

# CAN Newsletter Online

CAN NEWSLETTER MAGAZINE

## Faster drilling for faster Internet

Absolute CANopen encoders from Wachendorff provide position data in AT-Boretec's horizontal drill machines with automatic pipe feeding.



(Source: AT-Boretec)

The complete article is published in the [March issue](#) of the CAN Newsletter magazine 2021. This is just an excerpt.

In the scope of the area-wide expansion of mainly rural regions with glass fiber cables, underground works are a common sight in residential areas and along through-roads. To ensure that investments in high-speed broadband communications are not exceeding the budget estimates of the municipalities in road maintenance, underground construction companies mainly use horizontal drills. AT-Boretec from Schmallenberg (Germany) is one of the leading manufacturers of these mobile machines in Europe. In the current series, the Sauerland company is relying on automated feeding of drill pipes from a magazine. Wachendorff Automation has designed the robust encoder for positioning the gripper unit in a manner suitable for use on the construction site.

Distances of up to 500 m are not uncommon with the so-called horizontal flush drilling method. Especially in light soils, pipes and lines can be laid in the ground quickly and effectively with the horizontal directional drilling. Whether wastewater or glass fiber: Horizontal drilling technology has established itself in Germany over the past 20 years and is used especially for sealed surface environments. Powerdrill for soils and Rockdrill for rocks are the names of the two-machine series from AT-Boretec. They are scaled in their performance to provide suitable working conditions for different pipe diameters, distances, and radii.

### Precise cable laying

Instead of digging long trenches, AT-Boretec's systems first drive the pilot sewer from one excavation pit to the next with a simultaneous drilling and flushing process. Once the operator has hit the target, the drill head is replaced by a reamer, which in turn is connected to an empty pipe. When pulling back, the reamer expands the drilling section and simultaneously pulls in the pipe. These two work steps are usually sufficient for laying fiber optic cables.



Horizontal drills from AT-Boretec use the WDGA CANopen encoder from Wachendorff for accurate drilling and automated reloading of the drill pipes (Source: Wachendorff)

If pipes with larger cross-sections have to be laid, the second work step must be repeated and the drill channel enlarged in stages. For this purpose, various reamers with increasing drill diameters are then used. The general procedure remains the same - also with regard to the use of an emulsion of water and bentonite. The natural aggregate in the water lubricates the drill head, ensures that the removal of sediment can flow out of the bore channel and stabilizes the wall of the bore. The clay-based fluid is prepared on site in the mixing station on a truck and then pumped through the drill pipe to the drill head by a high-pressure pump on board the drill rig. Here the bentonite emerges through nozzles.

### Automatic reloading of drill pipes

The pipe sections that the self-propelled drilling rigs carry in a magazine are between three to four and a half meters long. Depending on the model, 40 to 70 drill pipes can be stored. These are automatically removed by a hydraulically driven removal unit and bolted to the drill pipe. Longer pipe sections are recommended for long distances, as the drilling process does not have to be interrupted as often. When the drill pipe is extended, a gripper unit removes a pipe from the magazine, which is then bolted to the drill pipe in the ground by the drilling carriage. In previous machine generations, the operator had to manually unlock one magazine

row after the other. In the current Powerdrill series, however, the row can be pre- selected via a touch display in the machine cabin. Removal then takes place automatically.

*If you would like to read the full article from Steffen Negeli (Wachendorff Automation) you can [download](#) it free of charge or you [download the entire magazine](#).*

[CW](#)