



# INDUSTRIAL HYDRAULIC ZF



## 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).

## CHARACTERISTICS-BENEFITS

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Zinc-free technology.	Compatible with silver coted pumps.
Superior thermal stability. Exceptional anti-wear protection.	Prevents the creation of sticky sludge than reduces pump life and prevents the effective operation of critical components.
Foam formation resistance and quick air release. Very good water separation properties.	Trouble-free operation. Increase of system efficiency.
Fully compatible with common seal materials Nitrile, Buna-N, Viton, Silicone.	Safety in use. Long service life.
Very good filterability.	Prevents filter blockage. Application in advanced hydraulic systems.

## PHYSICAL-CHEMICAL CHARACTERISTICS

HYDRAULIC ZF	METHOD	ISO 32	ISO 46	ISO 68
Density at 15°C, g/cm <sup>3</sup>	ASTM D1298	0,8600	0,8690	0,8820
Viscosity, Kinematic (cSt) 40 <sup>0</sup> C	ASTM D445	32	46	68
Viscosity, Kinematic (cSt) 100 <sup>0</sup> C	ASTM D445	5,4	6,7	8,65
Viscosity index	ASTM D2270	102	98	98
Flash point, COC, °C	ASTM D92	210	228	240
Pour point, °C	ASTM D97	-30	-30	-24
Emulsion test, min.	ASTM D1401	5	5	15
Copper corrosion	ASTM D130	1a	1a	1a

The above mentioned characteristics represent mean values.

## SPECIFICATIONS

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