



HERRENKNECHT Press Information.

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## **NOMINATED FOR THE BAUMA INNOVATION AWARD: PIPE EXPRESS® FROM HERRENKNECHT.**

**With Pipe Express® the Herrenknecht AG has developed a new semi-trenchless method for installing pipelines. In comparison with the open construction method, routes are considerably narrower, no groundwater lowering is necessary and there is less impact on nature. This has a very positive effect on the grid operators' construction costs. Because of the especially ecological and cost-efficient working method, the development of this new system is subsidized by the German Environment Ministry. An expert jury has now nominated Pipe Express® for the bauma Innovation Award 2013.**

**Schwanau, Germany, January 29, 2013.** Pipe Express® is a new mechanized method for the near-surface installation of pipelines of up to 1,000 meters in length and with diameters of 800 to 1,500 millimeters (32" to 60") using the half-open construction method. A tunnel boring machine loosens the soil which is then directly conveyed aboveground using a milling unit which is carried along. At the same time, the pipeline is installed underground. Since earthwork is reduced to a minimum and no groundwater lowering along the route is necessary, Pipe Express® has very little impact on the environment. This method is unique so far: For the installation of pipelines with a diameter of up to 1,500 millimeters, the soil is directly removed and not pushed aside. Pipe Express® is ideal, for example, for projects in which the groundwater level is only a few centimeters below the terrain's surface, in mainly swampy terrain or when nature protection is of special importance.

### **Minimum manpower and a high degree of work safety**

The main components of the new installation system include a tunnel boring machine that works underground, a trenching unit with a buggy and an operating vehicle on the terrain surface. The modular design of the entire system allows easy transport and relocation, as well as high flexibility in changing project conditions. The compact system is remote controlled from the operating vehicle and no trenches have to be dug. This means that minimum manpower is needed, increasing work safety at the same time.

### **Cost savings thanks to minimum earthwork**

The new method has a positive influence on the realization and renaturalization costs in projects taking place in particularly challenging areas with unstable ground, water-bearing layers and at great installation depths. Compared to the conventional open construction method, with Pipe Express® the route width can be reduced by up to 70 percent, thus reducing the necessary earthwork. When crossing agricultural land, major losses of harvest and thus long-term compensation payments can be prevented compared to the open construction mode.

### **Environmentally-friendly installation of pipelines**

By using Pipe Express®, the influence of the construction activities on the surrounding environment can be reduced to a minimum. Acceptance by the population, land users and land owners is improved due to the reduced implementation of large equipment and thanks to shorter construction periods. The natural soil structure is only disturbed to a minimum, making subsequent recultivation easier. No complex groundwater lowering is required along the route and water-saturated soil layers are prevented from drying out. In addition, as the

pipeline is installed fast and in one work step and fewer conventional construction machines are needed, emissions of exhaust gases and noise can be considerably decreased.

### **Test drillings and a first reference project completed successfully**

After Herrenknecht AG had initially carried out test drillings on the company site at the Schwanau headquarters over one year, the new machine technology could be applied in a first reference project in Sevenum, Netherlands at the end of 2012. "Pipe Express® has exceeded all expectations," noted project manager Andreas Diedrich with satisfaction and continued to explain: "The machine works with a tunnelling speed of up to one meter per minute, which means that 500 meters of pipeline were installed in three days." The construction company Visser & Smit Hanab is currently building a new high pressure gas line between Odiliapeel and Melick for the Gasunie grid operator. On a section of this line, the Herrenknecht innovation was put to use. Visser & Smit Hanab's managing director Wilko Koop confirmed: "I am very enthusiastic, everything worked excellently".

### **Pipeline installation technology for all geologies and terrains**

In view of the expected extension of the worldwide pipeline network by around 25,000 kilometers a year, Herrenknecht AG sees itself well-positioned with its portfolio extension, allowing the installation of pipelines for gas, oil, freshwater, district heating or as protection pipes for power cables in all geologies and terrains. In sensitive areas, PipeExpress® will be a quick, environmentally-friendly and economic alternative to the open construction method in future. The Herrenknecht AG also offers the flexible HDD method as a tried-and-tested trenchless technology to cross, for example, underneath rivers, roads or populated areas in soft to very hard grounds, or the single-step Direct Pipe® method for unstable grounds.

### **Nomination for the bauma Innovation Award 2013**

An expert jury nominated Pipe Express® in the machine category of the bauma Innovation Award 2013. In mid-April, the prize will be awarded in five categories. The jury will be assessing the future business capability and the practical relevance of the innovation. Selection criteria are economic efficiency, increase in performance, energy and resource efficiency as well as the innovation's contribution towards environmental protection, humanizing of the workplace and improving the sector's image. The competition is a joint project of the VDMA (German Engineering Federation), HDB (Main Federation of the German Construction Industries), ZDB (Central Federation of the German Construction Industries), BBS (German Federation of Construction Materials - Stones and Earth) and bauma.

#### **Pipe Express® - the method**

When installing pipes with Pipe Express®, a tunnel boring machine drills the tunnel for the pipeline which is installed simultaneously. The excavated soil is conveyed directly to the surface via the milling unit and stored alongside the route. At the same time, the trenching unit functions as a vertical connection between the tunnel boring machine and the terrain surface. The operating vehicle accompanies the installation system and provides the entire logistics. These include a control stand for the operator, a power unit room, a high-capacity pump and a storage container for bentonite to reduce the skin friction between the pipe string and the ground. With the integrated crane system, assembly and dismantling work can be done in a very short period of time. The thrust force for the excavation unit and the pipeline is provided by a Herrenknecht Pipe Thruster.

**Pipe Express ® - facts & figures**

Method:	semi-open construction method
Drive length:	up to 1,000m
Pipeline diameter:	(32" – 60") 800 – 1,500mm
Pipe Thruster:	max. 750t
Overburden:	0.5 – 2.5m
Areas of application:	unstable grounds, preferably swamp, near-surface groundwater level, up to 3 m depth
Components:	tunnel boring machine, trenching unit with buggy, operating vehicle, Pipe Thruster
Features:	minimum route width (< 15m), no groundwater lowering along the route, high installation speed (up to 1.50m/min), minimum disturbance of plants and animals, high degree of work safety, low material and personnel expenses
Subsidies:	Pipe Express® is subsidized by the German Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) and supported by the Jülich project organizer. The basis for subsidizing the project is to develop with Pipe Express® a cost-efficient installation method for (among other things) heating pipes to reduce the connection costs and at the same time improve compatibility with the environment and nature.

**Herrenknecht AG**

*As the only company worldwide, Herrenknecht AG delivers tunnel boring machines for all ground conditions and in all diameters – ranging from 0.10 to 19 meters. The Herrenknecht product range includes tailor-made machines for transport tunnels, supply and disposal tunnels and additional equipment and service packages. Furthermore, Herrenknecht manufactures drilling rigs for vertical and sloping shafts as well as deep drilling rigs. In the year 2011, the Herrenknecht Group achieved a total operating performance of 1,104 million euros. Since the formation of the company in 1977, Herrenknecht machines have excavated a total of 1,900 kilometers of tunnels in the large diameter range of more than 4.20 meters. Around 850 Herrenknecht Utility Tunnelling Machines are in operation around the world constructing or laying water and wastewater systems, gas and oil pipelines, as well as conduits for electricity, the Internet and telephone lines. The Herrenknecht Group employs around 5,000 members of staff worldwide, inclusive more than 200 trainees. With 77 subsidiaries and associated companies working in related fields in Germany and abroad, Herrenknecht provides a comprehensive range of services close to the respective project and customer.*