Klüberplus S 08-107

High temperature resistant special bonded coating for hot forming of aluminium alloys

Benefits for your application

- **Klüberplus S 08-107 is a unique future-oriented product concept, for which a patent has been filed. Due to its high load-carrying capacity and systematic (transfer) lubrication it provides improved process stability, thus ensuring lower reject rates and reducing expensive reworking.**
- **By applying the lubricant during a non-productive period of the press cycle, overall cycle times are reduced leading to an increase in the production capacity of the press. To ensure a smooth start-up process, the forging die can be manually sprayed to provide additional lubrication prior to machine start-up.**
- **Compared with conventional liquid metal forming lubricants, the excellent sliding properties of this bonded coating permit better form filling, which, in turn, leads to reduced material costs and reject rates.**
- **The components can be cleaned using conventional cleaning processes, so there is no requirement for investment in new equipment or modification of existing downstream processes.**
- **As compared to conventional liquid metal forming lubricants, this dry lubricant concept permits application of much lower quantities. This leads to a considerable reduction of fire hazards, far less contamination of the presses and significantly lower pollution of the outlet air purification systems and the waste water. Thus disposal costs can also be reduced.**

Description

Klüberplus S 08-107 is a high-temperature bonded coating with excellent lubricating and separating properties for applications which would benefit from its high susceptibility to abrasion and resulting sliding properties together with its outstanding adhesion.

Klüberplus S 08-107 is a water-based coating with an inorganic binder, which requires drying and burning in immediately after its application and prior to the forming process. Hence it offers completely dry lubrication for the hot forming of billets, rods etc. Normally, no residues build up on the forging die, as the bonded coating is removed with the formed component.

For the forming of extremely complex components, an additional – preferably dry – lubricant can be applied to the forging die (sandwich lubrication). As a bonded coating, Klüberplus S 08-107 can be applied sparingly and the formed components can subsequently be cleaned using conventional cleaning processes, such as acid cleaning or sand blasting.

Application

Klüberplus S 08-107 is intended for use in hot forming processes with minor surface increase. Hot forming processes involving long sliding distances are improved considerably through the use of Klüberplus S 08-107.

This includes processes such as:

- upsetting and
- hot forging

of aluminium and aluminium alloys.

Application notes

Preparation
The surfaces to be coated need to be free from oil, grease, water (including hand perspiration), wax, other lubricant residues etc. If necessary, the surfaces should be cleaned in an ultrasound bath at a minimum temperature of 65 °C for at least 15 seconds or using aqueous cleaners, such as SurTec 472 and SurTec 089 (www.SurTec.com).
A thin layer of Klüberplus S 08-107 is applied after the surfaces have been dried, for example using “air knives” or infrared radiation.

Application of the bonded coating
Klüberplus S 08-107 should be homogenised prior to application, for example by stirring. The product then has to be filtered, e.g. using a nylon filter with a mesh size of 250 µm.

The bonded coating should be applied in a suitable enclosure to protect the surfaces from dust.

It is advisable to apply Klüberplus S 08-107 onto hot surfaces (40 – 60 °C), for example after drying in infrared heaters.

The product can be applied using conventional coating processes, such as spin coating or spraying.

Klüberplus S 08-107 should be applied undiluted to achieve optimum performance.

Manually
Klüberplus S 08-107 can be sprayed onto the surfaces in a paint booth with a spray gun (nozzle diameter 0.8 mm, air pressure approx. 2 bar, distance approx. 10 – 20 cm.) The compressed air in the spray unit should be free from oil and water.

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Automatically
Klüberplus S 08-107 can also be applied in an automated process using airless guns or in-line in a low-vacuum chamber. The product is also suitable for electrostatic application.

The bonded coating must be still wet when hitting the metal surface, and the quantity applied should not be too high to avoid the formation of run lines. Klüberplus S 08-107 should then be allowed to dry and burnt in for 15 minutes at an object temperature of 180 °C . During this process, the bonded coating maintains its grey colour. Please get in touch with your usual Klüber contact partner if you would like to find out more about alternative application conditions.

After the burning-in process, the component can be heated ready for the actual forming process. The entire process of drying, burning in and heating up to the forming temperature (for example 520 °C) can be carried out in one process step, for example in one and the same induction oven.

Additional start-up aid
To facilitate production start-up, Klüberplus S 08-107 can also be sprayed manually onto the clean forging die. The bonded coating will be removed after only a few press cycles.

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	Klüberplus S 08-107
Can 1 l	+
Bucket 15 l	+

Product data	Klüberplus S 08-107
Article number	099077
Colour space	grey
Runout time, DIN EN ISO 2431, with flow cups, 3 mm nozzle	approx. 37 s
Density, DIN EN ISO 2811, at 20 °C	1.31 g/cm³
Cross-cut adhesion (test plate), PA-063 based on DIN EN ISO 2409, value	0 Gt
Minimum shelf life from the date of manufacture - in a dry, frost-free place and in the unopened original container, approx.	12 months

The following data are results of one-time measurements and serve for information only	
Drying time for different component temperatures	
Dry (no adhesion of dust) at 60 °C and approx. 10 µm layer thickness after approx.	3 min
Dry to the touch at 60 °C and approx. 10 µm layer thickness after approx.	6 min
Dry to the touch at 25 °C and approx. 10 µm layer thickness after approx.	15 min

Product information

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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 80 years.

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