

**Transducers
 and Accessories
 Catalogue**



Phoenix Inspection Systems Limited

Phoenix Inspection Systems are specialists in design and manufacture of ultrasonic non-destructive testing (NDT) solutions serving a wide range of industry sectors including nuclear and power generation, offshore oil, gas and petrochemical, aerospace, composites and rail.

Established in 1983, Phoenix is head quartered in Cheshire, a thriving U.K. region renowned for its science and technology business sector.

Phoenix operates in over 25 countries worldwide through a network of agents and distributors providing long-term collaborations with international partners and customers.

Phoenix offer a dynamic range of standard NDT products, from manual and automated scanners, transducers and instrumentation to sophisticated nuclear inspection and turbine and generator systems.

Our products take into account the full range of ultrasonic NDT techniques, including phased array, corrosion mapping, pulse echo and TOFD and are built to the internationally recognised Quality Management Systems standard ISO 9001:2008. For over 30 years Phoenix has built an enviable reputation in the NDT industry and pride ourselves on our reputation. We believe that our future success is based upon continually striving to exceed our customer expectations in order to maintain and build upon our status world-wide. By following the guidelines laid out by the ISO 9001:2008 Quality Management Standard, we continue to achieve this.

The Phoenix name is synonymous with custom-build solutions and we can design transducers and systems for the most challenging NDT inspections. If a standard probe from our comprehensive range does not precisely fit your inspection needs, Phoenix has the expertise and capability to develop a customised product to meet your specific requirements.

Why Phoenix?

Our technical support services team provide expertise in NDE inspection design and qualification, while our research and development activities have gained worldwide acclaim for our participation in advanced NDT projects which help us maintain our position at the forefront of NDE technology. Our products are used by some of the world's leading companies, to ensure safety standards and improve quality and efficiency.



Disclaimer

The information in this brochure is accurate at time of publication. Actual products may differ from those presented herein. Phoenix Inspection Systems Limited reserves the right to change products, specifications and pricing without forward notice.

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01

Shear Wave Transducers



1.1 Single Crystal Shear Wave Transducers

The single crystal range of shear wave transducers are available with various angles and ideal for the general purpose testing of welds, plate, pipe tubing, castings and forgings. (See also GSW range section 1.2)



SSW Probe



RMSW Probe



LSW Probe

Product Code	Frequency MHz	Crystal Dia (mm)	Probe Size L x W x H (mm)	Angle A°	Connector	
SSW 2/*A	2	10	29 x 16.5 x 24	38, 45, 60, 70	Subvis	Lemo 00
SSW 2.5/*	2.5					
SSW 4/*	4					
RMSW 2.5/*	2.5	15	37 x 22 x 27	38, 40, 45, 70		
LSW 1/*	1	20	51.5 x 26.5 x 30.5	38, 45, 60, 70		
LSW 2/*	2					
LSW 4/*	4					

*A - please insert angle required.

1.2 Shear Wave Gold Series Transducers

Phoenix developed the gold series transducer range to offer superior performance. Available with a stainless steel case, modified internal design and rear entry connectors, gold series transducers provide exceptional results.

- Supplied with Lemo 00 connectors
- 4MHz GSW probes manufactured with composite crystal



GSW 2MHz 45° Probe



GSW 4MHz Composite Probe

Product Code	Frequency MHz	Crystal Size (mm)	Probe Size L x W x H (mm)	Angle A°	Connector
GSW 2/*A	2	8 x 9	29 x 17 x 23.5	38, 45, 60, 70	Lemo 00
GSW 4/*A-C	4				
GSW 4/70-C Forward Emission 7mm				70	

*A - please insert angle required.

1.3 Twin Crystal Shear Wave Transducers

Twin crystal shear wave transducers hold two crystals mounted at inward angles that provide improved near-surface resolution and superior signal-to-noise ratio. Ideal for inspecting thin materials for small flaws, occurring directly under the surface.



TSW Probe

Product Code	Frequency MHz	Crystal Size (mm)	Probe Size L x W x H (mm)	Angle A°	Connector
TSW 2/*A	2	2 (4 x 8)	29 x 16.5 x 24	38, 45, 60, 70	Subvis
TSW 4/*A	4				

*A - please insert angle required.

1.4 Twin Crystal Boiler Tube Transducers

The TBP range has been specifically designed for use on boiler tubes. It features exceptional gain and resolution together with very low crosstalk. The emission point is less than 8mm from the front of the housing. Four stainless steel wear studs are fitted to prevent unnecessary wear.



TBP Probe

Product Code	Frequency MHz	Composite Crystal Size (mm)	Probe Size L x W x H (mm)	Angle A°	Integral 2m Lead
TBP 5/70 L	5	2 (3 x 6)	22 x 17 x 13	70	Lemo No 1
TBP 5/70 BNC					BNC
TBP 5/70 L00					Lemo 00

Also available in 45° and 60° angles. Please specify requirement when ordering.

1.5 Automated Single Crystal Shear Wave Transducers

Manufactured in a 30 x 30mm case with gimbal pins, ASSW probes are designed for use with the extensive range of Phoenix manual and automated scanners. Suitable for use in scanners with 30 x 30mm forks for general purpose testing of welds, plate, pipe tubing, castings and forgings. Supplied with:

- Couplant irrigation, electrically isolated connector and M4 gimbal mountings
- Lemo 00 connectors



ASSW 45° Probe



ASSW 60° Probe



ASSW 70° Probe

Product Code	Frequency MHz	Crystal Size (mm)	Probe Size L x W x H (mm)	Angle A°	Connector
ASSW 2/*A	2	10	30 x 30 x 28	38, 45, 60, 70	Lemo 00
ASSW 2.5/*A	2.5				
ASSW 4/*A	4				

*A - please insert angle required.

1.6 Automated Shear Wave Gold Series Transducers

Developed by Phoenix, AGSW probes offer superior performance and provide exceptional results when used in manual or automated scanners with 30 x 30mm forks. The 4MHz AGSW includes a modified internal design with the addition of an interface layer. Supplied with:

- Couplant irrigation, electrically isolated connector and M4 gimbal mountings
- Lemo 00 connectors
- 4MHz AGSW probes manufactured with composite crystal
- 30 x 30mm case



AGSW Probe

Product Code	Frequency MHz	Crystal Size (mm)	Probe Size L x W x H (mm)	Angle A°	Connector
AGSW 2/*A	2	8 x 9	30 x 30 x 28	38, 45, 60, 70	Lemo 00
AGSW 4/*A	4				

1.7 Automated Twin Crystal Shear Wave Transducers

ATSW probes hold two crystals mounted at inward angles that provide improved near-surface resolution and superior signal-to-noise ratio. Manufactured in a 30 x 30mm case with gimbal pins, ATSW probes are designed for use with the extensive range of Phoenix manual and automated scanners and ideal for inspecting thin materials for small flaws occurring directly under the surface. Supplied with:

- Couplant irrigation, electrically isolated connector and M4 gimbal mountings
- Lemo 00 connectors



ATSW Probe

Product Code	Frequency MHz	Crystal Size (mm)	Probe Size L x W x H (mm)	Angle A°	Connector
ATSW 2/*A	2	2 (4 x 8)	30 x 30 x 28	38, 45, 60, 70	Lemo 00
ATSW 4/*A	4				

*A - please insert angle required.

1.8 Sub Miniature Single Crystal Shear Wave Transducers

Ideal for inspections in areas with reduced access.

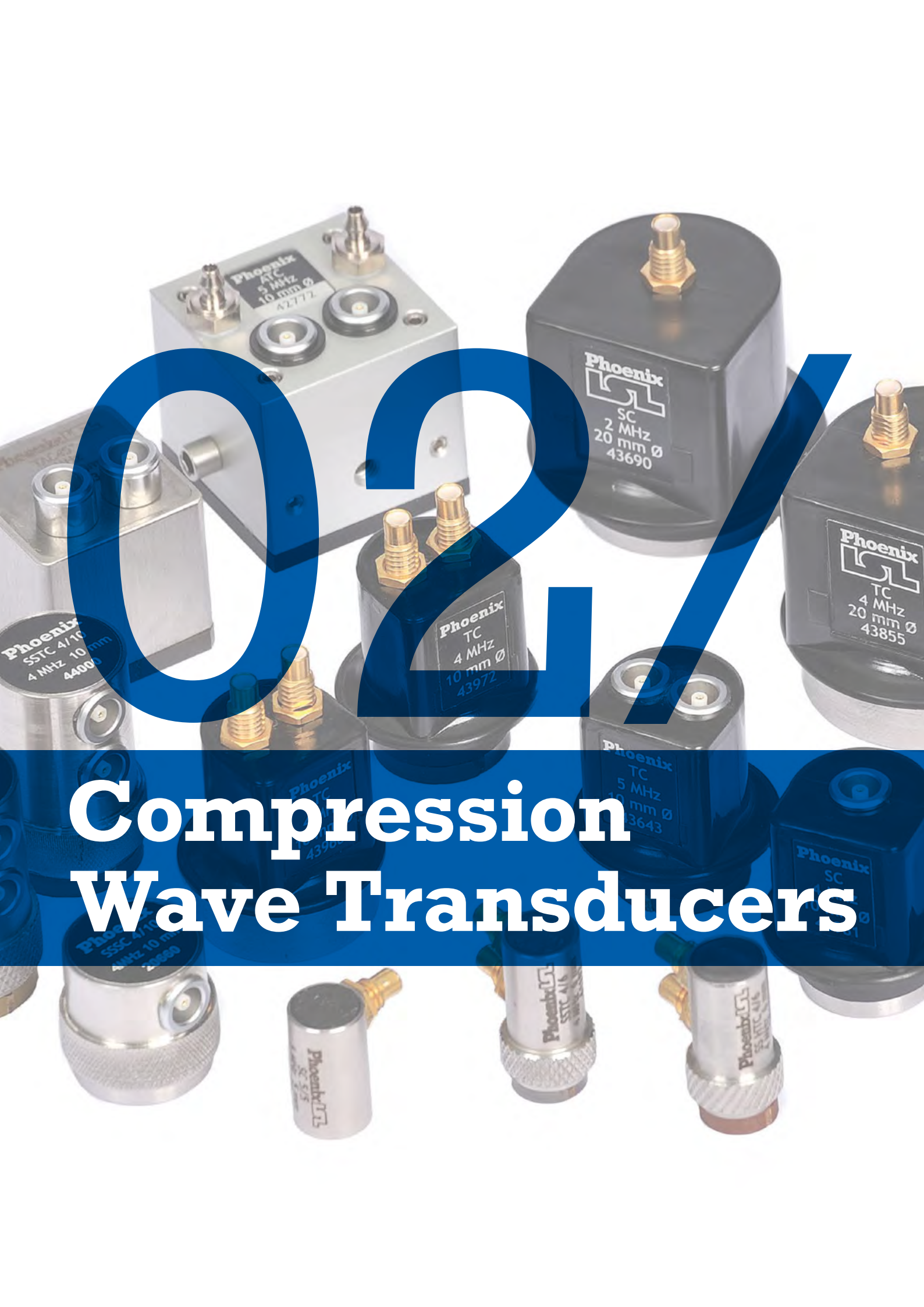
- Available with side or top entry connectors



SMS Probes

Product Code	Frequency MHz	Crystal Size (mm)	Probe Size L x W x H (mm)	Angle A°	Connector
SMS 5/*A/SE	5	5 x 5	12.7 x 8 x 10.75	38, 40, 45, 60, 70	Side Entry Subvis
SMS 7.5/*A/SE	7.5				
SMS 5/*A/TE	5				Top Entry Subvis
SMS 7.5/*A/TE	7.5				

Please specify material to be inspected i.e. steel or aluminium, when ordering. *A - please insert angle required.



Compression Wave Transducers

2.1 Single Crystal Compression Wave Transducers

Single crystal compression wave probes are used to measure thickness and detect flaws on plates, bars, forgings and castings.

- Constructed in a durable plastic case with a ceramic face and stainless steel wear ring.



SC 10mm Probe



SC 20mm Probe

Product Code	Frequency MHz	Crystal Dia (mm)	Probe Size Dia x H (mm)	Connector	
SC 1/20	1	20	40 x 35	Subvis	Lemo 00
SC 2/20	2				
SC 2.5/10	2.5	10	27 x 30		
SC 4/10					
SC 4/20	20	40 x 35			
SC 5/10	5	10	27 x 30		
SC 5/20		20	40 x 35		

Resin face available on request

2.2 Single Crystal Compression Wave Transducers – Stainless Steel

This range of compression wave probes are manufactured in stainless steel cases for extra durability.



SSSC 6mm Probe



SSSC 10mm Probe



SSSC 5mm Probe

Product Code	Frequency MHz	Crystal Dia (mm)	Probe Size Dia x H (mm)	Connector
SSSC 1/20	1	20	31 x 20	Lemo 00
SSSC 2/20	2			
SSSC 2.5/10	2.5	10	20 x 30	Subvis
SSSC 4/6				
SSSC 4/10	4	10	20 x 30	Lemo 00
SSSC 4/20		20	31 x 20	
SSSC 5/20	5	5	10 x 18	Subvis
SSSC 5/5				

2.3 Twin Crystal Compression Wave Transducers

Twin crystal compression wave probes are suitable for use on corroded and pitted surfaces, thickness measurement, brazed joint testing and for lamination detecting. High gain and resolution are achieved with a very low cross-talk.



TC 4/10S Probe



TC 5/10L Probe



Pit Probe

Product Code	Frequency MHz	Crystal Dia (mm)	Nominal Focus (mm)	Probe Size Dia x H (mm)	Connector
TC 2.5/10	2.5	10	12	27 x 30	Subvis Lemo 00
TC 4/10	4				
TC 5/10	5		8		
TC 5/10 SF					
TC 1/20	1	20	28	40 x 35	
TC 2/20	2				
TC 4/20	4				
TC 5/20	5				
PIT-PROBE		2 (4 x 4)	6	L 7 x W 19 x H 34	



Wear Rings for 10mm and 20mm Probes



10mm Probe with Wear Ring



20mm Probe with Wear Ring

Options Manual Transducers

Wear Rings (only on TC 10mm and 20mm crystal dia probes)

Contouring per probe (please specify relative to beam direction)

2.4 Twin Crystal Compression Wave Transducers – Stainless Steel

Standard twin crystal transducers housed in a stainless steel case for extra durability.



SSTC 4/10L Probe



SSTC 4/6S Probe



SSTC 5/5S Probe

Product Code	Frequency MHz	Crystal Dia (mm)	Nominal Focus (mm)	Probe Size Dia x H (mm)	Connector
SSTC 2/20	2	20	28	31 x 41	Lemo 00
SSTC 2.5/10	2.5	10	12	20 x 33	
SSTC 4/6	4	6	8	12 x 24	Subvis
SSTC 4/10		10	12	20 x 33	Lemo 00
SSTC 4/20		20	28	31 x 41	
SSTC 5/5	5	5	5	10 x 25	Subvis
SSTC 5/10	5	10	12	20 x 33	Lemo 00
SSTC 5/20		20	28	31 x 41	
SSTC 10/6 - S	10	6	3	12 x 25	Subvis
SSTC 10/6 - L				20 x 33	Lemo 00

2.5 Twin Crystal Compression Wave Transducers with Integral Lead

Twin crystal compression wave probes are suitable for use on corroded and pitted surfaces, thickness measurement, brazed joint testing and lamination detecting. High gain and resolution are achieved with a very low cross-talk.

- Integral lead length 2m as standard



TC 5/5 Integral Lead

Product Code	Frequency MHz	Composite Crystal Dia (mm)	Nominal Focus (mm)	Probe Size Dia x H (mm)	Integral 2m Lead
TC 5/5 Int Lead L	5	5	5	19-10 x 21	Lemo No 1
TC 5/5 Int Lead BNC					BNC
TC 5/5 Int Lead L 00				10 x 25	Lemo 00

2.6 Automated Single Crystal Compression Wave Transducers

ASC probes are designed for use with the extensive range of Phoenix manual and automated scanners.

Supplied with:

- Couplant irrigation, electrically isolated connector, M4 gimbal mountings and stainless steel wear ring
- Lemo 00 connectors



ASC Probe

Product Code	Frequency MHz	Crystal Dia (mm)	Probe Size L x W x H (mm)	Connector
ASC 2.5/10	2.5	10	30 x 30 x 28	Lemo 00
ASC 4/10	4			
ASC 5/10	5			

2.7 Automated Twin Crystal Compression Wave Transducers

ATC probes hold two crystals mounted at inward angles that provide improved near-surface resolution and superior signal-to-noise ratio.

- Supplied with couplant irrigation, electrically isolated connector and M4 gimbal mountings



ATC Probe

Product Code	Frequency MHz	Crystal Dia (mm)	Nominal Focus (mm)	Probe Size L x W x H (mm)	Connector
ATC 2.5/10-L	2.5	10	12	30 x 30 x 28	Lemo 00
ATC 4/10-L	4				
ATC 5/10-L	5		8		
ATC 5/10 SF-L					
ATC 1/20-L	1	20	28	40 x 40 x 34.5	Lemo 00
ATC 2/20-L	2				
ATC 4/20-L	4				

2.8 High Temperature Twin Crystal Compression Wave Transducers

Durable steel cased twin crystal compression wave transducers with side entry connectors. (See section 4 for the full range of high temperature transducers).

- Recommended temperature rating:
 - Continuously at 120°C
 - Intermittently at 200°C i.e. 10 sec contact with 1 minute air cooling



SSHTC 4/10 Probe



SSHTC 4/6 Probe

Product Code	Frequency MHz	Crystal Dia (mm)	Nominal Focus (mm)	Probe Size Dia x H (mm)	Connector
SSHTC 1/20	1	20	28	31 x 41	Lemo 00
SSHTC 2.5/10	2.5	10	12	20 x 33	
SSHTC 4/6	4	6	8	12 x 25	Subvis
SSHTC 4/10		10	12	20 x 33	Lemo 00
SSHTC 4/20		20	28	31 x 41	
SSHTC 5/10	5	10	12	20 x 33	
SSHTC 5/20		20	28	31 x 41	

2.9 Creep Wave Transducers

Twin crystal short focus probes for detecting near surface defects. Note: The useful inspection range for CW probes is limited by mode conversion effects.

- Designed for use on carbon steel. Austenitic available on request

Supplied with:

- Top entry Lemo 00 connector
- Certificate of Individual Parameters



Creep Wave Probe

Product Code	Frequency MHz	Crystal Size (mm)	Probe Size L x W x H (mm)	Connector
CW 2/13	2	2 (6 x 13)	25 x 25 x 25	Lemo 00
CW 2/20		2 (10 x 20)	30 x 30 x 28	
CW 4/13	4	2 (6 x 13)	25 x 25 x 25	
CW 4/20		2 (10 x 20)	30 x 30 x 28	

2.10 Automated Creep Wave Transducers

The ACW range are twin crystal short focus irrigated probes for detecting near surface defects and designed for use with the extensive range of Phoenix manual and automated scanners. Note: The useful inspection range for ACW probes is limited by mode conversion effects.

- For scanners with 30 x 30mm forks (other options available)

Supplied with:

- Top entry Lemo 00 connectors
- Certificate of Individual Parameters
- Couplant irrigation, electrically isolated connector and M4 gimbal mountings (and wear pins)



ACW 4/13 Probe

Product Code	Frequency MHz	Crystal Size (mm)	Probe Size L x W x H (mm)	Connector
ACW 2/13	2	2 (6 x 13)	30 x 30 x 28	Lemo 00
ACW 2/20*		2 (10 x 20)		
ACW 4/13	4	2 (6 x 13)		
ACW 4/20*		2 (10 x 20)		

*ACW 4/20 and ACW 2/20 do not include wear pins.

2.11 Single Crystal Angle Compression Wave Transducers

Single crystal angled beam compression wave transducers are used for the inspection of coarse grained and attenuative materials such as stainless steel or duplex.



SAC Probe

Product Code	Frequency MHz	Crystal Dia (mm)	Probe Size L x W x H (mm)	Angle A°	Connector
SAC 2/*A	2	10	29 x 16 x 20	38, 45, 60, 70	Subvis
SAC 2.5/*A	2.5				
SAC 4/*A	4				
LAC 1/*A	1	20	52 x 26 x 28		
LAC 2/*A	2				
LAC 4/*A	4				

*A - Please insert angle required.

2.12 Twin Crystal Angled Compression Wave Transducers

TAC probes can be used on a wide range of materials. They offer improved resolution and signal-to-noise ratio when inspecting coarse-grained and attenuative materials due to the in-built focussing of the probes.

- Standard TAC probes are designed for use on carbon steel. If inspecting other materials please state this when placing an order.
- Other focal depths and frequencies available on request

Supplied with:

- Top entry Lemo 00 connectors
- Certificate of Individual Parameters (pre-contouring)



The image features three Phoenix Inspection Systems Ltd. flex transducers and their associated cables. The top transducer is labeled 'Phoenix CFFSC 1/20 1112024' and is connected to a grey cable with a circular orange sensor head. The middle transducer is labeled 'Phoenix CFFSC 10/6 1112038' and is connected to a grey cable with a circular red sensor head. The bottom transducer is labeled 'Phoenix FFSC 5/10 1112035' and is connected to a grey cable with a circular red sensor head. A large blue '03%' is overlaid on the image, with the '0' and '3' being large and the '%' being a smaller slanted character. The background is white.

03%

Flex Transducers and Cables

Flex Transducers and Cables



Flex transducers are ideal for inspecting radius areas of composites and accessing complex geometries in metals, such as weld cap areas or castings.

The transducers are thin, compliant ultrasonic probes that can conform to curved surfaces using finger-tip pressure.

Flex transducers are made of a thin but durable piezo-electric material that is soft enough to bend and can be shaped to suit curved geometry.

The Flex series are available as single element (FFSC), composite single element (CFFSC), dual element and composite dual element. Standard Flex transducers are 5MHz or 10MHz at sizes of Ø6mm, Ø10mm or Ø20mm diameter.

3.1 Flex Transducers – Single Element, Microdot

Product Code	Frequency MHz	Crystal Dia (mm)
FFSC 1/10	1	10
FFSC 1/20		20
FFSC 2/6	2	6
FFSC 2/10		10
FFSC 2/15		15
FFSC 2/20		20
FFSC 3.5/6		3.5
FFSC 3.5/10	10	
FFSC 3.5/15	15	
FFSC 3.5/20	20	
FFSC 5/6	5	6
FFSC 5/10		10
FFSC 5/15		15
FFSC 5/20		20
FFSC 10/6	10	6
FFSC 10/10		10

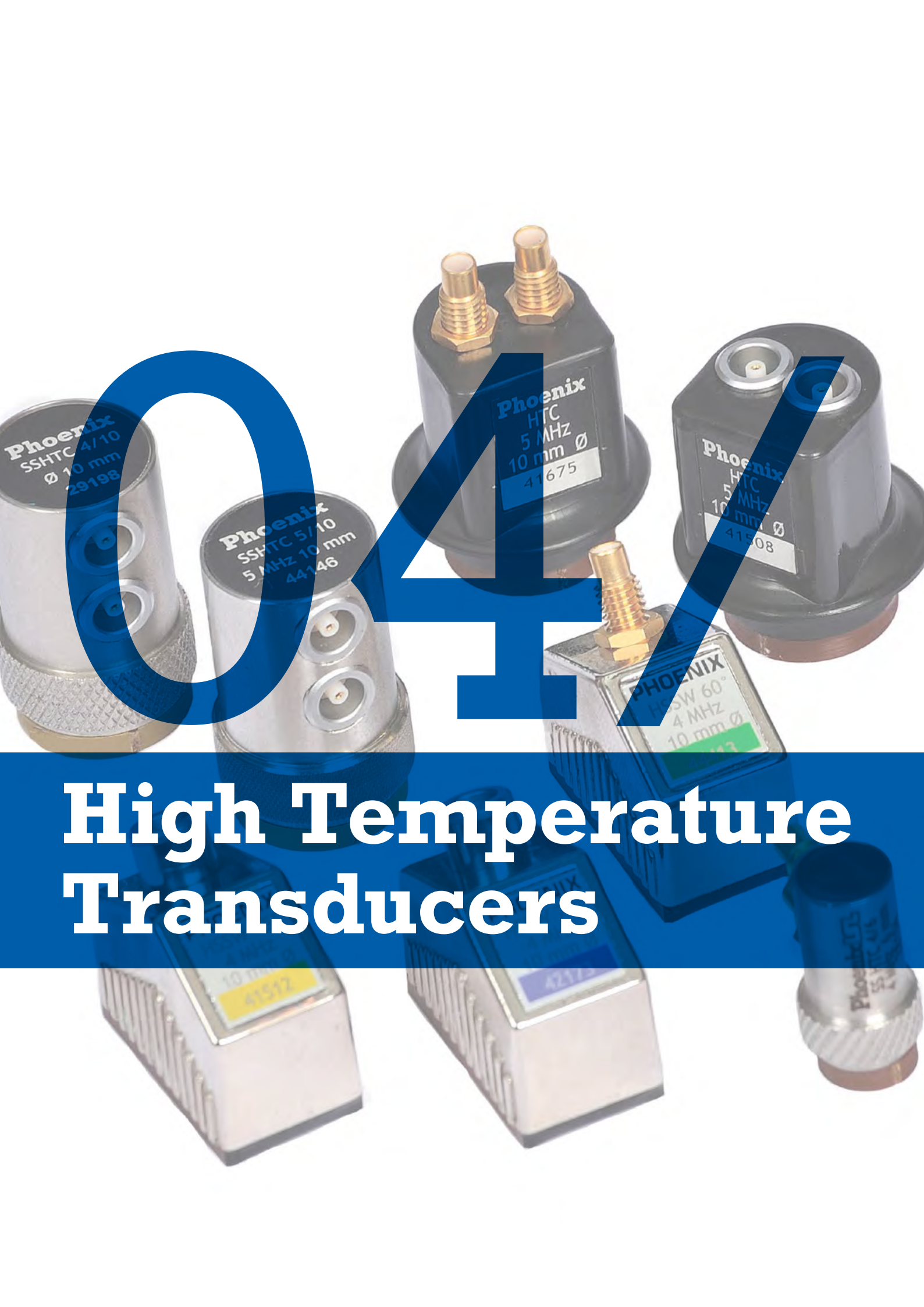
3.2 Flex Transducers – Single Element (Composite), Microdot

Product Code	Frequency MHz	Crystal Dia (mm)
CFFSC 1/10	1	10
CFFSC 1/20		20
CFFSC 2/6	2	6
CFFSC 2/10		10
CFFSC 2/15		15
CFFSC 2/20		20
CFFSC 3.5/6		3.5
CFFSC 3.5/10	10	
CFFSC 3.5/15	15	
CFFSC 3.5/20	20	
CFFSC 5/6	5	6
CFFSC 5/10		10
CFFSC 5/15		15
CFFSC 5/20		20
CFFSC 10/6	10	6
CFFSC 10/10		10

3.3 Cables for use with Flex Transducers, Microdot

Product Code	Description	Instrument Connector
PCL00-M	Single 2m cable	Lemo 00
PCL1-M		Lemo 1
PCBNC-M		BNC
TPCL00-M	Twin 2m cable	Lemo 00
TPCL1-M		Lemo 1
TPCBNC-M		BNC

- Please refer to Section 8.4 for transducer certificate and document options
- Technical datasheets available free of charge upon request, for certain transducers across the range
- Conditions of sale are available upon request



High Temperature Transducers

High Temperature Transducers

Many applications call for transducers to be used in harsh environments, such as high temperatures. The Phoenix range of high temperature probes allow rapid and cost effective testing by removing the need to cool surfaces in advance and are available in a variety of transducer designs to perform reliably on surfaces at temperatures from 80°C to 200°C.

Special formulated high temperature couplants are required for use with these probes and care should be taken to use the correct couplant for the temperature of the component to be inspected. As a general guideline duty cycles of no more than 10 seconds with the hot surface followed by a minute of air cooling is advised. (See also section 8 for other special transducers for use in harsh environments).

4.1 High Temperature Twin Compression Transducers: 80°C - 100°C



HTC range - Durable plastic case

Recommended temperature rating:

- Continuously at 80°C
- Intermittently at 100°C i.e. 10 sec contact with 1 minute air cooling

HTC Probe

Product Code	Frequency MHz	Crystal Dia (mm)	Nominal Focus (mm)	Probe Size Dia x H (mm)	Connector	
HTC 2.5/10	2.5	10	12	27 x 30	Subvis	Lemo 00
HTC 4/10	4					
HTC 5/10	5					
HTC 5/5 integral 2m lead	5	5	5	19-10 x 21	Lemo No 1 only	-
HTC 5/5 integral 2m lead					BNC only	

4.2 High Temperature Single Shear Wave Transducers: 120°C - 200°C



HSSW Range - Metal case

Recommended temperature rating:

- Continuously at 120°C
- Intermittently at 200°C i.e. 10 sec contact with 1 minute air cooling

HSSW Probe

Product Code	Frequency MHz	Crystal Dia (mm)	Probe Size L x W x H (mm)	Angle A°	Connector
HSSW 2/*A	2	10	29 x 16.5 x 24	38, 45, 60, 70	Subvis Lemo 00
HSSW 4/*A	4				

*A - Please insert angle required.

Angles are measured at RTP -20°C

4.3 High Temperature Stainless Steel Compression Wave Transducers



SSHSC (single compression) and SSHTC (twin compression) ranges - Stainless Steel case

Durable steel cased compression wave transducers with side entry connectors.

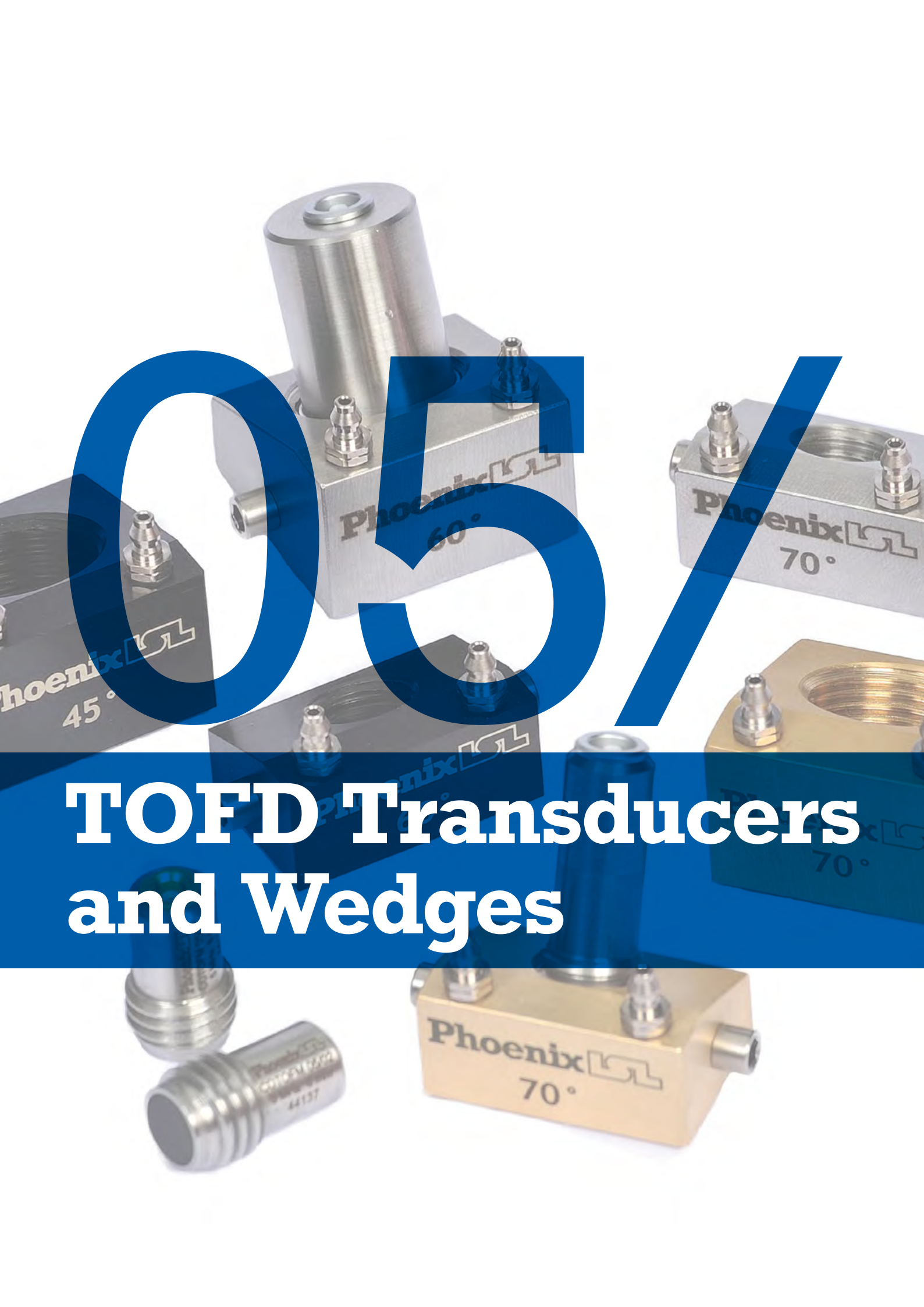
Recommended temperature rating:

- Continuously at 120°C
- Intermittently at 200°C i.e. 10 sec contact with 1 minute air cooling

SSHTC 4/10 Probe

SSHTC 4/6 Probe

Product Code	Frequency MHz	Crystal Dia (mm)	Nominal Focus (mm)	Probe Size Dia x H (mm)	Connector
SSHSC 4/10	4	10	12	20 x 30	Lemo 00
SSHTC 1/20	1	20	28	31 x 41	
SSHTC 2/20L	2				
SSHTC 2.5/10	2.5	10	12	20 x 33	Subvis
SSHTC 4/6	4	6	8	12 x 25	
SSHTC 4/10		10	12	20 x 33	Lemo 00
SSHTC 4/20		20	28	31 x 41	
SSHTC 5/10	5	10	12	20 x 33	
SSHTC 5/20		20	28	31 x 41	



TOFD Transducers and Wedges

TOFD Transducers and Wedges

TOFD transducers and wedges generate refracted longitudinal waves in steel. These highly damped longitudinal wave probes provide a high resolution and performance.

Phoenix manufactures a wide range of composite and non-composite TOFD transducers of varying crystal diameters from 2MHz to 15MHz and frequencies ranging from approximately 3.1mm (0.125") to 20mm (0.787"). They are for use with the Phoenix range of TOFD wedges.

5.1 De-mountable Piezo-composite TOFD Transducers

Phoenix offers a full range of transducers designed specifically for TOFD applications. They are highly damped transducers in a threaded housing, for use with demountable wedges in piezo-composite materials.

- Case height 30mm (approximately)
- For use with Phoenix ISL TOFD wedges
- Probes fitted with Lemo 00 connectors



M12 TOFD Probe



M20 TOFD Probe

Product Code	Frequency MHz	Crystal Dia (mm)	Probe Size Dia x H (mm)	Thread Size	Connector
CDTOF 2/02	2	6	10 x 30	M12	Lemo 00
CDTOF 2/04		12	17 x 30	M20	
CDTOF 3.5/03	3.5	9		M20	
CDTOF 3.5/04		12			
CDTOF 5/01	5	3		10 x 30	
CDTOF 5/02		6	17 x 30	M20	
CDTOF 5/03		9			
CDTOF 5/04		12			
CDTOF 7.5/01	7.5	3		10 x 30	
CDTOF 7.5/02		6			
CDTOF 10/01	10	3			
CDTOF 10/02		6			
CDTOF 15/01	15	3			
CDTOF 15/02		6			

5.2 De-mountable Non-Composite TOFD Transducers

Highly damped ceramic faced transducers in a threaded housing, For use with high temperature wedges - see Sections 5.9 and 5.10.

- Case height 30mm
- Probes fitted with Lemo 00 connectors



M12 TOFD Probe



M20 TOFD Probe

Product Code	Frequency MHz	Crystal Dia (mm)	Probe Size Dia x H (mm)	Thread Size	Connector
DTOF 2/04	2	12	10 x 30	M20	Lemo 00
DTOF 2/06		20		M30	
DTOF 3.5/03	3.5	9	17 x 30	M20	
DTOF 3.5/04		12			
DTOF 5/01	5	3	10 x 30	M12	
DTOF 5/02		6			
DTOF 5/03		9	17 x 30	M20	
DTOF 5/04		12			
DTOF 7.5/01	7.5	3	10 x 30	M12	
DTOF 7.5/02		6			
DTOF 10/01	10	3			
DTOF 10/02		6			
DTOF 15/01	15	3			
DTOF 15/02		6			

5.3 Mini TOFD Transducers

Highly damped TOFD transducers, for use in confined spaces.

- Case height 20mm
- Probes fitted with MCX connector only



M12 Mini TOFD Probe

Product Code	Frequency MHz	Crystal Dia (mm)	Thread Size	Connector
DTOFM-5/01	5	3	M12	MCX
DTOFM-10/01	10			
DTOFM-15/01	15			
DTOFM-5/02	5	6		

5.4 Piezo-composite Mini TOFD Transducers

Highly damped TOFD transducers in a piezo-composite material, for use in confined spaces.

- Case height 20mm
- Probes fitted with MCX connector only



CDTOFM Probes

Product Code	Frequency MHz	Crystal Dia (mm)	Thread Size	Connector
CDTOFM-5/01	5	3	M12	MCX
CDTOFM-10/01	10			
CDTOFM-15/01	15			
CDTOFM-5/02	5	6		

TOFD Wedges

Phoenix produces a wide range of Time of Flight Diffraction wedges manufactured from durable plastic, brass or stainless steel. The wedges fit the universal Metric Threaded probes (M12, M20 and M30) and are suitable for use with the Phoenix range of TOFD probes.

- All TOFD wedges are supplied with M3 irrigation channels as standard



Technical Specification

- Sound Velocity: 2320m/s.
- Beam angles specified are for longitudinal waves.
- Nozzle fits a 2.5-3mm tube.
- Gimbal centre is 7.00mm from wedge base.
- Gimbal is 5mm Ø x 3.85mm long (hex 3mm key).
- All wedges are irrigated as standard and can be coupled with couplant gel or water as required.

Wedge Product Code	Beam Angle	Thread Size	To Fit Probe Types	W x L (mm)	Wedge Delay		Emission point (mm from front)
					mm	µs	
WTOFI 12/45	45°	M12	M12 DTOF and CDTOF 3-6mm Ø	30 x 20	7.1	3.06	8
WTOFI 12/60	60°						
WTOFI 12/70	70°				7.0	3.01	
WTOFI 20/45	45°	M20	M20 DTOF and CDTOF 9-12mm Ø	30 x 30	8.1	3.42	13
WTOFI 20/60	60°						
WTOFI 20/70	70°				7.5	3.25	
WTOFI 30/45	45°	M30	M30 DTOF and CDTOF 20mm Ø	40 x 45	7.5	3.25	20
WTOFI 30/60	60°						
WTOFI 30/70	70°						

Wedges can be contoured to suit any surface profile - Diameter and direction must be stated.

Accessories

- Wear Plates or Couplant Skids must be ordered with the wedge as the addition of M3 x 5 deep hole is required. Wear plates are available for the front and rear of the wedge.
- Side Skids are available but incompatible with tool-post applications.

Usage

Couplant must be applied to the probe face and the wedge shoe during use (this can be pumped or applied manually). Phoenix Inspection Systems Limited assumes no responsibility, explicit or implicit, if these results are found to vary under different test conditions.

5.5 De-mountable TOFD Wedges - Plastic

For use with DTOF and CDTOF transducers. Manufactured in black plastic with irrigation and gimbal pin options.

N.B. M30 thread wedges are 40mm wide. All other wedges are 30mm wide

■ Contoured wedges available on request



Plastic De-mountable TOFD Wedges

Product Code	Beam Angle	Thread Size
WTOFI 12/45	45°	M12
WTOFI 12/60	60°	
WTOFI 12/70	70°	
WTOFI 20/45	45°	M20
WTOFI 20/60	60°	
WTOFI 20/70	70°	
WTOFI 30/45	45°	M30
WTOFI 30/60	60°	
WTOFI 30/70	70°	
COUPLANT SKIDS - FR	1 set per wedge (1 x front and 1 x rear)	

5.6 De-mountable TOFD Wedges - Stainless Steel

For use with DTOF and CDTOF transducers. Manufactured in stainless steel with irrigation and gimbal pin options.

N.B. M30 thread wedges are 40mm wide. All other wedges are 30mm.

■ Contoured wedges available on request



Stainless Steel De-mountable TOFD Wedges

Product Code	Beam Angle	Thread Size
WTOF-SSI-12/45	45°	M12
WTOF-SSI-12/60	60°	
WTOF-SSI-12/70	70°	
WTOF-SSI-20/45	45°	M20
WTOF-SSI-20/60	60°	
WTOF-SSI-20/70	70°	
WTOF-SSI-30/45	45°	M30
WTOF-SSI-30/60	60°	
WTOF-SSI-30/70	70°	
COUPLANT SKIDS - FR	1 set per wedge (1 x front and 1 x rear)	

5.7 De-mountable TOFD Wedges - Brass

For use with DTOF and CDTOF transducers. Manufactured in brass with irrigation and gimbal pin options.

N.B. M30 thread wedges are 40mm wide. All other wedges are 30mm.

■ Contoured wedges available on request



Brass De-mountable TOFD Wedges

Product Code	Beam Angle	Thread Size
WTOF-BI-12/45	45°	M12
WTOF-BI-12/60	60°	
WTOF-BI-12/70	70°	
WTOF-BI-20/45	45°	M20
WTOF-BI-20/60	60°	
WTOF-BI-20/70	70°	
WTOF-BI-30/45	45°	M30
WTOF-BI-30/60	60°	
WTOF-BI-30/70	70°	
COUPLANT SKIDS - FR	1 set per wedge (1 x front and 1 x rear)	

5.8 WREN TOFD Wedges – Brass

Ideal for use with the WREN Scanner and DTOF and CDTOF transducers with a reduced land, enabling wedges to sit closer to the weld cap. Includes irrigation and gimbal pin options.

- Contoured wedges available on request



WREN TOFD Wedge - Brass

Product Code	Beam Angle	Thread Size	W x L (mm) (Contact face)	Wedge Delay		Emission Point
				mm	µs	
WRENI 12/45	45°	M12	30 x 8.5	10.3	4.44	4
WRENI 12/60	60°		30 x 9	10.0	4.31	
WRENI 12/70	70°			9.8	4.22	

Non-standard wedge angles available
Contoured wedges available

5.9 High Temperature WREN TOFD Wedges – Stainless Steel

Ideal for use with the WREN Scanner and DTOF transducers. The wedge is designed to withstand 200°C, however the temperature limit of the transducer must be considered. Includes irrigation and gimbal pin options.

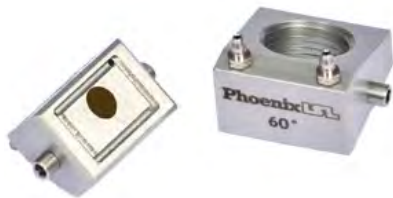
- Contoured wedges available on request

Product Code	Beam Angle	Thread Size	W x L (mm) (Contact face)	Wedge Delay		Emission Point
				mm	µs	
WRENSSI HT 12/45	45°	M12	30 x 8.5	10.3	4.20	4
WRENSSI HT 12/60	60°		30 x 9	10.0	4.08	
WRENSSI HT 12/70	70°			9.8	4.00	

5.10 High Temperature TOFD Wedges – Stainless Steel

Can be used with the full range of Phoenix scanners and DTOF transducers. The material used in this wedge is designed to withstand 200°C, however the temperature limit of the transducer must be considered. Includes irrigation and gimbal pin options.

- Contoured wedges available on request



High Temp TOFD Wedges -
Stainless Steel

Product Code	Beam Angle	Thread Size	W x L (mm) (Contact face)	Wedge Delay		Emission Point
				mm	µs	
WTOFSSI HT 12/45	45°	M12	30 x 20	7.1	2.90	8
WTOFSSI HT 12/60	60°					
WTOFSSI HT 12/70	70°					
WTOFSSI HT 20/45	45°	M20	30 x 30	8.1	3.31	13
WTOFSSI HT 20/60	60°					
WTOFSSI HT 20/70	70°					

The image features several cylindrical metal transducers of various sizes and finishes. The largest one in the center has a black top cap with white text: "Phoenix", "SSTC 4/10", "4 MHz 10 mm", and "40434". To its left, a smaller one has a similar cap with "Phoenix", "SSTC 4/10", "4 MHz 10 mm", and "20660". To the right, a smaller one has "SSTC 10/6", "10 MHz 6 mm", and "30931" printed on its side. In the foreground, a smaller one is lying on its side with "Phoenix", "SSTC 4/6", "4 MHz 6 mm", and "27621" visible. A large, blue, 3D-style number "064" is superimposed over the center of the image.

064

Corrosion Mapping Transducers and Accessories

Corrosion Mapping Transducers and Accessories

Corrosion mapping identifies and maps variations in material thickness due to corrosion. Results for corrosion mapping provide a high degree of repeatability and the advantage of position and size data for every flaw. This can be compared for repeat scans of the same area to track flaw growth or corrosion rates both generally and for individual pits.

The Phoenix range of standard and high temperature corrosion mapping transducers complement the compression wave probe range and are compatible with Phoenix automatic or semi-automatic scanners. They are housed in a durable steel case with side entry connections. The range is popular as stand-alone transducers for manual inspections or to enable fitting a detachable Light Emitting Diode on top of the transducer which can be utilised with various manufacturers video tracking systems.

6.1 Standard Temperature Twin Crystal Compression Wave Transducers

The SSTC range are housed in a durable steel case with side entry connections, which enable the fitting of a detachable tracking facility.



SSTC 4/10 Probe



SSTC 4/6 Probe

Product Code	Frequency MHz	Twin Crystal Dia (mm)	Nominal Focus	Probe Size Dia x H (mm)	Connector
SSTC 2/20	2	20	28	31 x 41	Lemo 00
SSTC 2.5/10	2.5	10	12	20 x 33	
SSTC 4/6	4	6	8	12 x 24	Subvis
SSTC 4/10		10	12	20 x 33	Lemo 00
SSTC 4/20		20	28	31 x 41	
SSTC 5/10	5	10	12	20 x 33	Lemo 00
SSTC 5/20		20	28	31 x 41	
SSTC 10/6 10mm Ø case	10	6	3	12 x 25	Side Entry Subvis
SSTC 10/6 18mm Ø case				20 x 33	Lemo 00

6.2 High Temperature Twin Crystal Compression Wave Transducers

The SSHTC range are housed in a durable steel case with side entry connections, which enable the fitting of a detachable tracking facility. Recommended temperature rating:

- Continuously at 120°C
- Intermittently at 200°C i.e. 10 sec contact with 1 minute air cooling



SSHTC 4/10 Probe

Product Code	Frequency MHz	Crystal Dia (mm)	Nominal Focus	Probe Size Dia x H (mm)	Connector
SSHTC 1/20	1	20	28	31 x 41	Lemo 00
SSHTC 2/20	2				
SSHTC 2.5/10	2.5	10	12	20 x 33	
SSHTC 4/6	4	6	8	12 x 25	Subvis
SSHTC 4/10		10	12	20 x 33	Lemo 00
SSHTC 4/20		20	28	31 x 41	
SSHTC 5/10	5	10	12	20 x 33	Lemo 00
SSHTC 5/20		20	28	31 x 41	

6.3 IR Emitters

Phoenix offer a range of infrared emitters that can be fitted temporarily or permanently to the range of corrosion mapping probes. These emitters when used in conjunction with a C-Scan system enable accurate corrosion maps to be generated whilst still scanning the work piece manually.

- Supplied as standard with Lemo 00 connectors



IR Emitter 6mm



IR Emitter 10mm

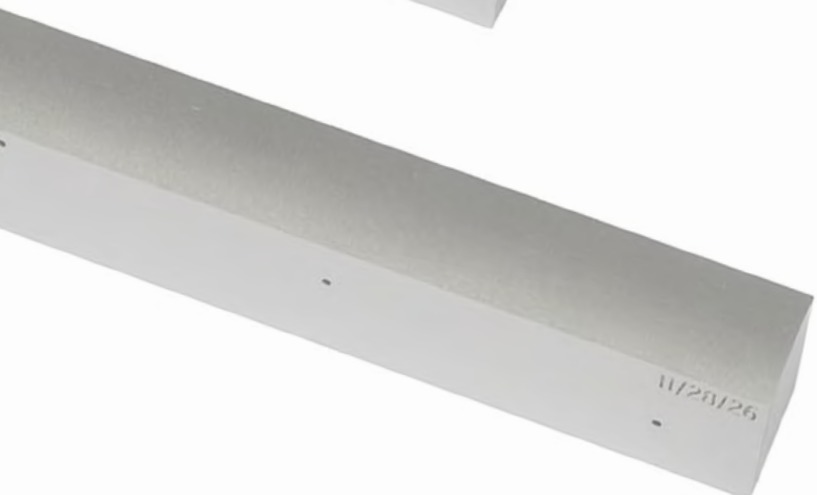


IR Emitter 20mm

Product Code	Description
DEM-6 Push On	Infra red emitter for 6mm range. Push fit onto 10mm dia probe. 2m cable.
DEM-6 Glue On	Infra red emitter glue on any probe.
DEM-10 Push On	Infra red emitter for 10mm range. Push fit onto 10-18mm dia probes. 2m cable.
DEM-20 Push On	Infra red emitter for 20mm range. Push fit onto 29mm dia probe max. 2m cable.
Permanent	For fitting to SSTC 4/10 Probe 2m cable.

071

Calibration Blocks



7.1 Calibration Blocks

All calibration blocks are engraved with a unique serial number and certified to the applicable standard. All blocks are supplied with a calibration certificate.

Quality Assurance

- Each block is engraved with a unique serial number and fully certified to the applicable standard
- Material reports are available but must be requested at the point of ordering
- A full independent NAMAS/UKAS approval for physical measurements is offered, if required (price on application)

Product	Description	Specification	Size (mm)
BLOCK NO 1 	Calibration standard for the calibration of shear and compression wave probes, time base and sensitivity settings, verification of beam angle, emission point, resolution, 3mm Ø target hole . Includes case. (Stainless Steel and Aluminium conform dimensionally to EN ISO 2400:2012).	EN ISO 2400 2012	25 x 100 x 300 (weight 6.2kgs) Carbon Steel Stainless Steel Aluminium
BLOCK NO 1 50mm THICK 	Calibration standard for the calibration of shear and compression wave probes, time base and sensitivity settings, verification of beam angle, emission point, resolution, 3mm Ø target hole . Includes case.	EN ISO 2400 2012	50 x 100 x 300 (weight 9.6kgs) Carbon Steel
V1 (A2) 	V1 (A2) Calibration standard for the calibration of shear and compression wave probes, time base and sensitivity settings, verification of beam angle, emission point, resolution, 1.5mm Ø target hole . Includes case. (Compliant with EN ISO 2400:2012).	BS2704	25 x 100 x 300 (weight 6.2kgs) Carbon Steel Stainless Steel Aluminium
V1 (A2) 50mm THICK 	V1 (A2) Calibration standard for the calibration of shear and compression wave probes, time base and sensitivity settings, verification of beam angle, emission point, resolution, 1.5mm Ø target hole . Includes case. (Compliant with EN ISO 2400:2012).	BS2704	50 x 100 x 300 (weight 9.6kgs) Carbon Steel
BLOCK NO 2 	Miniature calibration block for site checking of shear wave probes, verification of beam angles, calibration of time base and sensitivity settings with 5mm Ø target hole . Includes case. (Stainless Steel and Aluminium conform dimensionally to EN ISO 7963:2010).	EN ISO 7963 2010	12.5 Thick Carbon Steel Stainless Steel Aluminium
V2/12/5 (A4) 	V2/12.5 (A4) Miniature calibration block for site checking of shear wave probes, verification of beam angles, calibration of time base and sensitivity settings with 1.5mm Ø target hole . Includes case. (Compliant with EN ISO 7963:2010).	BS2704	12.5 Thick Carbon Steel Stainless Steel Aluminium
BLOCK NO 2 20mm THICK 	20mm Thick miniature calibration block with 5mm Ø target hole . For site checking of shear wave probes, verification of beam angles, calibration of time base and sensitivity settings. The thicker 20mm block reduces side wall echoes. Includes case. (Stainless Steel and Aluminium conform dimensionally to EN ISO 7963:2010).	EN ISO 7963 2010	20 Thick Carbon Steel Stainless Steel Aluminium
V2/20 (A4) 	20mm Thick miniature calibration block with 1.5mm Ø target hole . For site checking of shear wave probes, verification of beam angles, calibration of time base and sensitivity settings. The thicker 20mm block reduces side wall echoes. Includes case. (Compliant with EN ISO 7963:2010).	BS2704	20 Thick Carbon Steel Stainless Steel Aluminium

Product	Description	Specification	Size (mm)
BCB IOW (A5) 	Beam calibration block for beam profile measurement and resolution checks for shear wave probes, also sensitivity levels for shear and compression probes. 9 x 1.5mm Ø target holes. Includes case.	BS2704	50 x 75 x 305
A6 	For checking the dominant frequency of compression wave probes, the pulse length dead zone and resolving power for both shear and compression wave probes as per BS4331 Part 3 1974. (1987). Supplied in wooden case.	BS2704	25 x 50 x 150
A7 (RTB) 	Resolution Block for checking shear wave probe resolution as per BS4331 Part 3 1974. 4 steps at 2, 3, 4 and 5mm. Supplied in wooden case.	-	74 radius x 75 thick (4kg)
BTB 	Contoured Boiler Tube Calibration Block (BTB) - boiler tube block for calibrating low profile PA probes for use with Bracelet scanner, 3 x 1.5mm dia SDH and contoured for 1.9" OD (1.5" NPS) (other contours available incl. 2" / 2.5" / 3" / 3.5" / 4" NPS).	3 x 1.5mm dia SDH	25 x 20 x 165 (0.6kg)
	BTB as above with 5 x 1.5mm dia SDH	5 x 1.5mm dia SDH	25 x 20 x 165 (0.6kg)
	BTB as above with 5 x 1mm dia SDH	5 x 1mm dia SDH	25 x 20 x 165 (0.6kg)
Rail Block CB87 	Calibration block for the Rail industry. Includes certificate and wallet.	-	-
Rail Block CB91 	Calibration block for the Rail industry. Includes certificate.	-	-
Flat Phased Array Test Block 	Flat phased array calibration block for calibrating TCG, sensitivity, velocity and wedge delay. Includes case.	3 x 1.5mm SDH	-
Contoured Phased Array Test Block 	Contoured phased array calibration block for calibrating TCG, sensitivity, velocity and wedge delay. Contour to be advised by customer. Includes case.	3 x 1.5mm SDH	-

7.2 Step Wedges

Step Wedges are not covered by any EN standard, however Phoenix step wedges are manufactured to Material Specification of BSEN 12223:2000 and each step wedge is engraved with a unique serial number.

Product	Description	Material
LSW 1-8mm Carbon Steel 	8 steps from 1mm to 8mm Pad size: 15mm Includes case	Carbon Steel
LSW 1-8mm Aluminium 	8 steps from 1mm to 8mm Pad size: 15mm Includes case	Aluminium
LSW 1-8mm Stainless Steel 	8 steps from 1mm to 8mm Pad size: 25mm Includes case	Stainless Steel
LSW 4-20 	4 steps at 5, 10, 15, 20mm Pad size: 20mm Includes case	Carbon Steel Stainless Steel Aluminium
LSW 4-25 	4 steps at 5, 10, 15, 20mm Pad size: 25mm Includes case	Carbon Steel Stainless Steel
LSW 1-10 	10 steps at 1mm Pad size: 15mm Includes case	Carbon Steel Stainless Steel
LSW 2-20 	10 steps at 2mm Pad size: 20mm Includes case	Carbon Steel
LSW 5-25 	5 steps at 5, 10, 15, 20, 25mm Pad size: 20mm	Carbon Steel Stainless Steel Aluminium
LSW 1.5- 20 Perspex holder 	6 steps at 1.5, 2.5, 5, 10, 15, 20mm Inserts: 25mm diameter	Mild Steel
CSW - Curved Step Wedge 	5 steps at 2, 4, 6, 8, 10mm for time base calibration of thickness measuring probes	Carbon Steel

Note: Rugged fabric carry cases are included where indicated.

Quality Assurance

- A full independent NAMAS/UKAS approval for physical measurements is offered, if required (price on application)
- Material reports also available on request



Accessories

Accessories

In addition to transducers Phoenix offer a comprehensive range of accessories to complement their use.

8.1 Cables – 2m Long

Phoenix standard cables are 2m in length. Extra length cables are available to order, please contact the sales team to discuss your specific requirement.



Single Probe Cable – PC 2 metre

Part Code	Instrument	Transducer
PCL1-S	Lemo 1	Subvis
PCL1-L00		Lemo 00
PCL1-M		Microdot
PCL1-BNC		BNC
PCL1-L1		Lemo 1
PCBNC-S	BNC	Subvis
PCBNC-L00		Lemo 00
PCBNC-M		Microdot
PCBNC-BNC		BNC
PCL00-L00	Lemo 00	Lemo 00
PCL00-S		Subvis
PCL00-M		Microdot
PCL00-MCX		MCX
PCL00-MCX		MCX (right angle)
PCL00-MRA		Microdot (right angle)
PCL1-MRA	Lemo 1	Microdot (right angle)
PCBNC-MRA	BNC	Microdot (right angle)
PCL1-UHF	Lemo 1	UHF (Waterproof)
PCBNC-UHF	BNC	UHF (Waterproof)

Twin Probe Cable – TPC 2 metre

Part Code	Instrument	Transducer
TPCL1-S	Lemo 1	Subvis
TPCL1-L00		Lemo 00
TPCL1-M		Microdot
TPCL1-BNC		BNC
TPCL1-L1		Lemo 1
TPCBNC-S	BNC	Subvis
TPCBNC-L00		Lemo 00
TPCBNC-M		Microdot
TPCBNC-BNC		BNC
TPCL00-L00	Lemo 00	Lemo 00
TPCL00-S		Subvis
TPCL00-M		Microdot
TPCL00-MCX		MCX
TPCL00-MCX		MCX (right angle)
TPCL00-MRA		Microdot (right angle)
TPCL1-MRA	Lemo 1	Microdot (right angle)
TPCBNC-MRA	BNC	Microdot (right angle)

8.2 Re-Shoe Kits

Part Code	Description
REP-SSW/GSW	SSW/GSW Single Angle (10 Shoes)
REP-LSW	LSW Single Angle (10 Shoes)
REP-TSW	TSW Twin Angles (10 pairs)*
REP-TC10	TC 10 (10 pairs)*
REP-TC20	TC 20 (10 pairs)*
REP-TC5	TC 5/5 (10 pairs)*

Please note adhesive is not supplied with re-shoe kits.

* Acoustic barrier included.

8.3 Adaptors

Adaptor options are available to order and can be supplied as any combination of plugs and sockets on short 100mm tails of required cable.



BNC (M) to Lemo 1 (F)



Lemo 1 (M) to BNC (F)

Part Code	Adaptor Description
ADAPTOR-BNC/L1	Adapts instrument with BNC (M) to Lemo 1 (F) cable
ADAPTOR-L1/BNC	Adapts instrument with Lemo 1 (M) to BNC (F) cable

M = Male

F = Female

8.4 Certificates and Documents

Certificates and documents are optional and can be supplied with all transducers.

Certification Options	
C-OF-C	Certification of Conformity (per transducer)
CERT-IP	Certificate (individual parameters of the specific transducer recorded)
CERT-BSEN	Full BSEN 12668 Part 2 documentation package
CERT-SN	Signal to Noise Curve plotted - Contact probes only (per transducer)
CERT-EU	EU Certificate of Origin (per order)
CERT-SARA	Saudi Arabia Certificate of Origin (per order)



09

Special Transducers

PHOENIX
UT3 45° 2.25MHz
OD 147mm AXF
24112

280F0170-A
22295

CREED
50-6
Hz 2(20x15)

Special Transducers

Can't find what you are looking for?...

Phoenix's custom and application specific special transducers are an alternative to our standard transducer ranges.

At Phoenix Inspection Systems Ltd, we like a challenge and can take on your particular ultrasonic transducer problems and deliver a reliable and repeatable solution.

Modified standard or full custom?

Often we can make a small modification to one of our standard range to deliver a very economical solution based on proven technology. If nothing in the standard range comes close, we can look at a full customised transducer to suit your application.

So where do we start? First you need to have a problem to solve. It's best if you know the specification of the transducer that you are looking for, but talk to us early as a custom transducer may help in the design of the inspection procedure, and reduce overall costs. If you need help specifying the transducer, we can assist you if you let us know your inspection requirements.

Inspection Standards and Codes

We work with reference to sections of the various inspection codes such as ASME V, EN 583 parts 1-6, EN12668, EN12223, EN 27963, ISO 7963:1985), ENISO10863, ENISO10893-112, ENISO10893-12, ENISO11666, ENISO/NP, ENISO23279, ENISO17635, SNT-TC-1A-2011, ANSI/ASNT-CP 189-2011, AWS D1.1, American Petroleum Institute (API Codes); E114-10, E164-08, E213-09, E273-10, E587-10, E797/E797M-10, E1065-08, CSA Codes, ANSI/ASNT-CP 189-2011, SNT-TC-1A-2011.

Some companies or countries have specific procedures or standards which specify an obsolete transducer or a transducer which is simply unavailable in the time frame required. We will usually be able to build a transducer which will match or exceed the required performance criteria.

Technique Development

We are frequently asked to help with novel technique development. This can require a significant deviation from accepted practices and require novel ways of thinking about an ultrasonic problem. Aerospace composites, wind turbine, marine, cable, rail, nuclear, subsea and power plants are all areas where we have provided solutions to customers that go beyond simply supplying transducers.

Harsh Environments

Our transducers end up in the most surprising of places, from the ocean bed (depths up to 1500m), to radiation environments that turn PTFE to chalk! We also manufacture transducers for elevated temperatures. Often, it's the coupling rather than the transducer which limits the inspection parameters. The particularities of nuclear plants severely restrict the materials that can contact the metal. We have expert knowledge of what's currently acceptable and work with various laboratories to acquire certifications of chemical composition.

Phased Array

We work with all the major suppliers of phased array transducers to deliver your custom solutions. Often the transducer is just the starting point with the wedge performing the difficult functions of coupling, contouring and minimising internal reflections.

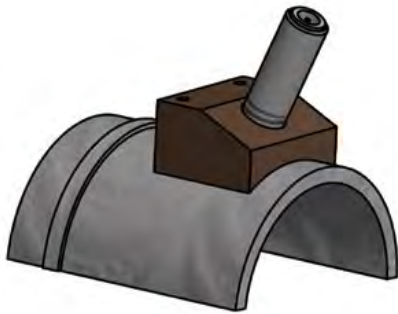
The background features several 3D question marks in a light gray color, scattered across a white surface. A prominent blue banner runs horizontally across the middle of the image. Overlaid on the banner and the background is the text '10%' in a large, bold, blue font. The '1' is a solid block, while the '0' is a hollow ring, and the '%' is a simple diagonal slash.

10%

**Useful
Information**

10.1 Contouring Conventions

Transducer and Wedge contouring is available. Please specify one of the four options illustrated below, at the time of ordering.



AOD
Axial Outside Diameter



COD
Circumferential Outside Diameter



AID
Axial Inside Diameter



CID
Circumferential Inside Diameter



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ABN: 79 074 258 549