

# Klübertop TG 04-1121

Bonded coating for sheet titanium and special steel



## Your benefits at a glance

- **Good adhesion to titanium and special steel surfaces**
- **Good wear protection due to resistance to high pressure**
- **Lubricant and release agent combined in a single product**
- **Die and punch life can be extended**

## Your requirements - our solution

Cost pressure is constantly rising, as is the industry's demand for components offering optimised quality. To attain a higher quality in sheet titanium and special steel components, especially with regard to the calibration of hollow body halves and half-collars for exhaust pipes at very high temperatures, we developed the bonded coating Klübertop TG 04-1121.

Our objective is to offer you a dry lubricant for the efficient processing of sheet titanium and special steel components.

Klübertop TG 04-1121 is a high-performance bonded coating based on graphite and a high-temperature binder. The bonded coating is supplied as a ready-to-use fluid. The product provides good wetting when applied to metal surfaces. Upon hardening, a dry, adhesive coating forms that is resistant to high pressure.

## Application

Klübertop TG 04-1121 has proven particularly useful as a release agent for the calibration of light metal alloys (e.g. hollow body halves and half-collars for exhaust pipes) at very high temperatures. Application in practice depends on the specific metal alloy and other process parameters (especially hold time, pressure and temperature) and has to be checked individually.

Further applications are in the deep drawing of sheet special steel and titanium and other forming processes. In all these applications, you will benefit from the good wear protection, leading to longer die and punch life.

## Application notes

Stir or shake Klübertop TG 04-1121 well before use. The product then has to be filtered, e.g. using a nylon filter with a mesh size of 125 to 150 µm.

The product can be applied by brush, spraying or immersion. Further hints on application methods can be provided on request.

The surfaces to be coated need to be free from oil, grease, water, corrosion layers and scale. This can be attained by cleaning and degreasing.

For spray application, lacquer spray guns should be used.

Further application conditions:

- Feed pressure: 2 bar
- Spraying distance: approx. 20 cm
- Spray nozzle diameter: 0.8 mm

Make sure to use compressed air that is free of oil and water. For manual spraying, we recommend crosswise application. For application by spray systems, we recommend installing an agitator in the storage container to prevent solid lubricants from settling.

For immersion application, solvent-resistant containers should be used.

The recommended layer thickness for tribological loads is 5 - 15 µm.

To clean the lacquer spray gun and other equipment and, if necessary, to dilute Klübertop TG 04-1121, the solvent and cleaning agent SOLUTIN C 8 may be used.

To optimise the service life of your equipment or if you have any other questions regarding your application, our experts will be pleased to help you. We look forward to hearing from you.

## 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.



# Klüber top TG 04-1121

Bonded coating for sheet titanium and special steel

Pack sizes	Klüber top TG 04-1121
Can 1 l	+
Bucket 20 l	+

Product data	Klüber top TG 04-1121
Article number	099133
Runout time, DIN EN ISO 2431, with flow cups, 3 mm nozzle	approx. 25 s
Chemical composition, binder	Silikonharz
Chemical composition, solid lubricant	graphite
Chemical composition, solvent	Ester
Upper service temperature	600 °C / 1112 °F
Colour space	grey
Density, DIN EN ISO 2811, at 20 °C	approx. 0.94 g/cm <sup>3</sup>
Heat-setting time at 200 °C	approx. 30 min
Drying time, at approx. 20 °C, dry to the touch	approx. 20 min
Non-volatile content, DIN EN ISO 3251, t=1 h, T=105 °C, recirculating air drying cabinet, dish d~10 cm	approx. 17 % by weight
Minimum shelf life from the date of manufacture - in a dry, frost-free place and in the unopened original container, approx.	24 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.**

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.

Publisher and Copyright: Klüber Lubrication München SE & Co. KG. Reprints, total or in part, are permitted only prior consultation with Klüber Lubrication München SE & Co. KG and if source is indicated and voucher copy is forwarded.