



AARSLEFF

# PRODUCT RANGE

PIPE TECHNOLOGIES - MAIN PIPES



BEHIND EVERY GREAT CITY IS GREAT INFRASTRUCTURE

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# INTRODUCTION

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Aarsleff Pipe Technologies is the market leader for No-Dig pipe renewal.

As a pioneer for more than 40 years of advanced No-Dig technology, we will continue to spearhead innovation for the global sector.

And because we design, produce and implement our own solutions in-house, we are able to offer flexible solutions. Not only does this keep costs low but it enables us to maintain our own high standards of quality and efficiency across the value chain.

## A COMPLETE PRODUCT PORTFOLIO

We offer a complete product portfolio cured with light, steam or water.

With such a vast knowledge pool at our disposal, there is almost no limit to the scale or scope of project we can undertake. No matter whether it is public or private, simple or complex, industrial or even under extreme environmental conditions, we can help provide the expertise and know-how to solve any pipe renewal problem.

# RENEWAL OF MAIN PIPES / AARSLEFF

PLANNING / MANUFACTURING / INSTALLATION / DOCUMENTATION

## OMEGA-LINER® FOLDED PIPE

### DIMENSIONS

Ø100-450MM

### INSTALLATION LENGTH

UP TO 400M

## FELT LINER STEAM INSTALLATION

### DIMENSIONS

Ø100-800MM

### INSTALLATION LENGTH

UP TO 300M



# PRODUCT RANGE

## GLASS LINER UV INSTALLATION

### DIMENSIONS

Ø180-1200MM

### INSTALLATION LENGTH

UP TO 500M

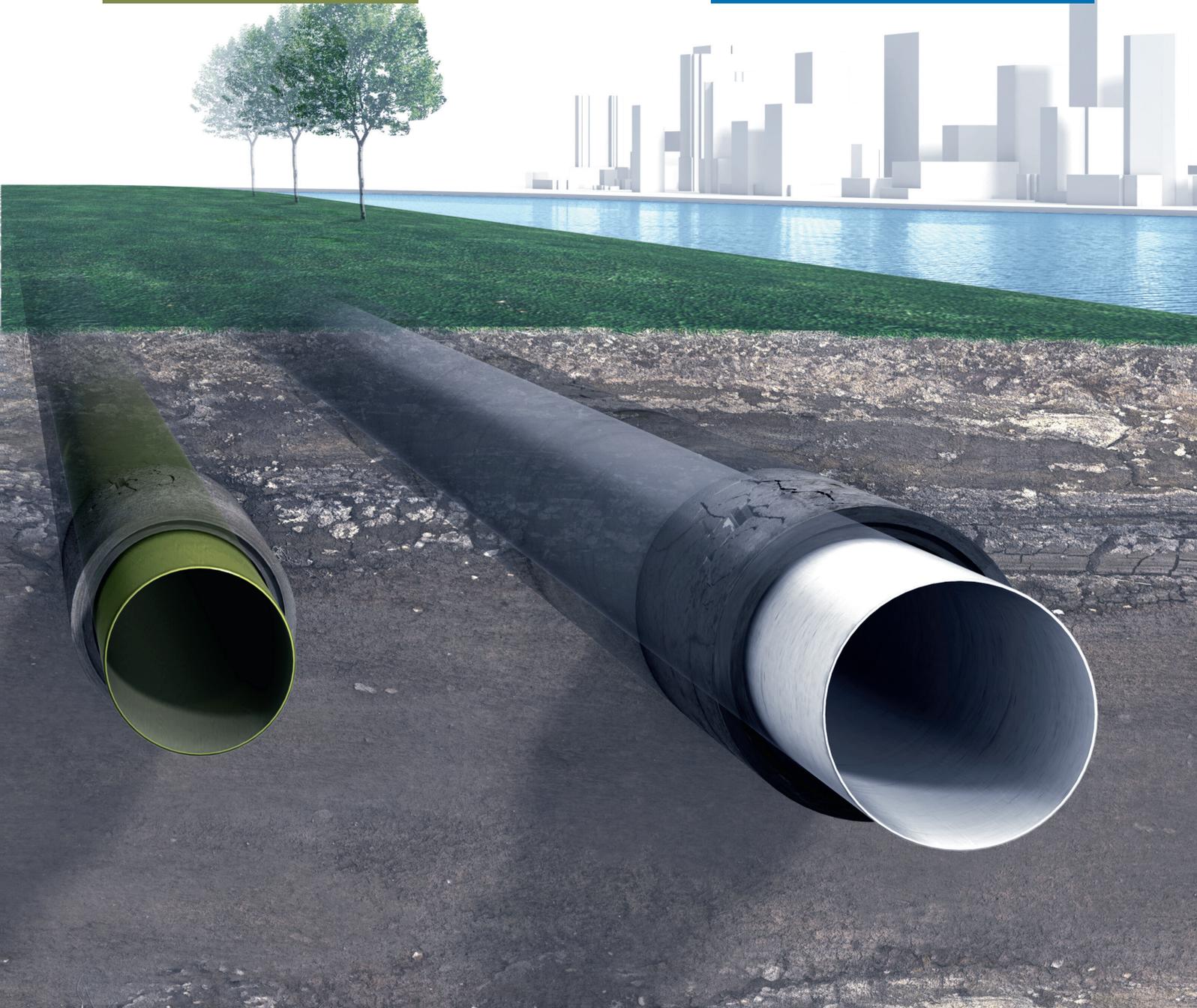
## FELT LINER WATER INSTALLATION

### DIMENSIONS

Ø100-2000MM

### INSTALLATION LENGTH

UP TO 800M



## AARSLEFF FOLDED PIPE

## OMEGA-LINER®

**MANUFACTURING**

The Omega-Liner® is a system developed for No-Dig renewal of damaged gravity sewers. The Omega-Liner® is a patented material technology.

The Omega-Liner® is a homogeneously extruded plastic pipe. The pipe is extruded to a circular shape, and subsequently it is folded so the cross section is reduced by 30-40%. The Omega-Liner® is produced in stiffness class 4 and 8.

The plastic pipe consists of PVC and various filling agents, which means that the pipe can be shaped at lower temperatures than for ordinary PVC pipes.

**INSTALLATION**

Before the folded pipe can be installed, it is heated in order to increase the flexibility.

The folded pipe is pulled inside the existing pipe with a winch. When the Omega-Liner® is in place it is heated by means of steam and together with low air pressure, it regains its original round shape. The installed pipe is equivalent to a new PVC pipe. The house connections are easy to locate and are opened by means of a robot and a CCTV camera.

The Omega-Liner® is a fast and reliable close-fit relining method for renewal of sewer and stormwater pipe.

**INSTALLATION TIME**

Installation normally takes 2-5 hours. In general, it is possible to carry out 2-3 installations per day. To some extent, the installation time depends on the pipe length.

## AARSLEFF FELT LINER

# STEAM INSTALLATION



### MANUFACTURING

The Aarsleff felt liners consist of a multi-layered polyester needle felt with high temperature resistant coating. Each felt liner is tailored to the individual installation at our ISO certified factory.

Aarsleff felt liners consist of:

- The static-bearing laminate is the felt layers impregnated with a synthetic resin
- An inner coating which is an integrated component of the liner, consisting of thermoplastic of the type Polypropylene (PP).

The felt laminate is built up by 1-7 layers; each sewn together by a longitudinal seam. To ensure that the laminate is homogeneous, the seam

is displaced between the individual layers. The outer layer is coated with polypropylene (PP). The outer layer will become the new inside pipe wall after inversion.

### INSTALLATION

Before installation we install a thin plastic preliner to avoid water infiltration in the laminates during installation.

First the Aarsleff Felt liner is rolled up inside an inversion drum. A special inversion hose is used to ensure the exact positioning of the liner into the existing pipe. From the drum it is inverted inside the existing pipe by means of air pressure. When the liner is in place, the liner is cured by means of steam.

Furthermore, relinings can be made with open end. This means that there is only access from one end of the pipe section. In this case a calibration hose is inverted inside the felt liner with steam circulation inside for curing.

### INSTALLATION TIME

Typically, installation and curing of pipe dimensions of DN200-300 mm will take 2-5 hours. It is possible to carry out 2-3 installations per day. To some extent, the installation time depends on the pipe length.

## AARSLEFF GLASS LINER

# UV INSTALLATION



### MANUFACTURING

The glass fibre liner is tailored to each individual installation at our ISO certified factory.

Glass fibre liners consist of:

- An inner foil which works as a barrier during installation and curing and is pulled out after curing.
- A static-bearing laminate of glass fibre and polyester resin with photoinitiators for the UV-light curing process.
- An outer foil protecting the liner against unwanted UV light which prevents that the curing process starts spontaneously during storage or insertion.

In addition, the outer foil protects the liner against groundwater and/

or mechanical damage during insertion.

Glass fibre liners consist of several woven glass layers. The glass fibre fabric used is produced by ECR-glass.

The glass liner has high mechanical properties.

The Aarsleff-G-Liner is Dibt approved and has an expected lifetime of 100 years.

### INSTALLATION

First we pull in a sliding foil, the slide foil is used partly for protection so that the liner is not damaged when it is pulled over cracks/breaks, corrosion etc., and partly for reducing the friction.

The liner is pulled in by means of a winch and then expanded to the existing pipe wall with air pressure.

When the liner is expanded a light train is pulled through the glass liner. A camera mounted on the light train ensures that the liner is in correct place. Curing takes place during pull back when lamps are turned on and the light train passes through the pipe section.

### INSTALLATION TIME

Depending on pipe dimension and length, 1 to 3 installations are carried out per day. The curing time depends directly on the pipe length.

## AARSLEFF FELT LINER

# WATER INSTALLATION



### MANUFACTURING

The Aarsleff felt liners consist of a multi-layered polyester needle felt with high temperature resistant coating. Each felt liner is tailored to the individual installation at our ISO certified factory.

Aarsleff felt liners consist of:

- The static-bearing laminate is the felt layers impregnated with a synthetic resin
- An inner coating which is an integrated component of the liner, consisting of thermoplastic of the type Polypropylene (PP).

The felt laminate is built up by 1-7 layers; each sewn together by a longitudinal seam. To ensure that the laminate is homogeneous, the seam is displaced between the individual

layers. The outer layer is coated with polypropylene (PP). The outer layer will become the new inside pipe wall after inversion.

### INSTALLATION

Before installation we install a thin plastic preliner to avoid water infiltration in the laminates during installation.

The installation is carried out by inverting the liner by means of water. The weight of the water will force the liner inside the existing pipe. Normally the liner is inverted into the pipe from the top of a scaffold placed over the manhole.

The curing takes place by heating and recirculating the water in the pipe. With water installation it is possible

to renew several hundred meters of pipe in one installation.

Aarsleff Felt liner with water can also be used for siphons under rivers.

### INSTALLATION TIME

The method is typically used for large pipe dimensions. It is possible to carry out up to 3 installations per week. To some extent, the installation time depends on the pipe length.

# CERTIFICATES



DNV GL BUSINESS ASSURANCE DENMARK A/S



DNV GL BUSINESS ASSURANCE DENMARK A/S



DNV GL BUSINESS ASSURANCE DENMARK A/S



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## WHY AARSLEFF?

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### **NO 1**

Aarsleff has been a pioneer of No-Dig technologies for more than 40 years

### **NO TROUBLE**

No-Dig pipe renewal is fast and cost-efficient, minimises disruption and safeguards the environment

### **NO LIMITS**

All types of pipe profiles, lengths and diameters with Aarsleff No-Dig methods

### **NO SURPRISES**

Expert consultation, rapid mobilisation and reliable implementation on every project

### **NO WORRIES**

A global presence, 6,200 staff and decades of experience on your side



# AARSLEFF

Since 1978, Aarsleff has been a leader in developing and implementing No-Dig technology. We carry out complex renewal projects in Europe and globally and are able to renew all types of pipe systems, even under very extreme conditions.

Aarsleff Pipe Technologies is a division of Per Aarsleff A/S, a Danish infrastructure contracting group with more than 6,200 employees worldwide, over €1.5 billion revenue and activities including piling, construction and infrastructure work.

## AARSLEFF LOCATIONS

[www.aarsleff.com](http://www.aarsleff.com)

