

RENOLIN COOL + New generation air compressor fluid for oil-injected screw compressors

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 increase of the air discharge temperature, the decrease of the oil volume in the system and the extension of the oil drain intervals of modern compressors led to oil-related problems in the field. Leakages at the shaft sealing rings and the forming of deposits caused a lot of failures. These problems led to the development of a new screw compressor fluid based on semi synthetic base oil that withstands the higher working temperature in the screw and ensures a longer drain interval. 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 ageing. The selection of a special base oil and additive systems makes long, interruption-free operation possible. To ensure optimum performance of the oil separator, good air release properties and low foaming are characteristic for the screw compressor oil. RENOLIN COOL + offers a long service life and fulfils the requirements mentioned above.

Advantages

- **Excellent viscosity-temperature behaviour (high natural viscosity index), shear-stable**
- **Excellent oxidation and thermal stability**
- **New generation of base oils**
- **Prevents sludge formation**
- **Excellent wear protection (EP/AW!), FZG > 12**
- **Good demulsifying properties**
- **Excellent corrosion protection**
- **Good compatibility with elastomers**
- **Low foaming**
- **Good air release**
- **Long-life-lubrication * (> 5000 h)**

* Please contact our application engineers, depending on the working / ambient conditions

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Application

RENOLIN Cool + is recommended for use in flooded or oil injection screw-type air compressors and 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 COOL + foams less, offers better demulsification and has superior air release properties.

The use of RENOLIN COOL + 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. This fluid is also recommended for compressors which are subject to extreme loads.

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

Excellent Viscosity-Temperature Behaviour (High natural viscosity index)

RENOLIN COOL + displays good "natural" viscosity-temperature behaviour. Compared to equiviscous mineral oils, the start-up viscosity of this oil 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 COOL + 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.

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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 COOL +, especially at high temperatures (caused by high pressures) avoids the formation of ageing by-products and coke. Moreover, it hinders the formation of corrosive oxidation by-products as well as rubbery or lacquer-like deposits. RENOLIN COOL + reduces breakdowns and maintenance work, increases the life of filters and improves the performance of compressors. The outstanding oxidation resistance of the base oil 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 and of the oil separators (filters).

Good Demulsifying Properties

Water can get into 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. And on top of that, 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 COOL + 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 Nonferrous Metals

DIN 51585 examines the corrosion protection properties of an oil and distilled water on a steel test panel. In this test, RENOLIN UNISYN COOL + caused no corrosion throughout the duration of the test.

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Typical data:

Product name	Cool +		
Properties	Unit		Test method
ISO VG		46	DIN 51519
Kinematic viscosity at 40 °C	mm ² /s	50	DIN EN ISO 3104
at 100 °C	mm ² /s	8.0	
Viscosity index	-	130	DIN ISO 2909
Density at 15 °C	kg/m ³	854	DIN 51757
Flashpoint, Cleveland open cup	°C	206	DIN ISO 2592
Pourpoint	°C	- 18	DIN ISO 3016
Copper corrosion	Degree of corr.	1-100 A3	DIN EN ISO 2160
Steel corrosion	Degree of corr.	0-A 0-B	DIN ISO 7120
Neutralisation number	mgKOH/g	0.2	DIN 51558-1
Demulsification at 54 °C	min	15	DIN ISO 6614
Air release at 50 °C	min	4	DIN ISO 9120
Foaming, Seq. I: 24 °C	ml	0/0	ASTM D 892
Seq. II: 93.5 °C	ml	0/0	
Seq. III: 24 °C after 93.5 °C	ml	0/0	
Ageing stability: Increase CCT after ageing with Fe ₂ O ₃	%	0.5	DIN 51352-2
Oxidation stability, RPVOT	min	>> 1000	ASTM D 2272
FZG mechanical gear test rig	failure load stage	>12	DIN ISO 14635-1

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