



Rando[®] HD

Anti-Wear Hydraulic Fluid

Premium quality, anti-wear hydraulic fluid, designed for use in mobile and stationary high pressure hydraulic systems.

APPLICATIONS

- Industrial hydraulic systems
- Hydraulics of mobile and construction equipment
- Hydraulic systems with vane, gear or piston pumps
- Plastic injection molding machines
- Machine tools
- Enclosed gear systems
- Industrial circulating systems

PERFORMANCE STANDARDS

- Denison Hydraulics HF-0 (ISO 32, 46, 68)
- Vickers M-2952-S, I-286-S [industrial applications], M-2950-S [mobile applications] (ISO 32, 46, 68)
- Cincinnati Milacron P-68 (ISO 32), P-69 (ISO 68), P-70 (ISO 46)
- Mannesmann Rexroth requirements (RE 07 075)
- ISO Standard 6743 Part 4, Type HM
- DIN 51524 Part 2, HLP (ISO 32, 46, 68, 100)
- AAMA Standard 524 Part 2 (ISO 32, 46, 68, 100)
- US Steel 126 and 127
- David Brown Industrial Gears 0A, 1A, 2A, 3A, 4A, 5A

KEY PROPERTIES

ISO Grade	22	32	46	68	100	150	220
Air Release @ 50°C, mins	3.0	4.0	7.5	9.0	12.0	15.0	18.0
Flash Point, °C	190	210	220	226	240	250	260
FZG, Pass Load Stage	10	10	10	10	10	10	10
Pour Point, °C	-36	-33	-33	-30	-21	-15	-12
Viscosity, mm ² /s @ 40°C	21.0	30.5	44.0	65.0	95.5	143	210
mm ² /s @ 100°C	4.2	5.3	6.7	8.6	10.8	14.3	18.4
Viscosity Index	101	106	106	104	97	97	97
Zinc Content, mass %	0.04	0.04	0.04	0.04	0.04	0.04	0.04

BENEFITS

- ✦ Longer equipment life
Special anti-wear additive package reduces wear by protecting surfaces when load causes breakdown of the lubricant film.
- ✦ Reduced downtime
Effective rust and oxidation inhibitor system prevents 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.
- ✦ Trouble-free operation
Good hydrolytic stability and water separation characteristics provide excellent filterability in the presence of water contamination. Good anti-foam and air release properties ensure smooth operation and system efficiency.
- ✦ Extended oil service life
High oxidation stability resists oil thickening and deposit formation in service, eliminating the need for unscheduled change of hydraulic fluid.

ENVIRONMENT, HEALTH and SAFETY

Information is available on this product in the Caltex Material Safety Data Sheet (MSDS) and Caltex 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.caltexoils.com.

