



Press Release

HERRENKNECHT Exemplary pipeline crossing in a single step.

January 20, 2017

Schwanau, Germany / Wierzchowice/Czeszów, Poland

In the fall of 2016, drilling contractor PPI Chrobok S.A. installed two new gas pipelines in Poland. The alignment runs along existing gas lines and through geologically challenging terrain. With the laying of the 700 and 464-meter-long pipelines, Herrenknecht's Direct Pipe technology was used in Poland for the first time.

_____With the construction of a new north-south pipeline connection, Poland is reacting to the increasing local demand for gas. Part of this network expansion is the >>Czeszów-Wierzchowice Gas Pipeline Project<< in the southwest of the country. So far, only HDD technology (Horizontal Directional Drilling) had been used for crossing rivers or roads during pipeline projects in Poland. Used for decades, the method has proved its worth for large numbers of boreholes, but it reaches its technical and economic limits in heterogeneous, non-stable grounds.

The sandy, sticky clay of the pipeline crossings in Wierzchowice and Czeszów presented the drilling crew with just such project conditions. Furthermore, the two alignments with lengths of 700 and 464 meters respectively run along existing gas lines. Uncontrolled deviations during the drilling process thus had to be avoided at all costs. In view of these requirements, for the first time main contractor PGNiG Technologies S.A. together with drilling contractor PPI Chrobok S.A. opted for the innovative [Direct Pipe technology](#) from Herrenknecht. This method combines the advantages of microtunnelling and HDD technology. In a single step the required borehole is created and the prefabricated pipe is simultaneously installed without a trench.

Thanks to the gyrocompass navigation system which allows for an exact steering of the TBM, the drilling crew precisely installed the two pipelines with an outer diameter of 1,047 millimeters underground in just 13 respectively 16 drilling days. In doing so, they safely crossed, among others, beneath an ecologically sensitive fish pond. The sticky ground that typically tends to cause blockages is not a barrier for the Direct Pipe method. Even at very high levels of friction resistance, the 500 tonnes of thrust

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provided by the Pipe Thruster in the launch shaft is more than enough. Despite the small overcut of only few centimeters, no damages were detected at the coating after the pipe laying.

Overall, a very positive conclusion was drawn after successful completion of the project. With daily best performances of 147 meters, Roland Koška, Planning & Monitoring Manager for client GAZ-SYSTEM, summed it up as follows: "As a combination of HDD and microtunnelling, Direct Pipe overcomes their respective limitations which, to a large extent, are no longer obstacles to pipeline construction. This will also allow us to pursue new projects in the future and complete them economically, quickly and with minimal impact on the local infrastructure and environment."

Official press release of the client:

<http://en.gaz-system.pl/press-centre/news/information-for-the-media/artykul/202367/>

Project data

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MACHINE DATA M-2091

Machine type: Direct Pipe (AVN800 + Pipe Thruster HK500PT)

› Excavation diameter: 1,140mm

› Max. torque: 90kNm

› Thrust force Pipe Thruster: 500t

PROJECT DATA

› **Pipeline length:** 1x 464 m, 1x 700m

› **Product pipe outer diameter:** 1,047mm

› **Product pipe material:** steel pipe with 3 x LPP + GRP Coating

› **Application:** gas pipeline

› **Geology:** sand, cohesive clay, gravel

› **Contractor:** PPI Chrobok S.A.

› **Main Contractor:** PGNiG Technologies S.A.

› **Client:** Gaz-System S.A.

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Photos

Exemplary pipeline crossing in a single step.



Picture 1

On October 12, 2016, the AVN800 achieved the last of two breakthroughs in Czeszów, Poland. Using the Direct Pipe method, drilling and the parallel insertion of the 700 meter long pipeline through heterogeneous ground were completed in only 13 days.



Picture 2

The prefabricated pipeline was pushed in from the launch shaft with a Pipe Thruster HK500PT from Herrenknecht. After the very successful premiere performance, the innovative method is likely to be used again for other demanding pipeline projects in Poland.

© Gaz-System



Picture 3

Presentation for the experts: in October 2016 Polish drilling contractor PPI Chrobok S.A. enabled international experts to visit the jobsite in Czeszów. The interested customers and clients from Europe and North America were able to experience the Direct Pipe method from Herrenknecht live in action at the jobsite open day.

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Herrenknecht AG

Herrenknecht is the only company worldwide to deliver tunnel boring machines for all geologies and in all diameters – ranging from 0.10 to 19 meters. The product range comprises tailor-made machines for traffic, supply and disposal tunnels, technologies for pipeline installation as well as additional equipment and service packages. Herrenknecht also manufactures drilling equipment for vertical and inclined shafts as well as deep drilling rigs.

In 2015 the Herrenknecht Group achieved total output of 1.343 billion euros. The Herrenknecht Group employs around 5,000 people worldwide, including around 180 trainees. With 76 domestic and overseas subsidiaries and associated companies working in related fields, Herrenknecht provides comprehensive services close to each project and customer.

› <http://www.herrenknecht.com/en/references>

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