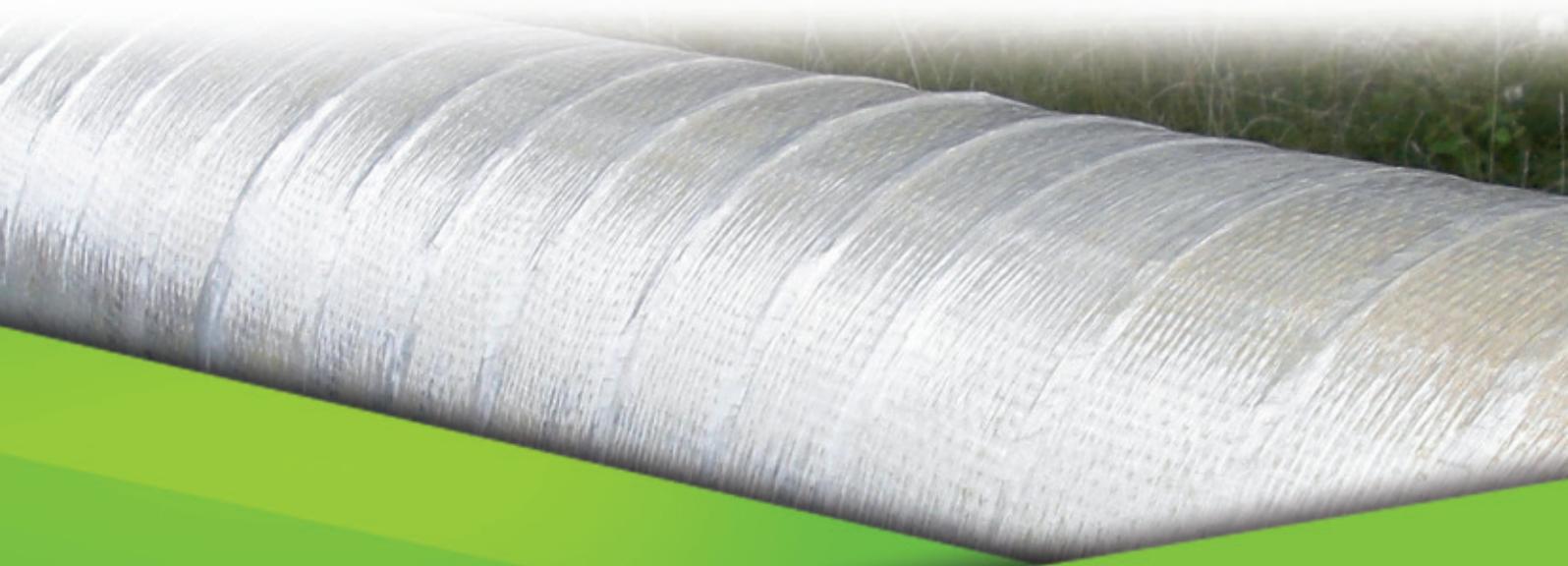


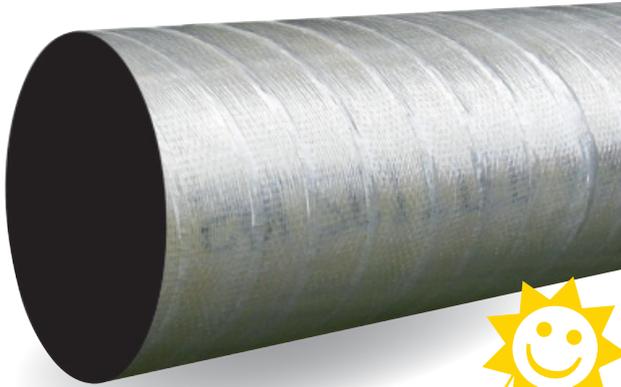


Pipeline Accessories

Mechanical Pipeline
Protection 4 pipes



Fibercoat Ultra 4 pipes



Product information

Fibercoat Ultra is a glass-fibre-reinforced composite material in third generation.

The roll material is delivered ready to apply and **pre-impregnated** with resin and cured by UV light. Mixing and laminating on site is not necessary.

A handy roll size of 150 or 300mm width provides a simple and secure application.

A special GRP system, which was developed to fulfil the most stringent requirements for trenchless traverses, is characterised by the following attributes:

- Glass-fibre woven texture bandage, no short fibre pieces, which have highest stability
- Thickness per layer is only 0.9 mm ± 0.1 mm. Therefore the system is extremely flexible.
- The bandage is very translucent and allows the hardening up to 8 layers coating thickness in one process
- Extreme impact strength and shearing resistance
- Capable of protecting the complete pipeline

Pipeline Application

Typical application areas for pipeline construction are mechanical protection with regard to

- Trenchless pipeline laying, especially HDD
- ground-air changeovers
- pipe bearings, brackets and hangings

Advantages

Because of the pre-impregnation of the system from factory side, an optimized protection of the environment is ensured. A common dripping of the resin does not occur as with classical laminations.

The system comes with all necessary accessory material which includes special gloves, clear foil for pressing on the pipe surface, on request also UV-lamps etc.

Technical data		
Thickness		approx. 0.9 mm layer
Density	DIN EN ISO 1183-1	1.54 g/cm ³
Tensile strength	EN ISO 527-4	240 N/mm ²
Bending strength	DIN EN ISO 178	200 N/mm ²
E-module	DIN EN ISO 178	11800 N/mm ²
Fracture elongation	DIN EN ISO 178	1.5 %
Compressive strength	DIN EN ISO 604	> 200 N/mm ²
Notched impact strength	DIN EN ISO 179	70 KJ/m ²
glass-fibre content	DIN EN ISO 1172	50 % ±2
Resin content	-	50 % ±2
Volume shrinkage	ISO 2577	1 %
Water absorption	DIN EN ISO 62	0.17 mg/100h
Styrene emission		< 20 ppm
Hardness Shore D	DIN 53505	approx. 80°C*

*fully hardened

Material data using a 2 mm thick test plate.

Tolerances possible.

Excellent resistance against chemicals (resistance table on request)



Ground to air protection



Under pipe clamps

Fibercoat Ultra 4 pipes

Application instructions

- **Do not apply inside closed rooms**
- **Clean, dry, degrease** pipe surface, roughen with sand paper (corn 40-50)
- **Apply in a shaded area!**
- **Spiral wrapping** (2 to 8 layers)
- **Wrap tightly** and after that **overwrap with clear foil**
- During work interruptions, **secure transition zone from light** (e.g. with adhesive tape or the black packaging foil) to continue on non-hardened material, wet-in-wet
- **Working time max. 5 minutes**, max. 10 minutes when cloudy
- **Protection against direct UV-light is mandatory**, e.g. with a tent during application
- **Protect skin and eyes (with sunglasses) against UV-light! Do not work near active UV-spots!**
- Wrapping and hardening **up to 8 layers in one single process** is possible
- The **shady side of the pipe should be hardened with a UV-lamp** (2 UV-lamps minimum)
 - Distance lamp to pipe approx. 500 mm
 - Number of lamps should be higher on larger pipe diameters
 - The complete pipe surface must be covered by UV-light
 - Hardening time 5 minutes / layer at 20°C (e.g. 20 minutes for four layers)
 - Proceed in 500 mm steps along the pipeline
- Intense UV sunlight can help to shorten the curing time.
- For coating of pipes and coating systems for trenchless applications **consider valid DVGW-regulations**
- Optimum **application temperature +5°C up to 25°C**
- **Prevent pollution of the material**, otherwise this would lead to hardening failures
- Application always accord. to **regional standard health and safety regulations**
- Material must be **hardened fully** before mechanical load is applied (**shore D 80 ±**)

To coat pipeline parts e.g. welded joints, wrap on the mill coating should overlap **at least 200 mm on both sides**. The wrapping has to be applied as flat to the surface as possible to avoid any harsh edges. For a final quality check, apply a test piece to the most-tricky area. Remove this piece before deployment and carry out a hardness measurement. A warranty for Fibercoat Ultra 4 pipes is limited to replacement of faulty material only.

The 4 pipes warranty only applies to faulty material. Checking the suitability of the product for the individual application is solely the responsibility of the user.



Description	Art.-No.
Roll 150 mm x 15 m	16708
Roll 300 mm x 15 m	16709
Adhesive tape transparent 50 mm x 66 m	16760
Stretch foil 0.5m x 300m, 20 µm thick	16765
Gloves for Fibercoat Ultra application	16770
UV-Spot 400 Watt	16750
Shore D measuring tool with drag indicator for hardness test of Fibercoat Ultra	20304



Application video



Shore D Measuring Tool



UV-Spot



Pipecoat Plus 4 pipes - FRP water-curing



FRP water-curing on sites Premium mechanical protection



Product information

Pipecoat Plus is a **fiber-reinforced composite material**. The material is pre-laminated with resin on a roll and cures with water. A **mixing or laminating on the site is not necessary**. The roll which comes in an airtight bag has to be sprayed with water during application.

Application is easy because of the **manageable size of the roll with 100 or 150 mm** width.

The specially-developed FRP-System for pipelines fulfills the highest standards and has following features:

- **Woven** fibre-bandage (no short fibre pieces) is guaranteed **highest stability**
- **Extremely flexible**
- The bandage allows the **curing of up to 20 mm thickness** in one process.
- **Extreme shock and shear resistance**
- Especially suitable for **protection of welded joints**
- **Fast curing** and almost full capacity after about 60 min. (23°C/74°F)
- Application is **also possible under water**

Usage

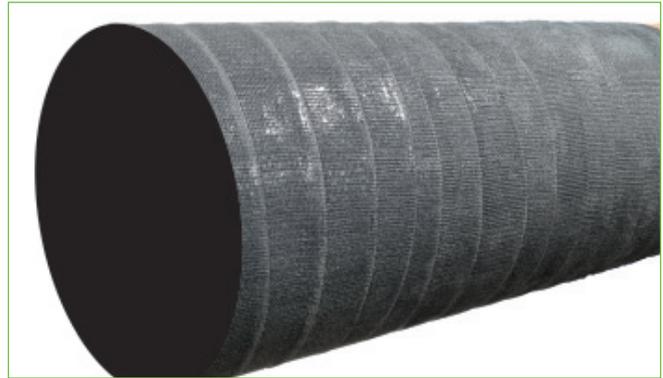
Typical **applications at pipeline constructions are the mechanical protection on**

- **trenchless technologies**, especially HDD, on welded joints (for complete pipe coatings please use FibercoatUVcure)
- **soil-to-air interface area**
- **under pipe brackets clamps and hangers**
- use as **casing spacer in small annular spaces**

Advantages

An **optimum protection of the environment** is guaranteed because of the factory **pre-laminated roll**. Dripping like with other classical resin **laminations does not occur**.

The system comes with all necessary accessories like eg. gloves. Safety glasses should be worn during processing. Skin contact has to be avoided.



Technical Data (typical numbers)

Thickness	-	approx. 0,7 mm
Compressive strength	DIN EN ISO 604	approx. 175 N/mm ²
Color	-	black
Impact strength	DIN EN ISO 179	approx. 108 N/mm ²
Impact toughness	DIN EN ISO 179	approx. 30 KJ/m ²
Max. shortterm service temperature	-	max. 150°C
Hardeness Shore D	DIN 53505	approx. 70°

Consumption table per joint – Experience values without tolerances

DN	Approx. length	Roll width
DN 80 (88.9 mm)	approx. 15 m	Roll width 100 mm
DN 100 (114.3 mm)	approx. 12 m	Roll width 150 mm
DN 150 (168.3 mm)	approx. 19 m	
DN 200 (219.1 mm)	approx. 22 m	
DN 250 (273.0 mm)	approx. 27 m	
DN 300 (323.9 mm)	approx. 34 m	
DN 400 (406.4 mm)	approx. 40 m	

The 4 pipes warranty only applies to faulty material. Checking the suitability of the product for the individual application is solely the responsibility of the user.

Description	Art.-No.
Roll 100 mm x 10 m	16711
Roll 150 mm x 10 m	16712
Adhesive tape transparent 50 mm x 66 m	16760
Stretch foil 0.5m x 300m, 20 µm thick	16765
Shore D measuring tool with drag indicator for hardness test of Pipecoat Plus	20304



Shore D measuring tool



ATTENTION:
Always adhere to all applicable health and safety regulations.



Pipecoat Plus 4 pipes - FRP water-curing

Application manual

The system comes with gloves. **Safety glasses should be worn during processing. Skin contact has to be avoided.**



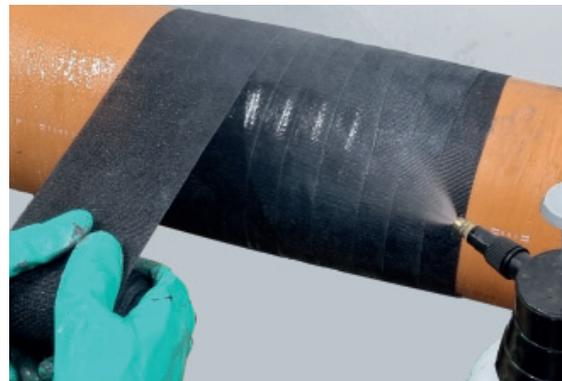
1. Clean pipe surface, dry, degrease



2. Roughen with emery (corn 40-50)



3. Remove sanding residue and moisten surface



4. Wrap the Pipecoat Plus tape with minimum 1 x 75 % overlap (4 layers). **Spray water on the tape continuously during the wrapping process.** Time of processing 2-3 min., depending on temperature



5. Overwrap with clear foil or adhesive tape tightly



Application video



6. Check curing after approx. 60 minutes (approx. Shore D 70±)

Remarks

- For coating of pipes and corrosion-protection systems for trenchless applications the valid **DVGW-rules have to be considered**
- **A processing temperature +5°C up to 25°C is ideal**
- Always adhere to all applicable health and safety regulations (REACH restrictions for DIISOCYANATE)
- The material **must be fully cured before pipe is pulled in**

For a partial coating, e.g. welded joints the wrapping should overlap the protecting area in front and back with minimum

200 mm and the wrapping has to be applied as flat to the surface as possible to avoid any harsh edges.

The 4 pipes warranty only applies to faulty material. **Checking the suitability of the product for the individual application is solely the responsibility of the user.**



Rock Shield Fleece 4 pipes



Application

- High quality mechanical pipe protection
- Alternative for sand bedding e.g. on a slope
- On top of corrosion protection coatings e.g. petrolatum tapes
- Separation between pipe and ground when pipes are moving
- Separation of gravel and ground at site entry areas
- Base e.g. for tanks with foil coverage

Installation

With adhesive tape or welding with soft propane gas flame.



Technical data

Tolerance	± 10 %
Colour	colourful
Material	polypropylene/PES Thread reinforced
Weight per m ²	1000g/m ²
Thickness	8.5 mm ±
Impact strength	5000N ±
Chemical resistance	well
Permeable to water	suitable for cathodic protection
Size standard	1 x 25 m
Special Size	0.5 up to 4.0 m