

Trenchless rehabilitation with SIMONA® PE 100 Ovoid Pipes using the relining method



Top: introduction of the traction head for welding to the ovoid pipe train incl. spacers; bottom left: introduction of the face cutter and preparation for welding of traction head and ovoid pipe; bottom right: insertion of the ovoid pipe train

Over a total length of 580 m an ovoid sewer was renewed by means of the relining method as part of an external services development project for Göttingen University Medical Centre. SIMONA® PE Ovoid Pipes combine geometric benefits – high flow velocity for small quantities of water, improved discharge of large quantities of water – with the excellent material and processing properties of polyethylene. The customer-specific solution of using an ovoid pipe without any base enabled a high pipelaying rate and thus led to rapid completion of the construction project.

The project at a glance

Project

Rehabilitation of a sewer over a length of 1.3 km and connection of the Göttingen University Medical Centre ('UMG') to a gravity sewer operated by Göttingen Waste Disposal Services

Client

Göttingen Waste Disposal Services

Contractor

Rettberg GmbH & Co. KG, Göttingen

Planner

Rinne & Partner, Engineers, Rosdorf

Technical consultants

SIMONA AG
Division Pipes and Fittings
Applications Technology

Products used

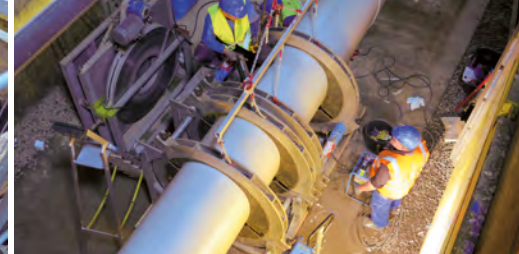
- SIMONA® PE 100 Ovoid Pipes
- Module length: 2.5 m
- Total length: 580 m

Method of laying

Rehabilitation

Duration of project

9 months



From left to right: introduction of the factory-welded 7.5 m module to the trench and welding it to the pipe train for relining insertion

Customer-specific fabrication for faster pipe insertion

Initial situation

To avoid pollution of the groundwater by leaking sanitary sewage pipes, the City of Göttingen has been using polyethylene sewer pipes since the middle of the 1990s, without exception. As part of an external services development project at Göttingen University Medical Centre it therefore also became necessary to rehabilitate the connected sewer that had become antiquated.

Task

The piping system had to have not only excellent hydraulic properties but also reliable, absolutely watertight welded joints. Furthermore, the following requirements had to be met:

- Customised component length
- High flow velocity
- Corrosion-resistant, crack-resistant and abrasion-resistant
- Low risk of incrustation
- Easy handling when laying
- Simple joining with external saddles

Solution

With SIMONA® PE 100 Ovoid Pipes it is possible to make absolutely watertight, root-proof, permanently bonded and axial-restraint connections by welding. Consequently, the product is also suitable for use in the relining method. The grey PE 100 ovoid pipe was produced on the basis of DIN 4263, in dimensions 770 mm (width) and 1,187 mm (height), with a wall thickness of 34 mm. On account of the light-coloured inside surface of the pipe wall it is easier to assess the condition of the sewer in future maintenance work. At the customer's request no base was attached to the ovoid pipe in production. In addition, the modules (2.5 m each) were welded to one another in threes at the factory. The welding beads inside were removed and the ovoid pipe train was delivered to the construction site in one piece. As a result, the pipelaying rate on the construction site was increased considerably. After that the trench was filled with liquefied soil. The spacers, which served to ensure safety against uplift and assist insertion, were supplied by PSI Products GmbH, Mössingen.

Owing to the factory welding of the 2.5 m modules to make up 7.5 m pipe trains, the amount of on-site welding was reduced considerably. With their absolutely watertight, strain-resistant welded joints, SIMONA® PE 100 Ovoid Pipes proved to be the perfect solution for Göttingen Waste Disposal Services.

SIMONA® Ovoid Piping System

Properties

- High flow velocity during dry weather discharge
- High load-bearing capacity and strength
- Service life up to 100 years
- Crack-resistant and abrasion-resistant
- Very good chemical resistance
- Low risk of incrustation
- Easy handling when laying
- Simple joining with external saddles
- Absolutely watertight, root-tight, permanently bonded and axial-restraint connection by heated-tool butt welding

Product range

- Ovoid pipes
Standard lengths: 0.7 m to 2.5 m for standard cross-sections (DIN 4263)
Special profiles available on request
- Internal saddles for service connection
- External saddles for service connection

Further information

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