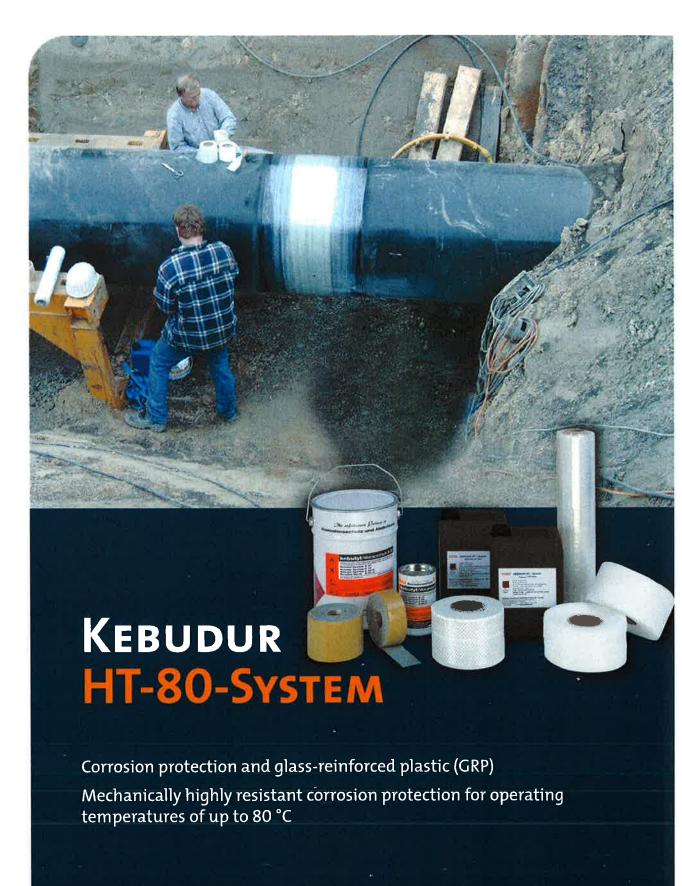
# **PRODUCT INFORMATION**







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## GENERAL

Glass-reinforced plastic (GRP) based on synthetic resins has proved to be an excellent coating for buried steel pipelines.

Kebudur HT-80-System combines butyl rubber, which has successfully been used for 30 years, with a GRP mantle which is a mechanically resistant and chemically indifferent. Mechanical loads can, however, reach dimensions in which the hardest mantle will give in to the strain.

Kebudur HT-80-System is suitable for operating temperatures of 80 °C and withstands short-term temperatures of 100°C. Kebudur HT resin is a single-component, light-activated vinyl ester resin. It can be used to produce GRP coatings by laminating single glass fabric and/or glass mats as mechanical protection of steel pipes coated with polyethylene or welded

## STRUCTURE

Corrosion protection:

Kebutyl-Primer K III Testo-Tape 1.2 HT, 2 layers

Total thickness:

about 4.5 - 5.5 mm

Mechanical protection: Kebudur HT resin, light reactive

Glass fabric about 580 g/m² (4 layers) Terminating non woven fabric about 40 g/m²

(2 layers) Stretch wrap

# FIELDS OF APPLICATION

Kebudur HT-80-System is mainly used for reinforcing coatings of pipelines which are installed by directional drilling or ground-to-air transitions of pipelines respectively.

## **PACKAGES**

Kebudur HT resin	Weight	p. 111 T	10 kg package Tape width
Glass fabric Terminating non woven fabric Stretch foil	about 580 g/m² about 40 g/m²	40 m 100 m 20 m 300 m	100 mm 100 mm 290 mm 500 mm

## APPLICATION

During application the substrate temperature shall always be higher than 3° C above the dew point temperature. The materials that are used should also be warmer than 3° C above the dew point temperature. Furthermore the Kebudur HT resin should not be applied under a temperature of +5°C.

To work safely during lamination and exposion ensure the working area is sufficiently dimensioned. Protect the working area from humidity, rain and unintended UV radiation using suitable means. Tents with rain-proof and UV absorbing or reflecting foil have proved to be suitable for this purpose. Protect the area under the pipeline against dripping resin using carton or tarpaulin. When exposed to natural light the pipe invert does not get any natural radiation. Therefore the invert must be cured by artificial light or by reflectors like molden aluminium foil. For this purpose place the aluminium foil underneath the pipeline.

The area to be coated must be dry, if necessary dry it using a propane burner. Preheating is not required.

When coating steel pipes with a three-ply factory coating you can include existing coatings of epoxy resin and adhesives in the coating. To achieve optimum peel of the coating roughen the epoxy or adhesive coating in advance using a wire-brush.

Remove traces of oil and grease using a suitable solvent. When coating bare steel pipes take special care to ensure that no mill scale is present on the pipe surface. Any mill scale must be blasted to Sa 2.5 in accordance with DIN EN ISO 12944-4.

The edges of polyethylene factory coatings are normally bevelled. Take care to ensure that no voids are formed. Where voids may form, as in the case of straight edges, damage and reinforced factory coatings, prepare the edges using suitable tools. Semi-circular rasps have proved to be suitable for this purpose. When working on coating edges take care to prevent damage such as notches and cuts in the factory polyethylene coating.

For a detailed installation guide turn to the following page:

# **KEBUDUR HT-80-SYSTEM**



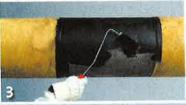
## Installation Guide:



Inspect the polyethylene factory coating for offstanding edges in the cutback area. If necessary bevel the edges using a suitable tool like a semi-circular rasp.



If necessary dry the area to be coated using a propane burner and wire-brush it to remove rust, dirt and other debris. Clean and roughen 250 mm of the adjacent coating, too.



Apply Kebutyl-Primer KIII to the clean and dry substrate as well as to 30 mm of the adjacent coating using a paint brush or a paint roller. Allow the primer to cure for 3 – 5 minutes.



Apply Testo-Tape 1.2 HT beginning with a full circumferential wrap on about 30 mm of the factory coating. Proceed with 50 % overlapping and end with a full circumferential wrap on about 30 mm of the factory coating.



Apply single-component light activated Kebudur HT resin to the prepared substrate using a paint roller and include about 200 mm of the factory coating. CAUTION: Protect resin from UV radiation!



Apply the first layer of glass fibre fabric, beginning and ending with a full circumferential wrap on about 200 mm of the factory coating. Proceed with 50 % overlapping into the wet Kebudur HT resin, if necessary resoak the overlapping area using Kebudur HT resin.



Apply the second layer of glass fibre fabric in accordance to fig. 6 and continue with soaking the wrapped area with Kebudur HT resin.



Apply the terminating mat beginning and ending with a full circumferential wrap and proceed with 50 % overlapping to smooth the surface.



Finally soak all of the coating using Kebudur HT resin.



Completed Kebudur HT-80-System.



Wrap the finished Kebudur HT-80-System using strech foil film to protect it against humidity and dirt.



Kebudur HT-80-System cures either by natural radiation or by artificial radiation like a UVA spot by Dr. Hönle. Curing takes about one hour.



Hardness test after comlete curing using a Shore-D-tester (Shore-D-value > 70).

### IMPORTANT!

Ensure that at least 250 mm of the factory coating adjacent to the area to be coated is roughened cylindrically!

**SAFETY INSTRUCTIONS:** Read the safety information on **Kebudur HT-80-System** carefully. When abrasing cured GRP it is vital to use a dust repirator! When radiating with UV lamps always wear eye protection like welding goggles or UV protection spectacles.



# **CONSUMPTION TABLE**

The table is valid for coating a field joint.

	Diametre Ø	Diametre Kebutyl- Ø Primer KIII	Testo-Tape 1,2 HT	Kebudur HT-resin	Glass tissue tape (ca. 580 g/m²)	Final fleece (ca. 40 g/m²)	Stretch foil
100	108.0 mm	0.031 ltr.	0.25 m <sup>2</sup>	0.60 kg	0.95 m²	0.48 m²	0.50 m <sup>2</sup>
150	159.0 mm	0.045 ltr.	0.36 m <sup>2</sup>	0.90 kg	1.40 m²	0.70 m <sup>2</sup>	0.80 m <sup>2</sup>
200	219.1 mm	0.062ltr.	0.50 m <sup>2</sup>	1.20 kg	1.95 m²	0.97 m <sup>2</sup>	1.00 m <sup>2</sup>
250	273.0 mm	0.077 ltr.	0.62 m <sup>2</sup>	1.50 kg	2.40 m <sup>2</sup>	1.20 m <sup>2</sup>	1.25 m²
300	323.9 mm	0.0921tr.	0.73 m <sup>2</sup>	1.80 kg	2.85 m²	1.43 m²	1.50 m <sup>2</sup>
350	355.6 mm	0.100 ltr.	0.80 m <sup>2</sup>	1.95 kg	3.15 m²	1.60 m²	1.60 m <sup>2</sup>
400	406.4 mm	0.115 ltr.	0.92 m <sup>2</sup>	2.25 kg	3.60 m <sup>2</sup>	1.80 m²	1.85 m²
500	508.0 mm	0.144 ltr.	1.15 m²	2.80 kg	4.50 m²	2.25 m <sup>2</sup>	2.30 m <sup>2</sup>
600	609.6 mm	0.172 ltr.	1.38 m²	3.40 kg	5.40 m <sup>2</sup>	2.70 m <sup>2</sup>	2.75 m <sup>2</sup>
700	711.2 mm	0.201 ltr.	1.60 m <sup>2</sup>	3.90 kg	6.30 m <sup>2</sup>	3.15 m <sup>2</sup>	3.20 m²
800	812.8 mm	0.230 ltr.	1.84 m²	4.50 kg	7.20 m <sup>2</sup>	3.60 m <sup>2</sup>	3.65 m <sup>2</sup>
900	914.4 mm	0.258 ltr.	2.10 m <sup>2</sup>	5.05 kg	8.05 m <sup>2</sup>	4.05 m <sup>2</sup>	4.10 m <sup>2</sup>
1000	1016.0 mm	0.287 ltr.	2.30 m <sup>2</sup>	5.60 kg	8.95 m <sup>2</sup>	4.50 m <sup>2</sup>	4.55 m²

**Kebu** is certified to be in conformance with DIN EN ISO 9001.

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### Our product range includes:

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- Petrolatum tapes and masses
- Bituminous tapes
- Kebulen shrinkable sleeves
- Kebulen shrinkable tubular sleeves
- Kebulen patches C 50
- Shrinkable materials for muff joints

- Synthetic resins:
   Unsaturated polyester resin
   Unsaturated vinyl ester resin
- Kebudur HT 80- System Butyl rubber combined with GRP (glassfibre reinforced plastic)

Visit our website at www.kebu.de and find out more about us and our products.

The information given in this publication is based on our knowledge and experience. The hints and instructions for use given therein have been compiled to the best of our knowledge on the basis of our tests and experience Best results will be obtained if our products are used in a proper and expert way. Any protected rights and existing laws and regulations must be complied with by the recipient of our products under own responsibility. In all other respects our general terms and conditions shall apply.









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