



# Cygnus 2+ Hands Free

## Multi-Mode Ultrasonic Thickness Gauge

New generation of ultrasonic thickness gauges incorporating Multiple-Echo, Echo-Echo and Single-Echo measuring modes





## NEW CYGNUS 2+ HANDS FREE MULTI-MODE THICKNESS GAUGE

The NEW Cygnus 2+ is a simple to use, multi-mode thickness gauge having Multiple-Echo, Echo-Echo and Single-Echo capabilities. The multi-functional end mounted display makes it ideally suited for climbing and rope access.



The twin shot injection moulded enclosure has a soft but durable TPE outer skin which is comfortable to hold and protects against bumps while the hard internal shell offers maximum strength and environmental protection certified to the demanding US MIL STD 810G standard.

Perfect for use on flat plate, curved surfaces or pipes our Multiple-Echo single crystal probe technology means you can measure through thick coatings and only the remaining metal thickness is displayed.

The unit still relies on Multiple-Echo to provide simple and accurate measurements, with the added benefit of Echo-Echo and Single-Echo using twin crystal probes for extreme corrosion. Echo-Echo for measurements on painted metals but with heavy back wall corrosion / pitting and Single-Echo for measurements on uncoated surfaces with heavy front face and/or back-wall corrosion and attenuative materials such as cast metals or plastics / composites.

## KEY FEATURES

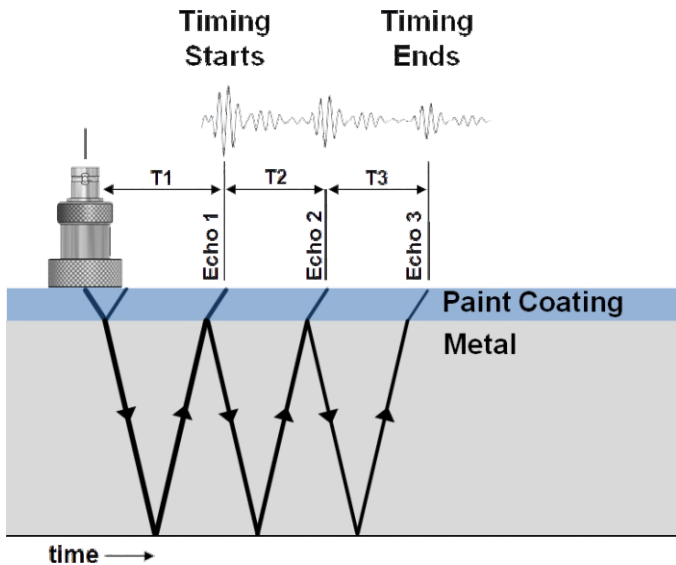
- Multiple-Echo for reliable, accurate through coating measurements as specified by Classification Societies
- Single-Echo and Echo-Echo measuring modes with twin crystal probes for extreme corrosion and back wall pitting
- MSI™ (Measurement Stability Indicator) used in Single-Echo and Echo-Echo measurement modes
- Hands free operation: wrist, waist belt and harness mountable
- OLED multi-functional rotatable display for all lighting conditions
- Extremely rugged enclosure – shock and impact to US MIL STD 810G
- Environmental sealing to IP67 – US MIL STD 810G
- Cygnus echo strength bars to assist quick measurements
- Buttons integral with the TPE moulding and designed for minimum 100,000 depressions.

All Cygnus thickness gauges are supplied with a 3 YEAR Cygnus Gauge Warranty as standard



## MULTI-MEASURING MODE

**Multiple-Echo** uses three back wall echoes and measures remaining metal thickness while ignoring coatings. All measurements are error checked using 3 return echoes to give repeatable, reliable results. Accepted by all major classification societies. Uses single crystal probes for linear accuracy (and no probe zero required).



Cygnus Multiple-Echo Diagram

**Echo-Echo** uses two back wall echoes and measures remaining metal thickness while ignoring coatings up to 1 mm thick using twin crystal probes for improved detection of back wall corrosion and pitting.

**Single-Echo** uses one back wall echo, measures remaining metal thickness on uncoated surfaces and is ideal for areas with extreme front face or back wall corrosion and pitting. Effective on highly attenuative materials such as cast metals, plastics and composites.

## MEASUREMENT STABILITY INDICATOR (MSI™)

This feature helps ensure only stable measurements are displayed in Echo-Echo and Single-Echo modes. Displayed measurements change from hollow to solid and a vibrate alert indicates a stable and accurate reading.

## CYGNUS PROBES AND CABLES

### Cygnus Stainless Steel INOX Probes (Single Crystal Probes)

The INOX probes have an updated ergonomic design and easier to read frequency, identification and serial number. All frequencies of INOX probes have a black face and a colour coding system to identify probe frequencies. Used in Multiple-Echo mode, these probes require no zeroing, have a high linear accuracy, are ideal for general thickness gauging, for use on pipes and have replaceable wear membrane for long life.



### Cygnus Stainless Steel INOX Probes (Twin Crystal Probes)

Used in Echo-Echo and Single-Echo modes for a focussed ultrasound beam for improved measurability on extreme back wall corrosion and pitting.



### Cygnus Cables

Using standard industry connectors the probe lead uses a custom made over moulded cable that offers superior flexibility and resistance to oils and ultraviolet light. The cable will not stiffen after exposure to ultraviolet light.

## STANDARD KIT CONTENTS

Cygnus 2+ ultrasonic thickness gauge; padded carry case; operating manual; adjustable neck strap and loops; wrist strap; accessory pouch; spare membranes; surface and membrane couplant; test block; 3 x AA batteries; mini USB - USB cable and instruction manual optional Krusell® belt clip.



## SPECIFICATION

<b>Materials</b>	Sound velocities between 1,000 m/s - 9,000 m/s - covers virtually all common engineering materials		
<b>Accuracy</b>	±0.1 mm or 0.1% of thickness measurement, whichever is greatest, when calibrated in accordance with Cygnus Instruments calibration procedure		
<b>Resolution</b>	Multiple-Echo mode - 0.1 mm or 0.05 mm Single-Echo and Echo-Echo modes - 0.01 mm		
<b>Probes</b>	Single crystal probes: <ul style="list-style-type: none"> <li>• 6 mm - 5 MHz (S5A)</li> <li>• 13 mm - 2.25 MHz (S2C (standard)), 3.5 MHz (S3C) or 5 MHz (S5C)</li> <li>• 19 mm - 2.25 MHz (S2D)</li> </ul>	Twin crystal probes: <ul style="list-style-type: none"> <li>• 5 mm - 7.5 MHz (T7A)</li> <li>• 8 mm - 5 MHz (T5B (standard))</li> <li>• 13 mm - 2 MHz (T2C (for attenuative materials such as cast metals, plastics and composites))</li> </ul>	
<b>Measurement Range in Steel</b>	Single crystal probes: <ul style="list-style-type: none"> <li>• 3 mm - 250 mm with 2.25 MHz probe (S2C/D)</li> <li>• 2 mm - 150 mm with 3.5 MHz probe (S3C)</li> <li>• 1 mm - 50 mm with 5 MHz probe (S5C/A)</li> </ul>	Twin crystal probes in Single-Echo: <ul style="list-style-type: none"> <li>• 2.5 mm - 250 mm with 2 MHz probe (T2C)</li> <li>• 1.5 mm - 200 mm with 5 MHz probe (T5B)</li> <li>• 0.8 mm - 50 mm with 7.5 MHz probe (T7A)</li> </ul>	Twin crystal probes in Echo-Echo: <ul style="list-style-type: none"> <li>• 5 mm - 50 mm with 2 MHz probe (T2C)</li> <li>• 4 mm - 50 mm with 5 MHz probe (T5B)</li> <li>• 3 mm - 25 mm with 7.5 MHz probe (T7A)</li> </ul>
<b>Connector</b>	Twin Lemo 00		
<b>Power</b>	3 x AA batteries		
<b>Battery Life</b>	10 hours minimum		
<b>Electronics</b>	Dual channel pulser		
<b>Display</b>	End-mounted OLED (rotatable)		
<b>Size</b>	132 mm x 82 mm x 34 mm		
<b>Weight</b>	300 grams (inc. batteries)		
<b>Operating Temp.</b>	-10°C to 50°C		
<b>Environmental Rating</b>	IP67 Explosive Atmosphere: Safe operation as defined by Class I, Division 2, Group D, as found in the National Fire Protection Association Code (NFPA 70), Article 500, and tested using MIL STD 810G Method 511.5, Procedure I MIL STD 810G Method 501.6 (high temp +55°C) MIL STD 810G Method 502.6 (low temp -20°C) MIL STD 810G Method 507.6 (humidity 95%) MIL STD 810G Method 512.6 (immersion - 1 metre for 30 mins)		
<b>Shock and Impact</b>	MIL STD 810G Method 514.7 (vibration - 1 hour each axis) MIL STD 810G Method 516.7 (shock 20g - 11ms half sine shock pulse, 40g 11ms in each axis) MIL STD 810G Method 516.7 (26 drops - transit drop 1.22 m)		
<b>Compliance</b>	CE, British Standard BS EN 15317:2013 (specification for the characterisation and verification of ultrasonic thickness measuring equipment)		
<b>Environmental</b>	RoHS, WEEE compliant		
<b>Warranty</b>	3 years on gauge and 6 months on probe		

*\*Specifications are subject to change*

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