Polybutene
Piping Systems Association

Case Study

Lyngdal, NO

Thermaflex I Flexalen

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Clean and sustainable heat for the Municipality of Lyngdal

At the picturesque municipality of Lyngdal, which lies on the south coast of Norway, a project was planned to redirect waste heat from the BerryAlloc® wooden floor factory which would otherwise be lost energy, providing sustainable heat for parts of the town.

Efficient I Reliable I Sustainable

In order to achieve the objective of repurposing the waste heat produced by the BerryAlloc® wooden floor factory near Lyngdal an efficient and reliable district heating network was created by PBPSA member Thermaflex using the leading Flexalen insulated piping system made from Polybutene-1 (Polybutylene, PB-1)

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The project was completed in three sections:

- **Part 1** Connection made to the heating station infrastructure
- **Part 2** The Part 1 heating station and piping assembly was moved from an industrial area and coupled with the BerryAlloc® wooden floor factory
- **Part 3** New piping connections were directed to the school, sports center and elder-care home in Lyngdal

Details

The project included the welding of 11.8m piping lengths above ground and outside of trenches with combined sections made up of 5-8 lengths per line, including elbows on each branch up-flow/ down-flow.

These flexible sections, ranging from 30m to 70m, were placed into the curved trenches without the need to install direction-changing fittings. This resulted in a 60% reduction in installation time compared to the time required for the installation of rigid and straight-line insulated steel pipe solutions.

The flexibility of the pipes made from PB-1 allowed for the bypassing of the main access road, minimizing both the installation time and the disruptive impact to the Lyngdal community for the benefit of local citizens.

During the work, and prior to the interconnection with Part 2, a solution for the final section heat distribution was implemented. As part of its client planning and service package, Thermaflex facilitated the training of welders from the installation firm Pilegaard-Henriksen, as well as the provision of on-site support for the installation process. This was maintained for the full duration of the on-site work.

STATISTICS

- **Installation time reduced 60%**
- **Total investment reduced 40%**
- **Project duration 10 months**

Goals

To use the waste production heat from a wooden floor factory to create a new, long lasting and reliable district heating network, and connect it to the town of Lyngdal with minimal disturbance and environmental impact.

Due to the reliance on unspecialized labor for the network installation and operation, ease of installation and low operating cost were also key considerations for this reference project, and further secured by Thermaflex technical support.

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Results

The installation of the pipe system was completed with low impact on the land and bushes and trees in the surrounding area, substantially reducing the reconstruction costs of green spaces. The installation was also 3 to 4 times faster compared to traditional systems. As a result the total cost of the installation was reduced by approximately 25%.

Additional unexpected costs could be avoided as obstacles were easily bypassed due to the flexibility of the PB-1 material, simply placing the pre-assembled sections into free-form curved trenches around existing obstacles with minimal connections. The total investment cost (materials, installation and civil works) was reduced by approximately 40% compared to the estimated total cost of the project when completed with traditional systems.

Organisations

- Pilegaard-Henriksen I Installer
- Nearenergy I Contractor

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