Aliaxis
UTILITIES & INDUSTRY

FRIATEC

SEWAGE PRESSURE LINE HD-PE d 1000 CROSSES THE ODER IN WROCŁAW, POLAND

PROJECT REPORT NO. 3/2015

www.frialen-xl.com

CULVERT UNDER THE ODER IN WROCŁAW

INNOVATIVE CONNECTING TECHNOLOGY FOR HIGH FUSION QUALITY AND EASE OF INSTALLATION

The connection of two sewage pressure lines in Wrocław required a culvert to be laid under the Oder. This involved drawing the PE 100-RC d1000 SDR 17 pipes through HDD tunnels (horizontal directional drilling). The two pipes were installed in parallel from a drive pit to the clarification plant, over a distance of about 650 m and at a depth of 12 m under the Oder.

Swayed by economic and application advantages, the decision went to the high performance PE 100-RC as the material of choice.
Pipes made of this plastic are not only resistant to corrosion and extremely resistant to abrasion, they also exhibit an outstanding resistance to notching and scoring. They are therefore ideal for HDD installations.

With an expected service life of at least one hundred years, RC pipes are a particularly interesting choice from both the technical and economic standpoints.

Measure:
Installation of two sewage pressure lines under the Oder.
Place:
Wrocław, Poland. Renovation between the Psie Pole dam and the Poznań railway bridge.
Contractor:
Energopol-Szczecin SA
Installing company:
ICEBUD P.W. Sp. z o.o. Wrocław
Commissioned by:
Regional Water Management Board Wrocław
Building duration:
March 2014 to December 2014

XL SOLUTIONS FOR THE BUILDING SITE

Both parallel pipes were to be connected in an open excavation at the transition tunnel. This required the integration of a prefabricated adapter.

It was decided to use electrofusion couplers featuring the innovative conical ring technology to integrate the adapter in the pipe (Fig 1). Thanks to the unique, three-part layout of the conical ring coupler (Fig 2), a coupler body with two flexible conical rings, pipes with large diameter tolerances or large ovalities can be connected safely, reliably, and for permanent tightness without additional work.

This conical ring technology is revolutionising connecting technology specifically for large pipes. The mechanical compensation of extremely large gaps between the coupler and pipe simplifies greatly the installation when compared with conventional cylindrical couplers. After the installation, i.e. the activation of the conical rings, the gap is effectively reduced to zero. This results in considerably shorter fusion times, and also preheating is no longer necessary. Another advantage of this conical ring technology is that installers need to scrape the pipe by about 0.5 mm to remove the oxide layer only one time. Time and energy consuming multiple scraping is therefore unnecessary.

The large internal diameter of the conical ring coupler can take even large tolerances in the pipe's outer diameter and ovality, for undiminished ease of installation. The unique flexible conical ring technology means that the coupler can be adjusted to any pipe cross section. Activating the fusion conical rings reinstates the roundness on pipes exhibiting extreme ovalities up to 6%. Rounding clamps are therefore no longer necessary.

Fig 1 – Connecting the adapter to the transition tunnel

Fusion quality and ease of installation in XL

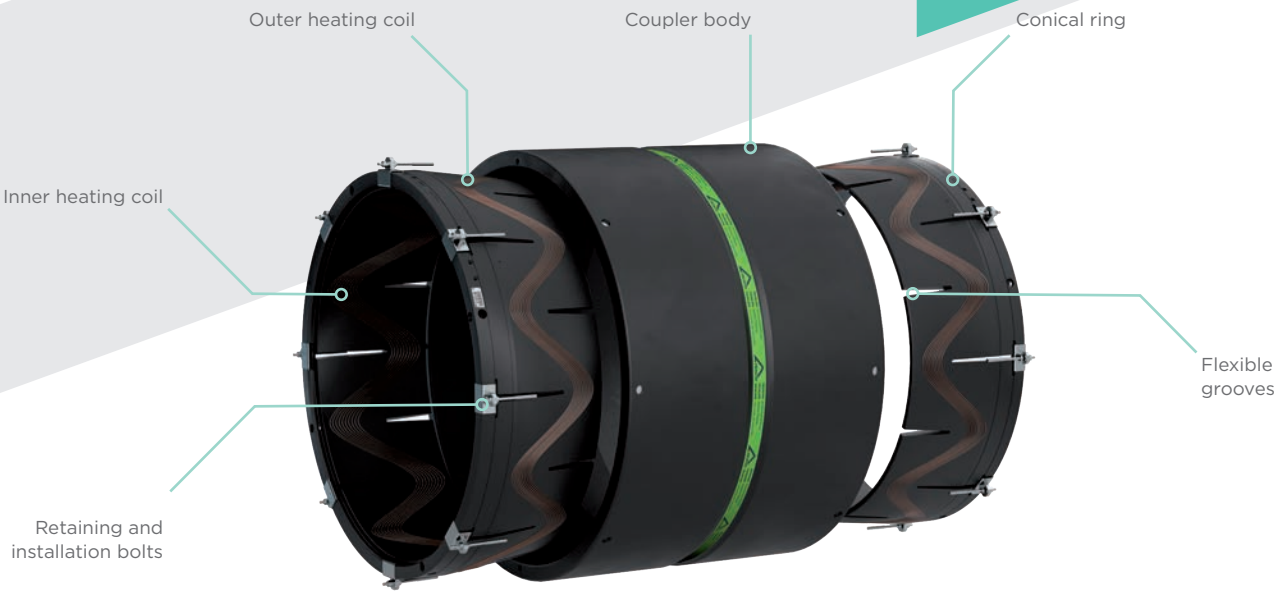

Fig 2 – Layout of the conical ring coupler KM-XL

The conical rings (Fig 3) can be activated with a standard ratchet, pneumatic, or cordless spanner. This drives the provided threaded pins into the retaining bolts in the coupler body. The conical ring is therefore pressed into the coupler body. It adjusts precisely and free of gaps to the contours of the pipe and the internal geometry of the coupler body.

Installation has no need for tools, so even constricted spaces pose no problems.

Fig 3 – Conical ring activation

THE RIGHT TOOLS IN XL

The client, the Regional Water Management Board Wrocław, wanted a solution that was sustainable, reliable, and of high quality.

The decision therefore went to the conical ring technology made by FRIATEC. The installing company ICEBUD P.W. Sp. z o.o. was convinced by the fast and easy installation of the conical ring coupler. In particular as the conical ring coupler slid so easily and completely without aid over the pipe after it had been scraped just once.

As a system supplier, FRIATEC AG offers an extensive range of electrofusion fittings and installation tools modified specifically to these products. These were developed specifically for processing pipes of large dimensions, e.g. the large pipe scraper tool FWSG XL or the extra powerful electrofusion unit FRIAMAT XL (Figs 4 and 5).

Fig 4 – The large pipe scraper tool FWSG XL in action

Fig 5 – Fusion with the extra powerful electrofusion unit FRIAMAT XL

Fig 6 – Instruction on the building site by Marley Polska and FRIATEC application engineering

A strong international team of application engineers from FRIATEC AG of Mannheim and Marley of Poland rounded off the offer (Fig 6).

The customer thinks highly of CRM, application engineering services on site, competent cooperation, and partnership.

After the work finished in December 2014, the sewage pressure line was first pressure tested and then put into operation.

Aliaxis
UTILITIES & INDUSTRY

C/O FRIATEC Aktiengesellschaft
Technical Plastics Division
P.O.B. 710261 · 68222 Mannheim - Germany
Tel +49 (0)621 486 1431 – Fax +49 (0)621 47 91 96

www.frialen-xl.com

FRIATEC