Cygnus Instruments

Cygnus DIVE Underwater Ultrasonic Thickness Gauge

The **Cygnus DIVE** is a wrist-mountable, simple to operate subsea ultrasonic thickness gauge. This very robust unit provides an invaluable free hand while performing remaining metal thickness measurements.

The large display is easily viewable by both the diver and his camera - even in the poorest visibility. The unit has only two buttons for easy navigation of an intuitive, clear menu.

KEY FEATURES

- Wrist-mountable giving the diver a free hand
- Large colour display, clearly viewable by diver and camera in poor visibility
- A-scan display to assist with measurement verification
- Single-Echo and Echo-Echo modes
- Error-checked Multiple-Echo measurements to ensure genuine, verified measurements are displayed
- Data logging with auto-log feature; no button to press
- Stores up to 5,000 measurements and their A-scans
- Deep-Coat mode to measure through coatings up to 20 mm (0.78 inch) thick
- Probes are connected to the DIVE with a coiled double jacket cable which extends up to 2.5 metres
- Pressure tested to 300 metres (1,000 ft)
- Rechargeable lithium-ion battery giving up to 11 hours continuous operation.

SINGLE CRYSTAL PROBES

Single crystal probes use the Cygnus **Multiple-Echo** technique which gives three sound pulses, this ignores coatings and provides error-checked verified readings.

TWIN CRYSTAL PROBES

Twin crystal probes measure in **Echo-Echo** and **Single-Echo** modes. This adds versatility for specific applications such as on extreme back wall corrosion.

MEASUREMENT STABILITY INDICATOR (MSI™)

Exclusive to Cygnus, MSI™ ensures stable and therefore reliable measurements are displayed in Echo-Echo and Single-Echo modes.

OPTIONS AND ACCESSORIES

Data Logging

A data logging DIVE gauge has the capability to store 5,000 measurements with individual A-scans to its internal memory. The auto-log feature allows readings to be logged without pressing any buttons. DIVE gauges can be supplied as data logging or a standard unit can be upgraded later remotely.

CygLink is a Windows® application used for uploading data from a data logging gauge, for reporting and analysis. When used with a DIVE gauge and an umbilical cable to the surface CygLink displays thickness measurements and A-scans at the surface in a linear format. Measurements can be logged from the surface, plus gauge settings, including the velocity of sound, can be controlled from the surface. Each recorded measurement can have up to 8 short pre-set text comments added to it. Data can be displayed in a survey report document, including A-scans, and can be exported as a .csv file (Microsoft Excel®).

Topside Repeater Remote Display Unit

The Cygnus Topside Repeater is a remote display unit connected to the DIVE gauge with an umbilical cable. It displays the thickness measurements at the surface in real-time during the survey.

Topside Repeater with Video Overlay

The Topside Repeater can also overlay the real-time thickness measurements on to a composite video signal, displaying it on the survey monitor screen. It will also then be recorded (if there is a video of the survey), showing exact locations and the thickness measurement for future reference.

HelmetView™ Display

This is a remote display with a fixing bracket for Kirby Morgan® Helmets that have an accessory mounting point. This is designed for use in situations with extremely poor visibility and ease of viewing by the diver.

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STANDARD KIT CONTENTS

Cygnus DIVE ultrasonic thickness gauge; 2 rechargeable batteries; fast charger; single crystal probe (2.25 MHz 13 mm (0.5 inch)); user manual; spare membranes; membrane key; test block; surface and membrane couplant.

SPECIFICATION

Gauge	Cygnus DIVE		
Display	2.8 inch quarter VGA colour AMOLED (320 x 240 pixels) Large clear thickness measurement (15 mm high numbers), viewable from all angles A-scan display with automatic X axis Battery level, signal strength, probe type, velocity Measurement mode and units indication		
Battery	Single 3.6V Li-ion 8.2 W battery 11 hours continuous measurement Low battery warning 'alert' message		
Measuring Modes	Multiple-Echo (three back-wall echoes) using single crystal (zero-degree) probes - automatically ignores surface coatings and measures only metal thickness Single-Echo (first back-wall echo) using twin crystal probes Echo-Echo (2 back-wall echos) using twin crystal probee		
Deep Coat	Multiple-Echo mode measurement can be taken through thicker coatings of suitable materials of up to 20 mm (0.78 inch) thick		
Accuracy	±0.1 mm (±0.004 inch) or 0.1% of thickness measurement, whichever is greatest, when calibrated in accordance with Cygnus Instruments calibration procedure		
Probes	Single crystal probes: • 13 mm (0.5 inch) - 2.25 MHz (S2C (standard)) • 19 mm (0.75 inch) - 2.25 MHz (S2D) • 13 mm (0.5 inch) - 3.5 MHz (S3C) • 6 mm (0.25 inch) 5 MHz (S5A)	Twin crystal probes: • 13 mm (0.5 inch) - 2 MHz (T2C (for attenuative materials)) • 8 mm (0.32 inch) - 5 MHz (T5B (standard dual element))	
Probe Cables	Double outer jacket in tough PU Coloured yellow for easy locations underwater Coiled for ease of use Fischer S105 series connectors		
Measurement Ranges	Single crystal probes: • 1 - 250 mm (0.040 - 10.00 inch)	Twin crystal probes (Single-Echo): • 2 - 150 mm (0.079 - 5.900 inch)	Twin crystal probes (Echo-Echo): • 4 - 50 mm (0.158 - 2.000 inch)
Measurement Resolution	Multiple-Echo mode - 0.1 mm (0.005 inch) or 0.05 mm (0.002 inch) Single-Echo and Echo-Echo modes - 0.1 mm (0.005 inch) or 0.5 mm (0.002 inch) or 0.01 mm (0.001 inch)		
Measurement Units	mm or inches		
Probe Zero	Fully automatic probe zeroing for all probes types		
V-Path Correction	Automatic V-Path correction for all twin crystal probes		
Velocity Range	2000 to 9000 m/s in 1 m/s setps		
Pulser	Twin channel 70 V spike pulser		
Receiver / Amplifier	10 MHz bandwidth, 120 dB range, automatic TCG 60 MHz measurement time-base		
Data Logging	One-handed automatic logging of stable measurements Capacity for up to 5000 points including 640 point A-scan data		
Data Output	RS-485 single pair, half duplex for surface connection		
Computer Software	CygLink allows remote logging and viewing of A-scan graphs Survey and report generation to PDF file Graphic analysis of data and statistical calculations Designed for Windows® 7 and Windows® 8		
Compliance	Designed for EN 15317		
Warranty	3 years on gauge and 6 months on probes		

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