

SIMONA® GEO-Line pipes for the world's first eco-friendly mine water project



Above: SIMONA® PP-H AlphaPlus pipes insulated in the factory are protected from damage and UV radiation by SIMONA® PE 100 jacket pipes. Below left: Easy handling without heavy equipment. Below right: Simple and safe welding guarantees a durably leak-free pipe system.

Geothermal energy is energy generated by heat stored beneath the Earth's surface. It is a regenerative energy and enables emission-free energy generation. This constant source, available independently of external influences (weather and time of day), is being used by the municipality of Heerlen in the Netherlands to generate heat and cooling. Mine water as a completely new source is being developed in a universally unique project.

The project at a glance

Project

Development and production of a partially pre-insulated piping system made of SIMONA® PP-H AlphaPlus for the transfer of geothermal water.

Client

Heerlen municipality, NL

General contractor

- Phase 1 and 2: Janssen de Jong Infra B.V., NL
- Phase 3: Westvoort B.V., NL

Plastic fabrication/installation

- Rombouts Kunststof Techniek B.V., NL
- Eurobends, NL

Technical support

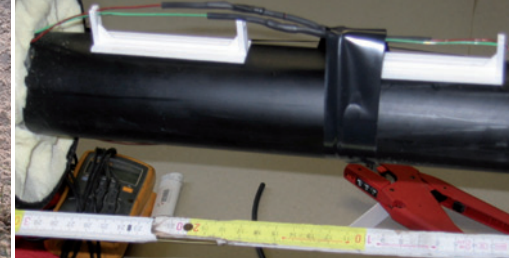
- Technical Service Center and Project Group Industrial Piping Systems, SIMONA AG, Kirn
- Technical Service Center Profilplast Pipesystems B.V., Sittard

Products used

- SIMONA® PP-H AlphaPlus pipes
 - Non-insulated: 15 km SDR 11 (d = 160 – 315 mm)
 - Insulated: 6.5 km SDR 11 (d = 200/125 – 315/200 mm)
- SIMONA® PP-H AlphaPlus fittings
- SIMONA® PE 100 pipes (jacket pipes and pipes for HDD drilling)

Project duration

2007–2008



From left to right: Intensive preliminary training ensures a high fabrication quality on the construction site. Connections of hot and cold water pipes. Integrated monitoring systems provide warnings of dangerous leaks.

SIMONA® GEO-Line piping systems – pre-insulated pipes for efficient heat transfer

Initial situation

The municipality of Heerlen in the Netherlands was looking to secure the services of experienced partners for a mine water project involving pre-insulated pipes. Among the key criteria were a high level of technical expertise, a proven track record in this particular field and the ability to supply a fully integrated system solution from a single source.

Task

SIMONA's sales partner Profilplast Pipesystems B.V. from Sittard, Netherlands, specified high requirements for the piping system:

- Low energy loss thanks to pre-insulated pipes
- Leak monitoring system with a measuring accuracy of 1m
- Excellent temperature resistance in continuous operation
- Low abrasion values even with abrasive media
- Excellent long-term resistance to highly corrosive mineral mine water
- Very smooth pipe inside surface area to avoid incrustation
- High cost efficiency through long service life of at least 30 years

Solution

There are numerous former coal mines around Heerlen. The water is conveyed from the mines to the surface with the help of a complex pipe system made of SIMONA® PP-H AlphaPlus. Two non-insulated pipelines convey the cold water to the power station and back to the mines. The third system consists of insulated pipes and fittings. Thus, the warm water from the earth can be transported without substantial heat loss. Together with partner Profilplast Pipesystems B.V., intensive chemical analyses, calculations and extensive training for fabrication of the pre-insulated SIMONA® PP-H AlphaPlus pipes were carried out. This technical competence of both companies, as well as the quick and flexible delivery times, convinced all involved. The successful pilot project in Heerlen is promoted by the European Union and serves as a model for other former coal mining areas in Europe.

SIMONA® PP-H AlphaPlus

Properties

- High robustness and rigidity
- High chemical resistance to corrosive mineral water
- Maximum stress crack resistance
- Continuous usability at high temperatures of up to +80°C
- Favourable hydraulic properties and low incrustation formation
- Durably leak-free and tight welded joints

Product range

- Pipes
- Fittings
- Fittings for electrofusion welding
- Flanges and valves
- Solid rods
- Sheets
- Profiles and welding rods

Further information:

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