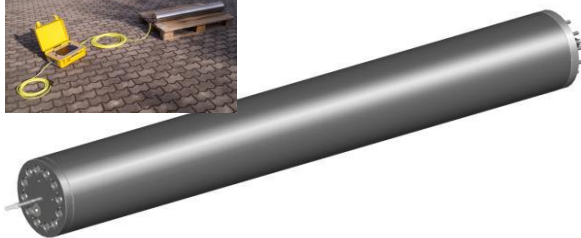


iANARO

Advanced Gyro based Steering Tool for Horizontal Directional Drilling

For more than 20 years, iMAR has been manufacturing tools for borehole surveying and drill head steering for both, vertical and horizontal directional drilling (HDD). iANARO is the latest generation of a most robust gyro based drillhead steering tool. It uses a unique technology to provide precise information in order to determine the position of the drillhead in realtime.



iANARO Measuring Device (AMD) and ACB

The system provides a very accurate, true north related heading and pitch information (azimuth and inclination), even under very strong environmental conditions, up to hard-rock drilling and high rotation rates around the drill axes. Furthermore, it provides environmental and operational information, like temperature, pressure, battery and health status.

- Fully automated determination of azimuth and elevation (true north related heading and pitch)
- Heading accuracy 0.04 deg sec Lat
- Pitch accuracy 0.02 deg
- No disturbances by magnetic fields (railway, power lines etc.)
- Robust communication between AMD and ACB during drilling.
- Integrated battery for continuous operation.
- Real-time data output incl. drillhead orientation, also during high speed rotation. No costly after-job surveying required.
- No calibration at construction site required, operable by customer's staff

A one-wire connection is sufficient to provide the iANARO Measuring Device (AMD) with power and to allow a continuous communication to the drill command

center, which is named iANARO Control Box (ACB). On the ACB the software iANARO-CTRL is operated with ist Human Machine Interface (HMI). From the measured azimuth and elevation and the current length of the drill pipe the operator can determine the current position of the drillhead, taking into account also environmental impacts, like nature of soil. The AMD withstands mud pressure of up to 100 bar and temperatures up to 70 °C (160 °F). The true north accuracy is 0.04° sec lat (2 sigma).

The iANARO-CTRL software is designed user-friendly and allows the operator to be fully informed about the entire system status and accuracy.

