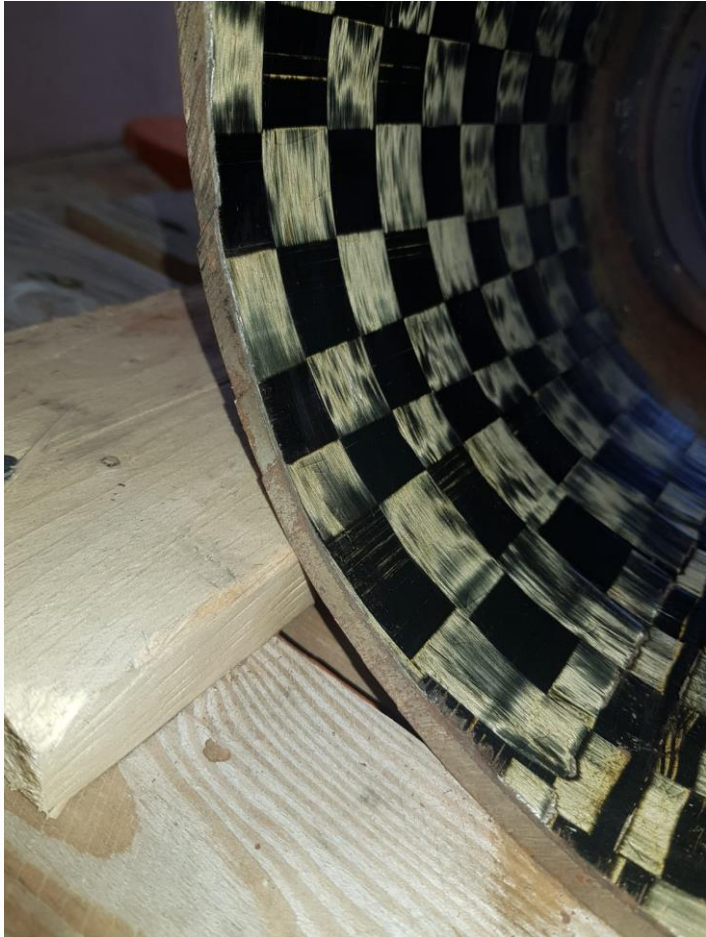




# CarboSeal

Relining for District Heating

Andreas Martsman, CEO



**THIS**



**OR**



**THAT**

 **CarboSeal**  
Relining for District Heating

- No/heavily reduced impact on society, traffic, other networks
- Faster/simpler permit process as existing network is used to build the new pipe
- Heavily reduced carbon footprint – about 80% reduction compared to dig and replace

HOFOR, Copenhagen  
1x170 meter DN200



Norrenergi, Stockholm  
2 x 50m DN300 (in DN400)





AGFW/Stadtwerke Neumünster  
1 x 50m DN200 (Test site)

KDHC, Seoul  
1 x 30m DN200





Veolia UK, Sheffield  
2 x 45m DN400



# Vilnius Šilumos Tinklai

## 2 x 100m DN500



KELAG, Pinkafeld  
2 x 15m DN100

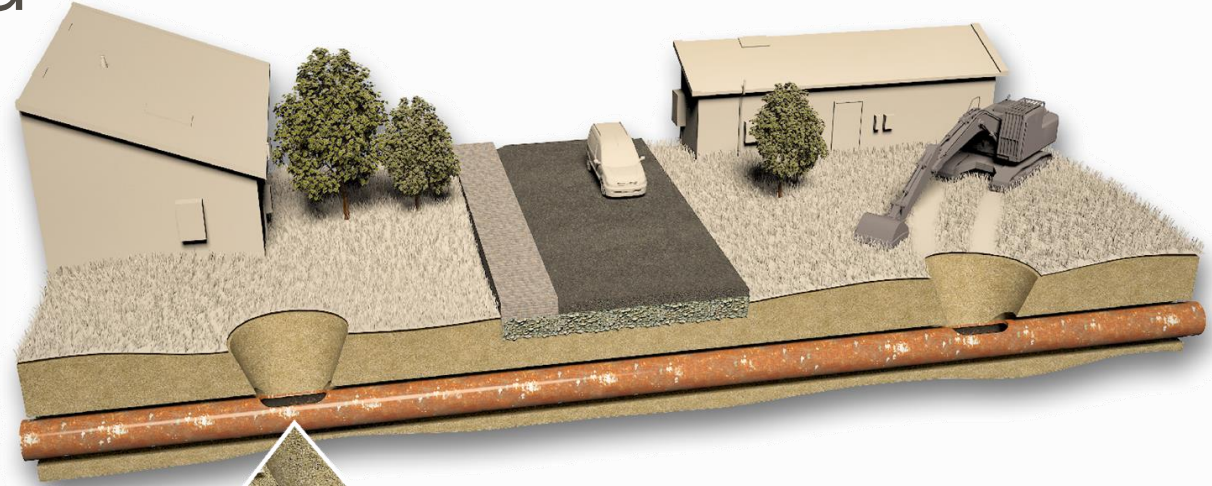




EON, Örebro  
2 x 60m DN450



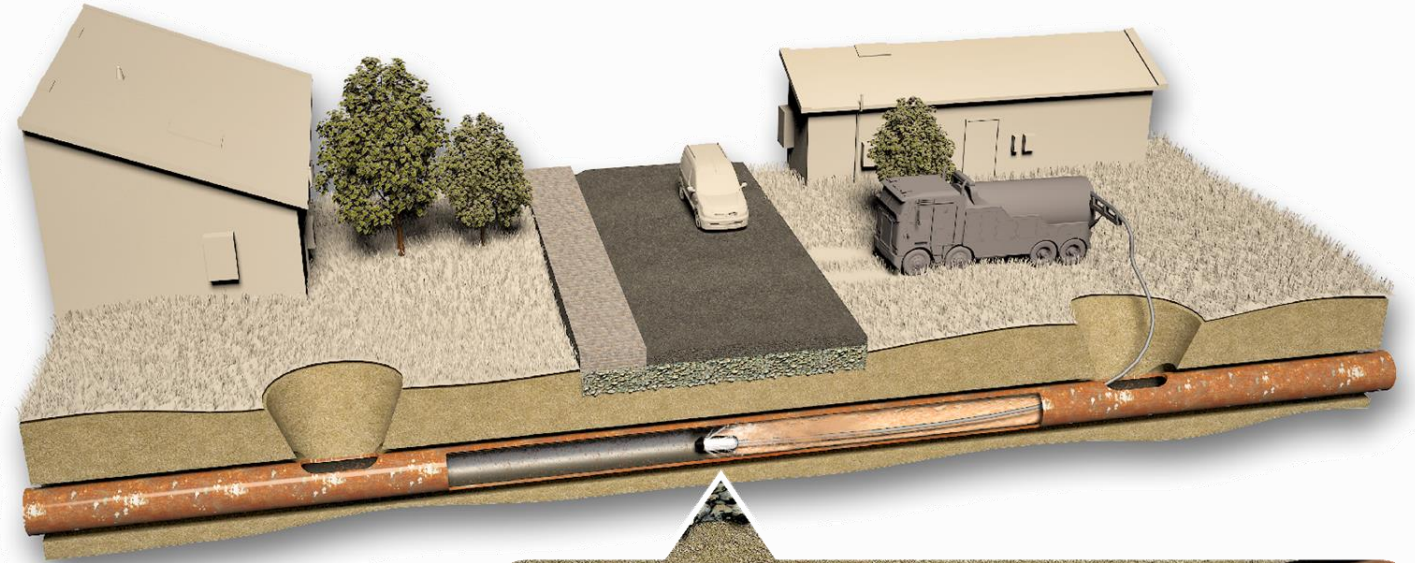
# Installation Method



Access through manholes or small controlled trenches.

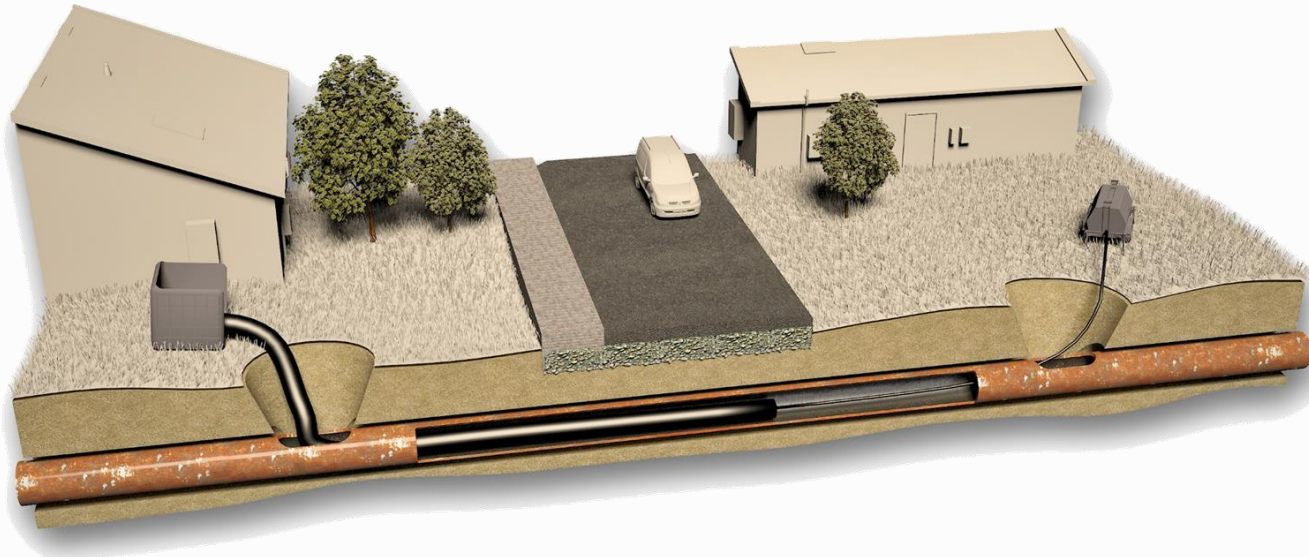
No need for full axial cut, only 600 mm openings are made to allow for cleaning and entry.

# Installation Method



Cleaning the pipe by high pressure water flush and/or poly pig and perform inspection

# Installation Method

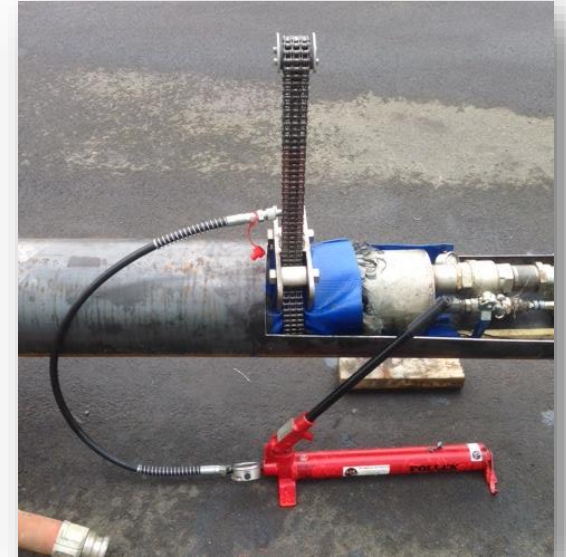
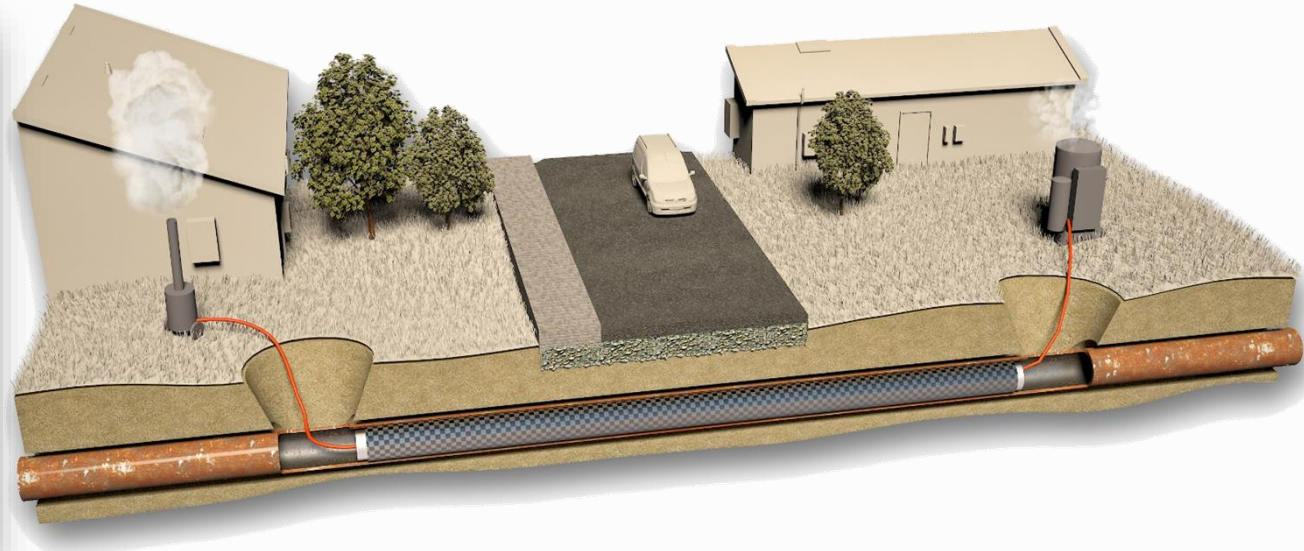


The liner is winched into place

To ease the winching a friction reduction foil can be used.



# Installation Method



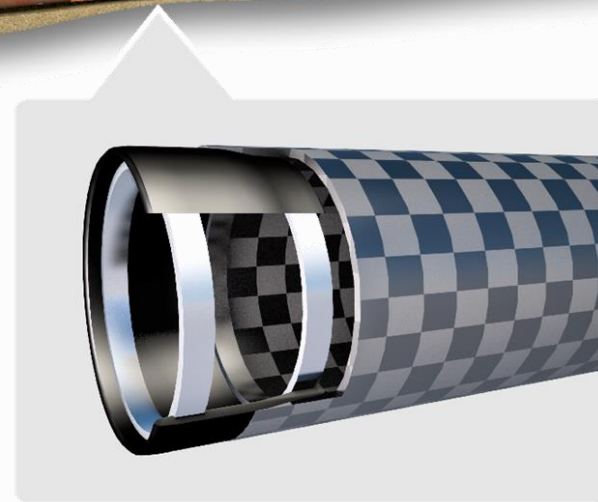
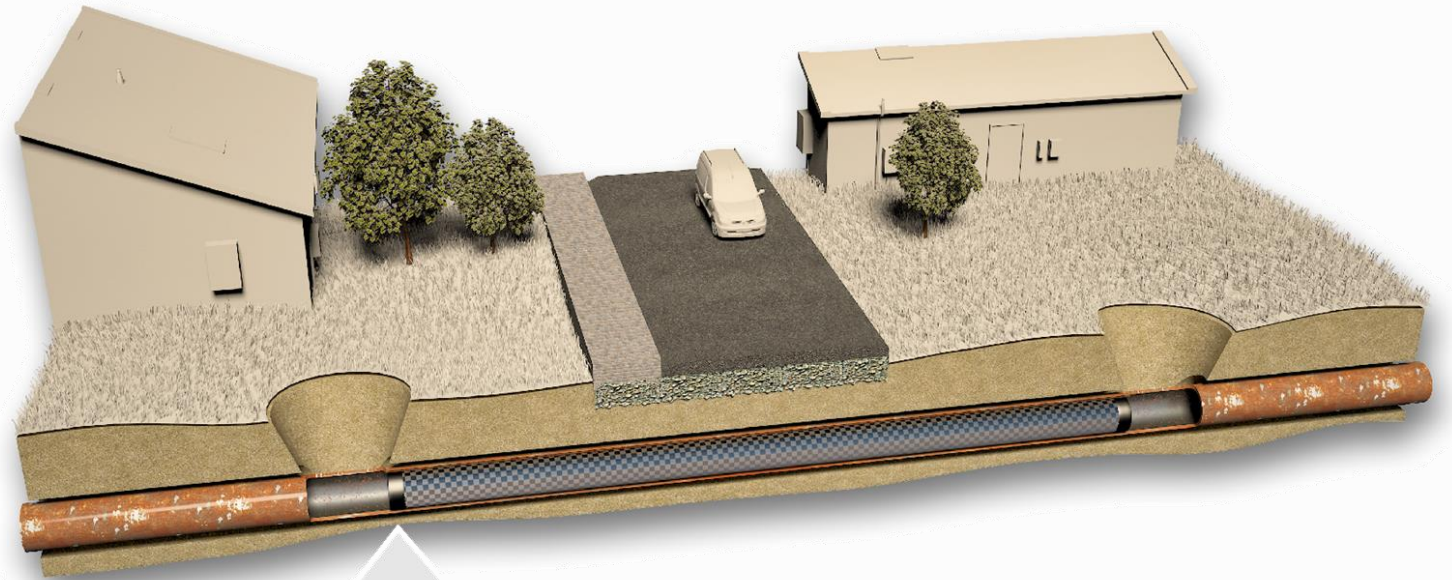
Curing the liner with controlled high temperature steam

Require about 3 bars pressure to reach cure temp



# Installation Method

Closing off the finished carbon fiber liner with seal and locking rings



# Carbon fiber liner

- High temperature epoxy resin + carbon fiber = no hydrolysis
- Designed for DN100-DN1000
- Current offering DN100 – DN700
- Can sustain water at 130°C
- Designed for 16Bar pressure, higher can be achieved by different design
- Delivered ready for installation -> no impregnation at the work site.





# CarboSeal

Relining for District Heating

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

[info@carboseal.com](mailto:info@carboseal.com)

[andreas.martsman@carboseal.com](mailto:andreas.martsman@carboseal.com)



#### Video links

[Installation in Stockholm](#)

[Installation in Copenhagen](#)

[Installation in Neumünster](#)

[Installation in Sheffield](#)