



Hole Mole Technical Specifications

Software Display Capabilities

- Display Modes: PPI (360 deg.), Sector (90 deg.) & A-Mode (oscilloscope).
Raw data display allows for interpretation of first echo return, strongest echo return & average of echoes returned.
Cross-sectional view allows the operator to select rotation angle. 3-D view aids structure visualization.
- Sector Selector: Operator selectable from 0-359 degrees
- Range Selection: Operator selectable from 25-1,000 feet (8-305M), full-scale
- Cursor Control: Moveable to any point on the display
- Cursor Readout: Range & bearing to cursor are displayed

Surface Command Capabilities

- Acoustic Transmitter Power
- Acoustic Receiver Gain
- Acoustic Receiver TVG
- Manual Speed of Sound override
- Transducer Tilt Control
- Cursor Readout

Surface Power Supply/Communications Interface

- Remotely located
- Interface to computer via RS-232
- Contains power supply & proprietary communications interface
- Dimensions: 6" (15cm) W x 7" (18cm) D x 12" (30cm) H
- Electrical Input: 120 volts AC @ .5 A

Downhole (controlled via surface computer)

- Frequency: 250kHz
- Beamwidth: 4 degrees conical @ 250kHz
- Transducer Tilt: 135 degrees (-90 to +45)
- North Orientation: Via internal heading sensor
- Media Velocity: Measured & corrected via internal velocimeter
- Construction: Stainless Steel-type 316, Naval Bronze, Polypropylene
- Outside Diameter: 3.5" (8.9cm); 3.625" (9.2 cm) w/ 8,000 psi opt.
- Overall Length: 58.5" (148.6cm)
- Operating Temp.: -45 to +200 degrees Fahrenheit (-42 to 100C)
- Operating Pressure: 0-8,000 psi
- Service: Field-replaceable printed circuit boards

Cable

- Rochester H-314 Steel Armored
- Toolhead/Wireline connection via standard 1.1875"-12 thread
- Cable Length: 0-25,000 feet (7,620 M)

Data Acquisition and Report Software

- **SONASEARCH** Hole Mole is intended for use on suitably equipped, Intel-based computers running the MSS-DOS operating system.
- Raw data storage limited only by hard disk drive size.
- The report format includes lead sheet, 1, 5 and 45 degree tables, volume table, maximum radii tables, cross sectional plots, maximum radii plot and 3-D plots.
- The survey data is available in .DFX format for use by CAD software i.e., DesignCad.

The system consists of a **SONASEARCH** Hole Mole downhole probe that communicates with a modified NEC APC personal computer via a proprietary communications interface over up to 25,000 feet of Rochester H-314 single-conductor wireline. The system is primarily designed for sonar surveys of fluid-filled structures. A field engineer commands the downhole electronics to sweep the structure. The sonar transducer emits a sonic frequency and the echo return will be received, digitized and transmitted to the surface for display on a suitable high-resolution color video monitor. The rotation speed and pulse rate are software controlled as a function of selected range and speed of sound. When the field engineer is satisfied with the data displayed, he commands the computer to store the displayed data to disk. The data displayed & stored includes date, depth, distance in feet of the radii, angle of tilt in degrees and angle of rotation in degrees. Following the completion of the survey, the survey data is available to the field engineer for post processing and may be exported in .DFX format, if desired.