CaseStudy

SIMONA

SWG

SIMONA® SPC RC- and RC-Line Pressure Pipes – for Natural Gas Pipelines (HDD Method)

Top: delivery of the SIMONA® SPC RC-Line Pressure Pipes, section length 20 m; bottom left: butt welding of protective-jacket pipes; bottom right: pre-welded train of pipes ready for pipe insertion

As part of a construction project for a new natural gas pipeline in the Swiss cantons of Solothurn and Bern, utility company SWG Grenchen required robust, pressure-resistant plastic pipes. They had to be suitable both for trenchless and for sandbedless pipelaying. The choices made were SIMONA® SPC RC-Line Protective-Jacket Pipes and SIMONA® RC-Line Pressure Pipes.

The project at a glance

Project
Construction of a new natural gas pipeline between Grenchen and Arch in the cantons of Solothurn and Bern, Switzerland

Requirements for the pipes
- SVGW approval
- High pressure-specific load-bearing capacity
- High abrasion resistance
- Suitability for alternative methods of laying such as horizontal directional drilling (HDD)

Customer
Gasverbund Mittelland AG, Switzerland

Contractor
SWG Grenchen, Switzerland

Technical support
Gawaplast AG, Neuhausen, Switzerland
SIMONA AG, Möhlin, Switzerland

Products used
- SIMONA® PE 100 SPC RC-Line Protective-Jacket Pressure Pipes, d 400 mm, SDR 11, yellow with green stripes, PAS 1075 Type 3
- SIMONA® PE 100 RC-Line Pressure Pipes, d 400 mm, SDR 11, black with yellow stripes, PAS 1075 Type 1

Method of laying
Wash-boring method, trench cutting

Project duration
April to November 2012

Continued overleaf ▶



From left to right: using an HDD wash-boring rig, the SIMONA® SPC RC-Line d 400 mm pressure pipe is laid by means of the trenchless method under the River Aare, over a total length of around 220 m and with a maximum cover of approx. 13 m.

SIMONA® Piping Systems for Gas Supply – Simple and Safe

Initial situation

The high-pressure gas pipeline that had been in place between the municipalities of Grenchen and Arch in the Swiss cantons of Solothurn and Bern since 1967 had to be renewed on account of safety aspects. Owing to the demanding installation conditions, the only pipe material deemed suitable by SWG Grenchen was plastic.

Task

Since the route of the pipeline would go under public roads, SBB railway tracks, private properties and the River Aare, the new gas pipeline had to be laid by means of the so-called HDD method (horizontal directional drilling) as well as the trench cutting method. With this in mind, the plastic pipes had to meet the following requirements:

- Excellent bond strength and shear strength between inner pipe and protective jacket for trenchless pipe insertion
- No crack propagation from the protective jacket into the inner pipe
- Extremely effective protection against major physical damage such as notches, abrasion and wear
- High stress crack resistance
- SVGW approval

Solution

In the area of the HDD crossings, SIMONA® SPC RC-Line Protective-Jacket Pipes, d 400 mm, SDR 11, were jetted in place. Since SIMONA® SPC RC-Line Protective-Jacket Pipes offer extremely high resistance to physical damage on account of the pipe jacket being made of modified polypropylene, they are ideal for trenchless methods of pipe insertion. By contrast, the trench cutting method was applied in the sandbedless pipe sections. Here SIMONA® RC-Line Pressure Pipes, d 400 mm, SDR 11, were laid. RC-Line pressure pipes are particularly suitable for this method because of their higher level of protection conforming to PAS 1075 Type 1.

SIMONA® PE 100 SPC RC-Line Pressure Pipes

Properties

- Excellent bond and shear strength between inner pipe and protective jacket
- No crack propagation from the protective jacket into the inner pipe
- Extremely effective protection against major physical damage such as notches, abrasion and wear (PP Protect)

SIMONA® PE 100 RC-Line Pressure Pipes

Properties

- High stress crack resistance
- High resistance to point loads (e.g. stones, fragments)
- In open laying the prepared excavated soil is used as backfill material

Product range

- Pipes

Further information

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