



Press Release

HERRENKNECHT Powerful pipeline installation technology ensures project success in Lithuania

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Klaipėda, Lithuania / Schwanau, Germany

The efficiency of Herrenknecht's pipeline installation technology was impressively demonstrated in Lithuanian Klaipėda. Working in extremely difficult geological conditions and with tight deadlines, a Polish drilling team used it to successfully install four pipelines at depths of up to 56 m.

Lithuania's energy supply is to be made more diversified. The republic is therefore importing liquefied natural gas (LNG). In Klaipėda, the country's largest port, an LNG terminal was created for this purpose. For this, a tanker with a regasification plant was permanently moored at the port. Freighters can dock there and feed in liquefied natural gas. In the plant it is converted to its gaseous state. In order to feed the gas into the supply network the terminal had to be connected to the mainland through pipelines. The Polish drilling company Albrehta Sp. z o.o. used a Herrenknecht HK400M HDD Rig to successfully install the necessary pipeline infrastructure at depths of up to 56 m. A Pipe Thruster HK500PT was ordered as an additional power reserve.

A total of 4 pipeline sections had to be installed to connect the terminal to the existing supply network on the mainland. Two of them to transport the gas (28") and two for installing control cables (6" and 8¾"). All drilling was carried out from an island in the sea port, located between the LNG terminal and the pipeline system on the mainland. The choice of the drilling site meant the drilling and insertion lengths could be shortened. One borehole each to the terminal for gas and fiber optic cables (610 m and 350 m) and one each to the mainland (2,310 m). Access to the island was only possible via ferry, the drilling rig and equipment had therefore to be reduced to a smaller size and weight for transport. The drilling company decided to then use a Herrenknecht HK400M Modular Rig. This rig type can be disassembled into three space-saving modules and transported in standardized compact containers. Furthermore, the 400 series rigs can handle pulling forces of up to 4,000

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kN (400 tons). Such powerful equipment was required due to the length and the diameters of the boreholes.

Because of its great economic importance for Lithuania, the project was under enormous time pressure from the very beginning. Project delays had to be avoided at all costs. Even in the event of greater forces occurring during pipeline installation, no delays were permitted. The prerequisite: any additional power required had to be quickly mobilized on the jobsite. Specifically for this purpose the customer ordered a Herrenknecht Pipe Thruster. It has the necessary power reserves and if required it will provide support with thrust and pulling forces of up to 5,000kN (500tonnes). A few days after the order, Herrenknecht made the equipment available to the customer. Thanks to the extensive rental pool in Germany, even when requested at short notice, Herrenknecht can provide its customers with standard equipment quickly and on attractive terms. At the customer's request Herrenknecht supplied the HDD Rig with additional drive power to increase the tripping speed during operation. This saved the drilling team valuable time.

During the advance the geology with its alternately sandy-gravelly and hard marl zones presented man and material with challenges. Torques of up to 120 kNm had to be applied to excavate the borehole. To handle this, Herrenknecht equipped the rig at the customer's request with an installed power of nearly 1000 kW to ensure the necessary power reserve. The challenging geology also increased material and tooling wear. The spare parts management was mastered by Herrenknecht's After Sales Service department. During the entire project a service technician accompanied the rapidly proceeding drilling process and ensured the timely supply of spare parts to the jobsite. Operation of the drilling equipment around the clock, 7 days a week was thus assured.

Such a commitment paid off. In just 34 hours the customer completed the final pipe installation with an entry angle of 10,5° at pipe side. In future, Lithuania can source liquefied natural gas from the global market, thereby expanding its national energy mix.

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HDD - HORIZONTAL DIRECTIONAL DRILLING

The HDD method (Horizontal Directional Drilling) is a worldwide tried-and-tested trenchless technology for the underground installation of pipelines. In a first step, a pilot drill is driven from the launch to the target point. In a second step, the pilot hole is widened in the opposite direction by a so-called reamer. The reaming is often repeated several times depending on diameter and geological ground conditions. In a last step, the pipeline is inserted into the reamed and stabilized bore hole. HDD rigs from Herrenknecht are used worldwide to install oil and gas pipelines as well as water and wastewater pipelines with diameters of up to two meters (80 inches) - rapidly, cost-efficiently and causing low impact on the environment.

MACHINE DATA HK400M, HK500PT

Machine type: HDD Rig HK400M, H-204

- › Pipeline diameter:
 - Gas: 28"
 - FOC: 6" and 8¾"
- › Max. pulling force: 400t (4,000kN)
- › Torque: 140 kNm

Machine type: Pipe Thruster HK500PT, H273

- › Max. thrust and pulling force: 500t (5,000kN)

PROJECT DATA

Location: Klaipėda, Lithuania

Client: PPS PIPELINE SYSTEMS GMBH

Contractor: Albrehta Sp. z o.o.

Application: Gas / FOC

Pipeline length:

- › Gas: 2,310m and 610m
- › FOC: 2,310m and 350m

Geology: Sand, gravel, cobbles marly till, boulders

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Photo 1

The connection of the new LNG Terminal at the Baltic port of Klaipėda required drilling boreholes for pipelines under the harbor basin with a total length of 5.5 kilometers and at depths of up to 56 meters. An island in the center of the harbor as the starting point allowed the boreholes to be divided into four subsections.



Photo 2

At the customer's request Herrenknecht equipped the HDD Rig with an installed power of nearly 1,000kW and a torque of 140kNm for maximum tripping speed.

Land side a Herrenknecht Pipe Thruster supports pipeline installation with maximum thrust and pulling force of up to 500 tonnes as additional power reserve.



Photo 3

In order to make Lithuania's energy supply more diversified, the new LNG terminal in Klaipėda was connected from the sea to the national supply network. Two HDD boreholes (2,310 m and 610 m) were drilled for the installation of a 28" gas pipeline. With two additional boreholes (2,310 m and 350 m), pipelines (6" and 8¾") were installed for fiber optic cables to control the system.

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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 as well as additional equipment and service packages. Herrenknecht also manufactures drilling rigs for vertical and inclined shafts as well as deep drilling rigs.

In 2014 the Herrenknecht Group achieved total revenue of 1.082 billion euros. The Herrenknecht Group employs around 5,000 people worldwide, including nearly 200 trainees (as of September 2015). With 80 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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