

ABM-90

Versatile Gyrometric System for 3D Pipeline Mapping

by 

- Quickly map all types of pipe in 3 D
- No excavation
- No measurements from the surface
- All sizes of pipe from **80 mm. I. D.**
- Up to **300 meters** length - any depth
- Good accuracy in three dimensions
- Maps under Buildings, Rivers, etc.
- Maps available in CAD or GIS format

UPDATED!

USB port for faster data transfer
More **Software Capability** for quicker re-



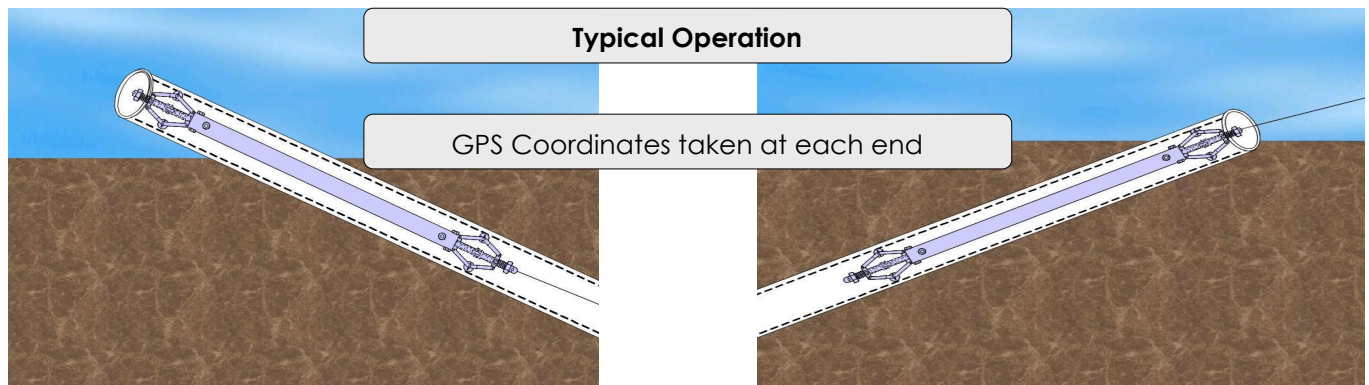
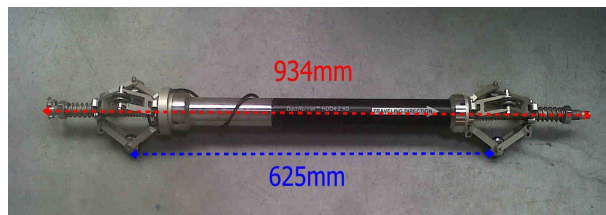
ABM-90 with Centralizing Wheels

Technical Specification

Pipe Sizes	80 mm. I. D. and larger.		
Housing	51 cm. long.	Max tension	150 kg
Weight	1.5 kg	Max speed	3 m/sec
Inclination	+45 to -45deg.	Battery life	Li. Ion 10 hr



ABM-90 with small Invert Wheels



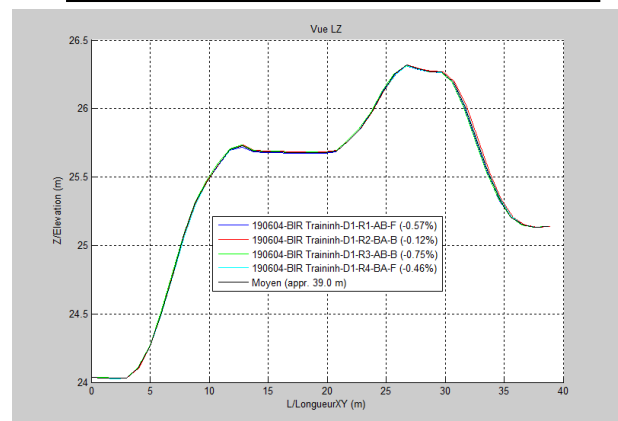
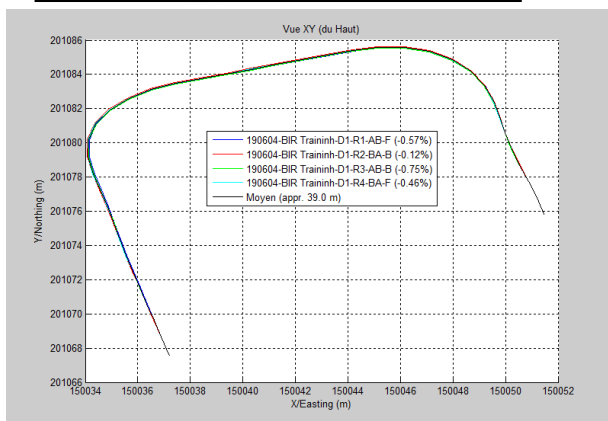
The **ABM-90** by **REDUCT** is a practical and cost effective solution to the problem of three dimensional mapping of all types of pipes, sewers and ducts **up to 300 meters in length**. It uses a patented technique employing an application-specific Inertial Measurement Module with **MEMS** rate-gyros, together with two odometers. The device is inserted in the pipe at a manhole or any access point, and pulled or pushed along the pipe to be mapped at about 1 meter per second. Pulling is by hand or with a winch. The result obtained is not only the horizontal track of the pipe, but also the depth and alignment. The **ABM-90** is unaffected by magnetic and electric fields, and it is completely waterproof, so that it can be immersed, and is not affected by variations of flow. Very simple to use, the device has no need for communication during measurement, and thus there is no electric cable. The positions of the access points is established independently with precision, normally by GPS, and the resulting map is based on these points.

The data acquired are stored on-board and are transferred to a computer once the module is removed from the pipe. The two software packages provided are used for managing the recording, transfer, analysis and display of the data. They help the operator optimise the result obtained and present it in an easily interpreted form. Two output formats are possible: either Comma Separated Value .csv, which can be loaded directly into Excel, ArcView etc., or Script Format .scr, the default format for AutoCAD. The software can be loaded into any computer(s) running Windows.

We offer an optional ruggedised Panasonic **Toughbook** portable computer for dedicated use.

The incertitude of the position obtained is somewhat dependant on the operating conditions, particularly the presence of sharp bends or roughness in the pipe. For best results, four passes along the pipe are made, and in normal conditions of operation, the accuracy will be within the French « Classe A » norm of +/- 40cm. for pipes up to the maximum length of 300 meters possible with this instrument. The pipe trace produced is normally that of the top of the pipe, but, thanks to the centralising wheel sets specific to this system, the results can be determined for the centre or the bottom (invert) of the pipe, as required.

The **ABM-90** consists of a cylindrical measurement module which can be supported between pairs of angled (invert) wheels, both small and large, or a wide range of centralising wheels which can be adapted to pipe diameters from **80 mm. to 1.5 meters**. The centralizing wheels ensure that the **ABM-90** follows the centreline of the pipe to ensure good accuracy, whereas the invert wheels are more versatile and require less preparation.



Plan View (Left) and Graph of Depth versus Length (Right) as displayed in the X-View software.