

CASE STUDY

Flexalen for district heating network



Thermaflex Delivers 1,600 kW District Heating Network in the Azores

New district heating network made with Flexalen demonstrates exceptional performance and reliability at local waste-to-energy project.

Azores Archipelago

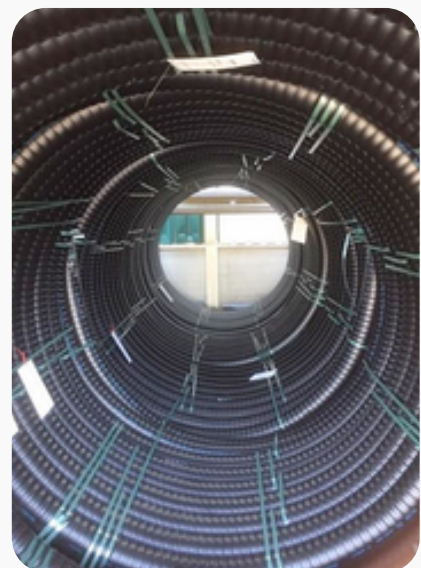
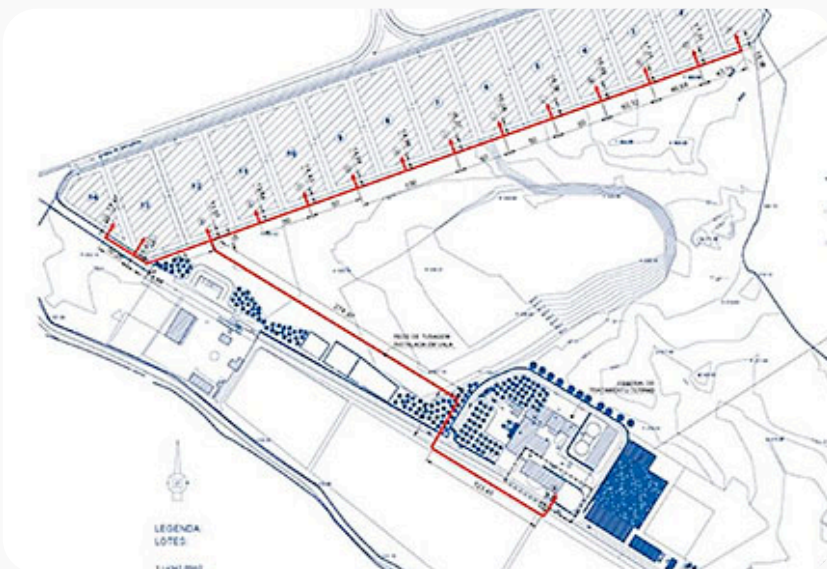
The Azores Archipelago, located in the North Atlantic Ocean, consists of nine islands spread across 600 km, with the nearest continental area being mainland Portugal. Each island operates an independent power generation system due to the lack of electrical interconnection between the islands or to any continent. The climate and volcanic nature of the Azores present unique opportunities to use renewable energy sources for power generation, including geothermal, wind, and hydro.

Project Goal

The goal of the project was to construct a new district heating network in Angra do Heroísmo, Terceira. Given the islands' inherent focus on energy balance, the project aimed to utilize readily available energy from the local waste-to-energy plant. By harnessing waste heat, the project sought to provide a sustainable and efficient heating solution for the community and minimize environmental impact.

Solution

The solution involved Flexalen® PU, a fully flexible pre-insulated pipe system, produced in accordance with European standard EN15632-1, 2 (DOC), is QB08 certified (CSTB), and KIWA system certified, as well as third-party controlled according to BRL KOMO 5609-2. The PB service pipes conform to EN-ISO 15876, ensuring a projected service life of 50 years or more, even when operating in hot water at 70°C and 10 bar pressure. Due to relatively high service temperature, high system pressure and minimal heat loss target, Flexalen PU is the ideal choice for the project. The contractor for the project was **João Paulino Lda**, and we worked together with **Acribia** as the consultant, all collaborating to deliver the best results for the end customer, **TERAMB**.



Project Process

For this project, the client opted for a combination of coils and sticks. Sizes PB50 to PB90 (about 1,000m) were delivered in coils, while sizes PB110 to PB160 (about 2,000m) came in 11.8m sticks. Butt welding was used for PB125-160, and electrofusion for PB50-110. The network was completed with prefabricated T-pieces, raised T-pieces, and risers, all polyfusion welded in Thermaflex's prefabrication facilities, resulting in a homogeneous and 100% permanent corrosion-free Flexalen PU network. Gerhard Janca, our Technical Sales Support, was responsible for designing the engineering for this project.

This durability was crucial for the Azores, where a long-lasting heating network means reduced maintenance and potential replacement needs, essential for remote island locations. The construction phase benefited from the lightweight and flexibility of Flexalen pipes, which were essential for navigating the rolling landscape and challenging coastal conditions.

The Thermaflex team of experts played a crucial role in designing, delivering, and supporting the network, ensuring an effectively balanced heating system with minimized carbon footprint and installation time. To facilitate a smooth installation, the contractor received complimentary training at the Thermaflex Academy in Waalwijk, The Netherlands, provided by our technical expert **Jelmar van Beek**. This preparation resulted in a seamless installation within the given budget and timeframe.



Results & Benefits

The project resulted in constructing a 1,600 kW district heating network in Angra do Heroísmo, Terceira. This solution yielded significant environmental and operational benefits compared to conventional heating infrastructure. Main contributors to the long-term return on investment include:

- Utilizing waste heat from industry, biomass, and solar installations drastically reduces the carbon footprint compared to fossil fuel-based heating systems.
- The new district heating network has a projected service life of over 50 years with a 100% corrosion-free guarantee. This durability significantly reduces maintenance needs, crucial for remote island locations.

Conclusion

This project is an outstanding example of a sensible use of energy that would otherwise be regarded as waste heat and lost if not utilized in a modern district heating network. The new system in Angra do Heroísmo, Terceira, realized by **João Pualino Lda** and his team, demonstrates the effective harnessing of local renewable energy sources, contributing to the sustainability and energy balance of the Azores.

Contractor quotes

"Thank you for your hospitality during my time in the Netherlands and for all the effort you put into making this training both valuable and successful for our project"

João Paulino - ANDRÉ TOSTE & JOÃO PAULINO, LDA



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