



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.
- Forklift trucks (in refrigerated areas).
- Plastic injection moulding machines.
- Marine deck equipment, steering gears, thrusters and automatic controls.
- Machine tools.
- Enclosed gear systems (dependent on load).

#### 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. Improved shear stability of the viscosity modifier minimizes drop in viscosity during service compared to conventional multigrade hydraulic oils, giving better protection to the equipment.
- **Protects equipment**  
Contains anti-wear additive which 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 ensure smooth operation and system efficiency.
- **Extends oil service life**  
Effective oxidation inhibitors reduce oil thickening and deposit formation in service, improving filterability and minimizing the need for unscheduled change of hydraulic fluid.



**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)

Rando® HDZ oils meet the requirements of:

Arburg	(ISO 46 - standard wear requirements)
Bosch Rexroth	RE 07 075 (10.05), RE 90 220 (05.10) (ISO 32, 46, 68)
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)



## TYPICAL CHARACTERISTICS

Product Code (till 31/10/12)* Product Code (from 1/11/12)*	1328 3213	1329 3214	1330 3215	1331 3216	2706 3217
ISO Grade	15	32	46	68	100
Density at 15°C, kg/L	0.84	0.86	0.86	0.87	0.88
Flash Point, °C	150	204	216	222	236
FZG, Fail Load Stage (till 31/10/12)* (from 1/11/12)*	11 11	11 12	11 12	11 12	11 12
Pour Point, °C	-60	-49	-47	-42	-37
Viscosity cSt at 40°C cSt at 100°C	15.7 3.9	33.0 6.4	46.7 8.3	68.7 11.1	100.5 14.2
Viscosity Index	144	150	153	154	145
Zinc Content, m% (till 31/10/12)* (from 1/11/12)*	0.042 0.047	0.042 0.047	0.042 0.047	0.042 0.047	0.042 0.047
Oxidation Stability Hours to 2.0mg KOG/g TAB ASTM D943 (from 1/11/12)	-	>5000	>5000	>5000	-

\* Product manufactured on or after November 1st, 2012 holds formal approval while product manufactured before that date meet the requirements of the specifications.

## PACK SIZES

1000L, 205L, 20L.

ISO 15 and 100 not available in 20L or 1000L.

## 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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