

M5 ROV Mountable Ultrasonic thickness gauge



Specifically designed for underwater remotely operated vehicles, Cygnus offer two dedicated ROV Mountable thickness gauges, the M5-ROV-2K – 2,000 m depth rated, and the M5-ROV-4K – 4,000 m depth rated. These mountable measurement gauges again benefit from the multiple-echo technology found in all our ultrasonic measuring devices. They are truly versatile and designed to measure metal thickness through coatings in the harshest operating conditions.

Specifications

Product	M5 ROV Ultrasonic Thickness Gauge
Country of origin	UK
Manufacturer	Cygnus Instruments Ltd

Features for ROV Mountable Gauge

- 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 (3/4") 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.
- Available in two models: M5-ROV-2K 2,000 m (6,526 ft) depth rated and M5-ROV-4K 4,000 m (13,123 ft) depth rated.
- 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 1,200 m (4,000 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 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.

Kit contents

- Cygnus ROV Gauge
- Power and data cable connector
- Probe cable with marinised remote probe 5 m (16 ft)
- Membrane couplant for the UT probe
- Spare membranes for the UT probe
- Membrane locking ring key
- Silicone grease
- Optional Topside Repeater with video overlay facility kit.
- K3' RS-422 to RS-232 converter
- RS-232 to USB converter
- Cyglink data logging software
- Spare O-Rings for ROV
- 15 mm (1/2") test block
- Spare 1Afuses
- 3 mm (0.100") allen key

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).

Specifications

Materials	Sound velocities between 1000 m/s and 9995 m/s
Measurement range in Steel	3 mm - 250 mm (0.110" - 9.994") with 2.25 MHz probe 2 mm - 150 mm (0.065" - 6.000") MHz probe with 3.5 MHz probe 1 mm - 50 mm (0.045" - 4.000") with 5.0 MHz probe
Accuracy	0.1 mm (0.005") when calibrated in accordance with Cygnus Instruments Calibration Procedures
Resolution	0.05 mm (0.002")
Probes	Single crystal soft-faced compression 13 mm (1/2") - 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 (3.50") diameter x 205 mm (8.07") long (inc. fittings)
Weight	Model M5-ROV-2K = 0.975 kg (2.150 lbs) Model M5-ROV-4K = 4.100 kg (9.039 lbs)
Operating Temp	-10°C to +50°C (14°F to 122°F)
Testing	Model M5-ROV-2K tested to 3 km (9.842 ft) depth Model M5-ROV-4K tested to 6 km (19,685 ft) depth
Communication	RS-422, Simplex Single Pair or RS-232 TXD 2400 or 9600 Baud
Compliance	CE, British Standard BS EN 15317:2007 (Specification for the characterisation and verification of ultrasonic thickness measuring equipment)
Environmental	RoHS, WEEE compliant
Warranty	3 years on gauge, 6 months on probe

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.