

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**Produced and Packaged in E.U.**
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