

## HOBAS® Protective Pipes

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## Gas Lines on the Safe Side with HOBAS® GRP Open Trench and Trenchless Solutions in the Czech Republic and Poland

A special medium requires special treatment. Gas for instance requires special caution and safety measures. Requirements which are perfectly fulfilled by HOBAS GRP Protective Pipe Systems: They ensure tightness; have a high load capacity and offer a long service life. And, as projects in Poland and in the Czech Republic show, they can be installed by both trenchless and open trench methods.

**Brno, Czech Republic.** In the context of the expansion of the Avion Shopping Park in Brno-Dolní Heršpice it became necessary to relocate a steel high pressure gas main, DN 500 in diameter. During its inspection the operator Jihomoravská plynárenská a.s. had discovered signs of corrosion probably due to the installation and surrounding wet soil. This was no surprise as the pipeline is situated nearby the Svatka River so that fluctuations in groundwater level slowly but surely cause the steel to corrode. Playing safe, the operator decided to protect the gas main with a pipeline that is watertight and highly corrosion resistant. The possibility to extend the parking and storage surfaces of the shopping center some time in future had to be kept open as Brno's first shopping park has been growing ever since its establishment in 1998. This meant the protective pipes would also need to provide appropriate load capacity. Searching for a suitable material that would fulfill these two main requirements, the client found the optimal solution in HOBAS GRP Pipe Systems.

The new steel pipes were welded one after the other and consequently pulled into the prepared HOBAS Protective Pipeline. RACI plastic spacers kept the gas carrier pipe perfectly aligned within the GRP containment system. Thanks to the smooth inside surface of the HOBAS Pipe this could be done swiftly and without complications. Pipe sections of 25-m-length were this way prepared at a time which were then, one after the other, lowered into the pipe trench with the help of nothing but the constructor's excavator – thanks to the comparably light-weight GRP material. Here the inner steel gas main was welded to the already installed part and the GRP pipe was simply slid into position and pushed into the coupling that is delivered readily fixed to one pipe end. The



HOBAS System's FWC couplings with their elastomer rubber gasket are indeed a further plus as they not only facilitate the assembly thanks to simple push-to-fit mounting but also accommodate angular deflection while remaining tight – a perfect feature that helps omit costly fittings on gently curved routes. Once a pipe section had been completed the ends were capped with a rubber seal to keep the line clean.

A total 156 meters of HOBAS Protective Pipe DN 700, PN 1, SN 10000 were this way successfully installed during September 2011 and ensure trouble free, safe service for the next decades.

**River Warthe, Poland.** A technically, in terms of installation, challenging protective pipeline project was initiated by the company Warszawskie Przedsiębiorstwo BETA in October 1998 in Poland. It comprised the jacking of a twin pipe under the Warta River. Two paralleling lines, 105 and 108 m in length, were executed 50 meters from each other. The 3-m-long microtunnelled HOBAS Jacking Pipes have a diameter of 2047 mm and a wall thickness of 70 mm.

What was the purpose of the undertaking? The to date most modern guided drilling technique and CC-GRP Pipes were employed to overcome an obstacle presented by the Warta river on the construction route of the Yamal-Europe Pipeline, that transports pressurized gas from the Siberian Yamal Peninsula all the way to Germany. In addition to the two steel carrier pipes, 1450 mm in diameter, the GRP pipes should also accommodate a fiber optic cable.

Drilling was conducted in 13 meters depth, 7 meters below the river bed. Despite the large clearance between pipe and river, microtunneling was executed under pressure reaching a level of 1.5 bar due to deep groundwater. The challenge was increased by the diverse geological structure: While the starting pits on one side of the river were surrounded by clay, the receiving pits were situated in permeable soil (sand and gravel). The contractor was forced to seal the soil around the latter to prevent too much water from running into the pit. If this were not enough, the temperatures fell to as low as -25° degrees which was no problem for HOBAS GRP but made installation arduous for manpower.

In addition to standard jacking pipes, HOBAS supplied also CC-GRP Pipes equipped with nozzles through which a lubricant is pumped between the outer wall of the pipe and the surrounding soil during microtunneling. The low roughness coefficient of HOBAS Pipe Systems alone requires low jacking forces; by adding a lubricant the average force could in this case be lowered to an equivalent of approximately 250 tons.

The job was successfully completed beginning of 1999 meeting all requirements set by the investor, who happily looks back to over 10 years of service.

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<b>Project - Poland</b>	<b>Project - Czech Republic</b>
Year of construction <b>1998/99</b>	Year of construction <b>2011</b>
Total length of pipes <b>213 m</b>	Total length of pipes <b>156 m</b>
Pressure class <b>PN 1</b>	Pressure class <b>PN 1</b>
Diameter <b>D<sub>e</sub> 2047</b>	Diameter <b>DN 700</b>
Stiffness class <b>SN 32000</b>	Stiffness class <b>SN 10000</b>
Installation method <b>Jacking</b>	Installation method <b>Open trench</b>
Client <b>EuRoPol Gaz</b>	Client <b>Jihomoravská plynárenská a.s.</b>
Contractor <b>Warszawskie Przedsiębiorstwo BETA</b>	Contractor <b>P.V.K. s.r.o.</b>
Advantages <b>leak tight system, suitable for trenchless installation, low necessary jacking forces</b>	Advantages <b>leak tight system, high corrosion resistance, non-conductive material, long service life</b>

