



Rando HD oils are formulated with premium Group II base oil technology and anti-wear agents and are designed to give robust protection to hydraulic pumps in mobile and stationary high pressure hydraulic systems. They are clear to pale yellow in colour.

#### 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 (dependant on load)
- Industrial circulating systems

Do not use in breathing air apparatus or medical equipment.

#### BENEFITS

- **Longer oil service life**  
The use of Group II 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.
- **Protects equipment**  
Robust anti-wear additive package minimizes wear by protecting surfaces when load causes breakdown of the lubricant film.
- **Minimized downtime**  
Rust and oxidation inhibitors combined with premium Group II base oils 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.



## PERFORMANCE STANDARDS

Rando HD oils 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)

Rando HD oils are suitable for use where oils meeting the following are required:

Cincinnati Machine	P-68 (ISO 32), P-69 (ISO 68) and P-70 (ISO 46)
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Rando HD oils also meet the requirements of various industry standards:

Bosch Rexroth	Former RE 90 220 (ISO 32, 46, 68)
ISO	11158:2009, HM (ISO 22 to 150)
ISO	6743:1999 Part 4 HM Fluid (ISO 22 to 150)
DIN	51502:1990, HLP fluid (ISO 22 to 150)
DIN	51524:2006-04 Part 2, HLP (ISO 22 to 100)

## TYPICAL CHARACTERISTICS

Product Code	2046	2048	2050 2930*	2051 1679*	2044	2045
ISO Grade	22	32	46	68	100	150
Density at 15°C, kg/L	0.847	0.88	0.88	0.89	0.89	0.90
Air Release at 50°C, mins.	1.1	1.1	2.0	3.5	12	15
Flash Point, °C	190	216	238	240	240	250
FZG Fail Load Stage	-	12	12	12	12	12
Pour Point, °C	-36	-33	-33	-30	-21	-15
Oxidation Stability (TOST), hrs	-	5000+	4500+	4500+	-	-
Viscosity at 40°C, mm <sup>2</sup> /s	21	31	44	65	96	143
at 100°C, mm <sup>2</sup> /s	4.3	5.4	6.8	8.9	10.8	14.3
Viscosity Index	110	110	110	110	97	97

\* Dyed Blue



\* Blue dyed versions of Rando HD 46 and 68 are available in bulk for greater visibility under product codes 2930 and 1679 respectively.

**PACK SIZES**

Code	2046	2048	2050	2930	2051	1679	2044	2045
ISO Grade	22	32	46	46 Blue	68	68 Blue	100	150
4L					✓			
20L	✓	✓	✓		✓			
205L	✓	✓	✓		✓		✓	✓
1000L	✓	✓	✓		✓		✓	
Bulk			✓	✓	✓	✓		

\* ISO 46 and 68 Bulk are available both with and without blue dye for greater visibility.

**ENVIRONMENT, HEALTH AND SAFETY**

Users should consult the MSDS, follow the precautions outlined and comply with all laws and regulations concerning its use and disposal. Used packaging material should not be incinerated or exposed to flame. After use, protect your environment. Do not pollute drains, soil or water with used product.

**OTHER INFORMATION**

For further information on Caltex products and services call the Technical Solutions on 1300 364 169.

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