E-POWER PIPE®

INNOVATIVE UNDERGROUND CABLING

E-Power Pipe® – Product Highlights

- Newly developed jet pump, integrated hydraulic unit and improved control and navigation
- Fast and safe creation of the borehole and product pipe insertion
- Fully remote controlled TBM
- No heavy equipment between connection points

E-POWER PIPE®

Supported by

Federal Ministry for Economic Affairs and Energy

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A joint development by

amprion

IFHT Institut für Hochspannungstechnik | RWTH AACHEN UNIVERSITY

HERRENKNECHT Tunnelling Systems

Herrenknecht E-Power Pipe®

Fast and secure method to lay cable protection pipes over long distances

Combined developments

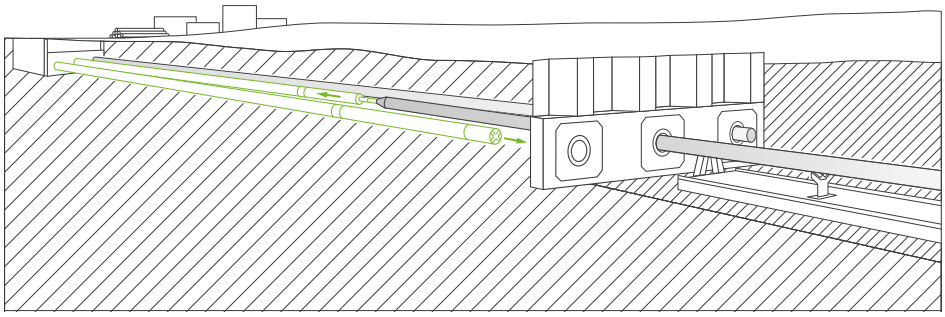
The heart of the system is the fully remote controlled tunnel boring machine AVNS350XB with an excavation diameter of 505 millimeters. It is assisted by a push and pull unit with a 10 meter stroke and a push and pull force of 340 tonnes. A technology based on a rack and pinion guide, powered by electric motors. The system is completed by a jet pump inside the AVNS machine and new extended jacking pipes. This allows an impressive continuous advance and distances of up to 2,000 meters.

Two-stage installation

At the starting point, a push and pull unit is installed and its thrust is used to push the jacking pipes and the TBM along the specified route in the direction of the target point. The borehole remains securely supported by the machine and the jacking pipes the whole time. After breakthrough at the target point, the TBM is separated from the jacking pipes.

Subsequently, the prefabricated cable protection pipe is connected to the jacking pipes still located in the borehole. It is then pulled back and pushed into the borehole by the push and pull unit in the launch shaft at the other end. After installation of the protection pipe, the E-Power Pipe® mission is completed. Final insertion of the underground cables is carried out by appropriately specialized companies. The boreholes can be placed a small distance apart of only one meter, so several lines can be installed in parallel.

Jobsite set up in shaft



Two stage installation process:

→ Tunnelling with removable jacking pipes

← Installation of casings for underground cables

Proven in the first pilot projects

Environmentally friendly alternative

The installation of underground cables using the E-Power Pipe® method is a ground-conserving alternative to the conventional open-cut method. Earth movements are reduced at the places where HVDC cables have to be connected. This can mean a reduction of about 90 percent in relation to the entire alignment.

E-POWER PIPE®

- Excavation diameter: 505 mm
- Torque (max.): 10 kN
- Protection pipe diameter: approx. DN250 to DN400
- Installation distance: up to 2,000 m
- Installation depth: minimum 1.5 m
- Distance between pipes: minimum 1 m

SHAFT DIMENSIONS

Main jacking station
- Pipe length: 9,000 mm
- Shaft size: 15 m × 6 m

Compact jacking station
- Pipe length: 9,000 mm
- Shaft size: 12.5 m × 6 m

Reception shaft
- Pipe length: 9,000 mm
- Shaft size: 12 m × 2 m

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