

# FUGRO

## SONICALIPER™ REAL-TIME EXCAVATION INSPECTION

Remove the uncertainty of drilled shaft excavation with SONICaliper excavation inspection. Using sonar technology, it provides a full 360-degree, three dimensional measurement of shaft excavations for a profile of shape, alignment and verticality. With immediate detailed results, engineers, designers and contractors know that shafts have been constructed according to specification and meet quality standards.

The SONICaliper™ is a cost-effective quality control and quality assurance tool for deep foundation excavations such as drilled shafts, slurry walls (barrettes) and secant walls. SONICaliper's operation is independent of drill rigs and other construction equipment which prevents outside influence on data. This independent operation frees the construction equipment for use elsewhere on site.

It measures the excavation side wall and creates a virtual excavation image revealing the excavation's true shape. Only SONICaliper gives the excavation shape, volume and verticality in an hour or less. Effective in dry, water, polymer or mineral slurry environments, SONICaliper provides outstanding results in real-time display. Using proprietary software, it creates "as-constructed" images and calculations immediately after the excavation is profiled.



*The SONICaliper equipment in use*

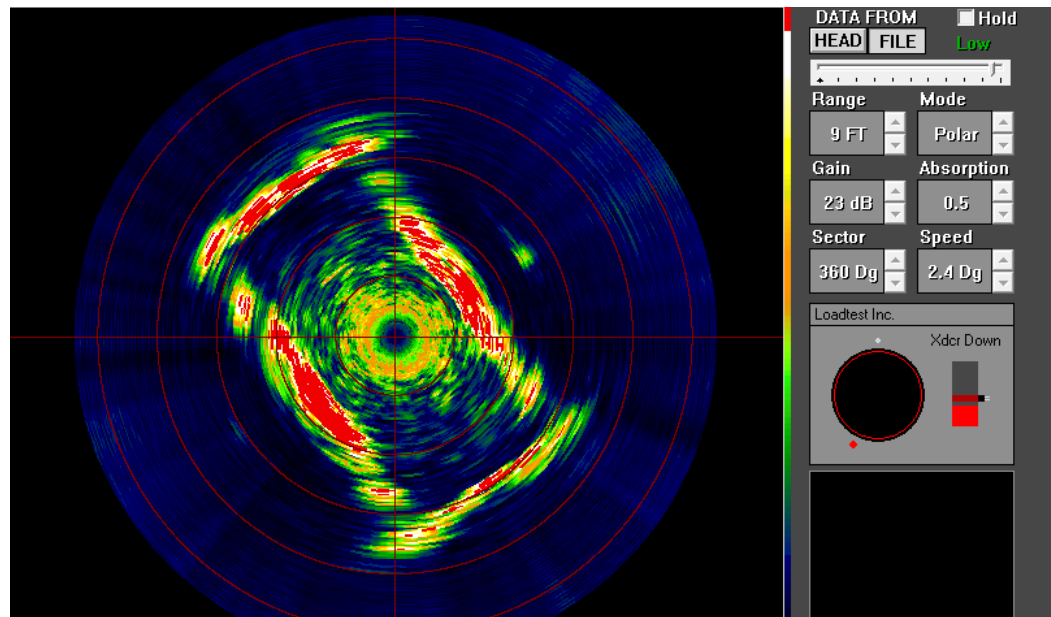
The quality advantage from SONICaliper information allows pro-active quality management. Anomalous and non-spec conditions may be evaluated for impacts to shaft quality prior to the reinforcing cage insertion and concrete placement:

- Defined volume allows informed concrete supply and placement control
- Alignment and verticality information allows control of reinforcement cage placement
- Signal return inference of slurry column particulate presence assists slurry cleaning control.

SONICaliper's timely job site information gives the engineer, designer and contractor additional confidence for the manufacture of a quality shaft as specified.

## Specifications

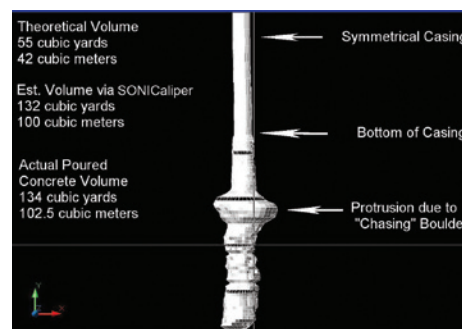
Weight:	14 lbs (6.4 kg)
Height:	18 inches (457 mm)
Width:	6.5 inches (165 mm)
Operating Depth:	Typical operating depths up to 100 meters (capable of operating at greater depths if necessary)
Operating Environment:	Wet environment: Bentonite, Polymer or Natural Slurry Dry environment
Data Collection:	60 to 400 data points per scanned level
Laptop:	Panasonic ToughBook®
Data Output:	PDF, CSV for Excel import, AutoCAD Script File, and XYZ data points
Power Requirements:	110/120/230/240 VAC
Accuracy:	¼ inch (6 mm)



SONICaliper is effective on barettes as well as shafts



Real-time data and results



The SONICaliper can determine shaft dimensions and creates "as-constructed" images immediately after the excavation has been profiled



The SONICaliper equipment