Brilliant Solutions in Ultrasonic Measurement

Cygnus Subsea Range

Ultrasonic Thickness Gauges
Available in 300m, 500m & 2,000m Depth Rated Models
At Cygnus, our priority is to listen to our customers to ensure that our products are designed for the real world. We have focussed on ease of use, accuracy and durability when creating all of our subsea thickness gauges.

We have strategically-placed Cygnus Service Centres across the globe, who are highly trained in order to provide the excellent service and support that Cygnus is renowned for.

Cygnus is the original pioneer of the Multiple-Echo measuring technique. We have a long and proud history of offering our customers superb quality and service since 1983.

**RANGE OF SUBSEA THICKNESS GAUGES**

**Cygnus Diver Range**

Cygnus has 2 diver underwater thickness gauges; a wrist-mountable gauge with a large colour display offering A-scan and multi-measuring modes and our original diver-held underwater gauge. Both units are rated to 300 msw.

**Cygnus ROV Mountable Range**

Designed specifically to be mounted onto an ROV, Cygnus has 2 ROV models in their range, the Mini ROV pressure tested to 500 m and the ROV 2000m MKS UTG Kit which is depth rated to 2,000 m.

**Cygnus Options & Accessories**

There are a range of options and accessories available to assist the user with obtaining, viewing and recording thickness measurements.

**EASY TO USE**

Using a Cygnus instrument to take a thickness measurement is quick and simple. Gauge menus are intuitive and easy to navigate. ‘Auto-log’ feature further enhances convenience.

**RELIABLE**

Measures Through Coatings

Cygnus’ original technique uses three return echoes to give a truly accurate, error checked metal thickness measurement (through coatings of up to 20mm (0.8").

Accepted by all major classifications societies.

CygLink is a Windows® application for PCs and laptops running Windows 7® and above. It is used for uploading data from a data logging gauge in order to conduct analysis and reporting. When used with a Cygnus DIVE gauge and an umbilical cable, CygLink will display thickness measurements and A-scans at the surface.

In addition, measurements can be logged and gauge settings can be adjusted (including velocity of sound) with this simple to use application.

When CygLink is used to data log measurements, they can be recorded in a Linear List or a Two-Dimensional Grid.

A-scans can be analysed in CygLink

Each recorded measurement can have up to 8 pre-set comments added to it.
THREE VERSATILE MEASURING MODES

Multiple-Echo (Standard Measuring Mode using Single Crystal Probes)

Gives the most reliable and accurate remaining thickness measurements, with no need to remove coating (up to 20 mm thick (0.8")).

Echo-Echo (Available with Cygnus DIVE using Twin Crystal Probes)

Measures through coatings of up to 1 mm (0.04") thick, ideal for measuring painted metals with back wall corrosion.

Single-Echo (Available with Cygnus DIVE using Twin Crystal Probes)

Ideal for measuring uncoated metals with heavy corrosion. Also effective on a range of cast metals, plastics and composites.

CYGLINK SOFTWARE

CygLink is a Windows based application used to transfer and manage data logger records, A-scans, templates, measurement comments and material velocity tables. The program can generate PDF reports and export to Excel. It also displays A-scans, allowing for after-the-event analysis of logged measurements.

DATA LOGGING

The Cygnus DIVE offers simple, easy to use linear data logging and has the ability to auto-log; this is a function that automatically logs measurements, without pressing any buttons, for ’hands-free’ convenience.

A-SCAN DISPLAY

The Cygnus DIVE offers A-scan display, which shows the ultrasonic echo, in visual form, used for analysis and verification.

The Cygnus HelmetView™ is an accessory for the Cygnus DIVE gauge. 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.

NO NEED TO REMOVE COATINGS

All Cygnus thickness gauges are supplied with a 3 year warranty as standard.
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 thick
- Probes are connected to the DIVE with a coiled double jacket cable which will extend up to 1 metre
- Pressure tested to 300 metres
- Rechargeable lithium-ion battery giving up to 11 hours continuous operation
- Optional Topside Repeater remote display unit and/or Topside Repeater with Video Overlay.

**Topside Repeater Remote Display Unit**

The Cygnus Topside Repeater is a remote display unit available as an option for the subsea range.

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, superimposing it on the survey camera’s monitor screen. It will also then be recorded if there is a video of the survey, showing exact locations and their thickness measurement for future reference.
Divers Wrist-Mountable Thickness Gauge with a Large AMOLED Display

- **Display**: 2.8” 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.

- **Measurements 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 probe.

- **Deep Coat**: In Multiple-Echo mode, allows measurement to be made through thicker coatings of suitable materials of up to 20 mm thick.

- **Accuracy**: ±0.1 mm or 0.1% of thickness measurement, whichever is greatest, when calibrated in accordance with Cygnus Instruments calibration procedure.

- **Probes**:
  - **Single crystal probes**:
    - 13 mm - 2.25 MHz (S2C (standard))
    - 19 mm - 2.25 MHz (S2D)
    - 13 mm - 3.5 MHz (S3C)
    - 6 mm - 5.0 MHz (S5C)
  - **Twin crystal probes**:
    - 13 mm - 2.0 MHz (T2C (for cast iron etc.))
    - 8 mm - 5.0 MHz (T5B (standard))

- **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**:
    - 3 - 250 mm with 2.25 MHz
    - 2 - 150 mm with 3.5 MHz
    - 1 - 50 mm with 2 MHz
  - **Twin crystal probes in Single-Echo**:
    - 2 - 100 mm with 5 MHz
    - 3 - 150 mm with 5 MHz
  - **Twin crystal probes in Echo-Echo**:
    - 4 - 50 mm with 5 MHz
    - 6 - 50 mm with 2 MHz

- **Measurement Resolution**:
  - Multiple-Echo with single crystal probes - 0.1 or 0.05 mm
  - Single-Echo and Echo-Echo with twin crystal probes - 0.1 or 0.01 mm

- **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

- **Standards**: Designed for EN 15317

- **Warranty**: 3 years on gauge and 6 months on probe
Pressure Rated to 2,000 msw

Materials
Sound velocities between 1000 m/s and 9995 m/s

Measurement Range in Steel
1 mm - 250 mm (0.040" - 10.000")

Accuracy
±0.1 mm (±0.004") or 0.1% of thickness measurement, whichever is greatest, when calibrated in accordance with Cygnus Instruments calibration procedure

Resolution
0.05 mm (0.002")

Probes
Single crystal soft-faced compression 13 mm (½") - 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 in Air
0.900 kg (2.150 lbs)

Operating Temp.
-10°C to +50°C (14°F to 122°F)

Testing
Depth rated to 3 km (9.842 ft)

Communication
RS-422, Simplex Single Pair or RS-232 TXD 2400 or 9600 Baud (selectable via DIP switches)

Standards
Designed for EN 15317

Environmental
RoHS, WEEE compliant

Warranty
3 years on gauge and 6 months on probe

The Cygnus Underwater is the original diver held subsea Multiple-Echo ultrasonic thickness gauge. It was designed for use by divers undertaking subsea maintenance and surveys 3 decades ago... and today it is still an industry standard.

Key Features:
- RINA approved (Certificate No. 2009DGPO787)
- Auto-Probe Recognition (APR)
- Easy calibration using convenient buttons
- Rugged, durable, shock-proof construction
- Stable calibration - linear accuracy - no zero adjustment
- Large bright LED display for poor visibility
- Pressure rated to 300 m (1,000 ft) depth
- Heavy duty sealed unit with double ‘O’ ring protection
- Self verification of measurements to ensure accuracy
- Echo strength indicator to aid measurement
- All probes are protected by a membrane to prevent damage
- Various probe options
- Two rechargeable battery packs with charger
- Fixed head probe option for single handed use
- Topside Repeater options:
  - Option A - palm held surface display repeater with large crystal display in an IP65 sealed case
  - Option B - data logging and remote display Windows based software. The umbilical is connected directly to the serial port of the PC.
Specifically designed for underwater remotely operated vehicles, Cygnus offers a dedicated ROV mountable thickness gauge, ROV 2000m MK5 UTG Kit (depth rated 2,000 m). This gauge is versatile and designed to measure metal thickness through coatings in the harshest operating conditions.

**Key Features:**
- 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 presented as a report.
- Selectable Deep-Coat mode for measuring through coatings up to 20 mm (¾”) thick.
- The gauge connects to the surface via a serial link. RS-422 can be used with an umbilical up to 1,200 m. RS-232 can be used to connect to a multiplexer.
- 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.
- The Cygnus Topside Repeater 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.

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### Cygnus Original Diver-Held Multiple-Echo Underwater Thickness Gauge

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
</table>
| **Materials**            | Sound velocities between 2000 m/s and 7000 m/s (0.059 and 0.31 in/microsec) -
                          | covers virtually all common engineering materials                          |
| **Measurement Range in Steel** | 1 mm - 250 mm (0.040" - 10.000")                                          |
| **Accuracy**             | 0.1 mm (0.005") when calibrated in accordance with Cygnus Instruments calibration procedure |
| **Resolution**           | 0.1 mm or 0.05 mm (selectable) (0.005" or 0.002")                           |
| **Probes**               | Remote single crystal soft-faced compression                                |
|                          | 6 mm (¼") - 6 MHz                                                           |
|                          | 13 mm (½") - 2.25, 3.5 or 5 MHz                                           |
|                          | 19 mm (¾") - 2.25 MHz (lower frequency probes offer better penetration on heavy corrosion/coatings) |
| **Power**                | NiMH rechargeable battery pack                                              |
| **Battery Life**         | 30 hours’ (continuous measuring)                                           |
| **Display**              | Large, bright LED display                                                   |
| **Size**                 | 235 mm x 75 mm (8 3/8" x 3")                                               |
| **Weight**               | 950 g (2.1 lbs) - with remote probe                                         |
|                          | 860 g (30.3 oz) - with fixed head probe                                    |
| **Operating Temp.**      | -10°C to +50°C (14°F to 122°F)                                             |
| **Environmental Protection** | IPX8 continuous 300 m (984 ft) rating                                       |
| **Standards**            | Designed for EN 15317                                                      |
| **Environmental**        | RoHS, WEEE compliant                                                       |
| **Warranty**             | 3 years on gauge and 6 months on probe                                      |
The Cygnus Mini ROV Mountable thickness gauge has been specially designed to be mounted onto small observation ROVs with or without a manipulator facility. Built in conjunction with VideoRay, this mountable subsea thickness gauge will allow the operator to carry out an ultrasonic thickness measurement in areas that have previously been infeasible using larger ROVs or divers. This Multiple-Echo thickness gauge measures metal thickness and corrosion without removing protective coatings.

**Key Features:**
- Designed specifically to mount onto small observation ROVs.
- 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 presented as a report.
- The Cygnus Topside 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.
- Easy calibration at the surface via CygLink software or Top Side Repeater (TSR) unit.
- Optional dedicated probe holder to allow measurements on curved or flat surfaces.
- Thickness measurements are sent to the surface via RS-422 serial link (RS-232 on request).

**Pressure Rated to 500 m Depth Multiple-Echo Ultrasonic Thickness Gauge**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Cygnus Mini ROV Mountable</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Materials</strong></td>
<td>Sound velocities between 1000 m/s and 9995 m/s</td>
</tr>
<tr>
<td><strong>Measurement Range in Steel</strong></td>
<td>1 mm – 250 mm (0.040” - 10.000”)</td>
</tr>
<tr>
<td><strong>Accuracy</strong></td>
<td>±0.1 mm (±0.004”) or 0.1% of thickness measurement, whichever is greatest, when calibrated in accordance with Cygnus Instruments calibration procedure</td>
</tr>
<tr>
<td><strong>Resolution</strong></td>
<td>0.05 mm (0.002&quot;)</td>
</tr>
<tr>
<td><strong>Probes</strong></td>
<td>Single crystal soft-faced compression 13 mm (½”) - 2.25, 3.5 or 5 MHz (lower frequency probes offer better penetration on heavy corrosion/coatings)</td>
</tr>
<tr>
<td><strong>Power</strong></td>
<td>7.0 - 30 V dc @ 150 mA (max)</td>
</tr>
<tr>
<td><strong>Display</strong></td>
<td>PC or laptop with VGA (not included)</td>
</tr>
<tr>
<td><strong>Size</strong></td>
<td>160 mm x 62 mm (6.299” x 2.441”)</td>
</tr>
<tr>
<td><strong>Weight in Air</strong></td>
<td>550 g (19.4 oz)</td>
</tr>
<tr>
<td><strong>Operating Temp.</strong></td>
<td>-10°C to +50°C (14°F to 122°F)</td>
</tr>
<tr>
<td><strong>Approvals</strong></td>
<td>RINA Type approved</td>
</tr>
<tr>
<td><strong>Testing</strong></td>
<td>Tested to 500 m (1,500 ft) depth</td>
</tr>
<tr>
<td><strong>Communication</strong></td>
<td>RS-422, Simplex Single Pair or 2400 Baud (RS-232 9600 Baud output available as special order)</td>
</tr>
<tr>
<td><strong>Standards</strong></td>
<td>Designed for EN 15317</td>
</tr>
<tr>
<td><strong>Environmental</strong></td>
<td>RoHS, WEEE compliant</td>
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<td><strong>Warranty</strong></td>
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Key Features:
- Designed specifically to mount onto small observation ROVs.
- 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 presented as a report.
- The Cygnus Topside Repeater (TSR) is available as an option and has the facility to display the thickness measurements remotely and overlay them onto a video signal. This allows the measurements to be superimposed on the ROV camera’s monitor screen.
- Easy calibration at the surface via CygLink software or Top Side Repeater (TSR) unit.
- Optional dedicated probe holder to allow measurements on curved or flat surfaces.
- Thickness measurements are sent to the surface via RS-422 serial link (RS-232 on request).
Cygnus' Original Diver-Held Multiple-Echo Underwater Thickness Gauge

Materials  
Sound velocities between 2000 m/s and 7000 m/s (0.059 and 0.31 in/microsec) - covers virtually all common engineering materials

Measurement Range in Steel  
1 mm - 250 mm (0.040" - 10.000")

Accuracy  
0.1 mm (0.005") when calibrated in accordance with Cygnus Instruments calibration procedure

Resolution  
0.1 mm or 0.05 mm (selectable) (0.005" or 0.002")

Probes  
Remote single crystal soft-faced compression  
- 6 mm (1/4") - 6 MHz  
- 13 mm (1/2") - 2.25, 3.5 or 5 MHz  
- 19 mm (3/4") - 2.25 MHz  
(Lower frequency probes offer better penetration on heavy corrosion/coatings)

Power  
NiMH rechargeable battery pack

Battery Life  
30 hours' (continuous measuring)

Display  
Large, bright LED display

Size  
235 mm x 75 mm (8 3/8" x 3")

Weight  
950 g (2.1 lbs) - with remote probe  
860 g (30.3 oz) - with fixed head probe

Operating Temp.  
-10°C to +50°C (14°F to 122°F)

Environmental Protection  
IPX8 continuous 300 m (984 ft) rating

Standards  
Designed for EN 15317

Environmental RoHS, WEEE compliant

Warranty  
3 years on gauge and 6 months on probe

Specifically designed for underwater remotely operated vehicles, Cygnus offers a dedicated ROV mountable thickness gauge, ROV 2000m MK5 UTG Kit (depth rated 2,000 m). This gauge is versatile and designed to measure metal thickness through coatings in the harshest operating conditions.

Key Features:
- 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 presented as a report.
- Selectable Deep-Coat mode for measuring through coatings up to 20 mm (¾") thick.
- The gauge connects to the surface via a serial link. RS-422 can be used with an umbilical up to 1,200 m. RS-232 can be used to connect to a multiplexer.
- 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.
- The Cygnus Topside Repeater 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.
The Cygnus Underwater is the original diver held subsea Multiple-Echo ultrasonic thickness gauge. It was designed for use by divers undertaking subsea maintenance and surveys 3 decades ago… and today it is still an industry standard.

Key Features:
- RINA approved (Certificate No. 2009DGPO787)
- Auto-Probe Recognition (APR)
- Easy calibration using convenient buttons
- Rugged, durable, shock-proof construction
- Stable calibration - linear accuracy - no zero adjustment
- Large bright LED display for poor visibility
- Pressure rated to 300 m (1,000 ft) depth
- Heavy duty sealed unit with double ‘O’ ring protection
- Self verification of measurements to ensure accuracy
- Echo strength indicator to aid measurement
- All probes are protected by a membrane to prevent damage
- Various probe options
- Two rechargeable battery packs with charger
- Fixed head probe option for single handed use
- Topside Repeater options:
  - Option A - palm held surface display repeater with large crystal display in an IP65 sealed case
  - Option B - data logging and remote display Windows based software. The umbilical is connected directly to the serial port of the PC.

Pressure Rated to 2,000 msw

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<td>Resolution</td>
<td>0.05 mm (0.002&quot;)</td>
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<tr>
<td>Probes</td>
<td>Single crystal soft-faced compression 13 mm (½&quot;) - 2.25, 3.5 or 5 MHz (lower frequency probes offer better penetration on heavy corrosion/coatings)</td>
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<tr>
<td>Power</td>
<td>7.0 - 30 V dc @ 150 mA (max)</td>
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<tr>
<td>Size</td>
<td>88.90 mm (3.50&quot;) diameter x 205 mm (8.07&quot;) long (inc. fittings)</td>
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<td>Weight in Air</td>
<td>0.900 kg (2.150 lbs)</td>
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<td>Operating Temp.</td>
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<td>Testing</td>
<td>Depth rated to 3 km (9.842 ft)</td>
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<tr>
<td>Communication</td>
<td>RS-422, Simplex Single Pair or RS-232 TXD 2400 or 9600 Baud (selectable via DIP switches)</td>
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<td>Warranty</td>
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Divers Wrist-Mountable Thickness Gauge with a Large AMOLED Display

Display
2.8” 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.

Measurements 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 echoes) using twin crystal probe

Deep Coat
In Multiple-Echo mode, allows measurement to be made through thicker coatings of suitable materials of up to 20 mm thick

Accuracy
±0.1 mm or 0.1% of thickness measurement, whichever is greatest, when calibrated in accordance with Cygnus Instruments calibration procedure

Probes
Single crystal probes:
- 13 mm - 2.25 MHz (S2C (standard))
- 19 mm - 2.25 MHz (S2D)
- 13 mm - 3.5 MHz (S3C)
- 6 mm - 5.0 MHz (S5C)

Twin crystal probes:
- 13 mm - 2.0 MHz (T2C (for cast iron etc.))
- 8 mm - 5.0 MHz (T5B (standard))

Probes 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:
- 3 - 250 mm with 2.25 MHz
- 2 - 150 mm with 3.5 MHz
- 1 - 50 mm with 2 MHz

Twin crystal probes in Single-Echo:
- 2 - 100 mm with 5 MHz
- 3 - 150 mm with 5 MHz

Twin crystal probes in Echo-Echo:
- 4 - 50 mm with 5 MHz
- 6 - 50 mm with 2 MHz

Measurement Resolution
Multiple-Echo with single crystal probes - 0.1 or 0.05 mm
Single-Echo and Echo-Echo with twin crystal probes - 0.1 or 0.01 mm

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

Standards
Designed for EN 15317

Warranty
3 years on gauge and 6 months on probe

Cygnus Probe Handlers
Options & Accessories
Cygnus G1 Probe Handler
For Observation, Inspection & Light Work-Class ROV

The Cygnus G1 probe handler is designed for use on observation, inspection and light work-class ROVs. Constructed from acetal, it is both strong and lightweight. It features an adjustable mounting bracket allowing optimum positioning of the UT probe. The UT probe is located in an articulated mount that allows up to 15 degrees of movement in both planes allowing automatic alignment of the probe face to the measurement surface making the ROV pilot’s job easier.

Cygnus S1 Probe Handler
For ROV Ship Hull Inspection

The Cygnus S1 probe handler is designed for performing UT thickness surveys on ships’ hulls with an observation or light work-class ROV. On contact with the hull plate, two sets of magnets first grip the steel, then as the ROV pushes forward the UT probe is allowed to tilt to align it to the hull surface placing the UT probe in the optimal position for measurement. The ROV pilot then just maintains gentle forward thrust while the measurement is taken. The S1 probe holder is constructed from acetal with stainless steel fixings keeping the overall weight down.

Cygnus W1 Probe Handler
For Work-Class ROV

The Cygnus W1 probe handler is designed for use on work-class ROVs. It can be held by a manipulator arm and supplied with either T bar or Fish Tail handles. It is constructed from 316 stainless steel throughout. Ultrasonic probe alignment is provided by a double jointed coupling that provides 15 degrees of movement in both planes guided by four pins. A shock absorbing spring reduces any impact loading on the unit. The design allows the manipulator arm to present the ultrasonic probe to the surface to be measured; any misalignment will be taken up by the coupling resulting in less movement of the manipulator arm position.

Cygnus Probe Handlers
Options & Accessories
Cygnus G1 Probe Handler
Cygnus S1 Probe Handler
Cygnus W1 Probe Handler

Cygnus DIVE
12

Speciation
Cygnus DIVE
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 thick
- Probes are connected to the DIVE with a coiled double jacket cable which will extend up to 1 metre
- Pressure tested to 300 metres
- Rechargeable lithium-ion battery giving up to 11 hours continuous operation
- Optional Topside Repeater remote display unit and/or Topside Repeater with Video Overlay.

**Topside Repeater Remote Display Unit**
The Cygnus Topside Repeater is a remote display unit available as an option for the subsea range.

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, superimposing it on the survey camera’s monitor screen. It will also then be recorded if there is a video of the survey, showing exact locations and their thickness measurement for future reference.
THREE VERSATILE MEASURING MODES

Multiple-Echo (Standard Measuring Mode using Single Crystal Probes)
Gives the most reliable and accurate remaining thickness measurements, with no need to remove coating (up to 20 mm thick (0.8”)).

Echo-Echo (Available with Cygnus DIVE using Twin Crystal Probes)
Measures through coatings of up to 1 mm (0.04”) thick, ideal for measuring painted metals with back wall corrosion.

Single-Echo (Available with Cygnus DIVE using Twin Crystal Probes)
Ideal for measuring uncoated metals with heavy corrosion. Also effective on a range of cast metals, plastics and composites.

CYGLINK SOFTWARE
CygLink is a Windows based application used to transfer and manage data logger records, A-scans, templates, measurement comments and material velocity tables. The program can generate PDF reports and export to Excel. It also displays A-scans, allowing for after-the-event analysis of logged measurements.

DATA LOGGING
The Cygnus DIVE offers simple, easy to use linear data logging and has the ability to auto-log; this is a function that automatically logs measurements, without pressing any buttons, for ‘hands-free’ convenience.

A-SCAN DISPLAY
The Cygnus DIVE offers A-scan display, which shows the ultrasonic echo, in visual form, used for analysis and verification.

The Cygnus HelmetView™ is an accessory for the Cygnus DIVE gauge. 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.
At Cygnus, our priority is to listen to our customers to ensure that our products are designed for the real world. We have focussed on ease of use, accuracy and durability when creating all of our subsea thickness gauges.

We have strategically-placed Cygnus Service Centres across the globe, who are highly trained in order to provide the excellent service and support that Cygnus is renowned for.

Cygnus is the original pioneer of the Multiple-Echo measuring technique. We have a long and proud history of offering our customers superb quality and service since 1983.

EASY TO USE
Using a Cygnus instrument to take a thickness measurement is quick and simple. Gauge menus are intuitive and easy to navigate. ‘Auto-log’ feature further enhances convenience.

RELIABLE
Measures Through Coatings
Cygnus’ original technique uses three return echoes to give a truly accurate, error checked metal thickness measurement (through coatings of up to 20mm (0.8’’)).

Accepted by all major classifications societies.

RANGE OF SUBSEA THICKNESS GAUGES
Cygnus Diver Range
Cygnus has 2 diver underwater thickness gauges; a wrist-mountable gauge with a large colour display offering A-scan and multi-measuring modes and our original diver-held underwater gauge. Both units are rated to 300 msw.

Cygnus ROV Mountable Range
Designed specifically to be mounted onto an ROV, Cygnus has 2 ROV models in their range, the Mini ROV pressure tested to 500 m and the ROV 2000m MK5 UTG Kit which is depth rated to 2,000 m.

Cygnus Options & Accessories
There are a range of options and accessories available to assist the user with obtaining, viewing and recording thickness measurements.

CygLink is a Windows® application for PCs and laptops running Windows 7® and above. It is used for uploading data from a data logging gauge in order to conduct analysis and reporting. When used with a Cygnus DIVE gauge and an umbilical cable, CygLink will display thickness measurements and A-scans at the surface.

In addition, measurements can be logged and gauge settings can be adjusted (including velocity of sound) with this simple to use application.

When CygLink is used to data log measurements, they can be recorded in a Linear List or a Two-Dimensional Grid.

A-scans can be analysed in CygLink
Each recorded measurement can have up to 8 pre-set comments added to it.
Brilliant Solutions in Ultrasonic Measurement

Cygnus Subsea Range
Ultrasonic Thickness Gauges
Available in 300m, 500m & 2,000m Depth Rated Models

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