



Rando® HD

Premium Anti-Wear Hydraulic Oil

Product Data Sheet



Product highlights

- Robust anti-wear additive protects equipment
- Rust and oxidation inhibitors help to prevent deposits and minimize downtime
- Good hydrolytic stability and water separation help with smooth operation
- Premium Group II base oil helps to ensure longer oil life

Customer benefits

Protects equipment

Robust anti-wear additive package minimizes wear by protecting surfaces when load causes breakdown of the lubricant film.

Minimizes downtime

Rust and oxidation inhibitors help to prevent the production of abrasive particles from rust formation, and deposits, varnishes and sludges from oil breakdown, which can damage equipment surfaces and seals, and block filters prematurely.

Smooth operation

Good hydrolytic stability and water separation characteristics promote excellent filterability in the presence of water contamination. Good anti-foam and air release properties help ensure smooth operation and system efficiency.

Longer oil service life

The use of premium base stocks helps resist oil thickening and deposit formation. In service, minimizing the possibility of an unscheduled change of hydraulic fluid. Oxidation test life is higher than solvent extracted hydraulic oil products.

Applications

- Industrial hydraulic systems
- Hydraulics of mobile and construction equipment where a water separating oil is required
- Hydraulic systems with vane, gear or piston pumps
- Plastic injection molding machines
- Machine tools
- Enclosed gear systems (dependent on load)
- Industrial circulating systems
- Textile spindle lubrication where zinc-free oils are not a requirement (ISO VG 10)

Product features:

- **Rando HD** are formulated with premium base oils and robust additives to give required protection to hydraulic pumps in mobile and stationary systems. Rando HD help ensure good film strength between metal surfaces and is further enhanced by antiwear additive protection
- **Rando HD** expected to deliver better oil service life with its premium base oil quality used in formulation.

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Typical key properties

RANDO® HD				
ISO Viscosity Grade	10	32	46	68
Product Code	520207	520210	520211	520212
Viscosity, Kinematic				
mm ² /s @ 40°C	10.0	30.5	44	65
mm ² /s @ 100°C	2.66	5.4	6.8	8.9
Viscosity Index	100	110	110	110
Flash Point, °C	146	216	238	240
Pour Point, °C	-9	-33	-33	-30
FZG Fail Load Stage	–	12	12	12
Air Release at 50°C, min	–	1.1	2	3.5
Oxidation Stability (TOST)	–	>5000	>4500	>4500

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

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Typical key properties continued

RANDO® HD				
ISO Viscosity Grade	100	150	220	320
Product Code	520213	520214	520215	520220
Viscosity, Kinematic				
mm ² /s @ 40°C	95.5	143	220	304
mm ² /s @ 100°C	10.8	14.3	19.0	23.4
Viscosity Index	97	97	97	96
Flash Point, °C	240	250	274	277
Pour Point, °C	-21	-15	-12	-12
FZG Fail Load Stage	12	12	12	12
Air Release at 50°C, min	12	15	–	–
Oxidation Stability (TOST)	>2000	>1500	>1000	>1000

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Performance standards

Rando HD are approved against:

- Parker Hannifin (Denison Hydraulics) HF-0 (ISO 32, 46, 68)
- Eaton Vickers I-286-S [industrial applications], M 2950-S [mobile applications] (ISO 32, 46, 68)
- David Brown Industrial Gears 0A (ISO 32), 1A (ISO 46), 2A (ISO 68), 3A (ISO 100), 4A (ISO 150), 5A (ISO 220)

Rando HD oils meet the requirements of various industry standards:

- Bosch Rexroth former specification RE 90220 (ISO 32, 46, 68)
- DIN 51502:1990, HLP fluid (ISO 32, 46, 68, 100)
- DIN 51524:2006-04 Part 2, HLP (ISO 32, 46, 68, 100)
- Cincinnati Machine P-68 (ISO 32), P-69 (ISO 68) and P-70 (ISO 46)
- ISO 6743:1999 Part 4, HM fluid
- ISO 11158:2009, HM
- SAE MS1004 HM (ISO 32, 46, 68, 100)
- US Steel 126 and 127 (ISO 32, 46, 68)

ENVIRONMENT, HEALTH and SAFETY

Information is available on this product in the Material Safety Data Sheet (MSDS) and Customer Safety Guide. Customers are encouraged to review this information, follow precautions and comply with laws and regulations concerning product use and disposal. To obtain a MSDS for this product, visit www.caltex.com.

This bulletin was prepared in good faith from the best information available at the time of issue. While the values and characteristics are considered representative, some variation, not affecting performance, can be expected. It is the responsibility of the user to ensure that the products are used in the applications for which they are intended.

Produced by:
Chevron Global Lubricants
– Asia Pacific

For more information, go to www.caltex.com