



# PRODUCT DATA SHEET

## GulfSea Hydraulic HVI Plus Series

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

### Product Description

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**GulfSea Hydraulic HVI Plus** series are supreme quality anti-wear hydraulic oils specially developed for applications subjected to wide range of temperature or where small viscosity change with fluctuating temperature is needed. They are formulated with severely hydro processed Group II base oils, a highly shear stable polymer and an advanced additive system to 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 15 through 150 and exceed the performance requirements of global industry standards viz. DIN 51524 Part 3 HVLP, ASTM D 6158 (HV) & ISO 11158 HV and majority of the international OEMs viz. Parker (formerly Denison), Bosch Rexroth, Fives Cincinnati, Eaton (Vickers) and JCMAS.

### Features & Benefits

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- 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.
- Exceptional anti-wear property results in fewer breakdowns, longer pump life and reduced maintenance costs.
- Excellent shear stability minimises viscosity loss over time and exhibits "stay-in-grade" performance under high shear conditions.
- 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

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- Hydraulic and power transmission systems subjected to a wide range of ambient & operating temperatures.
- 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.



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## Typical Properties

| GulfSea Hydraulic HVI Plus Series                             |                 |             |       |       |       |       |       |       |
|---------------------------------------------------------------|-----------------|-------------|-------|-------|-------|-------|-------|-------|
|                                                               | 15              | 22          | 32    | 46    | 68    | 100   | 150   |       |
| ISO Viscosity grades                                          | 15              | 22          | 32    | 46    | 68    | 100   | 150   |       |
| Meets the following Specifications                            |                 |             |       |       |       |       |       |       |
| DIN 51524 Part 3 HVLP                                         | x               | x           | x     | x     | x     | x     | x     |       |
| ASTM D 6158 (HV)                                              | x               | x           | x     | x     | x     | x     | x     |       |
| ISO 11158 HV                                                  | x               | x           | x     | x     | x     | x     | x     |       |
| Eaton E-FDGN-TB002-E                                          | x               | x           | x     | x     | x     | x     | x     |       |
| GB 11118.1-2011 (L-HV)                                        | x               | x           | x     | x     | x     | x     | x     |       |
| SAE MS 1004 (HV)                                              | x               | x           | x     | x     | x     | x     | x     |       |
| SEB 181222                                                    |                 | x           | x     | x     | x     | x     | x     |       |
| Parker (formerly Denison) HF-0, HF-1, HF-2                    |                 |             | x     | x     | x     |       |       |       |
| Bosch Rexroth RDE 90235                                       |                 |             | x     | x     | x     |       |       |       |
| JCMAS P041 HK                                                 |                 |             | x     | x     |       |       |       |       |
| Fives CINCINNATI (Former MAG IAS, LLC)                        |                 |             | P-68  | P-70  | P-69  |       |       |       |
| Typical Properties                                            |                 |             |       |       |       |       |       |       |
| Test Parameters                                               | ASTM Method     | Test Values |       |       |       |       |       |       |
| Viscosity @ 40 °C, cSt                                        | D 445           | 14.9        | 22.5  | 32.2  | 46.9  | 68.9  | 98.6  | 147.2 |
| Viscosity Index                                               | D 2270          | 152         | 151   | 144   | 145   | 148   | 145   | 152   |
| Flash Point, °C                                               | D 92            | 180         | 192   | 219   | 222   | 232   | 242   | 248   |
| Pour Point, °C                                                | D 97            | -42         | -42   | -39   | -33   | -30   | -27   | -30   |
| Density @ 15°C, Kg/l                                          | D 1298          | 0.855       | 0.857 | 0.861 | 0.855 | 0.858 | 0.861 | 0.862 |
| Rust Test                                                     | D 665A/B        | Pass        | Pass  | Pass  | Pass  | Pass  | Pass  | Pass  |
| Emulsion Test @ 54 °C                                         | D 1401          | Pass        | Pass  | Pass  | Pass  | Pass  | -     | -     |
| 30 minutes max @ 82 °C                                        |                 | -           | -     | -     | -     | -     | Pass  | 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+       |       |       |       |       | 4000+ |       |
| FZG, fail load stage minimum                                  | DIN ISO 14635-1 | -           | 10    | 12    | 12    | 12    | 12    | 12    |

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