CYGNUS
INSTRUMENTS

Cygnus ROV Mountable

Available in 2000 & 4000 msw - Pressure Rated Models

MULTIPLE ECHO ULTRASONIC DIGITAL THICKNESS GAUGE

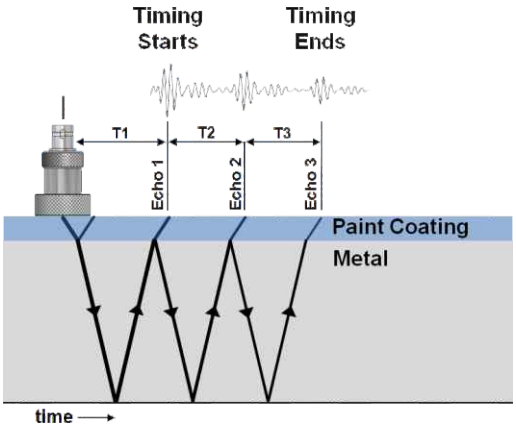
Measures metal thickness to determine wastage or corrosion accurately, quickly and without removing protective coatings

Features for ROV Mountable Gauge

- Available in two models: M5-ROV-2K 2000m (6,526 ft) depth rated and M5-ROV-4K 4000m (13,123ft) depth rated.
- The Cygnus Top Side Repeater (TSR) is available as an option and has the facility to display the thickness measurements remotely and overlay them on to a video signal. This allows the measurements to be superimposed on the ROV camera's monitor screen.
- Selectable Deep Coat mode for measuring through coatings up to 20 mm thick.
- Supplied with CygLink software to display and log thickness measurements from the ROV on a computer at the surface which can be saved to a file and printed out.
- CygLink has two data logging facilities: Quick Log for simple recording of thickness measurements and Structured mode with four templates available - Single Point, Multi Point, Grid Point and Key Point.
- The ROV Gauge sends thickness measurement data to the surface via an RS-422 serial link. Cygnus can supply the RS-422 umbilical cable up to 1200m (4000 ft) in length. For longer distances, using a fibre optic multiplexer, the ROV gauge can output data in RS-232 mode.
- Fitted with a safety Pressure Relief Valve and Securing Eye.
- Easy calibration at the surface via CygLink software or Top Side Repeater (TSR) unit.
- Removable end plate for full serviceability with access to the Option Switches, Fuse and Status LED.
- Wet mateable 'MC' style underwater connectors
- RS -422 - RS-232 selectable.

Benefits of Cygnus Multiple Echo

- Measures remaining metal thickness on corroded and coated structures
- All measurements are error checked using 3 return echoes to give repeatable, reliable results
- Accepted by all major classification societies
- Greatly reduces inspection time and costs
- Echo strength indicator to aid measurement.



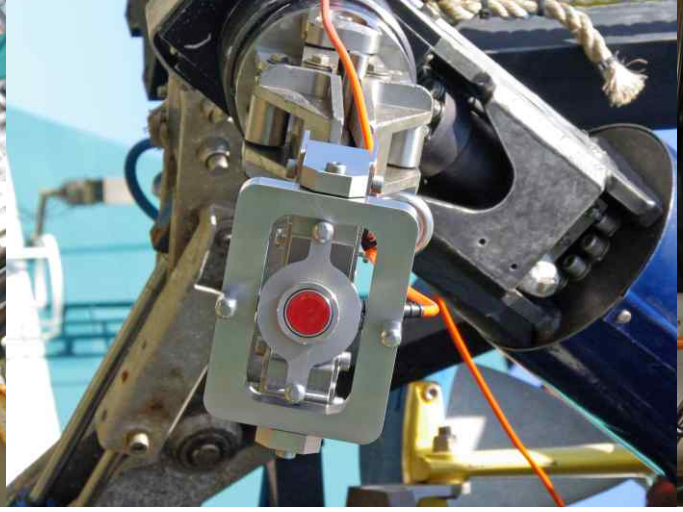
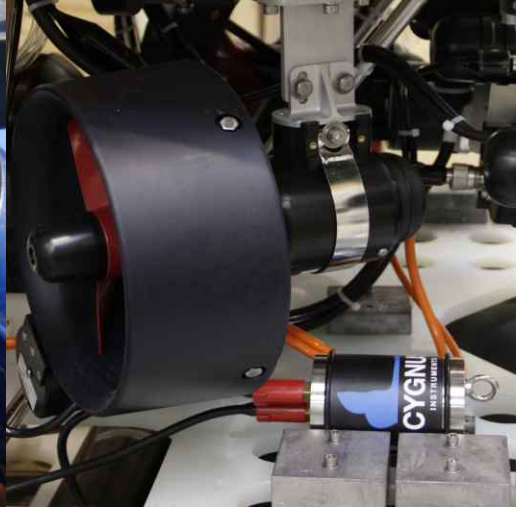
With multiple echo, readings are taken by measuring the time delay between any three consecutive backwall echos. The time of T1 (coating thickness) is ignored. The times of T2 and T3 are equal to the time that it takes to travel through the metal. Only by looking at three echoes can the measurements be automatically verified (where T2 = T3).

Kit Contents

- Cygnus ROV Gauge
- Power and data cable connector
- Probe cable with marinised remote probe (5 m)
- 'K3' RS-422 to RS-232 converter
- RS-232 to USB converter
- Cyglink data logging software
- Membrane couplant for the UT probe
- Spare membranes for the UT probe
- Membrane locking ring key
- Spare O-Rings for ROV
- 15 mm (½") test block
- Spare 1A fuses
- 3 mm allen key
- Silicone grease
- *Optional Topside Repeater with video overlay facility kit.

M5-ROV-4K

M5-ROV-2K

CygLink Software - Standard

1. Displays the last thickness measurement value
2. Displays the current computer time
3. Displays the echo strength indicator bars
4. Selects the display mode
5. Selects between mm and inch units
6. Displays the current thickness measurement
7. Displays the link status.

Calibration to a Known Thickness

The CygLink display can be calibrated to a known thickness using the gauge to measure a sample of the material that will be measured. This method ensures the velocity of sound is set for the actual material being measured rather than using a generic value.

Setting the Velocity of Sound

The velocity of sound can be set to suit the material that will be measured, manually adjusted or set to one of the pre-defined common velocity values. By default it will be set to 5920 m/s for mild steel.

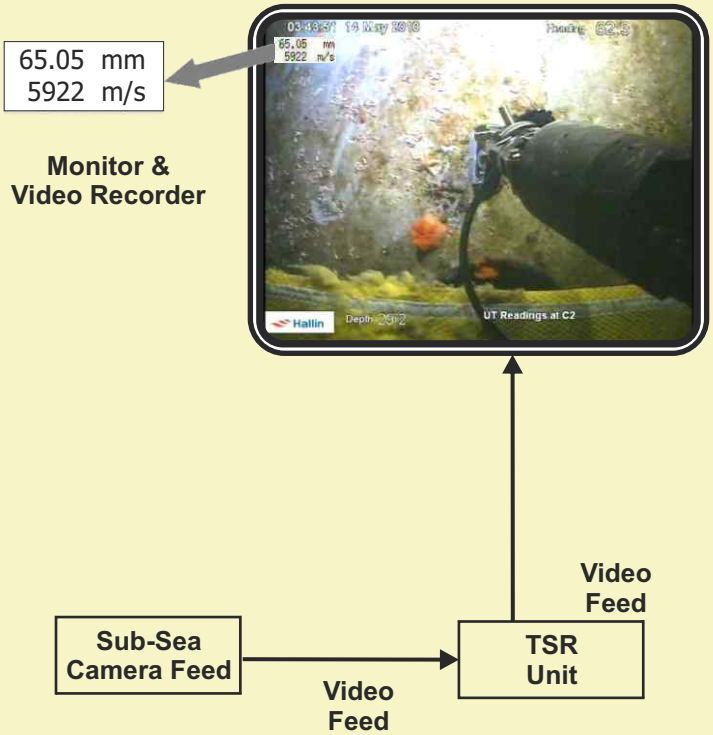
Top Side Repeater (TSR) - Optional

The Top Side Repeater is a small display unit that can be used to display the thickness measurements sent from the ROV gauge to the surface.

Kit includes data and video cables.

TSR Video Overlay Facility

The Top Side Repeater can also superimpose the thickness measurements on to a composite PAL or NTSC video signal to display it on a monitor screen and/or the video recording of the survey. This provides a thickness measurement that can be linked to a position or place in the video recording.



Specifications

Materials	Sound velocities between 1000 m/s and 9995 m/s
Measurement Range in Steel	3 mm - 250 mm with 2.25 MHz probe 2 mm - 150 mm with 3.5 MHz probe 1 mm - 50 mm with 5.0 MHz probe
Accuracy	0.1 mm when calibrated in accordance with Cygnus Instruments Calibration Procedures
Resolution	0.05 mm
Probes	Single crystal soft-faced compression 13 mm - 2.25, 3.5 or 5 MHz (Lower frequency probes offer better penetration on heavy corrosion/coatings)
Power	7.0 - 30 V dc @ 150 mA (max)
Size	88.90 mm diameter x 205 mm long (inc. fittings)
Weight	Model M5-ROV-2K = 0.975 kg Model M5-ROV-4K = 4.100 kg
Operating Temp.	-10°C to +50°C
Testing	Model M5-ROV-2K tested to 3 km depth Model M5-ROV-4K tested to 6 km depth
Communication	RS-422, Simplex Single Pair or RS-232 TXD 2400 or 9600 Baud (Selectable via DIP switches)
Compliance	CE, British Standard BS EN 15317:2007 (Specification for the characterisation and verification of ultrasonic thickness measuring equipment)
Environmental	RoHS compliant
Warranty	3 years on gauge, 6 months on probe

*Specifications are subject to change for product improvement

Probe Handling Solutions

Complementing the Cygnus ROV Mountable thickness gauges, the Cygnus W1 Work Class ROV Probe Handler has been developed to offer an engineered probe-handling solution for Work Class ROV thickness gauging operations.

Details of this system and others can be found in separate brochures available on request or downloaded from our website.

Cygnus W1 Probe Handler

For more products, please visit www.cygnus-instruments.com

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