

RENOLIN UNISYN OL 46

Synthetic EP air compressor oil based on PAO, for screw, vane and piston compressors. High-performance synthetic PAO-based hydraulic fluid.

Description

Compressed air has become a major form of energy and the reliable generation of compressed air is vital. Operators require compressors to function perfectly over and beyond entire service intervals.

The RENOLIN UNISYN OL series was developed to meet the increased requirements of compressor manufactures on the service life of the compressor oils. Due to the function of compressors, intensive swirling of the cooling oil and air occurs. At high compression temperatures, the oils are subjected to a strong oxidative attack that accelerates aging. The selection of special synthetic base oils and additive systems makes long, interruption-free operation possible. To ensure optimum performance of the oil separator, the air release properties and low foaming are characteristic for screw compressor oils.

RENOLIN UNISYN OL series offer long service life, and they fulfil the requirements mentioned above as well as the requirements according to DIN 51 506 VDL.

The most important functions of lubricating and cooling oils in screw compressors are:

- Cooling the compressed air
- Bearing lubrication
- Sealing the chambers
- Corrosion protection
- Preventing the formation of deposits

RENOLIN UNISYN OL fluid can also be used as hydraulic fluids according to DIN 51 524.

RENOLIN UNISYN OL has been specially developed for the use in oil injected screw compressors and in turbo compressors.

Application

RENOLIN UNISYN OL products are recommended for use in flooded or oil injection screw-type air compressors. RENOLIN UNISYN OL products should always be used if mineral oil-based products are found to display insufficient thermal stability (resistance to ageing) or poor viscosity-temperature behaviour.

Compared to mineral oil-based oils, RENOLIN UNISYN OL products foam less, offer better demulsification and have superior air release properties. The use of RENOLIN UNISYN OL products is especially recommended in unfavourable conditions and at high temperatures in which other oils fail because they allow coke to form, thus leading to unacceptably short oil life. These oils are also recommended for compressors which are subject to extreme loads.

Compared to mineral oil products, the life of RENOLIN UNISYN OL products is considerably longer, operational reliability is much improved and breakdowns are effectively reduced (service intervals can be extended).

Excellent Viscosity-Temperature Behaviour (High Natural Viscosity Index)

RENOLIN UNISYN OL products display good 'natural' viscosity-temperature behaviour. Compared to equiviscous mineral oils, the start-up viscosity of such oils at low temperatures is significantly less. This also ensures the fastest possible oil feed to bearings.

Furthermore, compared to mineral-oil based products of the same ISO-VG, the viscosity of RENOLIN UNISYN OL products at operating temperatures is higher. This ensures that an optimal lubricating film (higher viscosity) is always formed. Even at high loads and after long periods of use, no shearing losses (drop in VI) occur.

Excellent Oxidation Stability

When running, the lubricating oil in screw compressors comes into close contact with the oxygen in the air. Oxidation is accelerated by the large volumes of air along with the relatively large surfaces on the inside of such compressors. The temperature peaks encountered in screw compressors also subject the lubricating oil to thermal stress.

The use of RENOLIN UNISYN OL products, especially at high temperatures (caused by high pressures) avoids the formation of ageing by-products and coke. Moreover, they hinder the formation of corrosive oxidation by-products as well as rubbery or lacquer-like deposits.

RENOLIN UNISYN OL oils reduce breakdowns and maintenance work, increase the life of filters and improve the performance of compressors. The outstanding oxidation resistance of the base oils used which is boosted by special oxidation inhibitors avoids the formation of ageing by-products, coke and other products which detrimentally affect performance. These features also significantly increase the life of the oil.

Low Evaporation Losses

Mineral oil-based lubricants, especially at high operating temperatures, tend to evaporate their highly volatile components causing the viscosity to increase and oil mist pollution of the compressed air.

The very low evaporation losses of the synthetic base oils used for RENOLIN UNISYN OL products largely eliminate such problems.

Excellent Wear Protection (EP)

The heat which is generated at high compressor outlet pressures often causes the oil film between the rotor flanks to become so thin that metal-to-metal contact takes place and thus wear.

RENOLIN UNISYN OL products contain special AW/EP additives which enable a protective film to be formed even at extreme pressures. This minimizes bearing and rotor wear and thus significantly increases the operational reliability of the compressor.

Excellent Performance in Hydraulic Equipment

RENOLIN UNISYN OL products offer excellent wear protection in hydraulic equipment.

Extreme wear protection guarantees a long lifetime of the components.

Good Demulsifying Properties

Water can get in to compressors through condensation. Such moisture can accelerate the ageing of the oil. Furthermore, water in compressors can lead to bearing failure and to negative reactions. Additionally, water can wash out the water-soluble additives in the oil which again reduces lubricity. Condensation can also occur in compressors which are used intermittently or which are rarely run at full power.

Moisture in the oil can create sludge or stable water-in-oil emulsions which can block oil passages, causing partial seizures. Any moisture which gets mixed with RENOLIN UNISYN OL separates-out and can be drained. This reduces the problems associated with the formation of emulsions which have to be disposed-of as special waste. All these features help reduce costs.

Excellent Corrosion Protection for Steel and Non-Ferrous Metals

DIN ISO 7120 examines the corrosion protection properties of an oil and distilled water on a steel test panel. In this test, RENOLIN UNISYN OL products caused no corrosion throughout the duration of the test. The same excellent results also apply to nonferrous metals (DIN EN ISO 2160). Practically, this means that all machine components remain well protected against corrosion.

Advantages/Benefits

- Excellent viscosity-temperature behaviour (high natural viscosity index), shear-stable
- Excellent oxidation stability
- Low evaporation losses
- Excellent wear protection (EP/AW)
- Excellent FE8 performance
- Good demulsifying properties
- Excellent corrosion protection
- Good compatibility with elastomers
- Low foaming / Good air release
- Suitable for high temperature applications

Specifications

- DIN 51 506: VDL
- ISO DP 6521 (draft): L-DAB, L-DAH / L-DAG
- DIN 51 524: HLP, (HVLP)

Approvals

- Queins Machines GmbH

FUCHS Recommendations

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CHARACTERISTICS

ISO VG	DIN 51 519	46	-
Colour Index	DIN ISO 2049	0	-
Kinematic Viscosity @ 40 °C	DIN EN ISO 3104	46	mm²/s
Kinematic Viscosity @ 100 °C	DIN EN ISO 3104	7.9	mm²/s
Viscosity Index	DIN ISO 2909	146	-
Density @ 15 °C	DIN 51 757	843	kg/m³
Flash Point, COC	DIN ISO 2592	260	°C
Pour Point	DIN ISO 3016	< -60	°C
Copper Corrosion	DIN EN ISO 2160	1-100 A3	Degree of corr.
Steel/ferrous corrosion protection properties	DIN ISO 7120	0-A:0-B	Degree of corr.
Neutralisation number	ISO 6618	0.2	mg KOH/g
Water content	DIN ISO 3733	Not detectable	% mass
Demulsification at 54°C	DIN ISO 6614	10	min
Air release @ 50°C	DIN ISO 9120	2	min
Foaming tendency Seq. I/II/III	ASTM D 892	0/0	ml
Sulphated Ash	DIN 51 575	<0.01	% mass
Rotary vane pump test 250h 140 bar max pressure - weight loss ring	DIN 51 389-2	11	mg
Rotary vane pump test 250h 140 bar max pressure - weight loss vane	DIN 51 389-2	7	mg
Ageing stability: Increase CCT after ageing	DIN 51 352-1	0.02	%
Ageing stability: Increase CCT after ageing with FE	DIN 51 352-2	0.4	%
VKA shear stability four ball test: relative shear loss	DIN 51 350-6	shear-stable	%
FZG mechanical gear test rig	DIN ISO 14635-1	>12	failure load stage
FE8 roller test, C7,5/80-80 Wear of the roller elements	DIN 51 819-3	type test: 7,8	mg
Effect on SRE-NBR 28/PX (+NBR 1) seal material acc.to ISO 13226 100°C/7days - relative volume change	DIN ISO 1817	+2.3	%
Effect on SRE-NBR 28/PX (+NBR 1) seal material acc.to ISO 13226 100°C/7days - change in Shore A hardness	DIN ISO 1817	+1	shore

Product Code: 4619
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