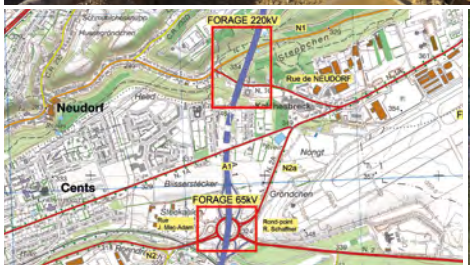
CaseStudy

SIMONA

creos Schroeder & Associés Max Wild Profis ohne Grenzen

Trenchless pipelaying in city traffic by horizontal directional drilling (HDD)



Top: destination pit with jetting tool – product pipe emerging in the destination pit with an attached hole opener; bottom left: the squares mark the locations of wash-boring operations; bottom right: the HDD method is performed by Max Wild, Berkheim, using a silenced 250 t wash-boring rig

Energy supplier CREOS was faced with the difficult task of renewing the power supply to the city of Luxembourg and ensuring that it would be possible to meet the growing energy demand of Findel Airport and the two city districts of Kirchberg and Ban de Gasperich. Without restricting the constant flow of city traffic it was an extremely difficile challenge. SIMONA® PE 100 RC-Line Pipes were used as part of this project.

The project at a glance

Project
Renewal of a power supply cable by trenchless pipelaying, without any intervention in the road traffic

Client
Creos Luxembourg S.A.

Contractor
Max Wild GmbH, Berkheim

Planner
Schroeder & Associés ingénieurs-conseils, Luxembourg

Products used
- SIMONA® PE 100 RC-Line Pipes d 710 mm, SDR 17, PAS 1075 Type 1
- SIMONA® PE 100 Pipes d 225 mm and d 125 mm, SDR 17

Method of laying
New pipes laid

Duration of project
6 months

More overleaf ▶



From left to right: connecting the pipe trains by heated-tool butt welding; SIMONA® PE 100 RC-Line Pipe with PE 100 empty conduits inside; welded pipe train for insertion into the starting pit with barrel reamer to widen and pre-ream the bored section

Resistant SIMONA® PE 100 RC-Line Pipes for new power supply cable

Initial situation

The laying of a new 220 kV high-voltage cable over a total length of 11.5 km involved an overhead cable for a distance of 8.5 km and another 3 km of cable laid underground. The new power lines passed through highly sensitive urban districts. Construction work was performed in two phases, so-called contract sections.

Task

The horizontal directional drilling method (abbreviated to HDD) is chiefly used for boring under surfaces and waterways in trenchless pipeline construction. Detailed information about the soil or rock to be crossed is crucial to the technical and commercial success of the method. Consequently, the pipes used had to meet the following requirements:

- High flexibility for insertion in the trench
- No corrosion
- High stress crack resistance
- High resistance to point loads (e.g. stones, fragments)
- Increased resistance to slow crack growth
- Suitability for alternative laying techniques such as horizontal directional drilling

Solution

Owing to the high volume of traffic, the density of residential development and the green-belt recreational area CREOS and Schroeder & Associés decided to perform the construction work by horizontal directional drilling with SIMONA® PE 100 RC-Line Pipes. The trenchless method of laying allowed line renewal without any major hindrance to city traffic. The bore path lengths were 2 x 400 m and 2 x 250 m, each with a minimum spacing of 5 m. The SIMONA® PE 100 RC-Line Pipe with an outside diameter of d 710 mm and a wall thickness of 42.1 mm was laid as a containment pipe for other empty cable conduits. In that pipe a pipe bundle was also drawn in, comprising two pipe trains d 225 x 13.4 mm each and one pipe train d 125 x 7.4 mm, which were later used to pull in the high-voltage cables.

In the two contract sections 7,800 m of pipe were laid in total. Of that figure, there were 1,300 m of PE 100 RC-Line containment pipe (d 710 x 42.1 mm), 5.200 m of PE 100 (d 225 x 13.4 mm) and 1,300 m of PE 100 (d 125 x 7.4 mm) empty cable conduits. The challenging construction project was carried out successfully without having any detrimental effect on public life.

SIMONA® PE 100 RC-Line

Properties

- Notch resistance
- Light weight
- Low incrustation
- High flexibility
- No corrosion
- High cost-effectiveness due to the laying of long single lengths of pipe
- High stress crack resistance
- High resistance to point loads (e.g. stones, fragments)
- Increased resistance to slow crack growth

Product range

- Pipes

Further information

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05/2016 - 05/16 - 400 - GB - WB

Printed on Hello Fat matt by Deutsche Papier.