Klübertop TM 06-111

Thermosetting bonded coating for high loads and good corrosion protection

Benefits for your application

- **Cost savings due to wear and corrosion protection also under high loads**
  - long component life due to good surface smoothening at high loads
  - highly resistant at high loads in combination with corrosive influences
  - low friction coefficients at high loads
- **Clean and dry surfaces with lubricating effect**
  - no contamination by fluid lubricant
  - no sticking of lubricated components during automated assembly
  - lubricant firmly incorporated, no risk of lubrication starvation in the friction point

Description

Klübertop TM 06-111 is a thermosetting, grey-black bonded coating based on molybdenum disulphide (MoS_2) and an organic binding agent. Klübertop TM 06-111 is a fluid, ready-to-use product containing a flammable mixture of solvents (previously VbF AII group).

Once applied and hardened, the coating ensures:

- good wear resistance
- excellent corrosion protection
- wide service temperature range
- no stick-slip at low relative speeds
- excellent wear protection on zinc-phosphated surfaces

Application

Klübertop TM 06-111 is used for the lubrication of metal components in

- precision engineering
- electrical engineering
- automotive engineering
- locks and fittings
- textile machines,

where the coating has to meet high requirements in terms of corrosion protection and pressure resistance.

With Klübertop TM 06-111, small and mass-produced items can be economically coated, e.g.

- pins, straight pins, pivots
- screws and bolts, nuts
- automotive components (locks, safety belts)
- lock mechanisms

Application notes

Stir well before use. The product has to be filtered after stirring (e.g. using a nylon filter with a pore size of 125-150 µm). Klübertop TM 06-111 can be applied by immersion, spraying or by brush. The surfaces to be coated must be cleaned and degreased and be completely free from oil, grease, water, corrosion and scale. Roughening of the surface by phosphatizing (zinc or manganese) or by sand blasting is recommended to increase adhesion. When applying Klübertop TM 06-111 by spraying, use a spray gun.

Other application conditions

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

Make sure that only compressed air is used which is free from oil and water. When spraying by hand, it is recommended to apply the product in a zig-zag pattern. When spraying systems are used, an agitator should be installed in the container to prevent the solid particles from settling. When applying the product by immersion, use containers which are resistant to solvents. The recommended film thickness for sliding loads is between 5 and 20 µm.

To clean the spray gun and, if necessary, to dilute Klübertop TM 06-111, the diluting and cleaning agent SOLUTIN C 8 can be used.

Klübertop TM 06-111 is ready to handle after approx. 30 min at a component temperature of 20 °C and a layer thickness between approx. 5 µm and 20 µm. The curing time is 30 min at a component temperature of 180 °C.

The product must be stored at 20 °C.

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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	Klübertop TM 06-111
Can 1 l	+
Bucket 20 l	+

Product data	Klübertop TM 06-111
Article number	099012
Lower service temperature	-40 °C / -40 °F
Upper service temperature	220 °C / 428 °F
Colour space	grey
Density, DIN EN ISO 2811, at 20 °C	approx. 1.2 g/cm³
Runout time, DIN EN ISO 2431, with flow cups, 4 mm nozzle	approx. 24 s
Cross-cut adhesion (test plate), PA-063 based on DIN EN ISO 2409, value	0 Gt
Friction coefficient, Tannert sliding indicator, room temperature, vmax = 0.243 mm/s, F = 300 N	approx. 0.15
Stick-slip, Tannert sliding indicator, room temperature, vmax = 0.243 mm/s, F = 300 N, evaluation	no stick slip
Salt spray test, DIN EN ISO 9227, 5 % NaCl, temperature 35 °C, layer thickness 15 µm, material zinc-phosphated. Slight corrosion (0.05 % corroded area)	<= 380 h
Klüber pin-disc rig for testing the service life of bonded coatings, temperature: 25 °C, load: 30 N, speed: 10 m/min, sliding contact: point, sliding distance	approx. 1 150 m
Klüber pin-disc rig for testing the service life of bonded coatings, temperature: 25 °C, load: 30 N, speed: 10 m/min, sliding contact: point, friction coefficient (µ)	approx. 0.15
Media resistance of coatings, based on DIN EN ISO 2812-1, tested at room temperature, layer thickness approx. 15 µm,substrate steel, medium soda lye, result: film resistant, tested up to	400 h
Media resistance of coatings, DIN EN ISO 2812-1, tested at room temperature, layer thickness approx. 15 µm, material steel ST 1303, medium diester oil, result: film resistant, tested up to	500 h
Media resistance of coatings, based on DIN EN ISO 2812-1, tested at room temperature, layer thickness approx. 15 µm, material steel ST 1303, medium doped mineral oil, result: film resistant, tested up to	500 h
Media resistance of coatings, based on DIN EN ISO 2812-1, tested at room temperature, layer thickness approx. 15 µm,substrate steel, medium 0.1n hydrochloric acid, result: film resistant, tested up to	100 h
Media resistance of coatings, based on DIN EN ISO 2812-1, tested at room temperature, layer thickness approx. 15 µm, material steel zinc-phospatized, medium soda lye, result: film resistant, tested up to	400 h
Media resistance of coatings, based on DIN EN ISO 2812-1, tested at room temperature, layer thickness approx. 15 µm, material steel zinc-phospatized, medium 0.1n hydrochloric acid, result: film resistant, tested up to	200 h

Product data	Klübertop TM 06-111
Media resistance of coatings, based on DIN EN ISO 2812-1, tested at room temperature, layer thickness approx. 15 µm, material steel zinc-phospatized, medium diester oil, result: film resistant, tested up to	500 h
Media resistance of coatings, based on DIN EN ISO 2812-1, tested at room temperature, layer thickness approx. 15 µm, material steel zinc-phospatized, doped mineral oil, result: film resistant, tested up to	500 h
Yield with a tribo-film thickness of 10 micrometer	approx. 28 m²/l
Minimum shelf life from the date of manufacture - in a dry, frost-free place and in the unopened original container, approx.	36 months

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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