

## RENOLIN B RANGE

High quality AW hydraulic & lubricating oils

### Description

The RENOLIN B series is based on selected mineral base oils. High-quality additives improve the ageing and oxidation stability. They also guarantee excellent corrosion protection properties (steel and iron materials). Synergistically acting copper deactivators protect copper / yellow metal materials. The selected Anti-Wear- / mild EP-additives based on zincdialkyldithiophosphates protect hydraulic pumps, motors, components and machine elements from wear (at low and high temperatures and at high loads). The RENOLIN B oils are mineral oil-based hydraulic fluids according to DIN 51524-2 (demulsifying, zinc-containing) and lubricating oils according to DIN 51517.

### Application

Universally applicable demulsifying hydraulic fluids and lubricating oils. They can be used in all types of mobile and stationary hydraulic units where the use of a demulsifying hydraulic oil (type HLP) is recommended.

Synergistically acting additives guarantee a long lifetime and the highest hydraulic performance. Even at high temperatures and high loads the base oils together with the additives ensure that the system will be operated reliably during a long lifetime.

### Advantages/Benefits

- Excellent demulsibility
- Very good corrosion protection to steel
- Good corrosion protection to copper
- High ageing stability / high oxidation stability
- Good AW wear protection
- Very good hydrolytic stability
- Excellent filtration behaviour (dry, wet)
- Low foaming
- Excellent air release

## Application

The RENOLIN B RANGE fulfils the high requirements of the DENISON HF 0 specification (hybrid pump test, a combination of a vane and a piston pump - T6H20C combination).

The RENOLIN B oils offer an excellent thermal stability (Cincinnati Milacron B – pass). The formation of hydrolysis products - when water enters the hydraulic system - will be avoided. The RENOLIN B series shows an excellent filtration behaviour. Under dry as well as wet conditions, the filtration behaviour is excellent (low pressure, good flowability).

## Specifications

The RENOLIN B RANGE products fulfil and surpass the requirements according to:

- DIN 51524-2: HLP
- ISO 6743-4: HM
- Denison HF 1, HF 2, HF 0
- Vickers I 286-S, M 2950-S
- Cincinnati Machine P68, P69, P70
- US Steel 127, 136

Well known pump manufacturers have approved the RENOLIN B RANGE oils, for example:

- Denison
- Bosch Rexroth
- Sauer Danfoss

## CHARACTERISTICS: RENOLIN B RANGE

RENOLIN .....		B 1 VG 5	B 3 VG 10	B 4 VG 15	B 5 VG 22	B 10 VG 32	
Characteristics	Unit						Test Method
ISO VG		5	10	15	22	32	DIN 51519
Kinematic viscosity							DIN EN ISO 3104
at 40°C	mm <sup>2</sup> /s	5	10	15	22	32	
at 100°C	mm <sup>2</sup> /s	1.7	2.6	3.2	4.4	5.5	
Viscosity Index		-	95	90	107	109	DIN ISO 2909
Density at 15°C	kg/m <sup>3</sup>	837	850	865	863	876	DIN 51757
Colour	ASTM	0.5	0.5	0.5	0.5	0.5	DIN ISO 2049
Flashpoint (Cleveland Open Cup)	°C	130	178	150	200	205	DIN ISO 2592
Pour point	°C	-20	-42	-42	-27	-24	DIN ISO 3016
Neutralisation number	mg KOH/g	0.3	0.5	0.3	0.5	0.5	DIN 51558-3
Air release at 50°C (max.)	minutes	1	1	2	3	4	DIN ISO 9120
Demulsification							DIN ISO 6614
at 54°C	minutes	10	10	10	10	10	
at 82°C	minutes	-	-	-	-	-	
Copper corrosion	Degree of corrosion	1 – 100 A 3					DIN EN ISO 2160
Steel corrosion							DIN ISO 7120
- 0-A: distilled water	Degree of corrosion	Pass					
- 0-B: salt water		Pass					
Scuffing and scoring test, FZG A/8.3/90	failure load stage	-	-	-	-	11	DIN ISO 14635-1
Brugger-Test	N/mm <sup>2</sup>	30					DIN 51347-2
ISO filtrability dry / wet	-	Pass / pass					E DIN ISO 13357
Test electr. conductivity	-	conductivity high					Fuchs test procedure

## CHARACTERISTICS: RENOLIN B RANGE (Continued)

RENOLIN .....		B 11 VG 37	B 15 VG 46	B 20 VG 68	B 30 VG 100	B 40 VG 150	B 50 VG 220	
Characteristics	Unit							Test Method
ISO VG		-	46	68	100	150	220	DIN 51 519
Kinematic viscosity								DIN EN ISO 3104
at 40°C	mm <sup>2</sup> /s	37	46	68	100	150.0	220	
at 100°C	mm <sup>2</sup> /s	6.2	6.9	8.8	11.1	14.5	19.2	
Viscosity Index		103	105	100	96	94	97	DIN ISO 2909
Density at 15°C	kg/m <sup>3</sup>	875	875	881	883	887	894	DIN 51 757
Colour	ASTM	-	1.5	2.0	2.0	2.5	-	DIN ISO 2049
Flashpoint (Cleveland Open Cup)	°C	208	210	224	232	224	230	DIN ISO 2592
Pour point	°C	-31	-24	-24	-18	-15	-15	DIN ISO 3016
Neutralisation number	mg KOH/g	0.3	0.5	0.5	0.5	0.5	0.3	DIN 51 558-3
Air release at 50°C (max.)	minutes	5	6	13	17	30		DIN ISO 9120
Demulsification								DIN ISO 6614
at 54°C	minutes	10	10	15	-	-		
at 82°C	minutes	-	-	-	5	5		
Copper corrosion	Degree of corrosion	1 – 100 A 3						DIN EN ISO 2160
Steel corrosion								DIN ISO 7120
- 0-A: distilled water	Degree of corrosion	Pass						
- 0-B: salt water	corrosion	Pass						
Scuffing and scoring test, FZG A/8.3/90	failure load stage	-	11	11	11	-		DIN 51347-2
Brugger-Test	N/mm <sup>2</sup>	30						DIN 51 347-2
ISO filtrability dry / wet	-	Pass / pass						E DIN ISO 13357
Test electr. conductivity)		conductivity high						Fuchs test procedure
	-							

**WARNING: Never mix zinc-free hydraulic fluids with those containing zinc-based additives.**