



Rando[®] HD

Zinc based industrial and mobile hydraulic oils

Product description

Rando HD are a range of zinc based hydraulic oils for use in industrial and mobile service. The series is formulated with Group II base oils, in combination with rust and oxidation inhibitors, anti-foam and highly stable anti-wear additives, offering good pump and piston protection.

Customer benefits

- Anti-wear additive package offers reliable system protection and anti-oxidation formulation helps optimise fluid and filter service life
- Formulated to prevent abrasive rust particles, deposits, varnish and sludge, helping filters remain clean and serviceable
- Promotes good anti-foam and filterability in the presence of water contamination, promoting smooth, reliable operation and efficiency

Product highlights

- **Helps optimise wear protection and service life**
- **Formulated to resist rust, deposits, varnish, sludge**
- **Promotes good filterability and anti-foam**

Selected specification standards include:

ANSI/AGMA	Cincinnati Machine
Denison	DIN
Eaton Vickers	General Motors
ISO	Joy
SAE	SEB
US Steel	

Applications

- Rando HD is recommended for use in many high-performance hydraulic applications in industrial and mobile service with moderate ambient temperatures, including high pressure vane and gear pumps and axial piston pumps
- This fluid offers compatibility with bronze and steel components and many types of valve and servo
- Rando HD is also recommended for machine tool lubrication where an anti-wear type product is required (hydraulic presses, injection moulding machines, gear sets, bearings)
- Rando HD 10 and 22 can be used as spindle lubricants where zinc-free oils are not required. Rando HD 32, 46 and 68 are recommended for typical hydraulic oil applications and for use in lightly loaded reciprocating compressors
- Rando HD 100 or 150 are recommended for applications where AGMA rust and oxidation inhibited oils are required

Approvals, performance and recommendations

Approvals

- Cincinnati Machine P68 (ISO 32), P70 (ISO 46), P69 (ISO 68)
- Eaton Vickers M-2950-S (Mobile applications), I-286-S (Industrial application) (ISO 32, 46, 68)
- Denison HF-0, HF-1, HF-2, T6H2O (ISO 32, 46, 68)

Performance

- DIN 51 524-2: HLP
- ISO 11158: Class HM
- US Steel 127, 136
- SAE MS1004 HM (ISO 32, 46, 68, 100)
- Joy HO-S (ISO 68)
- General Motors LS2 specification, LH for anti-wear hydraulic fluids (ISO 32, 46, 68)
- ANSI/AGMA 9005-E02, Industrial Gear Lubrication, for gear lubrication as rust and oxidation inhibited gear oils (ISO 46, 68, 100, 150)
- SEB 181222 (ISO 22, 32, 46, 68, 100)

Typical test data

Test	Test Methods	Results						
		10	22	32	46	68	100	150
Viscosity Grade								
Shelf Life: 60 months from date of filling indicated on the product label								
Kinematic viscosity at 40°C, mm ² /s	ASTM D445	10	22	32	46	68	100	150
Kinematic viscosity at 100°C, mm ² /s	ASTM D445	2.67	4.58	5.40	6.76	8.37	10.74	13.87
Viscosity Index	ASTM D2270	94	108	107	105	111	109	105
Flash Point COC, °C	ASTM D92	172	200	196	232	250	270	280
Pour Point, °C	ASTM D5950	-39	-42	-33	-33	-36	-36	-36
Density at 15°C, kg/l	ASTM D4052	0.8509	0.8567	0.8602	0.8632	0.8649	0.8666	0.8736
Copper corrosion (3 h, 100 °C)	ASTM D130	1A	1A	1A	1A	1A	1A	1A
Foam Seq. II, ml	ASTM D892	50/0	50/0	50/0	50/0	50/0	50/0	50/0

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.

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