I.F.U.

LORTUB FITTINGS EPOXY EUROKOTE 468 THIXO LINING

Procédure : DO27/PR3-24
Date : 17/10/2022 – Révision N°2

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1. INTRODUCTION

LORTUB manufactures Coated and Lined carbon steel fittings in the diameter range between 100 mm to 1400 mm.

2. DESCRIPTION OF PRODUCT USE

LORTUB has developed a complete range of products in order to satisfy the requirements of water-distribution systems. LORTUB steel fittings are designed to be installed with pipelines to transport potable water for public and private water companies, over long distances and in safe condition. They are particularly well adapted to the transportation of water from pumping station to the reservoir, and from the reservoir to the distribution network. Our fittings can be designed to operate at very high working pressures combined with a low head loss and are connected via a welded joint or by Flanges.

3. DESCRIPTION OF PRODUCT

LORTUB fittings are adapted for every need; we can provide bends, tees, taper, shorts lengths …

- Fittings are made from pipes manufactured according EN10217 or equivalent specifications or from forged fittings
- The outside coating gives the resistance against the corrosiveness of the environment.
- The internal lining based on Epoxy Eurokote 468 Thixo which provides a good protection against corrosion, and maintains the good quality of the potable water throughout its pipe life.

The high quality of the LORTUB epoxy lined steel fittings is achieved through adherence to the following standards during the design and manufacture of the pipes:

Quality management standard: ISO 9001:2008

3.1. External coating systems

There are a number of external coating systems that can be applied to steel fittings depending on the application (above or below ground).

The chosen coating system is applied according to the manufacturer's application procedures.

3.2. Internal coating with Epoxy Eurokote 468 Thixo: continuous barrier to secure the quality of water

The internal epoxy lining is applied by hand with airless spray to create a close environment for the water.

The internal liquid epoxy is a two-component – resin and hardener – BS coatings product EUROKOTE 468 Thixo which is applied on the internal surface of the pipes after blasting, in accordance with Instruction for Use.
Solvent Free Epoxy Liquid provides the most effective anti-corrosion lining for steel pipes, which prevents any contact between the steel surface of the pipeline and maintains good quality of potable water being transported.

The application of the Eurokote 468 is done in accordance with BS Coatings IFU and their recommendations.

Cure times are in line with the BS Coatings Technical Data Sheet for Eurokote 468 Thixo

DRYING TIME (for 800 µm dry film*)

	At 10°C	At 20°C	At 40°C
Dust free	20 hours	12 hours	6 hours
Hard dry	60 hours	32 hours	16 hours
Fully dry**	20 days	10 days	5 days

- *Nominal thickness ranges between 300µm and 1000µm
- ** Depending on the application parameters, the environment and the composition of the systems.

3.3. High-Pressure Pipelines using high strength steel grades

In most projects, the wall thickness of the steel fittings will be the same as the mainline pipe. Even in the case of a high-pressure water pipeline, it is generally not necessary to increase the

standard thickness. Instead, higher grades of steel can be used to manufacture such pipes. It is more cost effective to use a stronger steel grade than to increase the wall thickness. Is also possible to add reinforcement on tees or manufacture 5D bends.

3.4. Pipe finishing

At the end of production, individual fittings are identified on the coating with the following information:

- Ø or DN of fittings
- Fitting Number reference

Where possible pipe ends are capped to prevent contamination during transport to site.

4. INSTRUCTION FOR USE

4.1. Site Offloading

The storage area must be flat, not flooded, stabilised and free from any contamination including oil. The surface should be sufficient to allow the movement of trucks.

The offloading of fittings should be done in such a way that it does not cause any damage to the steel, the coating or the lining. Any site damage must be repaired at the expense of The Contractor. Where it's possible, fittings will be on pallets for ease of unloading or rested on timbers to allow adequate and suitable slings to be used. (No hooks should be used, unless padded and agreed with the client)

Care must be taken at all times to avoid knocking the fittings in such a way that damage is caused. This extends to the storage of the fittings and transporting of materials around site and includes the installation process.

Fittings will arrive on trailers, which will require guiding to their drop - off points / storage areas. Loads must be checked by the offloading crews before the straps are released to ensure timbers

and /or chocks are not damaged or missing. Damaged or missing chocks could result in an unstable load which must be checked as safe before the straps are released.

Care should be taken to avoid excessive swinging of the fittings that could cause collision with other site vehicles or damage the goods.

4.2. Movement of fittings on site

Fittings must be transported on site by a machine with slings or on pallets. Smaller fittings may be manually lifted assuming a relevant lifting procedure and risk assessment has been carried out.

Care must be taken to avoid damage to the coating, lining or the fitting itself.

Individual fittings can be welded in the trench or above the trench to an adjoining pipe.

Pipes that are welded together outside of the trench must, once the shrinkable sleeve has been installed, be lifted in a uniform way so as not to stress the field joint and lowered into the trench together.

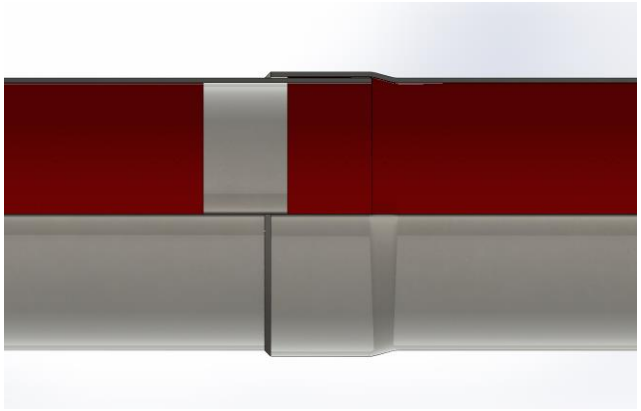
4.3. Unit lengths

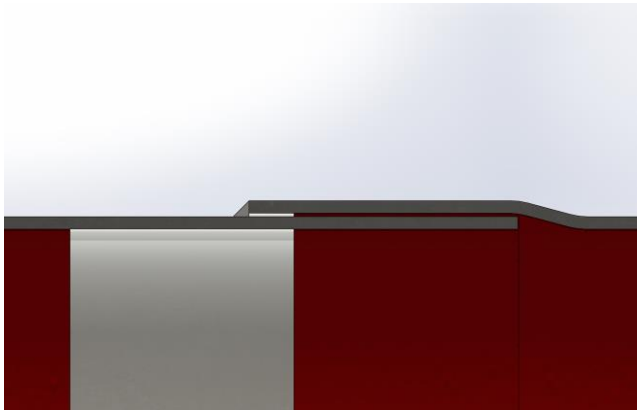
Fittings are made to suit the scheme requirements and may include bends, tees or other fitting with an extended tangent.

4.4. Jointing Methods

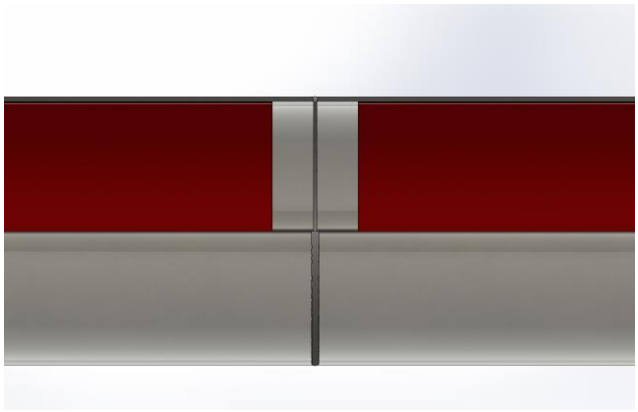
Epoxy lined steel pipes are produced with parallel sleeve or butt weld joint or flange. In all cases, except flanged, field joints have to be welded by the contractor, by coded welders according to BS EN ISO 15614 using an agreed welding procedure.

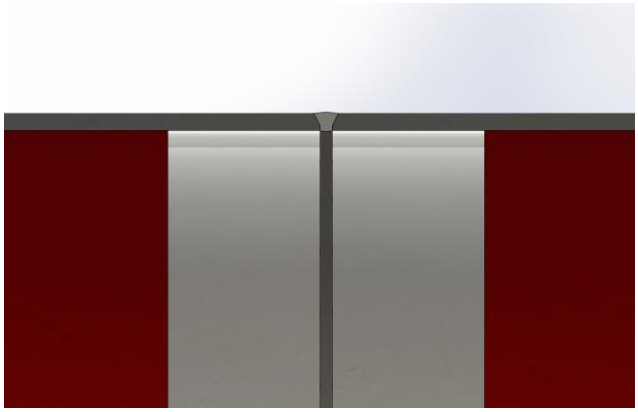
- **Parallel sleeve:**



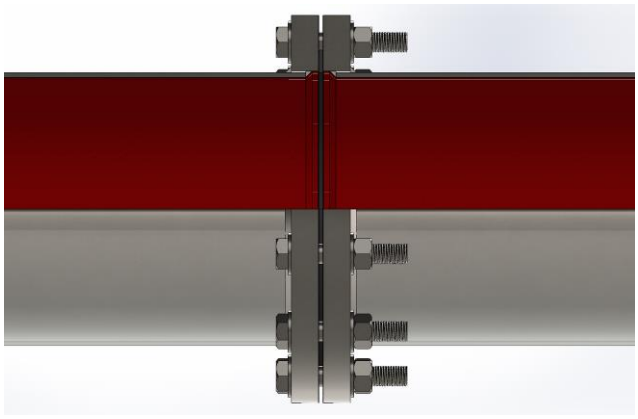


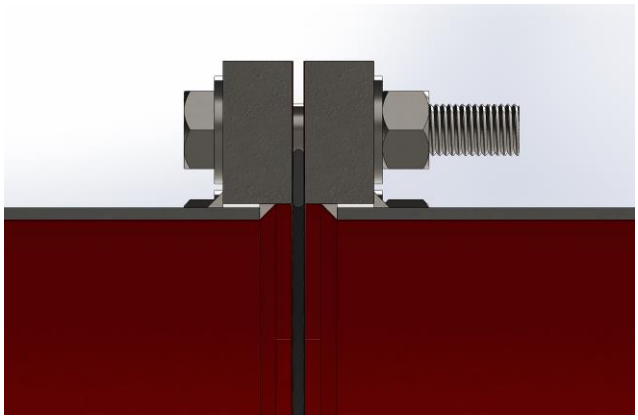
- **But welding:**





- **Flanges:**





4.5. On site

With regards the aspects of installation, the Contractor should follow the standard industry guidelines for the laying of pipes and fittings. This includes:

- Digging of trenches
- Thrust restraint
- Backfill, bed and surround
- Cathodic protection
- Site specific requirements

4.6. Welding Procedure

Irrespective of the pipe/pipes being on the trench side or within the trench, sufficient room should be provided around the joint to allow the welding contractor access to the pipe joint in order to carry out the welding procedure.

The contractor and the welder must agree on the space required.

A welding procedure must be provided by the welding company, tested and verified as suitable for use.

It is recommended that the welder uses pipe wedges to provide as equal space as possible all around the joint area. This is to ensure an even welding gap and to prevent the spigot from resting on the bottom of the socket.

The Welders must be certificated and capable of welding to BS EN ISO 15614.

4.7. Outside Coating inspection before laying:

Coatings should be repaired if damaged prior to laying and backfilling using a suitable and approved repair product as directed by the coating manufacturer.

4.8. Eurokote 48-20 is the recommended repair product by BS Coatings, the manufacturer. Eurokote 468 is available in blue, red and ivory and should be used in line with the TDS in Annex 5.2

DESCRIPTION Two component solvent free high build epoxy coating, applied by twin-feed hot airless spray or by syringe for the repair of small areas.

EUROKOTE® 48-20 is designed for the protection of pipes, accessories and storage vessels in contact with drinking water, sea water, waste water and industrial water.

EUROKOTE® 48-20 is recommended as repair product for EUROKOTE® type liquid epoxy coatings.

See the Eurokote 48-20 data sheet for more details.

Preparation of the surface to be coated:

Surface preparation is a very important phase and must be carried out with particular care. The quality of the stripping and dust removal phases has a considerable influence on the adhesion performance of the coating. Before applying the coating, the surface to be coated must be dry and free of any soiling (such as existing coatings, paints and non-adherent particles, grease, oil, etc.) that can adversely affect surface preparation. Contaminants should be eliminated by any appropriate means using products that are compatible with the coating to be applied.

▪ All non-adherent parts of the existing coating should be removed with a knife, scraper or any other suitable means.

The surface temperature of the substrate prior to application and during the drying of the Eurokote 48-20 should be +3°C above the dew point. Gentle heating of the area to be repaired is therefore permitted as long as the temperature is not above 50°C, as detailed in section 2.1 of the 84-20 TDS.

▪ Grind or wire brush the stripped surface to remove any remaining adherent parts of the coating and eliminate any traces of oxidation and soiling so as to obtain a ST3 degree of surface finish as per the ISO 8501-1 Standard. This may be done using an abrasive flap wheel with 40 grain abrasive.

▪ Chamfer the existing coating adjacent to the area to be repaired and roughen the surface over a width of 50 mm. Ÿ Carefully remove all traces of dust from the area to be repaired

Cold Application:

EUROKOTE® 48-20 is a two component product supplied in separate predosed non divisible packaging, available in 1kg and 50ml syringe kits.

MIXING RATIO VOLUME BY WEIGHT

Part R (Epoxy) 100 parts 68 %
Part D (Hardener) 50 parts 32 %

The temperature of the substrate should be between + 10 °C and + 50°C and maintained at least 3°C above the dew point during the application and drying of EUROKOTE® 48-20 in order to avoid any condensation on the substrate to be painted

The ambient temperature should be between + 10°C and + 40°C and the relative humidity should not exceed 85 %.

- The temperature of the product should be between + 10°C and + 30°C.
- Mix components R and D, which are predosed, with a spatula until completely homogeneous.
- Apply a thick coat of around 500 µm of the homogeneous mixture with a spatula or brush, without dragging the product so as to avoid reducing the thickness.
- Cover both the steel surface and the adjacent roughened existing coating

POT LIFE:
- At 20°C: around 30 minutes for 1 kg
- At 40°C: around 15 minutes for 1 kg

	At 10°C	At 20°C	At 40°C
Dust free	6 hours	3.5 hours	1.5 hours
Hard dry	12 hours	6 hours	3 hours
Fully dry	72 hours	24 hours	12 hours

The coating may be brought into contact with drinking water 24 hrs after application, wihtout any alteration of the water quality

QA Controls:

When the film has attained a sufficient degree of hardness (12h at 10°C, 6 h at 20°C, 3 h at 40°C), the following controls should be carried out:

- The appearance and the continuity of the entire coating should be visually inspected. The coating should have a uniform colour and appearance, exempt of any defects that could adversely affect the quality of the coating.

- The thickness of the coating measured using, for example, method n° 7C or 7D of the EN ISO

2808 Standard should comply in every respect with the contract or the specification.

- The non-porosity of the coating should be checked. The applied voltage should be that given in the specification employed and should be at least 5 volts per micron of dry film thickness and should not exceed 8 volts per micron.

In service repairs should be in line with regulatory requirements .

Advicesheet8-1.pdf (dwi.gov.uk)

4.9. Safety, Regulations and Environmental recommendation

All applicable UK laws and regulations should be carefully observed, together with all of the Water companies/project material and construction specifications and working practises.

The disposal of the water used for disinfecting the pipeline and unused/ waste pipe material should be recycled, if appropriate, and/or disposed of in accordance with the protocol set out by the Environment Agency Policy.

5. CONTACT

For any questions please contact the office number or Email address:

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6. ANNEXES

6.1 Annex 1 – BS Coatings 468 TDS

Eurokote 468
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6.2 Annex 2 – BS Coatings 84-20 TDS

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