



# Rando® HDZ

Wide Temperature Range Premium Hydraulic Fluid

Product Data Sheet



## Customer benefits

### Wide temperature application

Formulated with premium Group II base oils and shear stable viscosity modifier to give high viscosity index, minimizing change in viscosity with temperature, allowing use over a wider range of operating temperatures compared to conventional monograde hydraulic oils.

Exceptional shear stability of the viscosity modifier helps to minimize the drop in viscosity during service compared to conventional multigrade hydraulic oils, contributing to overall protection of the equipment.

### Protects equipment

Contains anti-wear additive which helps reduce abrasive wear by protecting surfaces when load causes breakdown of the lubricant film.

Effective rust and corrosion inhibitors give excellent protection against corrosion of both steel and copper.

### Smooth operation

Good hydrolytic stability and water separation characteristics help prevent deposit formation and rust in the presence of water contamination. Good anti-foam and air release properties which helps contribute to smooth operation and system efficiency.

### Extends oil service life

Effective oxidation inhibitors help reduce oil thickening and deposit formation in service, improving filterability and minimizing the need for unscheduled change of hydraulic fluid.

## Product features:

- Premium quality, shear stable, multi-viscosity, anti-wear hydraulic fluid, designed to give robust protection for hydraulic systems subjected to wide variations in ambient and operating temperatures.



## Applications

- Industrial hydraulic equipment subject to wide variation in temperatures
- Hydraulics of mobile, construction and agricultural equipment where a water separating oil is required
- Hydraulic systems with vane, gear or piston pumps
- Fork-lift trucks (in refrigerated areas)
- Plastic injection molding machines
- Marine deck equipment, steering gears, thrusters and automatic controls
- Machine tools
- Enclosed gear systems (dependent on load)

## Typical key properties

RANDO® HDZ			
ISO Viscosity Grade	15	22	32
Product Code	520251	520252	520253
Viscosity, Kinematic			
mm <sup>2</sup> /s @ 40°C	15.7	22.6	33.0
mm <sup>2</sup> /s @ 100°C	3.9	5.1	6.4
Viscosity Index	144	160	150
Flash Point, °C	150	164	204
Pour Point, °C	-60	-58	-49
Zinc Content, mass %	0.047	0.047	0.047
FZG, Fail Load Stage	11	11	12
Oxidation Stability	—	—	>5000
Hours to 2.0mgKOH/g TAN, ASTM D943			

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

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### Typical key properties *continued*

RANDO® HDZ			
ISO Viscosity Grade	46	68	100
Product Code	520254	520255	520256
Viscosity, Kinematic			
mm <sup>2</sup> /s @ 40°C	46.7	68.7	100.5
mm <sup>2</sup> /s @ 100°C	8.3	11.1	14.2
Viscosity Index	153	154	145
Flash Point, °C	216	222	236
Pour Point, °C	-47	-42	-37
Zinc Content, mass %	0.047	0.047	0.047
FZG, Fail Load Stage	12	12	12
Oxidation Stability	>5000	>5000	—
Hours to 2.0mgKOH/g TAN, ASTM D943			

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

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## Performance standards

Rando HDZ oils are approved against:

- Parker Hannifin (Denison) HF-0 (ISO 32, 46, 68)
- Eaton-Vickers 35VQ25A, I-286-S [industrial applications], M-2950-S [mobile applications] (ISO 32, 46, 68)
- MAG Cincinnati, Cincinnati Machine P 68 (ISO 32), P 69 (ISO 68), P 70 (ISO 46)
- Bosch Rexroth Fluid Rating List RDE 90245 for ISO 32, 46, 68 (Rating Number BR-1010-0114 and BR-1010-0124)

Rando® HDZ oils meet the requirements of:

- Arburg (ISO 46 – standard wear requirements)
- JCMAS HK-1 (ISO 32, 46)
- ASTM D6158, HV (ISO 32, 46, 68, 100)
- ISO 6743 (1999) Part 4, Type HV (ISO 15, 32, 46, 68, 100)
- ISO 11158 (2009), HV (ISO 15, 32, 46, 68, 100)
- DIN 51502 (1990), Type HVLP (ISO 15, 32, 46, 68, 100)
- DIN 51524 (2006-04) Part 3, HVLP (ISO 15, 32, 46, 68, 100)

### 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](http://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