

Klüberalfa HL 3 Fluids

High-performance PFPE oils for lifetime lubrication under extreme conditions



Benefits for your application

- **Extended service life is possible under critical operational influences, e.g.**
 - contamination by aggressive chemicals
 - temperature extremes and variation
 - effects of vacuum out-gassing
- **Reliable and improved component function under variable operational conditions due to**
 - lower friction values under sliding contact conditions compared to those attained with standard PFPE oils
 - low and high temperature suitability with minimum viscosity change
 - compatibility with a wide range of plastic and elastomer materials

Description

Klüberalfa lubricants, based on perfluorinated polyether (PFPE) were developed to fulfil lifetime lubrication under harsh conditions and offer a number of characteristics that make them highly suitable for such extreme tasks.

Klüberalfa HL 3 Fluids are characterised by their low vapour pressures and extraordinarily high viscosity indices, i.e. their viscosity and hence the theoretical lubricant film thickness decrease much slower with rising temperature than those of standard PFPE oils.

Klüberalfa oils are especially suitable for applications where constant friction values are required under changing operating conditions thus enabling optimum component function.

Application

Klüberalfa HL 3 Fluids should be used where lifetime lubrication is desired in combination with stringent operational requirements, such as:

- wide ranging extremes of temperature
- high vacuum
- influence by aggressive chemicals
- compatibility with wide ranging elastomer types

Thanks to their low evaporation rate, Klüberalfa HL 3 Fluids are also suitable for sensitive applications in clean rooms and in the optical and electronics sectors.

When used in sintered metal plain bearings, Klüberalfa HL 3 Fluids excel by means of their low friction coefficients across a wide service temperature range.

Behaviour towards elastomers and plastics

Perfluorinated polyether oils (PFPE) are generally regarded as neutral towards elastomers and plastics (possible exception: perfluorinated rubber). Nevertheless compatibility with the materials should be tested, especially prior to series application.

Application notes

We recommend cleaning all parts to operate in contact with the lubricant with white spirit 180/210 and then Klüberalfa XZ 3-1. Upon cleaning, apply clean dry compressed air or hot air to remove any remaining white spirit residues.

The friction point should be clean and bright (i.e. free from oil, grease or perspiration) and free from particles to ensure optimum function.

Material safety data sheets

Material safety data sheets can be requested via our website www.klueber.com. You may also obtain them through your contact person at Klüber Lubrication.

Pack sizes	Klüberalfa HL 3-150	Klüberalfa HL 3-300
Canister 500 ml	+	+



Klüberalfa HL 3 Fluids

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Product data	Klüberalfa HL 3-150	Klüberalfa HL 3-300
Article number	090130	090071
Chemical composition, type of oil	PFPE	PFPE
Lower service temperature	-60 °C / -76 °F	-60 °C / -76 °F
Upper service temperature	250 °C / 482 °F	250 °C / 482 °F
Colour space	colourless	colourless
Appearance	clear	clear
Density, DIN 51757, 20 °C	approx. 1.85 g/cm ³	approx. 1.86 g/cm ³
Kinematic viscosity, DIN 51562 pt. 01/ASTM D-445/ASTM D 7042, 40 °C	approx. 165 mm ² /s	approx. 300 mm ² /s
Kinematic viscosity, DIN 51562 pt. 01/ASTM D-445/ASTM D 7042, 100 °C	approx. 50 mm ² /s	approx. 85 mm ² /s
Pour point, DIN ISO 3016	< -60 °C	< -60 °C
Vapour pressure at 20 °C	approx. 1,4 x 10 ⁻⁸ Torr	approx. 3,5 x 10 ⁻⁹ Torr
Minimum shelf life from the date of manufacture - in a dry, frost-free place and in the unopened original container, approx.	60 months	60 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.

Klüber Lubrication München SE & Co. KG / Geisenhausenerstraße 7 / 81379 München / Germany / phone +49 89 7876-0 / fax +49 89 7876-333.

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