



IDEAL FOR  
USE IN



## CYGNUS PROBES



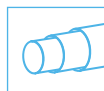
To compliment our ultrasonic thickness gauges we offer a range of ultrasonic probes. The performance of any ultrasonic thickness gauge relies heavily on the probe and its suitability to the material being measured. Therefore, selecting the right probe is vital.



OIL AND  
GAS



OFFSHORE  
PLATFORMS



THROUGH  
SPECIAL  
COATINGS



SHIP  
SURVEYS



HIGH  
TEMPERATURE

...plant maintenance, civil engineering, marine structures, ship inspections, oil and gas facilities, offshore platforms, wind farms, rail infrastructure, metals protected by thick/special coatings.



EXPLORE CYGNUS  
PROBES AND  
ACCESSORIES

## CYGNUS INSTRUMENTS WHO WE ARE

Trusted by engineers and inspectors worldwide since 1983, Cygnus manufactures truly reliable ultrasonic measurement equipment to suit a broad spectrum of user needs across various industries.

Always taking an application-driven approach, Cygnus has designed its range of surface gauges for ease-of-use, accuracy and with practical functionalities.

Cygnus gauges are renowned for their durability. As such, Cygnus service centres are strategically placed across the globe to provide professional and efficient service throughout the 3-year warranty period and beyond.

## CYGNUS INSTRUMENTS PROBES



To compliment our ultrasonic thickness gauges we offer a range of ultrasonic probes. The performance of any ultrasonic thickness gauge relies heavily on the probe and its suitability to the material being measured. Therefore, selecting the right probe is vital.

All Cygnus' probes are made from stainless steel and have a hard wear face or a wear membrane to protect the probe.



EXPLORE THE  
PROBE RANGE

### What does each probe code mean?

T	S	B	-	C	A	W	X
Probe Type			-	Probe Specifics			
Type	Frequency	Crystal Size	-	Crystal Type	Exit	Connector Type	Application
Single <b>S</b>	0.5 <b>0.5</b>	< 7 <b>A</b>	-	Monolithic <b>M</b>	Axial <b>A</b>	Wired <b>W</b>	Standard
Twin <b>T</b>	1.00 <b>1</b>	7-11 <b>B</b>	-	Composite <b>C</b>	Side <b>S</b>	BNC <b>B</b>	High Temp <b>H</b>
	2.00 <b>2</b>	12- 15 <b>C</b>	-			Lemo - 00 <b>L</b>	Deep Water <b>D</b>
	2.25 <b>2</b>	19 <b>D</b>	-			uDot <b>U</b>	Boiler Tube <b>B</b>
	3.00 <b>3</b>	25 <b>E</b>	-			Sub Vis <b>S</b>	Ex <b>X</b>
	3.50 <b>3</b>	30 <b>F</b>	-				
	4.00 <b>4</b>		-				
	5.00 <b>5</b>		-				
	7.50 <b>7</b>		-				
	10.00 <b>10</b>		-				
	15.00 <b>15</b>		-				
	20.00 <b>20</b>		-				

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### Variety of Cygnus INOX Probes

- Stainless steel TWIN CRYSTAL probes, used in echo-echo and single-echo modes, have improved measurability on extreme back wall corrosion and pitting.
- Stainless steel SINGLE CRYSTAL probes, used in multiple-echo mode, include replaceable membranes for long life, require no zeroing and have a high linear accuracy.
- Probes for use with the Cygnus 2, 2+, 4, 4+ and 6+ gauges are fitted with a BNC or Lemo 00 connector.
- Cygnus DIVE gauge probes are fitted with an integral coiled cable with a Fischer connector.
- Probes for use with the Cygnus Underwater, Intrinsically Safe and Heavy Duty gauges are fitted to a nosecone that screws onto the gauge body.

### Guidelines for Probe Frequency Selection

The probe frequency will be determined by the minimum thickness you need to measure. However, the lower the frequency

the more effective the ultrasound will be at penetrating coatings and corrosion. The S2C 2.25 MHz 13 mm (0.5 inch) INOX probe is recommended for the majority of applications as it performs the best on corroded metal and through thick coatings.

### Three Versatile Measuring Modes

Multiple-Echo mode uses three error checked back wall echoes to provide the most reliable and accurate remaining thickness measurements, with no need to remove coatings (up to 20mm/0.8 in thick).

Single-Echo mode is ideal for measuring uncoated metals with heavy front and/or back-wall corrosion. Also effective on a range of cast metals, plastics and composites.

Echo-Echo mode works best for measuring heavily corroded metals through thin coatings of up to 1mm/0.04in thick, ideal for measuring painted metals with heavy back wall corrosion.

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# SURFACE PROBES

Cygnus surface probes are designed for use with the Cygnus Surface range - 2+, 4, 4+ and 6+ Pro.

**Single crystal probes are particularly suited to reading through and ignoring coatings.**



## SINGLE CRYSTAL PROBES

Measuring mode:  
Multiple-Echo

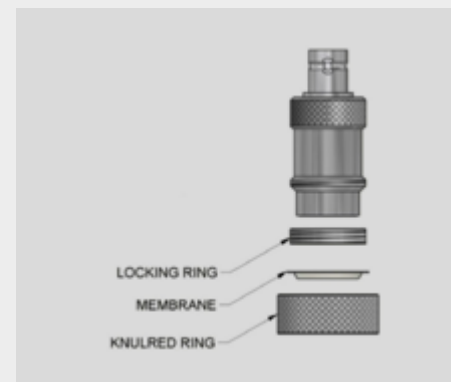


All surface single crystal probe cables are sold separately. Right Angle measurement available - please contact Cygnus for more information.

	<b>SSA</b>	<b>S5C</b>	<b>S3C</b>	<b>S2C</b>
	Ideal for: Small diameter pipes and boiler tubes/heat exchangers	Ideal for: Measuring wall thickness down to 1 mm (0.040 inch)	Ideal for: Measuring wall thickness down to 2mm/0.080in with corrosion through coatings	Ideal for: all round measurement of wall thickness with corrosion through coatings
<b>Frequency</b>	5 MHz	5 MHz	3.5 MHz	2.25 MHz
<b>Tip Size</b>	18.60mm (With Knurled Ring)/10mm face	24.90mm (With Knurled Ring)/16mm face	24.90mm (With Knurled Ring)/16mm face	24.90mm (With Knurled Ring)/16mm face
<b>Range in Steel (Multiple-Echo)</b>	1 - 50mm	1 - 50mm	2 - 150mm	3 - 250mm
<b>Weight</b>	27g	65g	65g	65g
<b>Temperature</b>	-10°C to +75°C	-10°C to +75°C	-10°C to +75°C	-10°C to +75°C
<b>Colour</b>	Black Face	Black Band	Orange Band	Red Band

All probes need to be used with Ultrasonic Couplant when taking measurements (excl. underwater)

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## Probe Membrane

Cygnus single crystal probes have a protective membrane fitted in front of the probe face to protect it from damage during use. The membrane also helps the probe face "mould" to surfaces being measured.

The performance of the probe depends on the condition of the membrane and how well it has been fitted. Cygnus recommends membranes are replaced frequently as a precaution or at the first sign of any scoring,

tearing or damage.

Membranes are available in two materials, the standard Polyurethane membrane is suitable for surface temperatures up to 75°C (167°F), the Teflon membrane is suitable for surface temperatures up to 150°C (302°F) with a maximum contact time of 5 seconds.

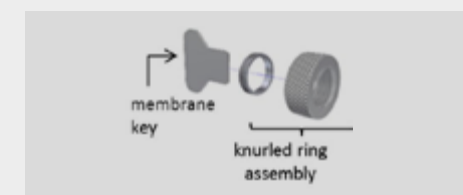
## Membrane Couplant

Membrane couplant needs to be used between the membrane and the probe face. This creates a thin layer of oil that allows the ultrasound to pass through.

A 25 ml bottle of Membrane Couplant is supplied in each gauge kit.

## Knurled Rings And Membrane Locking Ring Keys

Supplied with every single crystal probe, the knurled ring holds the membrane in place. The membrane key is used to unscrew and screw in the locking ring which the membrane is fitted into.



Part No.	Probe Size	Size of Head inc. Knurled Ring (approx.)	Size of Membrane (approx.)
<b>Standard Polyurethane (max. 75°C) Pack of 20</b>			
001-3702	6mm/0.24in	18mm/0.70in	14mm/0.50in
001-3701	13mm/0.50in	24mm/0.95in	21mm/0.82in
001-3700	19mm/0.75in	30mm/1.18in	28.5mm/1.12in
<b>Teflon (max. 150 °C) Pack of 10</b>			
001-4873	6mm/0.24in	18mm/0.70in	14mm/0.50in
001-4874	13mm/0.50in	24mm/0.95in	21mm/0.82in
001-4875	19mm/0.75in	30mm/1.18in	28.5mm/1.12in

A pack of standard membranes is supplied in each gauge kit. Details above to order spares and Teflon membranes.

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Part Description	Part Number
<b>Knurled Ring Assembly for:</b>	
19mm (0.75 inch) Probes	001-3705
13mm (0.50 inch) INOX Probes	001-3709
13mm (0.50 inch) Probes	001-3704
6mm (0.24 inch) Probes	001-3703
<b>Membrane Keys for:</b>	
19mm (0.75 inch) Probes	001-2610
13mm (0.50 inch) Probes	001-2611
6mm (0.24 inch) Probes	001-2612

Cygnus surface probes are designed for use with the Cygnus Surface range - 2+, 4, 4+ and 6+ Pro.

**Twin crystal probes are particularly suited to measuring heavily corroded metals.**



# SURFACE PROBES

## TWIN CRYSTAL PROBES

Measuring mode:  
Echo-Echo and  
Single-Echo



Cables sold separately

Probes come with cable attached

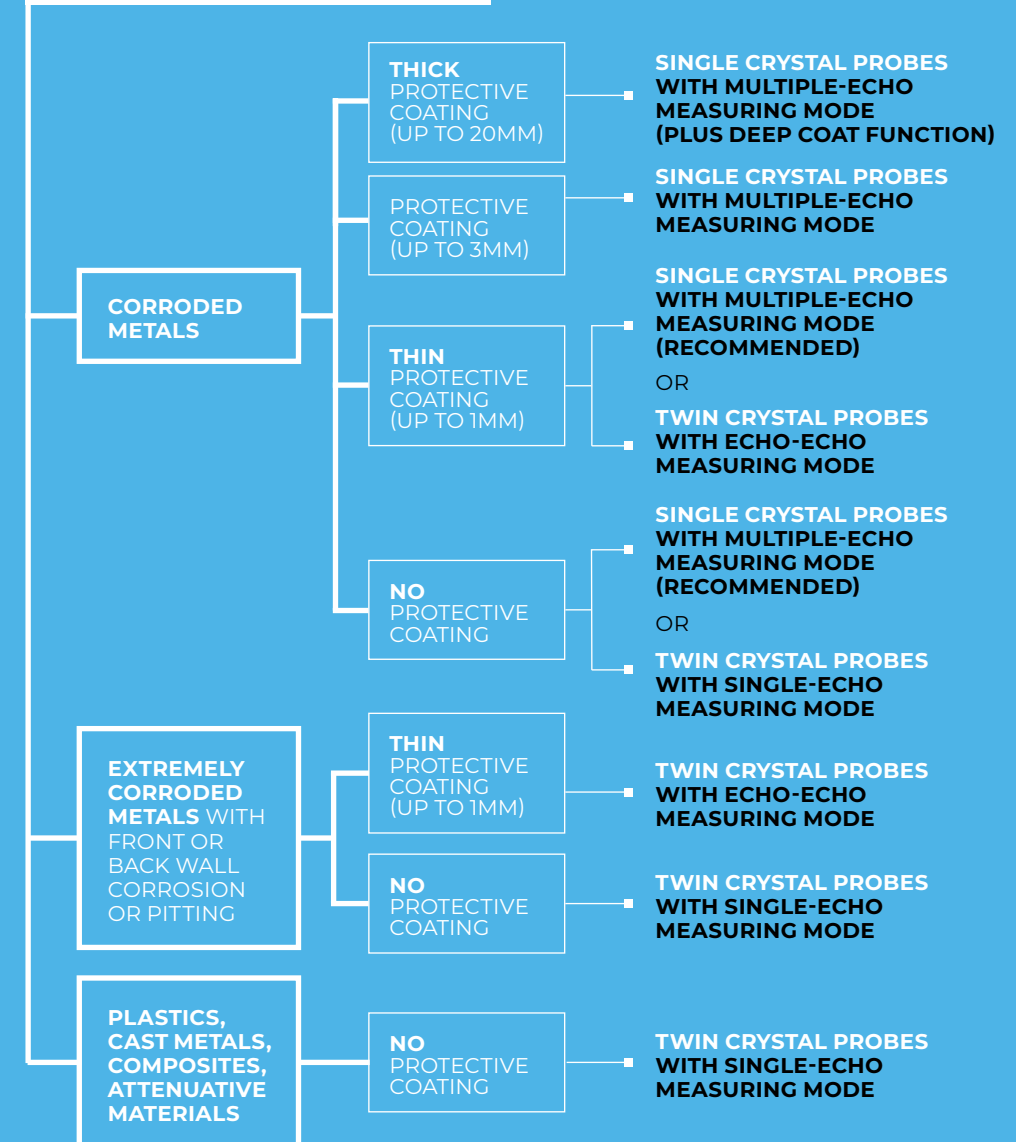
	<b>T2C</b> Ideal for: Attenuative materials Cast irons, Plastics	<b>T5B</b> Ideal for: General purpose Most metals	<b>T7A-CSWB</b> Ideal for: Thin metals	<b>T5B-CSW</b> Ideal for: General purpose Most metals	<b>T5A</b> Ideal for: General purpose Most metals
<b>Frequency</b>	2 MHz	5 MHz	7.5 MHz	5 MHz	5 MHz
<b>Tip Size</b>	17mm	13mm	6.4mm	13mm	9.5mm
<b>Range in Steel (single Echo)</b>	2.5-250mm	1.5-200mm	0.8-50mm	1.5-200mm	1.5-150mm
<b>(Echo-Echo)</b>	5-50mm	4-50mm	3-25mm	4-50mm	4-50mm
<b>Weight</b>	59g	61g	71g (Includes fixed cable)	61g	85g (Includes fixed cable)
<b>Temperature</b>	-10°C to +75°C	-10°C to +75°C	-10°C to +75°C	-10°C to +75°C	-10°C to +75°C
<b>Colour</b>	Blue Band	Yellow Band	N/A	Yellow Band	N/A

All probes need to be used with Ultrasonic Couplant when taking measurements (excl. underwater)

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# HOW TO CHOOSE THE RIGHT PROBE

## WHAT ARE YOU TESTING?



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# CYGNUS 1 EX PROBES

Cygnus 1 Ex probes are specifically designed for exclusive use with the Cygnus 1 Ex gauge.

Like the gauge, each probe is certified to ATEX, IECEx and UKEx for use in Zone 0 areas, for safe use in all hazardous gas Zones (0, 1, 2), combustible dust Zones (21, 22) and coal mines.



## SINGLE CRYSTAL EX PROBES

Measuring mode:  
Multiple-Echo



All Ex probes come with cable attached

	<b>S2C-Ex</b> Ideal for: General purpose probe suitable for most applications that can use Multiple Echo measurement. Coated metals.	<b>S3C-Ex</b> Ideal for: Coated metals	<b>S5A-Ex</b> Ideal for: Coated metals
<b>Frequency</b>	2.25 MHz	3.5 MHz	5 MHz
<b>Tip Size</b>	24.90mm (With Knurled Ring)/16mm face	24.90mm (With Knurled Ring)/16mm face	18.60mm (With Knurled Ring)/10mm face
<b>Range in Steel (Multiple-Echo)</b>	3-250mm	2-150mm	1-50mm
<b>Colour</b>	Red Band	Orange Band	Black Band

All probes need to be used with Ultrasonic Couplant when taking measurements (excl. underwater)

## TWIN CRYSTAL EX PROBES

Measuring mode:  
Echo-Echo and  
Single-Echo



All Ex probes come with cable attached

	<b>T7A-Ex</b> Ideal for: Thin metals	<b>T5A-Ex</b> Ideal for: General purpose Most metals	<b>T5B-Ex</b> Ideal for: General purpose Most metals	<b>T2C-Ex</b> Ideal for: Attenuative metals Cast irons, Plastics
<b>Frequency</b>	7.5 MHz	5 MHz	5 MHz	2 MHz
<b>Tip Size</b>	6.4mm	9.5mm	13mm	17mm
<b>Range in Steel (Single-Echo)</b>	0.8-50mm	1.5-150mm	1.5-200mm	2.5-250mm
<b>(Echo-Echo)</b>	3.25mm	4-50mm	4-50mm	5-50mm
<b>Colour</b>	N/A	N/A	Yellow	Blue

All probes need to be used with Ultrasonic Couplant when taking measurements (excl. underwater).

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# HIGH TEMPERATURE PROBES

The Cygnus High Temperature Probe is designed for use with Cygnus 4+ and 6+ Pro gauges. The High Temperature Ex Probe is specifically for use with Cygnus 1 Ex.

No cooling period is required - reducing inspection time and facilitating more effective measurement.



## HIGH TEMPERATURE PROBE

Measuring mode: Echo-Echo and Single-Echo



Cygnus' Twin Element Ultrasonic Probes are designed for high-temperature, in-service corrosion surveys and wall thickness measurements on hot surfaces up to 300°C.

Option to use a standard cable or a more robust, braided cable.



Standard Cable



Braided Cable

### T5B-MAUH

Ideal for: hot surfaces up to 300°C

Frequency	5.0 MHz, 8mm (0.31in) Nominal
Tip Size	12mm tip/9mm face
Range in Steel (Single-Echo)	1.5-150mm (Ambient temperature)
(Echo-Echo)	4-50mm (Ambient Temperature)
Weight	100g
Temperature Range	-55°C to 300°C (-67°F to 572°F)

High Temperature Ultrasonic Couplant is required when taking measurements

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## HIGH TEMPERATURE EX PROBE

Measuring mode: Echo-Echo and Single-Echo



ATEX-certified high temperature probe for measuring hot surfaces up to 300°C (570°F) continuous. **No cooling period required** - reducing inspection time and facilitating more effective measurement.

The probe is designed for use with a special probe cable wrapped in a glass-fibre outer braid to protect the cable.



The probe and probe cable are sold separately, enabling lower replacement costs.

### Ex-HTP

Ideal for: hot surfaces up to 300°C

Frequency	5.0 MHz
Tip Size	12mm tip/9mm face
Range in Steel (Single-Echo)	1.5-150mm (Ambient temperature)
(Echo-Echo)	4-50mm (Ambient Temperature)
Temperature Range	-10°C to 300°C (14°F to 572°F)

High Temperature Ultrasonic Couplant is required when taking measurements

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# SUBSEA PROBES

Cygnus subsea probes are overmoulded with a coloured ring to indicate the probe type and are constructed from stainless steel. They are designed for use with Cygnus Subsea Range - Dive, Underwater, ROV Mini and ROV UTM. There are also options compatible with Cygnus probe handlers.

Single crystal probes are particularly suited to reading through and ignoring coatings. Twin crystal probes are particularly suited to measuring heavily corroded metals.



## SINGLE CRYSTAL PROBES

Measuring mode:  
Multiple-Echo



All subsea probes come with cable attached

	<b>S2C</b>	<b>S3C</b>	<b>S5C</b>	<b>S5A</b>
	Ideal for: General purpose probe suitable for most applications that can use Multiple Echo measurement. Coated metals	Ideal for: Coated metals	Ideal for: Small diameter tubes. Thin metals. Coated metals	Ideal for: Coated metals
<b>Depth Rating</b>	300 metres	300 metres	300 metres	300 metres
<b>Frequency</b>	2.25 MHz	3.5 MHz	5 MHz	5 MHz
<b>Tip Size</b>	24.90mm (With Knurled Ring)/16mm face	24.90mm (With Knurled Ring)/16mm face	24.90mm (With Knurled Ring)/16mm face	18.60mm (With Knurled Ring)/10mm face
<b>Range in steel (Multiple-Echo)</b>	3-250mm	2-150mm	1-50mm	1-50mm
<b>(Single-Echo)</b>	N/A	N/A	N/A	N/A
<b>(Echo-Echo)</b>	N/A	N/A	N/A	N/A
<b>Weight</b>	234g (Includes fixed cable)	3234g (Includes fixed cable)	234g (Includes fixed cable)	188g (Includes fixed cable)
<b>Temperature Range</b>	-10°C to +75°C	-10°C to +75°C	-10°C to +75°C	-10°C to +75°C
<b>Colour</b>	Red	Orange	Black	Black



### SD2C

For use only with the ROV-UTG system, this Single Element Delay Line probe can be used in SE, EE and ME modes

3000 metres
2.25 MHz
15.5mm
4-20mm
4-50mm
4-30mm
1832g (Includes fixed cable)
-10°C to +100°C
N/A

## TWIN CRYSTAL PROBES

Measuring mode:  
Echo-Echo and Single-Echo



	<b>T5B</b>	<b>T2C</b>
	Ideal for: General purpose. Most metals	Ideal for: Attenuative materials. Cast irons. Plastics
<b>Depth Rating</b>	50 metres	50 metres
<b>Frequency</b>	5 MHz	2 MHz
<b>Tip Size</b>	13mm	17mm
<b>Range in steel (Single-Echo)</b>	1.5-200mm	2.5-200mm
<b>(Echo-Echo)</b>	4-50mm	5-50mm
<b>Weight</b>	224g (Includes fixed cable)	220g (Includes fixed cable)
<b>Temperature Range</b>	-10°C to +75°C	-10°C to +75°C
<b>Colour</b>	Yellow	Blue





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*All information provided is subject to change without prior notice.*

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