



Gulf Harmony ZF HVI Plus Super Clean

***Supreme quality ashless high viscosity index
super clean hydraulic oil for extreme temperature
ranges***

Product Description

Gulf Harmony ZF-HVI Plus Super Clean series are supreme quality anti-wear hydraulic oils specially developed for applications requiring super clean oils and subjected to wide range of temperature or where small viscosity change with fluctuating temperature is needed. They are formulated with severely hydroprocessed Group II base oils, a highly shear stable polymer and an advanced ash-less additive system to provide reduced environmental impact in case of an accidental release into the environment. They meet the stringent requirements of modern hydraulic systems using high pressure high output pumps and critical requirement of other hydraulic system components such as high accuracy numerically controlled machine tools and those employing close clearance servo valves. Their outstanding thermo-oxidative stability and low & high temperature performance allows for extended service life. They provide excellent anti-wear property, rust & corrosion protection, water separation & air-release properties and hydrolytic stability to reduce breakdowns and help improve production capacity.

They are available in ISO viscosity grades 32, 46, 68 & 100 and exceed the performance requirements of global industry standards viz. DIN 51524 Part 3 HVL, AFNOR NFE 48-603 (HV) & ISO 11158 HV and majority of the international OEMs viz. Hitachi, FIVES CINCINNATI (Former MAG IAS, LLC), Eaton (Vickers) and Denison.

Features & Benefits

- Outstanding thermo-oxidative stability reduces deposit formation, improves pump & valve performance and allows extension of oil and filter change intervals
- Extremely high viscosity index assures equipment protection at cold start-up temperatures and protects system components at high operating temperatures
- Excellent shear stability minimises viscosity loss over time and exhibits “stay-in-grade” performance under high shear conditions
- Exceptional anti-wear property results in fewer breakdowns, longer pump life and reduced costs
- Advanced ashless additive technology reduces environmental impact in case of accidental spillage or leakage
- Superior cleanliness of this oil ensures smooth & trouble-free operation of precision control hydraulic systems employing close clearance servo valves
- 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

- Hydraulic and power transmission systems subjected to a wide range of ambient & operating temperatures requiring super clean oils even in environmentally sensitive applications
- Applications requiring extended oil change intervals
- Critical hydraulic systems such as high accuracy numerically controlled machine tools and those employing close clearance servo valves
- Hydraulic systems of excavators, cranes and hydrostatic drives subjected to most severe outdoor operating conditions
- Hydraulic systems operating under high pressures and requiring high degree of load carrying capability and anti-wear protection

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		32	46	68	100	
Meets the following Specifications						
DIN 51524 Part 3 HVLP		X	X	X	X	
AFNOR NFE 48-603 (HV)		X	X	X	X	
ISO 11158 HV		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		X	X	X		
Eaton (Vickers) I-286-S		X	X	X		
Hitachi			X			
Typical Properties						
Test Parameters		ASTM Method	Test Values			
Viscosity @ 40 °C, cSt		D 445	31.5	46.7	68.6	99.4
Viscosity Index		D 2270	147	145	148	145
Flash Point, °C		D 92	214	222	232	242
Pour Point, °C		D 97	-39	-33	-30	-27
Density @ 15°C, Kg/l		D 1298	0.853	0.855	0.858	0.861
Rust Test		D 665A/B	Pass	Pass	Pass	Pass
Emulsion Test 30 minutes max	@ 54 oC	D 1401	Pass	Pass	Pass	-
	@ 82 oC		-	-	-	Pass
Foam Test, foam after 10 minutes of settling for all sequences		D 892	Nil	Nil	Nil	Nil
Turbine Oil Stability Test, hrs		D 943	-	6500+	6000+	5000+
FZG, fail load stage, minimum		DIN 51354 Part II	-	11	11	11
Cleanliness level (at filling stage)		NAS 1638	6	6	6	6

December 2018

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