



# RANDO<sup>®</sup> HD ISOCLEAN<sup>®</sup> CERTIFIED LUBRICANT

## 10, 22, 32, 46, 68, 100, 150, 220, 320

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### PRODUCT DESCRIPTION

Rando<sup>®</sup> HD ISOCLEAN<sup>®</sup> Certified Lubricants are formulated with premium base oil technology and designed to give robust protection to hydraulic pumps in mobile and stationary systems. Chevron ISOCLEAN Certified Lubricants have been certified to meet specified ISO Cleanliness standards at point of delivery using industry leading filtration and testing technology. ISOCLEAN Certified products are the first step for contamination control and maximizing component life.



### CUSTOMER BENEFITS

Rando HD ISOCLEAN Certified Lubricants deliver value through:

- **Ready to use** — Enables users to meet stringent original equipment manufacturers' cleanliness standards for fill lubricants.
- **Flexibility** — ISO Cleanliness targets can be customized to fit your business application needs.
- **Peace of mind** — Each delivery of Chevron ISOCLEAN Certified Lubricant includes an ISOCLEAN Certificate of Analysis.
- **OE fluid cleanliness requirements** — Customized to meet specific equipment manufacturers' fluid cleanliness requirements.
- **Long equipment life** — Special antiwear additive package minimizes wear by protecting surfaces when load causes breakdown of the lubricant film.
- **Minimized downtime** — Effective rust and oxidation inhibitor system helps 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 help ensure smooth operation and system efficiency.
- **Optimal oil service life** — High oxidation stability resists oil thickening and deposit formation in service, minimizing the possibility of an unscheduled change of hydraulic fluid.

### FEATURES

Rando HD ISOCLEAN Certified Lubricants **ISO 32, 46, and 68** are formulated with Group II base stocks.

Rando HD ISOCLEAN Certified Lubricants **ISO 100, 150, 220, and 320** are designed for lubricant applications requiring an AGMA R&O gear oil lubricant in the applicable viscosity grade.

Rando HD ISOCLEAN Certified Lubricants provide excellent:

- antiwear protection
- oxidation and corrosion inhibition
- foam and aeration suppression

Under moderate loads and temperatures, the high viscosity index of Rando HD ISOCLEAN Certified Lubricants help ensure good film strength between metal surfaces and is further enhanced by antiwear additive protection.

Product(s) manufactured in the USA, Colombia and El Salvador.

Always confirm that the product selected is consistent with the original equipment manufacturer's recommendation for the equipment operating conditions and customer's maintenance practices.

A **Chevron** company product

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IO-170 ISOCLEAN

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**APPLICATIONS**

ISO Grade	10	22	32	46	68
spindle lubricants where zinc-free oils are not a requirement	X	X			
high performance industrial applications where pressures may exceed 5000 psi			X	X	X
lightly loaded reciprocating compressors			X	X	X

ISO Grade	100	150	220	320
hydraulic equipment reduction gears where EP is not required	X	X	X	X
plain and antifriction bearings	X	X	X	X
circulating oil systems	X	X	X	X
applications where AGMA rust and oxidation inhibited oils are required	X	X	X	X

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## CLAIMS AND SPECIFICATIONS

ISO Grade	10	22	32	46	68	100	150	220	320
Arburg Injection Molding				A					
Bosch Rexroth RDE 90245			A	A	A				
Eaton (Vickers) E-FDGN-TB002-E			A	A	A				
Eaton (Vickers) 35VQ25A (Pump Test) I-286-S (Stationary) M-2950-S (Mobile)			M	M	M				
Fives Cincinnati <sup>a</sup> (formerly MAG Cincinnati, Cincinnati Machine, Cincinnati Milacron)			M p-68	M p-70	M p-69				
General Motors LS2 LH			M	M	M				
GROB Lubricants Chart	A	A	A	A	A				
Husky Injection Molding				A					
Joy HO-S					M				
NSF H2 <sup>b</sup>			A	A	A	A	A	A	A
Parker Hannifin (Denison) HF-0, HF-1, HF-2			A	A	A				
Rexnord Falk Class A, F, J, Planetgear, Class D, G, Y, Link Belt Model R					A	A			
ZF TE-ML 04K			A	A					
ANSI/AGMA 9005-E02, 9005-F16 R&O			M	M	M	M	M	M	M
ASTM D6158 HM	M	M	M	M	M	M	M		
DIN 51524-2 HLP		M	M	M	M	M			
ISO 11158 L-HM	M	M	M	M	M	M	M		
JCMAS HK VG 32, 46			M	M					
SAE MS1004-HM		M	M	M	M	M			
US Steel (AIST) 126, 127			M	M	M				

a Obsolete specification

b Rando HD ISO grades 32, 46, 68, 100, 150, 220, 320 are registered by **NSF** and are acceptable as lubricants where there is no possibility of food contact (H2) in and around food processing areas. The NSF Nonfood Compounds Registration Program is a continuation of the USDA product approval and listing program, which is based on meeting regulatory requirements of appropriate use, ingredient review and labeling verification.

**A:** Approved for

**M:** Meets or exceeds requirements

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**TYPICAL TEST DATA**

ISO Grade	Test Method	10	22	32	46	68
<i>Product Number</i>		274302	254616	254612	254613	254614
<i>SDS/MSDS Number</i>						
<i>USA</i>		23706	23548	23556	23556	23556
<i>Canada</i>		24836	23549	23557	23557	23557
<i>Mexico</i>		24837	24835	23558	23558	23558
<i>Colombia</i>		32579	32605	33476	33476	33476
<i>El Salvador</i>		—	—	33477	33477	33477
API Gravity	ASTM D287	28.7	35.4	33.3	31.9	31.5
Density at 15°C, kg/L	ASTM D4057	0.8866	0.8463	0.8585	0.8655	0.868
Viscosity, Kinematic cSt at 40°C cSt at 100°C	ASTM D445	10.3 2.5	23.1 4.4	32 5.5	45.7 6.9	67.2 8.8
Viscosity, Saybolt SUS at 100°F SUS at 212°F	ASTM D2161	63 35	120 41	157 44	225 48	334 54
Viscosity Index	ASTM D2770	48	98	110	107	105
Flash Point, °C(°F)	ASTM D92	154(309)	177(351)	220(428)	226(439)	235(455)
Pour Point, °C(°F)	ASTM D97	-60(-76)	-38(-36)	-38(-36)	-36(-33)	-35(-31)
Copper Corrosion 3h at 100°C	ASTM D130	1b	1b	1b	1b	1b
Foam Test, Seq. I Tendency, mL Stability, mL	ASTM D892	20 0	20 0	10 0	10 0	10 0
Rust Test, Procedure A & B	ASTM D665	Pass	Pass	Pass	Pass	Pass
Water Separability, minutes to <3mL at 54°C	ASTM D1401	5	10	15	15	20
Oxidation Stability, TOST Hours to 2.0 mg KOH/g TAN	ASTM D943	—	—	>6000	>6000	>6000
FZG Gear Test Fail Load Stage	DIN 51354	—	—	12	12	12

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

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## TYPICAL TEST DATA

ISO Grade	Test Method	100	150	220	320
Product Number		254615	274303	274304	274305
SDS/MSDS Number					
USA		43810	23550	23550	23550
Canada		43811	23554	23554	23554
Mexico		25219MEX	23555	23555	23555
Colombia		33474	33474	33474	33474
El Salvador		33475	—	—	—
API Gravity	ASTM D287	31	29.9	28.7	27.8
Density at 15°C, kg/L	ASTM D4057	0.8696	0.8754	0.8768	0.8874
Viscosity, Kinematic					
cSt at 40°C	ASTM D445	98.9	147.9	209	301.8
cSt at 100°C		11.5	14.6	18.2	23.4
Viscosity, Saybolt					
SUS at 100°F	ASTM D2161	495	751	1105	1617
SUS at 210°F		64	76	93	117
Viscosity Index	ASTM D2770	106	103	96	97
Flash Point, °C(°F)	ASTM D92	250(482)	260(500)	271(520)	277(531)
Pour Point, °C(°F)	ASTM D97	-15(+5)	-12(+10)	-12(+10)	-12(+10)
Copper Corrosion 3h at 100°C	ASTM D130	1b	1b	1b	1b
Foam Test, Seq. I					
Tendency, mL	ASTM D892	10	10	10	10
Stability, mL		0	0	0	0
Rust Test, Procedure A & B	ASTM D665	Pass	Pass	Pass	Pass
Water Separability, minutes to <3mL at 82°C	ASTM D1401	20	22	<30	<30
Oxidation Stability, TOST Hours to 2.0 mg KOH/g TAN	ASTM D943	>2000	>1200	>1000	>1000
FZG Gear Test Fail Load Stage	DIN 51354	12	12	12	12

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