

# Klüber Summit R 100, R 150, R 200, R 300

Synthetic compressor oils, particularly for highly loaded ammonia and CO<sub>2</sub> refrigeration plants



## Benefits for your application

- Klüber Summit R oils are NSF H1 registered for use in the food-processing and pharmaceutical industry and comply with FDA 21 CFR Sec 178.3570
- Low maintenance costs due to extended oil change intervals and reduced oil consumption
- Easy compressor oil conversion due to neutral behaviour towards seals
- High efficiency of the refrigeration plant due to reduced oil deposits
- Low operating costs due to long service life of filters and oil separators
- Wide range of application with evaporating temperatures, in some cases down to  $\geq -50^{\circ}\text{C}$
- Meets NSF H1 requirements for use in the food-processing industry (except for Klüber Summit R 500 and R 600)

## Description

Klüber Summit R series lubricants are based on polyalphaolefins. No paraffin is contained in the formulation of this lubricant. However, we cannot rule out the possibility that the lubricant contains traces of paraffin. Depending on the application, we recommend consulting with us. They offer good cold flow properties. They contain base oils of high chemical stability and show a low tendency to evaporation.

Klüber Summit R series lubricants are miscible with mineral oils.

Klüber Summit R 100, 200 and 300 comply with the requirements set forth in DIN 51 503-1, KAA (08.97).

Klüber Summit R oils are NSF H1 registered and therefore comply with FDA 21 CFR § 178.3570. The lubricants were developed for incidental contact with products and packaging materials in the food-processing, cosmetics, pharmaceutical or animal feed industries. The use of Klüber Summit R oils can contribute to increase reliability of your production processes. We nevertheless recommend conducting an additional risk analysis, e.g. HACCP.

These lubricants can be used for refrigeration compressors in the food-processing industry.

## Application

Klüber Summit R series lubricants have been designed especially for highly loaded screw-type and reciprocating piston compressors which are operated with ammonia (R717) or CO<sub>2</sub> (R744).

These lubricants can also be used with natural hydrocarbon refrigerants like propane (R290), propylene (R1270) or butane (R600). Especially with these refrigerants, the solubility of the gas in the oil under operating conditions and the resulting drop

in viscosity has to be taken into account. Klüber Lubrication would be pleased to assist you in selecting the most appropriate oil.

Due to the synthetic base oil contained in the Klüber Summit R series lubricants, oil carryover into the refrigeration cycle is much lower than with conventional mineral oils, which helps to reduce oil consumption.

The viscosity of the oils remains constant for a long time, due to the fact that only a few highly volatile fractions are contained in the oil. Oil changes due to the increase in viscosity can be extended considerably.

The base oil offers high chemical stability, particularly to ammonia, the typical blackening of conventional mineral oils or deposits in the refrigeration cycle are prevented.

Our experience gained in practice has shown that Klüber Summit 200 can be used for evaporating temperatures as low as  $\geq -50^{\circ}\text{C}$  depending on the operating conditions.

## Application notes

Drain old oil from whole circuit of the refrigeration compressor while still warm. We recommend changing all oil filters and separators and draining the oil catches of the refrigeration cycle completely. Then recharge compressor with the operational Klüber Summit R series lubricant.

## Material safety data sheets

Material safety data sheets can be requested via our website [www.klueber.com](http://www.klueber.com). You may also obtain them through your contact person at Klüber Lubrication.



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Pack sizes	Klüber Summit R 100	Klüber Summit R 150	Klüber Summit R 200	Klüber Summit R 300
Canister 19 l	+	+	+	+
Drum 208 l	+	+	+	+

Product data	Klüber Summit R 100	Klüber Summit R 150	Klüber Summit R 200	Klüber Summit R 300
Article number	050040	050137	050041	050042
NSF-H1 registration	134 117	150 873	134 122	134 123
Appearance	clear	clear	clear	clear
Colour space	colourless	colourless	colourless	colourless
Density, DIN 51757, 20 °C	approx. 0.83 g/cm <sup>3</sup>	approx. 0.83 g/cm <sup>3</sup>	approx. 0.83 g/cm <sup>3</sup>	approx. 0.84 g/cm <sup>3</sup>
Kinematic viscosity, DIN 51562 pt. 01/ASTM D-445/ASTM D 7042, 40 °C	approx. 32 mm <sup>2</sup> /s	approx. 46 mm <sup>2</sup> /s	approx. 68 mm <sup>2</sup> /s	approx. 100 mm <sup>2</sup> /s
Kinematic viscosity, DIN 51562 pt. 01/ASTM D-445/ASTM D 7042, 100 °C	approx. 5.9 mm <sup>2</sup> /s	approx. 7.9 mm <sup>2</sup> /s	approx. 10 mm <sup>2</sup> /s	approx. 14.5 mm <sup>2</sup> /s
Viscosity index, DIN ISO 2909	>= 120	>= 130	>= 130	>= 138
Pour point, DIN ISO 3016	<= -60 °C	<= -51 °C	<= -51 °C	<= -39 °C
Flash point, DIN EN ISO 2592, Cleveland, open-cup apparatus	>= 230 °C	>= 240 °C	>= 230 °C	>= 240 °C
Minimum shelf life from the date of manufacture - in a dry, frost-free place and in the unopened original container, approx.	36 months	36 months	36 months	36 months

## Klüber Lubrication – your global specialist

Innovative tribological solutions are our passion. Through personal contact and consultation, we help our customers to be successful worldwide, in all industries and markets. With our ambitious technical concepts and experienced, competent staff we have been fulfilling increasingly demanding requirements by manufacturing efficient high-performance lubricants for more than 80 years.

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