

# Klüberpaste 46 MR 401

Light-coloured high-pressure lubricating paste



## Your benefits at a glance

- Easy assembly and disassembly of highly loaded frictional connections
- Prevents premature material ageing caused by tribo-corrosion and stick slip
- Can be used with many material combinations, including plastics and elastomers

## Your requirements - our solution

Klüberpaste 46 MR 401 is a multipurpose lubricating paste with selected base oils, lithium soap and special solid lubricant additives.

This versatile multipurpose paste has a wide service temperature range and shows good pressure absorption capacity as well as neutral behaviour towards non-ferrous metals, many plastics and elastomers.

## Application

Klüberpaste 46 MR 401 is especially suitable as an assembly lubricant in frictional connections and for thin-film lubrication of all friction points subject to very high pressure loads, low sliding speed, high wear, Stick-Slip and tribo-corrosion.

Typical applications include: press fit assembly of pins and bolts, mounting of rolling bearings, wheels and flanges, lubrication of rolling and plain bearings operating at very low speeds.

Klüberpaste 46 MR 401 is also suitable to prevent running-in damage and stick-slip in components such as threaded spindles, spline shafts, ball and socket joints and rod end bearings.

Its good compatibility with plastics facilitates the lubrication of radial shaft seals (o-rings, v-rings, sealing cups) made of rubber-elastic

materials for extended lifetime.

Owing to the many different elastomer and plastic compositions, we recommend compatibility be checked prior to series application.

## Application notes

Before applying Klüberpaste 46 MR 401 it is important to clean the contact surfaces and remove any solvent residues with a lint-free, dry cloth.

Klüberpaste 46 MR 401 can be easily applied to the entire surface in a thin layer with a spatula. It is important to avoid overlubrication. Before applying the paste to a plastic material we recommend undertaking a materials compatibility test.

The friction values indicated on page 2 in the Section Product Data were determined with two different materials. Other materials/surfaces have to be checked accordingly.

## 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.

Pack sizes	Klüberpaste 46 MR 401
Cartridge 500 g	+
Can 600 g	+
Bucket 30 kg	+
Drum 180 kg	+

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Characteristics	Klüberpaste 46 MR 401
Article number	005108
Colour space	white
Service temperature, lower limit	-40 °C
Service temperature, upper limit	150 °C
Density, Klüber method: PN 024, 20°C	approx. 1.23 g/cm <sup>3</sup>
Worked penetration, DIN ISO 2137 / ASTM D217, 25°C, lower limit	300 0.1 mm
Worked penetration, DIN ISO 2137 / ASTM D217, 25°C, upper limit	340 0.1 mm
Copper corrosion, DIN 51811, 24 h, 100°C	1 - 100 - 24 corrosion degree
SKF-EMCOR, DIN 51802, Klüber method: distilled water, 168 h	≤ 1 corrosion degree
Flow pressure, DIN 51805-2, -40°C	≤ 1600 mbar
Dropping point, DIN ISO 2176 / IP 396	≥ 185 °C
Four-ball tester, welding load, DIN 51350-4	≥ 4600 N
Friction coefficient screw test, hexagon bolts M10 x 30-8.8, DIN EN ISO 4017, tightening speed $n = 5 \text{ min}^{-1}$ , number of screws = 20, nut M10-8, plain and degreased, face material 42CrMo4 with roughness Ra 1.6, tightening torque MA = 50 Nm, averaged bearing surface friction coefficient (initial tightening), external test	0.14
Friction coefficient screw test, hexagon bolts M10 x 30-8.8, DIN EN ISO 4017, tightening speed $n = 5 \text{ min}^{-1}$ , number of screws = 20, nut M10-8, plain and degreased, face material 42CrMo4 with roughness Ra 1.6, tightening torque MA = 50 Nm, averaged thread friction coefficient (initial tightening), external test	0.12
Friction coefficient screw test, hexagon bolts M10 x 30-8.8, DIN EN ISO 4017, tightening speed $n = 5 \text{ min}^{-1}$ , number of screws = 20, nut M10-8, plain and degreased, face material 42CrMo4 with roughness Ra 1.6, tightening torque MA = 50 Nm, standard deviation (S) of averaged bearing surface friction coefficient (initial tightening), external test	0.005
Friction coefficient screw test, hexagon bolts M10 x 30-8.8, DIN EN ISO 4017, tightening speed $n = 5 \text{ min}^{-1}$ , number of screws = 20, nut M10-8, plain and degreased, face material 42CrMo4 with roughness Ra 1.6, tightening torque MA = 50 Nm, standard deviation (S) of averaged thread friction coefficient (initial tightening), external test	0.008
Minimum shelf life from the date of manufacture - in a dry, frost-free place and in the unopened original container, approx.	36 months

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## 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 90 years.

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The data in this document is based on our general experience and knowledge at the time of publication and is intended to give information of possible applications to a reader with technical experience. It constitutes neither an assurance of product properties nor does it release the user from the obligation of performing preliminary field tests with the product selected for a specific application. All data are guide values which depend on the lubricant's composition, the intended use and the application method. The technical values of lubricants change depending on the mechanical, dynamical, chemical and thermal loads, time and pressure. These changes may affect the function of a component. We recommend contacting us to discuss your specific application. If possible we will be pleased to provide a sample for testing on request. Klüber products are continually improved. Therefore, Klüber Lubrication reserves the right to change all the technical data in this document at any time without notice.

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