

## RENOLIN B RANGE

High quality AW hydraulic & lubricating oils

### Description

The RENOLIN B RANGE 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 RANGE are mineral oil based hydraulic fluids according to DIN 51 524-2 (demulsifying, zinc containing) and lubricating oils according to DIN 51 517.

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.

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).

### 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.

### 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

### Specifications

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

- DIN 51 524-2: 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
- AFNOR NFE 48690 (dry) and NFE 48691 (wet)

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

- Denison
- Bosch Rexroth
- Sauer Danfoss



June 2010 GDUK Page 1 of 3

## 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 51 519
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		-	96	90	107	109	DIN ISO 2909
Density at 15°C	kg/m <sup>3</sup>	837	856	865	863	876	DIN 51 757
Colour	ASTM	0.5	0.5	0.5	0.5	0.5	DIN ISO 2049
Flashpoint (Cleveland Open Cup) °C		130	178	150	180	205	DIN ISO 2592
Pour point	°C	-20	-30	-42	-27	-24	DIN ISO 3016
Neutralisation number	mg KOH/g	0.3	0.5	0.3	0.5	0.5	DIN 51 558-3
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	Degree of corrosion	0-A / 0-B					DIN ISO 7120
Brugger-Test	N/mm <sup>2</sup>	30					DIN 51 347-2
DENISON filtration							-
TP02100							
dry	-	pass					
wet	-	pass					
AFNOR filtration							NFE 48/690-691
dry	-	pass					
wet	-	pass					
Test electr. conductivity		conductivity high					Fuchs test procedure
	-						

The RENOLIN B RANGE oils offer excellent thermal stability (Cincinnati Milacron B - pass). The formation of hydrolysis products, when water enters the hydraulic system, will be avoided.

The RENOLIN B RANGE shows an excellent AFNOR and DENISON filtration behaviour. Under dry as well as wet conditions, the filtration behaviour is excellent (low pressure, good flowability).

## 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	881	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	Degree of corrosion	0-A / 0-B						DIN ISO 7120
Brugger-Test	N/mm <sup>2</sup>	30						DIN 51 347-2
DENISON filtration								-
TP02100								
dry	-							pass
wet	-							pass
AFNOR filtration								NFE 48/690-691
dry	-							pass
wet	-							pass
Test electr. conductivity (Fuchs test procedure) -		conductivity high						Fuchs test procedure

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