RANDO® HDZ
32, 46, 68

PRODUCT DESCRIPTION

Rando® HDZ oils are formulated with premium base oil technology and designed to give robust protection to hydraulic pumps.

CUSTOMER BENEFITS

Rando HDZ oils deliver value through:

- **High oxidation stability** — Long service life in high pressure service.
- **Protection against rust and corrosion** — Gives excellent protection against corrosion of both copper and steel. Passes the ASTM D665A distilled water rust test and ASTM D665B salt water rust test.
- **High viscosity index** — Minimum change in viscosity over a wide range of operating temperatures.
- **Foam inhibition** — Contains special foam suppressant.
- **Excellent antiwear properties** — Provides excellent wear protection.
- **Good stability** — in the presence of water in the ASTM D2619 Hydrolytic Stability Test and in the presence of copper and steel in the MAG Cincinnati Machine Thermal Stability Test.
- **Fast water separation** — Protects against rust problems by fast release of water.
- **Good filterability** — Excellent thermal and hydrolytic stability helps prevent formation of deposits which may interfere with filtration in equipment having close tolerances.

FEATURES

Rando HDZ oils incorporate antiwear additives, oxidation and corrosion inhibitors, foam and aeration suppressants, and a shear stable viscosity index improver.

Hydraulic systems, due to the nature of their operation, experience accelerated wear unless they are protected by clean, high quality antiwear hydraulic oils. Surging pressures in pumps and valves can increase metal-to-metal contact unless antiwear protection is present. The antiwear additives in Rando HDZ oils plate out on the metal surfaces. This plating minimizes metal-to-metal contact, which is most severe in vane-, piston-, and gear-type pumps. As hydraulic pressures increase over 1000 psi, the need for antiwear protection increases proportionally.

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 like Hydraulic Oil AW (a lower VI product with VI<105).

APPLICATIONS

Rando HDZ oils are versatile lubricants available in multiviscosity ISO 32, 46 and 68 grades. The multiviscosity feature promotes even and continuous power transmission over a wide temperature range with 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 require a wider operating temperature as compared to a single viscosity grade oil.

Product(s) manufactured in Colombia and El Salvador.
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.

A **Chevron** company product

1 November 2019
IO-174

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Rando® HDZ oils are approved for:

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

Rando HDZ oils meet the requirements of:

- **Arburg** (ISO 46)
- **ASTM** D6158, HV
- **Bosch Rexroth** former specification RE 90220-01
- **DIN** 51524-3
- **Frank Mohn, Framo** hydraulic cargo pumping (ISO 46)
- **ISO** 11158 L-HV
- **JCMAS** HK-1 (ISO 32, 46)

In a clean, dry environment, Rando HDZ 32, 46 and 68 typically meet a dielectric strength of 35 kV[a] (ASTM D877[b]).

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.

Do not use in high pressure systems in the vicinity of flames, sparks and hot surfaces. Use only in well ventilated areas. Keep container closed.

TYPICAL TEST DATA

ISO Grade	32	46	68
Product Number	*773260*	*773261*	*773262*
SDS Number *Colombia* *El Salvador*	 *51632*	 *51619* *51577*	 *51621* *51552*
API Gravity	33.1	32.2	31.1
Viscosity, Kinematic cSt at 40°C cSt at 100°C	 32.0 6.3	 46.0 8.2	 68.0 11.0
Viscosity, Saybolt SUS at 100°F SUS at 210°F	 150 46.9	 214 53.1	 316 62.8
Viscosity Index	153	153	154
Flash Point, °C(°F)	220(428)	216(420)	212(414)
Pour Point, °C(°F)	-50(-58)	-45(-49)	-42(-44)
Brookfield Viscosity, ASTM D2983, cP at -20°C	1290	2330	4450
Brookfield Viscosity, ASTM D2983, cP at -30°C	4900	9120	19300
Brookfield Viscosity, ASTM D2983, cP at -40°C	25100	—	—
Oxidation Stability Hours to 2.0 mg KOH/g acid number, ASTM D943	 >5000	 >5000	 >5000
Dielectric Strength, kV[a], ASTM D877[b]	35	35	35

a 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.

b Industry standard test method for measuring kV values is not precise and test results can differ significantly.

Minor variations in product typical test data are to be expected in normal manufacturing.

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.