



# Rando® HD LVZ

## High performance long drain hydraulic fluid

### Product description

Rando HD LVZ is a high performance zinc-based long drain hydraulic fluid designed for use in a wide range of mobile equipment where robust, heavy duty, extended drain hydraulic fluid performance is required.

Rando HD LVZ is formulated with hydrocracked Group III base oils in combination with high performance oxidation and wear inhibitors, offering reliable equipment protection over a long service life. Rando HD LVZ passes both Volvo 2,000 and 5,000 hour Excavator Field Tests.

### Customer benefits

- Low temperature fluidity helps ensure rapid fluid circulation and critical wear protection in year round, all-weather start-ups
- High performance anti-wear additives offer long-term system protection, helping reduce maintenance and downtime
- Robust oxidation resistance promotes protection against deposit formation and contributes to longer drain periods and uptime
- Formulated to aid reliable protection and filtration performance in wet operating conditions
- Designed to offer high performance shear stability and system protection in high temperature, high pressure operations

### Product highlights

- **Helps ensure protection in all-weather start-ups**
- **Designed to reduce maintenance and downtime**
- **Contributes to longer drain periods and uptime**
- **Formulated for wet operating conditions**
- **Offers high temperature, high pressure protection**

#### Selected specification standards include:

AFNOR	Cincinnati Machine
Denison	DIN
Ford	GM
ISO	Rexroth
Vickers	Volvo

## Applications

- Rando HD LVZ is suitable for use in a wide range of high pressure hydraulic systems, with gear, vane, radial piston and axial piston pumps
- These fluids are recommended primarily for use in mobile hydraulic systems such as excavators, wheeled loaders and other earth moving equipment which are subject to wide variation in ambient and system operating temperatures

## Approvals, performance and recommendations

### Approvals

- Volvo VCE 1286.08 and 1286.09

### Performance

This fluid meets the following international and OEM standards:

- DIN 51 524/3
- ISO 11158 HV
- AFNOR E48-603 HV
- Denison HF-1, HF-2, HF-0
- Vickers I-286-S, M-2950-S
- Rexroth RE 90220
- Cincinnati Machine P-68, P-69, P-70
- Ford M-6C32
- GM LH-04-01, LH06-1, LH-15-1

Typical test data				
Test	Test Methods	Results		
Viscosity Grade		ISO 32	ISO 46	ISO 68
<b>Shelf Life: 60 months from date of filling indicated on the product label.</b>				
Appearance	Visual	B&C	B&C	B&C
Colour	ASTM D1500	<0.5	0.5	0.5
Kin. Viscosity @ -20°C, mm <sup>2</sup> /s	ISO 3104	1267	2012	4441
Kin. Viscosity @ 40°C, mm <sup>2</sup> /s	ISO 3104	32	46	68
Kin. Viscosity @ 100°C, mm <sup>2</sup> /s	ISO 3104	6.4	8.10	11.90
Viscosity Index	ISO 2909	165	165	168
Flash Point, COC, °C	ISO 2592	250	264	268
Pour point, °C	ISO 3016	-45	-42	-39
Density, 15°C, Kg/l	ASTM D1298	0.8434	08488	0.8544
Air Release @ 50°C, min	ISO DIS 9120	1	3	7
Foam Seq. I, IAB ml	ISO 6247	10	0	0
Foam Seq. I, AFT 10 ST ml	ISO 6247	0	0	0
Foam Seq. II, IAB ml	ISO 6247	30	10	0
Foam Seq. II, AFT 10 ST ml	ISO 6247	0	0	0
Foam Seq. III, IAB ml	ISO 6247	0	0	0
Foam Seq. III, AFT 10 ST ml	ISO 6247	0	0	0
Cu Corrosion, 3h, 100°C	ASTM D0130	1A	1A	1A
Demulsibility, 40-40-0, 54°C min	ASTM D1401	15	15	20
Rust – distilled water	ASTM D665A	Pass	Pass	Pass
Rust – seawater	ASTM D665B	Pass	Pass	Pass
Four Ball wear test, 40 kg, mm	ASTM D4172	0.47	0.47	0.47
Four Ball EP	ASTM D2783			
Weld point		200	200	200
Load wear index		33.78	37.63	43.82
FZG Damaged Load, a/8.3/90	DIN 51354	12	12	12
Cleanliness*	ISO 4406	19/17/16	19/17/10	17/15/12
RPVOT, min	ASTM D2272	800	930	885
TOST to TAN 2 mg KOH/g, h	ASTM D0943	>10000	>10000	>8000
Total Acid Number, mg KOH/g	DIN 51558	0.89	0.47	0.43
Shear Stability	ASTM D2603			
_Kin. Viscosity loss @40°C, mm <sup>2</sup> /s		2.0 %	3.0 %	4.0 %

\* Lab cleanliness.

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 Sheet's.

**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). MSDS's 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**