Rando® HDZ

High performance heavy duty hydraulic fluid

Product description

Rando HDZ are high performance multi-viscosity hydraulic fluids formulated with premium base oil technology. As hydraulic pressures increase over 1000 psi, the need for anti-wear protection increases proportionally. Rando HDZ is designed to promote robust wear protection where surge pressures can increase metal-to-metal contact in vane-, piston-, and gear-type pumps, through the effective plating out of metal surfaces.

Rando HDZ offers reliable corrosion protection, durable oxidation resistance, foam and aeration suppression as well as dependable shear stable viscosity index improver performance, helping maintain optimum system protection.

In laboratory efficiency testing, Rando HDZ Oils provided up to 5% improvement in overall hydraulic pump efficiency when compared to a typical monograde hydraulic oil with VI<105.

Customer benefits

- Promotes robust oxidation resistance, helping maintain system protection across a wide range of operating temperatures
- Reliable shear stable VI improver contributes consistent system operation throughout a wide operating temperature spectrum
- Offers durable wear protection in vane, gear and piston pumps, helping reduce maintenance and increase system uptime
- Effective rust and corrosion inhibitors aid reliable system protection, reducing maintenance and downtime
- Foam suppression performance assists rapid release of entrained air, and offers water separation, helping improve system reliability
- Aids dependable long-term filterability and system reliability in the presence of water

Product highlights

- **Robust oxidation protection**
- **Shear stable VI improver**
- **Effective wear protection**
- **Rust and corrosion resistance**

Selected specification standards include:

ASTM D6158, HV	Auburg
Bosch Rexroth	DIN 51524-3
Eaton-Vickers	Frank Mohn, Framo
ISO 11158 L-HV	JCMAS HK-1
MAG Cincinnati, Cincinnati Machine	Parker Hannifin (Denison)

Always confirm that the product selected is consistent with the original equipment manufacturer's recommendation for the equipment operating conditions and customer's maintenance practices.

Applications

- Rando HDZ fluids are versatile lubricants available in multi-viscosity ISO 15, 22, 32, 46, 68, and 100 grades
- The multi-viscosity feature promotes even and continuous power transmission over a wide temperature range offering a minimum of shudder, and maximum accuracy
- They are recommended for hydraulic or circulating oil systems, including marine on-deck machinery, hydraulic actuated loading bins, or equipment that requires a wider operating temperature as compared to that of a single viscosity grade oil
- In a clean, dry environment, Rando HDZ ISO 15, 22, 32, 46, 68, and 100 typically meet a dielectric strength of 35 kV[1] (ASTM D877[2])
- Always confirm that the product selected is consistent with the original equipment manufacturers recommendation for the equipment operating conditions and customer's maintenance practices
- Refer to the service manual of the equipment to ensure that the minimum fluid viscosity requirements are met at the highest operating temperature. Please consult with your equipment manufacturer if equipment is operating outside normal operating conditions

Approvals, performance and recommendations

Approvals

- Parker Hannifin (Denison) HF0, HF1, HF2, using T6H20C pump (ISO 32, 46, 68)
- Eaton-Vickers I-286-S, M-2950-S, 35VQ25A (ISO 32, 46, 68)
- MAG Cincinnati, Cincinnati Machine P 68 (ISO 32), P 70 (ISO 46), P 69 (ISO 68)

Performance

- Bosch Rexroth
- Frank Mohn, Framo hydraulic cargo pumping
- Auburg
- JCMAS HK-1
- DIN 51524-3
- ISO 11158 L-HV
- ASTM D6158, HV

© 2011 Chevron Products UK Limited. All rights reserved.
All trademarks are property owned by Chevron Intellectual Property LLC.

Typical test data

Test	Test methods	Results		
Viscosity Grade		**15**	**22**	**32**
Product Code		**273282**	**273264**	**273260**
Kinematic viscosity, 40°C, mm^2/s	ASTM D445	16.0	22.5	32.0
Kinematic viscosity, 100°C, mm^2/s	ASTM D445	3.9	5.1	6.3
Viscosity Index	ASTM D2270	140	160	153
Brookfield viscosity at -20°C, cP	ASTM D2983	500	750	1290
Brookfield viscosity at -30°C, cP	ASTM D2983	1660	2340	4900
Brookfield viscosity at -40°C, cP	ASTM D2983	6920	9120	25100
Flash Point COC, °C	ASTM D92	150	188	220
Pour Point, °C	ASTM D5950	-54	-54	-51
Density at 15°C, kg/l	ASTM D4052	0.8895	0.8681	0.8613
Copper corrosion (3 h, 100 °C)	ASTM D130	Pass	Pass	Pass
Foam Seq. II (after blowing), ml	ASTM D892	0	25	0
Foam Seq. II (after 10' standing), ml	ASTM D892	0	0	0
Oxidation Stability	ASTM D943	-	-	>5000
Hours to 2.0 mg KOH/g acid number				
Dielectric Strength, kV [1]	ASTM D877 [2]	35	35	35

© 2011 Chevron Products UK Limited. All rights reserved.
All trademarks are property owned by Chevron Intellectual Property LLC.

Typical test data

Test	Test methods	Results		
Viscosity Grade		**46**	**68**	**100**
Product Code		**273261**	**273262**	**273263**
Kinematic viscosity, 40°C, mm^2/s	ASTM D445	46.0	68.0	100.0
Kinematic viscosity, 100°C, mm^2/s	ASTM D445	8.2	11.0	14.2
Viscosity Index	ASTM D2270	153	154	145
Brookfield viscosity at -20°C, cP	ASTM D2983	2330	4450	8040
Brookfield viscosity at -30°C, cP	ASTM D2983	9120	19300	-
Brookfield viscosity at -40°C, cP	ASTM D2983	-	-	-
Flash Point COC, °C	ASTM D92	186	212	232
Pour Point, °C	ASTM D5950	-45	-42	-39
Density at 15°C, kg/l	ASTM D4052	0.8671	0.8741	0.8746
Copper corrosion (3 h, 100 °C)	ASTM D130	Pass	Pass	Pass
Foam Seq. II (after blowing), ml	ASTM D892	0	0	0
Foam Seq. II (after 10' standing), ml	ASTM D892	0	0	0
Oxidation Stability	ASTM D943	>5000	>5000	>3000
Hours to 2.0 mg KOH/g acid number				
Dielectric Strength, kV [1]	ASTM D877 [2]	35	35	35

[1] Dielectric strength value applies only to “point of manufacture” of packaged products produced at a Chevron manufacturing facility. (Does not apply to bulk packaging). The oil will quickly lose its high dielectric strength value when exposed to contamination and to very small amounts of moisture and water.
[2] Industry standard test method for measuring KV values is not precise and test results can differ significantly.

The information given in the typical data does not constitute a specification but is an indication based on current production and can be affected by allowable production tolerances. The right to make modifications is reserved. This supersedes all previous editions and information contained in them.

Disclaimer Chevron accepts no liability for any loss or damage suffered as a result of using this product for any application other than applications specifically stated in any Product Data Sheets.
Health, safety, storage and environmental Based on current available information, this product is not expected to produce adverse effects on health when used for the intended application and in accordance with the recommendations provided in the Material Safety Data Sheet (MSDS). MSDSs are available upon request through your local sales office, or via the Internet. This product should not be used for purposes other than its intended use. When disposing of used product, take care to protect the environment and follow local legislation.

A **Chevron** company product

© 2011 Chevron Products UK Limited. All rights reserved.
All trademarks are property owned by Chevron Intellectual Property LLC.