Success story

System 2 in Moscow



Achievement:

As a part of the re-laying of the Moscow to St. Petersburg gas pipeline, the Russian MosStrojTransGas had to cross the Moskva Canal near Khimki (Moscow Region) with a steel pipeline ID1200 mm. The canal and its embankments has a width of approximately 140 m at that point. Due to the cramped conditions, there was a total construction space of just 220 m in length available.

If the pipeline had been laid using the conventional HDD process, then construction space of more than 500 m in length would have been required for the planned depth due to the maximum bending tolerances of the steel pipe. Moreover, the demands on the positional accuracy of the pipeline would have been very stringent, too stringent to have been met by a normal HDD process.

Therefore, our customer PodzemBurStroj decided to implement the project with a combination of HDD and microtunneling, the System2®. By using curved steel pipes with individual lengths of 12 m, it was possible to significantly shorten the construction space required.

The ground comprised a mixture of clay, coarse silt and sand with boulders. Moreover, an old wooden supporting wall was broken through.

An mts1000S3 System2® with a Pipe Pusher PPP400 from Prime Drilling, which was completely integrated in the mts system, was used. All mts System2® drill heads have two active articulation joints and an integrated telescopic station; the pipe pusher has a maximum pushing capacity of 400 t and is designed for a pipe length of 12 m.

With this combination, which was used for the first time, it was possible to drill a curved length of 184.6 m with a radius of 217.4 m. The maximum pressing force was 192 t. The horizontal distance between the entrance seal and the exit was 172 m. The machine was started with an angle of 22.5 degrees.

The driving work started on 13 July 2013, and the target point was reached on 27 July 2013 with a deviation of 30 cm. Owing to the constricted space at the starting ramp, every pipe had to be welded in the pipe pusher, which was very time-consuming.

With this new combination of an mts System2® with a pipe pusher from Prime Drilling and using curved steel pipes, in the future it will be possible to execute trenchless crossings in pipeline projects in very restricted space conditions with a high positional accuracy.

Project background	
Client	*Gazprom (Russia)*
Job site	*Khimki (Moscow Area)*
Main contractor	*MosStrojTransGas*
Subcontractor	*PodzemBurStroj*

Short facts	
Customer	PodzemBurStroj
Machine	mts1000S3P1 System2® with PPP400
Drive length:	184.6 m curve, 172 m straight
Radius	217.4 m
Start angle	22.5°
Pipes	Steel pipes, ID1200 mm, OD1220 mm, 12 m long, curved
Geology	mudstone, gravel and boulders



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