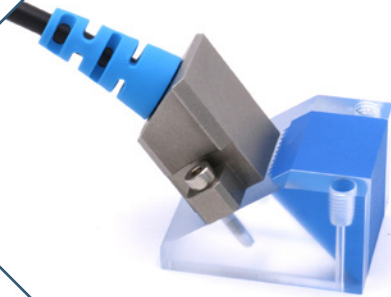




# SENSOR<sup>®</sup> NETWORKS, INC

Inspection, Testing & Asset-Integrity Solutions



## Standard Ultrasonic Transducers:

- ▶ Conventional
- ▶ Phased Array



## Who We Are:

Sensor Networks, Inc. (SNI) is a Pennsylvania-based technology company specializing in the design and fabrication of industrial ultrasonic transducers and tooling for demanding in-situ test and inspection applications. Engineered for precision, ease of use, and maximum durability, our offerings include ultrasonic transducers, fixtures, couplant-delivery systems, qualification/calibration standards, procedure development, personnel training and instrumentation.

***“The transducer enables and/or optimizes the UT exam.”***

## Ultrasonic Transducers:

- ▶ Conventional
- ▶ Phased Array
- ▶ Accessories

SNI’s deep domain expertise enhances NDT solutions through the selection, design, and optimization of the ultrasonic technique. The transducers’ efficiency is paramount for converting electrical energy into sound, then coupling and directing that acoustic energy into the test piece to maximize its signal-to-noise ratio.

With an average of 21 years and an aggregate of 916 years, our experienced team of engineers, technicians, assemblers, and general managers have an extremely deep level of knowledge and background in solving unusual, demanding, and complicated NDT projects. Industries served over this time include aerospace engines and airframes, nuclear vessels, heat exchangers, large gas turbines and others.



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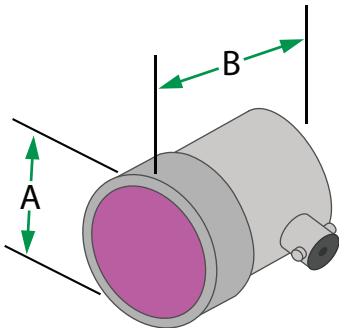
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- ▶ **Single-Element Contacts** are longitudinal-wave (straight-beam) transducers designed for general purpose manual ultrasonic inspection where test materials are relatively flat and smooth. They provide high sensitivity for better penetration, small-flaw detection, and have abrasion-resistant wear plates for extended service life.



### ▶ Model CR Standard Contact Transducers

The larger element sizes of Model CR provide greater scan widths and penetration for applications such as plate, billet, bars, thick-section parts, pipe, and tanks. They have side-mounted BNC connectors and removable comfort grip to reduce operator fatigue. **GP series\*** offer the best combination of sensitivity and resolution.



### ▶ Model CR

Element Ø		A		B	
inch	mm				
0.50	12.7	1.5 in.	38.1 mm	1.295 in.	32.9 mm
0.75	19.1	1.75 in.	44.5 mm	1.295 in.	32.9 mm
1	25.4	2.0 in.	50.8 mm	1.395 in.	35.4 mm

Frequency (MHz)	Element Diameter		Part Number	
	inch	mm	GP	Accessories
1	0.5	12.7	00-010626	Cable BNC - BNC 6-ft (1.83 m) 07-010018
	0.75	19.1	00-010901	
	1	25.4	00-010902	
2.25	0.5	12.7	00-010616	
	0.75	19.1	00-010419	
	1	25.4	00-010416	
3.5	0.5	12.7	00-010903	
	0.75	19.1	00-010904	
	1	25.4	00-010905	
5	0.5	12.7	00-010617	
	0.75	19.1	00-010906	
	1	25.4	00-010907	
10	0.5	12.7	00-010908	

\* GP = General Purpose.  
\* See appendix for technical details.

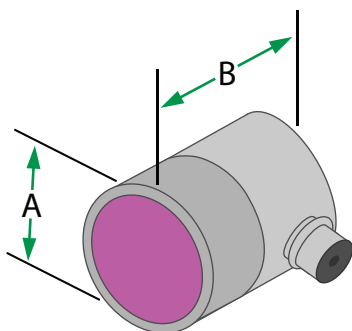


- ▶ **Single-Element Contacts** are longitudinal-wave (straight-beam) transducers designed for general purpose manual ultrasonic inspection where test materials are relatively flat and smooth. They provide high sensitivity for better penetration, small-flaw detection, and have abrasion-resistant wear plates for extended service life.



### ▶ Model F Fingertip Contact Transducers

Model F are small diameter transducers with side-mounted Microdot connectors. **GP series\*** offer the best combination of sensitivity and resolution for most applications. **HR series\*** are highly damped for applications where high resolution is required. **C series\*** have piezocomposite elements and offer superior penetration in highly-attenuative materials. All Model F transducers feature an ergonomic design for improved operator control and comfort.



#### ▶ Model F Fingertip

Element Ø		A		B	
inch	mm				
0.25	6.4	0.58 in.	14.7 mm	0.66 in.	16.8 mm
0.375	9.5	0.705 in.	17.9 mm	0.66 in.	16.8 mm
0.50	12.7	0.83 in.	21.1 mm	0.66 in.	16.8 mm

Frequency (MHz)	Element Diameter		Part Number			Accessories
	inch	mm	GP	HR	C	
2.25	0.25	6.4	00-010612		00-011084	<b>Cable</b> MD - BNC 6-ft (1.83 m) 07-010012
	0.375	9.5	00-010618		00-011085	
	0.5	12.7	00-010622		00-011086	
3.5	0.25	6.4	00-010613		00-011087	
	0.375	9.5	00-010619		00-011088	
	0.5	12.7	00-010623		00-011089	
5	0.25	6.4	00-010614	00-010602	00-011090	
	0.375	9.5	00-010620	00-010606	00-011091	
	0.5	12.7	00-010624	00-010610	00-011092	
10	0.25	6.4	00-010615	00-010603		
	0.375	9.5	00-010621	00-010607		

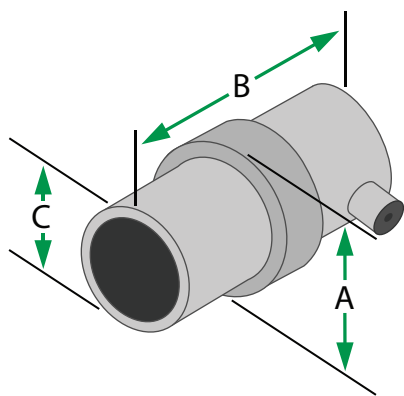
\* GP = General Purpose; HR = High Resolution; C = Composite.  
 \* See appendix for technical details.

► **Delay-Line Contacts** are single-element, longitudinal-wave (straight beam) transducers designed for detection of near-surface flaws and thickness measurement of thin-section materials. Replaceable delay lines (stand-offs) improve near-surface resolution and extend service life.



### ► Model DFR Fingertip Delay-Line Transducers

Model DFR are small-diameter delay-line transducers with side-mounted Microdot connectors. Removable delay lines and highly damped piezoceramic elements enable measurement of very thin parts or detection of small near-surface flaws. Delay lines can be contoured for improved coupling to I.D. or O.D. curved parts. Custom sizes and shapes also available upon request.



### ► Model DFR

Element Ø		A		B		C	
inch	mm						
0.125	3.2	0.51 in.	13 mm	0.83 in.	21.3 mm	0.30 in.	7.6 mm
0.25	6.4	0.51 in.	13 mm	0.83 in.	21.3 mm	0.30 in.	7.6 mm
0.5	12.7	0.88 in.	22.4 mm	1.15 in.	35.1 mm	0.60 in.	15.2 mm
Mini-DFR							
0.125	3.2	0.41 in.	10.41 mm	0.77 in.	19.6 mm	0.19 in.	4.8 mm

Frequency (MHz)	Element Diameter		Part Number HR	Delay 10-PK	Delay 10-PK	Accessories
	inch	mm		L=.38 in (10mm)	L=.5 in (12.7mm)	
2.25	0.25	6.4	00-010940	01-010810	01-010811	<b>Cable</b> MD - BNC 6-ft (1.83 m) 07-010012
	0.5	12.7	00-012301	01-011971	01-011973	
3.5	0.25	6.4	00-010824	01-010810	01-010811	
	0.5	12.7	00-010941	01-011971	01-011973	
5	0.25	6.4	00-010246	01-010810	01-010811	
	0.5	12.7	00-010492	01-011971	01-011973	
10	0.25	6.4	00-010247	01-010810	01-010811	
	0.5	12.7	00-012302	01-011971	01-011973	
15	0.25	6.4	00-011077	01-010810	01-010811	

Frequency (MHz)	Element Diameter		Part Number HR	Delay 10-PK	Delay 10-PK	Accessories
	inch	mm		L=.15 in (3.8mm)	L=.41 in (10.4mm)	
Nominal 20MHz	0.125	3.2	00-012300	01-011972	01-011974	See above

► **Delay-Line Contacts** are single-element, longitudinal-wave (straight beam) transducers designed for detection of near-surface flaws and thickness measurement of thin-section materials. Replaceable delay lines (stand-offs) improve near-surface resolution and extend service life.



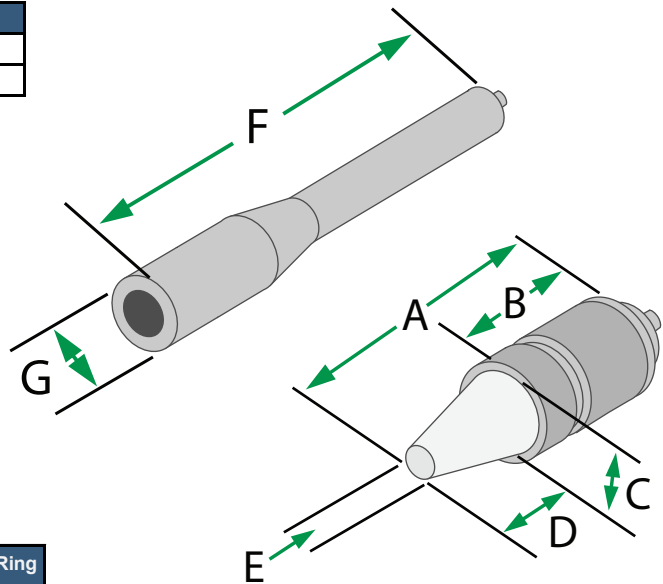
### ► Replaceable Delay-Line Pencil Probes

Pencil probes are designed for applications requiring a very small contact face, such as curved turbine blades or thickness measurement from the inside of a pit. They can be used with most flaw detectors and precision thickness gauges. Interchangeable delay lines are tapered to tip diameters of 0.065 inch (1.7mm) and 0.090 inch (2.3mm). Replaceable delay lines are available in packs of 10. The straight model features a removable handle, which also allows it to be used as a fingertip probe. All models have Microdot connectors.

### ► Pencil Probes

A		B		C		D	
1.0 in.	25.4 mm	0.60 in.	15.2 mm	0.42 in.	10.7 mm	0.4 in.	10.2 mm
1.0 in.	25.4 mm	0.60 in.	15.2 mm	0.42 in.	10.7 mm	0.4 in.	10.2 mm

E		F		G	
0.09 in.	2.3 mm	4.0 in.	101.6 mm	0.42 in.	10.7 mm
0.09 in.	2.3 mm	4.0 in.	101.6 mm	0.42 in.	10.7 mm



Frequency (MHz)	Part Number		
	Straight	45 Degree	90 Degree
7.5	00-011083	00-012296	00-012297
20	00-011039	00-012298	00-012299

Delay 10-PK .065" (1.7mm) Tip	Delay 10-PK .090" (2.3mm) Tip	Cable MD - BNC
00-012222	00-012221	6-ft (1.83 m) 07-010012

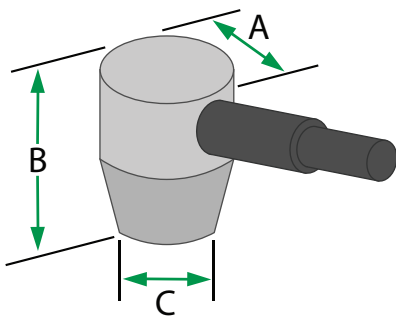
Extension Handle	Knurled Ring Pencil Probe
06-014007	06-014005

► **Dual-Element Contacts** are longitudinal-wave (straight beam) transducers designed for near-surface and thin range flaw detection and thickness measurement. Two elements, one transmitter and one receiver, are mounted at an included (roof) angle to improve signal to noise ratio and optimize near-surface resolution.



### ► Model ADP Dual-Element Contact Transducers

Model ADP are small-diameter, low-profile transducers with 2 fixed co-axial cable and BNC connectors\*. They are especially suitable for flaw detection and thickness measurement on pitted, curved, and irregular surfaces. Because the elements are mounted on internal delay lines they can be contoured to fit I.D. or O.D. curved surfaces.



#### ► Model ADP

Element Ø		A		B		C	
inch	mm						
0.25	6.4	0.50 in.	12.7 mm	0.64 in.	16.3 mm	0.28 in.	7.1 mm
0.375	9.5	0.62 in.	15.7 mm	0.64 in.	16.3 mm	0.41 in.	10.4 mm
0.5	12.7	0.75 in.	19 mm	0.68 in.	17.3 mm	0.60 in.	15.2 mm

Frequency (MHz)	Element Diameter		Part Number
	inch	mm	C
2.25	0.25	6.4	00-011405
	0.375	9.5	00-011406
	0.5	12.7	00-011407
3.5	0.25	6.4	00-011408
	0.375	9.5	00-011409
	0.5	12.7	00-011410
5	0.25	6.4	00-010656
	0.375	9.5	00-010655
	0.5	12.7	00-011411
10	0.25	6.4	00-011412
	0.375	9.5	00-011413
	0.5	12.7	00-011414

7.5 FH2E+ Flaw	0.3	7.6	00-010532
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\* Also available with Lemo-00 connectors upon request.

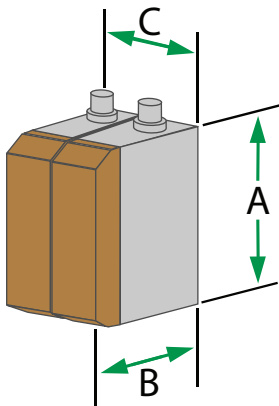


▶ **Dual-Element Contacts** are longitudinal-wave (straight beam) transducers designed for near-surface and thin-range flaw detection and thickness measurement. Two elements, one transmitter and one receiver, are mounted at an included (roof) angle to improve signal-to-noise ratio and optimize near-surface resolution.



### ▶ Model DU Dual-Element Contact Transducers

Model DU are general purpose dual-element transducers with side-mounted Microdot connectors. Replaceable/interchangeable delay lines and cross-talk barriers greatly extend versatility, cost-effectiveness, service life and can be contoured to fit I.D. or O.D. curved surfaces.



### ▶ Model DU

Element Dimensions		A		B		C	
inch	mm						
0.5 x 0.5	12.7 x 12.7	0.89 in.	22.6 mm	0.92 in.	23.4 mm	0.78 in.	19.8 mm
0.5 x 1	12.7 x 25.4	1.39 in.	35.3 mm	0.92 in.	23.4 mm	0.78 in.	19.8 mm

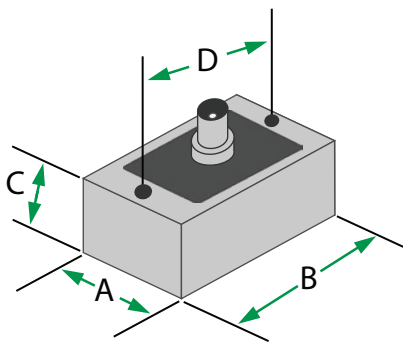
Frequency (MHz)	Element Dimensions		Part Number		
	inch	mm	GP	Delay Set	Accessories
2.25	0.5 x 0.5	12.7 x 12.7	00-012322	01-010740	<b>Dual Cable</b> MD - BNC 6-ft (1.83 m)
	0.5 x 1	12.7 x 25.4	00-012323	01-010741	
5	0.5 x 0.5	12.7 x 12.7	00-010487		07-010012
	0.5 x 1	12.7 x 25.4	00-010584	01-010741	

▶ **Angle-Beam Transducers** and their wedges generate shear (transverse) waves at the specified angle in a given test material to detect flaws that cannot be detected by a straight beam transducer. Typical applications include weld inspection, tube and pipe, shafts, turbine blades and wheel rims. Shear waves are produced by refracting a longitudinal wave in a precision machined acrylic wedge that also minimizes wedge noise.



### ▶ Model AWS Angle-Beam Transducers

Model AWS transducers and wedges meet the requirements of American Welding Society Structural Welding Code D1.1 and Bridge Welding Code D1.5. The transducers are available with piezoceramic elements (**GP series\***) and piezocomposite elements (**C series\***).



### ▶ Model AWS

Element Dimensions		A		B		C		D	
inch	mm								
0.625 x 0.625	15.9 x 15.9	0.80 in.	20.3 mm	1.26 in.	32 mm	0.75 in.	19.1 mm	0.75 in.	19.1 mm
0.625 x 0.75	15.9 x 19	0.80 in.	20.3 mm	1.26 in.	32 mm	0.75 in.	19.1 mm	0.75 in.	19.1 mm
0.75 x 0.75	19 x 19	0.85 in.	21.6 mm	1.26 in.	32 mm	0.75 in.	19.1 mm	0.75 in.	19.1 mm
									Thread
									4-40

Frequency (MHz)	Element Dimensions		Part Number			
	inch	mm	GP	C	Wedges	Accessories
2.25	0.625 x 0.625	16 x 16	00-010393	00-010242	45° 01-010268	Cable BNC - BNC 6-ft (1.83 m) 07-010018
					60° 01-010269	
					70° 01-010270	
	0.625 x 0.75	16 x 19	00-010395	00-010394	45° 01-010268	
					60° 01-010269	
					70° 01-010270	
	0.75 x 0.75	19 x 19	00-010397	00-010396	45° 01-010268	
					60° 01-010269	
					70° 01-010270	

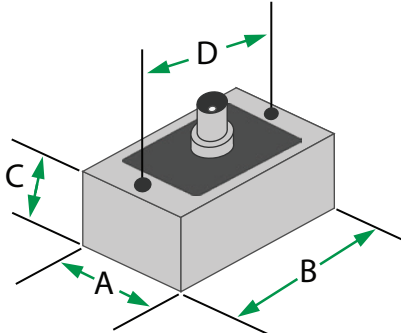
\* GP = General Purpose; C = Composite. See appendix for technical details.

► **Angle-Beam Transducers** and their wedges generate shear (transverse) waves at the specified angle in a given test material to detect flaws that cannot be detected by a straight-beam transducer. Typical applications include weld inspection, tube and pipe, shafts, turbine blades and wheel rims. Shear waves are produced by refracting a longitudinal wave in a precision machined acrylic wedge that also minimizes wedge noise.



### ► Model SWS Angle-Beam Transducers

Model SWS are designed for general weld inspection and other applications such as pipes, tanks, pressure vessels, forgings and castings. They have top mounted BNC connectors and are available with piezocomposite elements (**C series\***). Interchangeable acrylic wedges provide maximum versatility and service life.



#### ► Model SWS

Element Size		A		B		C		D	
inch	mm								
0.5 Ø	12.7 Ø	0.72 in.	18.3 mm	1.0 in.	25.4 mm	0.75 in.	19.1 mm	0.81 in.	20.6 mm
0.5 x 1	12.7 x 25.4	0.725 in.	18.5 mm	1.51 in.	38.4 mm	0.75 in.	19.1 mm	1.31 in.	33.3 mm
0.75 x 1	19 x 25.4	1.0 in.	25.4 mm	1.5 in.	38.1 mm	0.75 in.	19.1 mm	1.31 in.	33.3 mm
1 Ø	25.4 Ø	1.22 in.	31.0 mm	1.65 in.	41.9 mm	0.75 in.	19.1 mm	1.38 in.	35.1 mm
									Thread
									4-40

Frequency (MHz)	Element Dimensions		Part Number		
	inch	mm	C	Wedges	Accessories
0.5	0.5 Ø	12.7 Ø	00-010478	45° 01-010206	Cable BNC - BNC 6-ft (1.83 m) 07-010018
				60° 01-010207	
				70° 01-010208	
	0.5 x 1	12.7 x 25.4	00-010479	45° 01-010210	
				60° 01-010211	
				70° 01-010212	
	0.75 x 1	19 x 25.4	00-010480	45° 01-010214	
				60° 01-010215	
				70° 01-010216	
	1 Ø	25.4 Ø	00-010481	45° 01-010218	
				60° 01-010219	
				70° 01-010220	

Chart continues on page 12

\* C = Composite. See appendix for technical details.

# SWS-Style Continued

Frequency (MHz)	Element Dimensions		Part Number		
	inch	mm	C	Wedges	Accessories
1	0.5 Ø	12.7 Ø	00-010445	45° 01-010206	
				60° 01-010207	
				70° 01-010208	
	0.5 x 1	12.7 x 25.4	00-010446	45° 01-010210	
				60° 01-010211	
				70° 01-010212	
	0.75 x 1	19 x 25.4	00-010447	45° 01-010214	
				60° 01-010215	
				70° 01-010216	
	1 Ø	25.4 Ø	00-010448	45° 01-010218	
				60° 01-010219	
				70° 01-010220	
2.25	0.5 Ø	12.7 Ø	00-010449	45° 01-010206	
				60° 01-010207	
				70° 01-010208	
	0.5 x 1	12.7 x 25.4	00-010450	45° 01-010210	
				60° 01-010211	
				70° 01-010212	
	0.75 x 1	19 x 25.4	00-010451	45° 01-010214	
				60° 01-010215	
				70° 01-010216	
	1 Ø	25.4 Ø	00-010452	45° 01-010218	
				60° 01-010219	
				70° 01-010220	
3.5	0.5 Ø	12.7 Ø	00-010453	45° 01-010206	
				60° 01-010207	
				70° 01-010208	
	0.5 x 1	12.7 x 25.4	00-010454	45° 01-010210	
				60° 01-010211	
				70° 01-010212	
	0.75 x 1	19 x 25.4	00-010455	45° 01-010214	
				60° 01-010215	
				70° 01-010216	
	1 Ø	25.4 Ø	00-010456	45° 01-010218	
				60° 01-010219	
				70° 01-010220	
5	0.5 Ø	12.7 Ø	00-010457	45° 01-010206	
				60° 01-010207	
				70° 01-010208	
	0.5 x 1	12.7 x 25.4	00-010458	45° 01-010210	
				60° 01-010211	
				70° 01-010212	
	0.75 x 1	19 x 25.4	00-010459	45° 01-010214	
				60° 01-010215	
				70° 01-010216	
	1 Ø	25.4 Ø	00-010460	45° 01-010218	
				60° 01-010219	
				70° 01-010220	

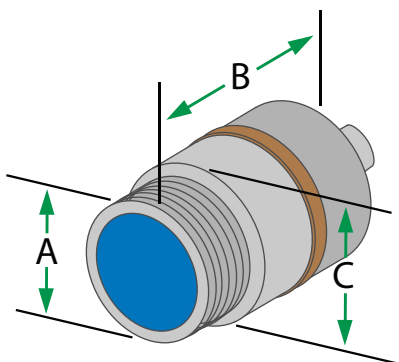
**Cable**  
BNC - BNC  
6-ft (1.83 m)  
07-010018

- ▶ **Angle-Beam Transducers** and their wedges, generate shear (transverse) waves at the specified angle in a given test material to detect flaws that cannot be detected by a straight-beam transducer. Typical applications include weld inspection, tube and pipe, shafts, turbine blades and wheel rims. Shear waves are produced by refracting a longitudinal wave in a precision-machined acrylic wedge that also minimizes wedge noise.



### ▶ Model QS Angle-Beam Transducers

Model QS features Quick Swap screw-in wedge attachment. They are available with top-mounted Microdot or new MCX low-profile swivel connectors. Piezocomposite (**C series\***) offer superior penetration and signal-to-noise ratio in highly-attenuative and coarse-grain materials.



#### ▶ Model QS

Element Ø		A	B		C	
inch	mm					
0.25	6.4	3/8 - 32 UNEF	0.58 in.	14.7 mm	0.43 in.	10.9 mm
0.375	9.5	1/2 - 28 UNEF	0.58 in.	14.7 mm	0.54 in.	13.7 mm
0.5	12.7	5/8 - 24 UNEF	0.65 in.	16.5 mm	0.69 in.	17.5 mm

Frequency (MHz)	Element Diameter		Part Number			
	inch	mm	C	Wedges	Accessories	
1	0.375	9.5	00-010137 MD or MCX	30° 01-010193	<b>Cables</b>	
				45° 01-010194		
				60° 01-010195		
				70° 01-010196		
	0.5	12.7	00-010138 MD or MCX	30° 01-010197		MD - BNC
				45° 01-010198		6-ft (1.83 m)
				60° 01-010199		07-010012
				70° 01-010200		
1.5	0.25	6.4	00-010216 MD or MCX	30° 01-010189	MCX - BNC	
				45° 01-010190	Straight	
				60° 01-010191	6-ft (1.83 m)	
				70° 01-010192	07-010007	
	0.375	9.5	00-010217 MD or MCX	30° 01-010193	MCX - BNC	
				45° 01-010194		Right Angle
				60° 01-010195		6-ft (1.83 m)
				70° 01-010196		07-010008
0.5	12.7	00-010218 MD or MCX	30° 01-010197	07-010008		
			45° 01-010198			
			60° 01-010199			
			70° 01-010200			

Chart continues on page 14

\* C = Composite. See appendix for technical details.

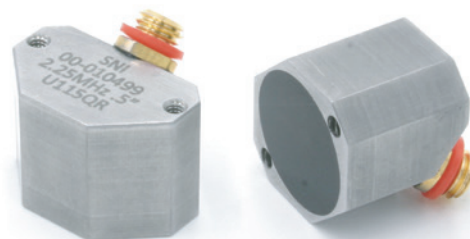


# QS-Style Continued

Frequency (MHz)	Element Diameter		Part Number		
	inch	mm	C	Wedges	Accessories
2.25	0.25	6.4	00-010122 MD or MCX	30° 01-010189	<b>Cables</b>  MD - BNC 6-ft (1.83 m) 07-010012  MCX - BNC Straight 6-ft (1.83 m) 07-010007  MCX - BNC Right Angle 6-ft (1.83 m) 07-010008
				45° 01-010190	
				60° 01-010191	
				70° 01-010192	
	0.375	9.5	00-010123 MD or MCX	30° 01-010193	
				45° 01-010194	
				60° 01-010195	
				70° 01-010196	
	0.5	12.7	00-010124 MD or MCX	30° 01-010197	
				45° 01-010198	
				60° 01-010199	
				70° 01-010200	
3.5	0.25	00-010125 MD or MCX	30° 01-010189		
			45° 01-010190		
			60° 01-010191		
			70° 01-010192		
	0.375	9.5	00-010126 MD or MCX	30° 01-010193	
				45° 01-010194	
				60° 01-010195	
				70° 01-010196	
	0.5	12.7	00-010127 MD or MCX	30° 01-010197	
				45° 01-010198	
				60° 01-010199	
				70° 01-010200	
5	0.25	00-010128 MD or MCX	30° 01-010189		
			45° 01-010190		
			60° 01-010191		
			70° 01-010192		
	0.375	9.5	00-010129 MD or MCX	30° 01-010193	
				45° 01-010194	
				60° 01-010195	
				70° 01-010196	
	0.5	12.7	00-010130 MD or MCX	30° 01-010197	
				45° 01-010198	
				60° 01-010199	
				70° 01-010200	

Frequency (MHz)	Element Diameter		Part Number		
	inch	mm	C	Wedges	Accessories
7.5	0.25	6.4	00-010131 MD or MCX	30° 01-010189	<b>Cables</b>  MD - BNC 6-ft (1.83 m) 07-010012  MCX - BNC Straight 6-ft (1.83 m) 07-010007  MCX - BNC Right Angle 6-ft (1.83 m) 07-010008
				45° 01-010190	
				60° 01-010191	
				70° 01-010192	
	0.375	9.5	00-010132 MD or MCX	30° 01-010193	
				45° 01-010194	
				60° 01-010195	
				70° 01-010196	
	0.5	12.7	00-010133 MD or MCX	30° 01-010197	
				45° 01-010198	
				60° 01-010199	
				70° 01-010200	
10	0.25	00-010134 MD or MCX	30° 01-010189		
			45° 01-010190		
			60° 01-010191		
			70° 01-010192		
	0.375	9.5	00-010135 MD or MCX	30° 01-010193	
				45° 01-010194	
				60° 01-010195	
				70° 01-010196	
	0.5	12.7	00-010136 MD or MCX	30° 01-010197	
				45° 01-010198	
				60° 01-010199	
				70° 01-010200	

- ▶ **Angle-Beam Transducers** and their wedges, generate shear (transverse) waves at the specified angle in a given test material to detect flaws that cannot be detected by a straight-beam transducer. Typical applications include weld inspection, tube and pipe, shafts, turbine blades and wheel rims. Shear waves are produced by refracting a longitudinal wave in a precision machined acrylic wedge that also minimizes wedge noise.



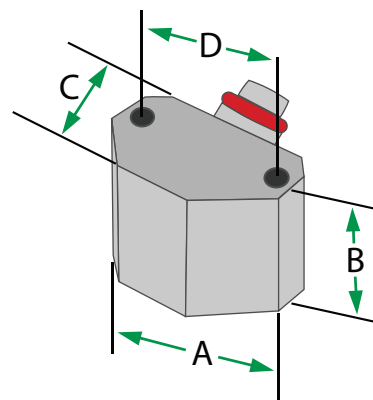
### ▶ Model MSWS Angle Beam Transducers

Model MSWS have captive screws for wedge attachment and angled Microdot connectors for applications requiring low profile. Piezocomposite (**C series\***) offer superior penetration and signal-to-noise ratio in highly-attenuative and coarse-grain materials.



### ▶ Model MSWS

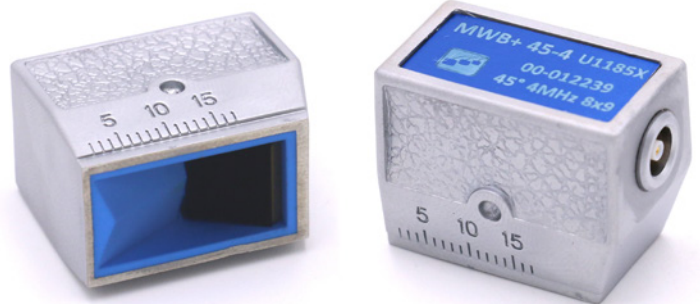
Element Ø		A		B		C		D	
inch	mm	inch	mm	inch	mm	inch	mm	inch	mm
0.25	6.4	0.48 in.	12.2 mm	0.34 in.	8.6 mm	0.31 in.	7.9 mm	0.375 in.	9.5 mm
0.5	12.7	0.73 in.	18.5 mm	0.5 in.	12.7 mm	0.56 in.	14.2 mm	0.625 in.	15.9 mm
								Thread	
								1-64	



Frequency (MHz)	Element Diameter		C	Part Number		Accessories
	inch	mm		Wedges		
1	0.5	12.7	00-010497	45° 01-010535	Cable MD - BNC 6-ft (1.83 m) 07-010012	
				60° 01-010536		
				70° 01-010537		
2.25	0.25	6.4	00-010498	45° 01-010532		
				60° 01-010533		
				70° 01-010534		
2.25	0.5	12.7	00-010499	45° 01-010535		
				60° 01-010536		
				70° 01-010537		
3.5	0.25	6.4	00-010500	45° 01-010532		
				60° 01-010533		
				70° 01-010534		
3.5	0.5	12.7	00-010501	45° 01-010535		
				60° 01-010536		
				70° 01-010537		
5	0.25	6.4	00-010502	45° 01-010532		
				60° 01-010533		
				70° 01-010534		
5	0.5	12.7	00-010503	45° 01-010535		
				60° 01-010536		
				70° 01-010537		
10	0.25	6.4	00-010504	45° 01-010532		
				60° 01-010533		
				70° 01-010534		
10	0.5	12.7	00-010505	45° 01-010535		
				60° 01-010536		
				70° 01-010537		

\* C = Composite. See appendix for technical details.

- ▶ **European-Style Angle-Beam Transducers** generate shear (transverse) waves at the specified angle in a given test material to detect flaws that cannot be detected by a straight beam transducer. Typical applications include weld inspection, tube and pipe, shafts, turbine blades and wheel rims. Shear waves are produced by refracting a longitudinal wave in a precision-machined acrylic wedge that also minimizes wedge noise.

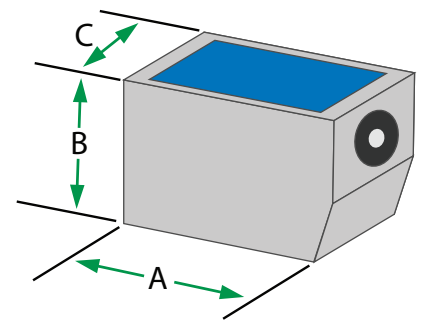


### ▶ Model MWB+/MWK+ Angle-Beam Transducers

Models MWB+ and MWK+ are small transducers with side or top-mounted Microdot connectors and integral wedges for maximum versatility. **GP series\*** (MWB+) offer the best combination of sensitivity and resolution. **C series\*** (MWK+) with piezocomposite elements offer superior resolution, penetration and signal-to-noise ratio in highly-attenuative and coarse-grain materials such as austenitic stainless steel or cast iron.

### ▶ Model MWB+/MWK+

Element Dimensions		A		B		C	
inch	mm						
0.31 x 0.35	7.9 x 8.9	1.07 in.	27.1 mm	0.86 in.	21.8 mm	0.66 in.	16.8 mm



Frequency (MHz)	Element Dimensions		Angle (Steel)	Connector Location	Part Number		Accessories
	inch	mm			GP (MWB+)	C (MWK+)	
2	0.31 x 0.35	7.9 x 8.9	35	Top	00-012227	00-012306	<b>Cables</b> MD - BNC Straight 6-ft (1.83 m) 07-010012 MCX - BNC Straight 6-ft (1.83 m) 07-010007 MCX - BNC Right Angle 6-ft (1.83 m) 07-010008
				Side	00-012226	00-012307	
			45	Top	00-012229	00-012308	
				Side	00-012228	00-012251	
			60	Top	00-012231	00-012309	
				Side	00-012230	00-012252	
			70	Top	00-012233	00-012310	
				Side	00-012232	00-012253	
			80	Top	00-012235	00-012311	
Side	00-012234	00-012312					
90	Top	00-012236	00-012313				
	Side	00-012236	00-012313				
4	0.31 x 0.35	7.9 x 8.9	35	Top	00-012238	00-012314	<b>Cables</b> MD - BNC Straight 6-ft (1.83 m) 07-010012 MCX - BNC Straight 6-ft (1.83 m) 07-010007 MCX - BNC Right Angle 6-ft (1.83 m) 07-010008
				Side	00-012237	00-012315	
			45	Top	00-012240	00-012316	
				Side	00-012239	00-012248	
			60	Top	00-012242	00-012317	
				Side	00-012241	00-012249	
			70	Top	00-012244	00-012318	
				Side	00-012243	00-012250	
			80	Top	00-012246	00-012319	
Side	00-012245	00-012320					
90	Top	00-012247	00-012321				
	Side	00-012247	00-012321				

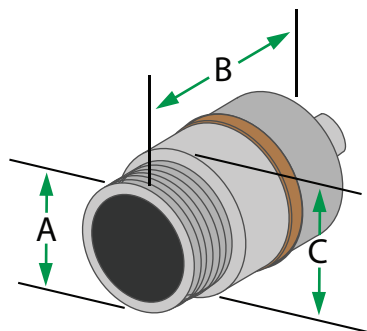
\* GP = General Purpose; C = Composite.

\* See appendix for technical details.

### ▶ TOFD Angle-Beam Transducers

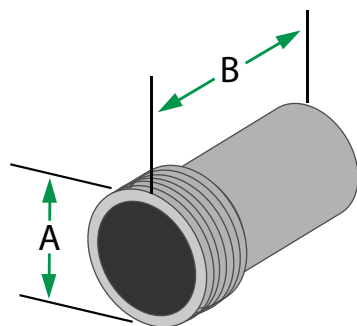
Time-Of-Flight Diffraction (TOFD) is a method used to determine the size of cracks in metallic welds. It requires highly-damped, broadband transducers and wedges that generate refracted longitudinal waves (L-waves). SNI's TOFD transducers have state-of-the-art piezocomposite elements (**C series\***) and Quick Swap screw-in wedge attachment. Straight-mounted connectors are Microdot (3/8-32) or Lemo-00 (M12 case).

SNI's proprietary **Low-Noise-Blue™** wedge damping material minimizes wedge noise for improved resolution and signal-to-noise ratio.



▶ TOFD Microdot

Element Ø		A		B		C	
inch	mm						
0.125	3.2	0.37 in.	9.4 mm	0.72 in.	18.3 mm	0.41 in.	10.4 mm
0.25	6.4	0.37 in.	9.4 mm	0.72 in.	18.3 mm	0.41 in.	10.4 mm



▶ TOFD Lemo-00

Element Ø		A		B	
inch	mm				
0.125	3.2	0.47 in.	12 mm	0.83 in.	21 mm
0.25	6.4	0.47 in.	12 mm	0.83 in.	21 mm

Frequency (MHz)	Diameter		Part Number		
	inch	mm	Connector	C	Wedges
5	0.125	3.2	Microdot	00-010168	45°L 01-010475
					60°L 01-010476
					70°L 01-010477
	0.25	6.4	Microdot	00-010398	45°L 01-010475
					60°L 01-010476
					70°L 01-010477
10	0.125	3.2	Microdot	00-010166	45°L 01-010475
					60°L 01-010476
					70°L 01-010477
	0.25	6.4	Microdot	00-010387	45°L 01-010475
					60°L 01-010476
					70°L 01-010477
15	0.125	3.2	Microdot	00-010165	45°L 01-010475
					60°L 01-010476
					70°L 01-010477

Cables  
MD - BNC  
6-ft (1.83 m)  
07-010012

Frequency (MHz)	Diameter		Part Number		
	inch	mm	Connector	C	Accessories
5	0.125	3.2	Lemo-00	00-010299	Cables Lemo-00 - BNC 6-ft (1.83 m) 07-010014
	0.25	6.4	Lemo-00	00-010300	
10	0.125	3.2	Lemo-00	00-010298	
	0.25	6.4	Lemo-00	00-010386	
15	0.125	3.2	Lemo-00	00-010631	

\* C = Composite. See appendix for technical details.

- ▶ **Immersion Transducers** are typically used in automatic and manual scanning systems using water or other liquid as a coupling medium to enable the inspection of parts with complex geometries and with near-surface resolution superior to that of contact transducers. Spherical (point) or cylindrical (line) focusing can further improve sensitivity and resolution. Focal length must be specified.



### ▶ Models I2, I3 and I4 Immersion Transducers

All model I2, I3 and I4 transducers have straight-mounted waterproof UHF connectors. Available I2 element diameters are 0.25, 0.375 and 0.5 inch (6, 10 and 13 mm). I3 have 0.75 inch (19 mm) and I4 have 1.0 inch (25 mm) element diameters. **GP series\*** offer the best combination of sensitivity and resolution for general applications. **HR series\*** are highly-damped for applications where high resolution is required. **C series\*** have piezocomposite elements and offer superior penetration, resolution and signal-to-noise ratio in highly-attenuative and coarse-grain materials.

Frequency (Mhz)		Element Ø (Inches)					
		1	0.75	0.5	0.375	0.25	0.125
1	Near	4.3	2.4	1.1			
	Min	2	1.5	1			
	Max	3	2	1			
2.25	Near	9.5	5.4	2.4	1.4	0.6	
	Min	2	1.5	1	0.8	0.5	
	Max	6	4	2	0.8	0.5	
3.5	Near	15	8.4	3.7	2.1	0.9	
	Min	2	1.5	1	0.8	0.5	
	Max	8	6	2.5	0.5	0.5	
5	Near	21	12	5.4	3	1.3	0.3
	Min	2	1.5	1	0.8	0.5	0.3
	Max	8	8	4	1	0.8	0.3
10	Near		12	10.7	6	2.7	0.7
	Min		1.5	1	0.8	0.5	0.3
	Max		8	6	4.5	1.5	0.3
15	Near			16	9	4	1
	Min			1	0.8	0.5	0.3
	Max			6	6	2	0.5
25	Near					6.7	1.7
	Min					0.5	0.3
	Max					2	1

This table lists the near-field lengths of minimum and maximum practical focal lengths in water (inches). Customers should only request focal lengths within these limits to achieve good focal performance. SNI is aware that some customers have experience with transducers focused longer than the recommended maximum (sometimes called "Beam Correction" since the transducer cannot achieve a focal point that long). These are available on a best-effort basis.

N = Near-field practical focal length  
 Min = Minimum practical focal length  
 Max = Maximum practical focal length

$$N = \frac{(\text{Dia.})^2 \times (\text{Freq.})}{4 \times \text{Velocity}}$$

- ▶ **When ordering immersion transducers**, please include the part number followed by type of focus and focal length in inches (if applicable).

(ex. 00-011321 NF, 00-011321 6.0S, 00-011321 8.0C)

NF = Non-focused (flat)

S = Spherical focus

C = Cylindrical focus

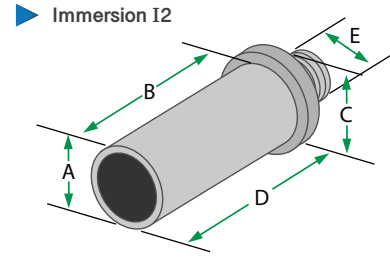
\* GP = General Purpose; HR = High Resolution; C = Composite.

\* See appendix for technical details.

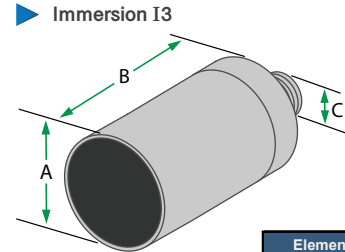


# I2, I3, and I4 Continued

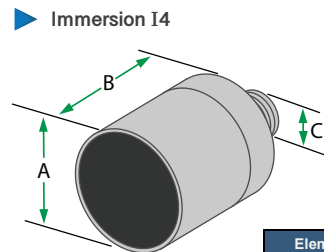
Frequency (MHz)	Element Diameter		Case	Focus	Part Number		
	inch	mm			GP	HR	C
1	0.75	19	I3	None	00-011201 NF		00-011313 NF
				Spherical	00-011201 X.XS		00-011313 X.XS
Cylindrical				00-011201 Y.YC		00-011313 Y.YC	
	1	25.4	I4	None	00-011314 NF		00-010683 NF
				Spherical	00-011314 X.XS		00-010683 X.XS
Cylindrical				00-011314 Y.YC		00-010683 Y.YC	
2.25	0.25	6.4	I2	None	00-011315 NF	00-011316 NF	00-011317 NF
				Spherical	00-011315 X.XS	00-011316 X.XS	00-011317 X.XS
				Cylindrical	00-011315 Y.YC	00-011316 Y.YC	00-011317 Y.YC
	0.375	9.5	I2	None	00-011318 NF	00-011319 NF	00-011144 NF
				Spherical	00-011318 X.XS	00-011319 X.XS	00-011144 X.XS
				Cylindrical	00-011318 Y.C	00-011319 Y.YC	00-011144 Y.YC
	0.5	12.7	I2	None	00-010830 NF	00-011114 NF	00-011320 NF
				Spherical	00-010830 X.XS	00-011114 X.XS	00-011320 X.XS
				Cylindrical	00-010830 Y.YC	00-011114 Y.YC	00-011320 Y.YC
	0.75	19	I3	None	00-011321 NF	00-011322 NF	00-011146 NF
				Spherical	00-011321 X.XS	00-011322 X.XS	00-011146 X.XS
				Cylindrical	00-011321 Y.YC	00-011322 Y.YC	00-011146 Y.YC
1	25.4	I4	None	00-011323 NF	00-011324 NF	00-010587 NF	
			Spherical	00-011323 X.XS	00-011324 X.XS	00-010587 X.XS	
			Cylindrical	00-011323 Y.YC	00-011324 Y.YC	00-010587 Y.YC	
3.5	0.25	6.4	I2	None	00-011325 NF	00-011326 NF	00-011327 NF
				Spherical	00-011325 X.XS	00-011326 X.XS	00-011327 X.XS
				Cylindrical	00-011325 Y.YC	00-011326 Y.YC	00-011327 Y.YC
	0.375	9.5	I2	None	00-011328 NF	00-011329 NF	00-011141 NF
				Spherical	00-011328 X.XS	00-011329 X.XS	00-011141 X.XS
				Cylindrical	00-011328 Y.YC	00-011329 Y.YC	00-011141 Y.YC
	0.5	12.7	I2	None	00-011330 NF	00-011331 NF	00-010858 NF
				Spherical	00-011330 X.XS	00-011331 X.XS	00-010858 X.XS
				Cylindrical	00-011330 Y.YC	00-011331 Y.YC	00-010858 Y.YC
	0.75	19	I3	None	00-011332 NF	00-011333 NF	00-011334 NF
				Spherical	00-011332 X.XS	00-011333 X.XS	00-011334 X.XS
				Cylindrical	00-011332 Y.YC	00-011333 Y.YC	00-011334 Y.YC
1	25.4	I4	None	00-011335 NF	00-011336 NF	00-010586 NF	
			Spherical	00-011335 X.XS	00-011336 X.XS	00-010586 X.XS	
			Cylindrical	00-011335 Y.YC	00-011336 Y.YC	00-010586 Y.YC	
5	0.25	6.4	I2	None	00-011337 NF	00-010593 NF	00-011338 NF
				Spherical	00-011337 X.XS	00-010593 X.XS	00-011338 X.XS
				Cylindrical	00-011337 Y.YC	00-010593 Y.YC	00-011338 Y.YC
	0.375	9.5	I2	None	00-011339 NF	00-011340 NF	00-010679 NF
				Spherical	00-011339 X.XS	00-011340 X.XS	00-010679 X.XS
				Cylindrical	00-011339 Y.YC	00-011340 Y.YC	00-010679 Y.YC
	0.5	12.7	I2	None	00-010778 NF	00-010594 NF	00-011013 NF
				Spherical	00-010778 X.XS	00-010594 X.XS	00-011013 X.XS
				Cylindrical	00-010778 Y.YC	00-010594 Y.YC	00-011013 Y.YC
	0.75	19	I3	None	00-010585 NF	00-011341 NF	00-010868 NF
				Spherical	00-010585 X.XS	00-011341 X.XS	00-010868 X.XS
				Cylindrical	00-010585 Y.YC	00-011341 Y.YC	00-010868 Y.YC
1	25.4	I4	None	00-011152 NF	00-011350 NF	00-011153 NF	
			Spherical	00-011152 X.XS	00-011350 X.XS	00-011153 X.XS	
			Cylindrical	00-011152 Y.YC	00-011350 Y.YC	00-011153 Y.YC	
10	0.25	6.4	I2	None	00-010822 NF	00-010833 NF	00-011342 NF
				Spherical	00-010822 X.XS	00-010833 X.XS	00-011342 X.XS
				Cylindrical	00-010822 Y.YC	00-010833 Y.YC	00-011342 Y.YC
	0.375	9.5	I2	None	00-010825 NF	00-010644 NF	00-011343 NF
				Spherical	00-010825 X.XS	00-010644 X.XS	00-011343 X.XS
				Cylindrical	00-010825 Y.YC	00-010644 Y.YC	00-011343 Y.YC
	0.5	12.7	I2	None	00-010595 NF	00-010595 NF	00-011344 NF
				Spherical		00-010595 X.XS	00-011344 X.XS
				Cylindrical		00-010595 Y.YC	00-011344 Y.YC
	0.75	19	I3	None	00-011148 NF	00-010369 NF	00-011345 NF
				Spherical	00-011148 X.XS	00-010369 X.XS	00-011345 X.XS
				Cylindrical	00-011148 Y.YC	00-010369 Y.YC	00-011345 Y.YC
15	0.25	6.4	I2	None		00-011149 NF	00-011346 NF
				Spherical		00-011149 X.XS	00-011346 X.XS
				Cylindrical		00-011149 Y.YC	00-011346 Y.YC
	0.375	9.5	I2	None		00-010597 NF	00-011347 NF
				Spherical		00-010597 X.XS	00-011347 X.XS
				Cylindrical		00-010597 Y.YC	00-011347 Y.YC
0.5	12.7	I2	None		00-010774 NF	00-011348 NF	
			Spherical		00-010774 X.XS	00-011348 X.XS	
			Cylindrical		00-010774 Y.YC	00-011348 Y.YC	



	Element Ø			
	inch	0.25	0.375	0.5
	mm	6.4	9.5	12.7
A		0.63 in.	0.63 in.	0.63 in.
		16 mm	16 mm	16 mm
B		1.4 in.	1.4 in.	1.4 in.
		35.6 mm	35.6 mm	35.6 mm
C		0.73 in.	0.73 in.	0.73 in.
		18.5 mm	18.5 mm	18.5 mm
D		1.55 in.	1.55 in.	1.55 in.
		39.4 mm	39.4 mm	39.4 mm
E		5/8 - 24 UNEF		



	Element Ø	
	inch	0.75
	mm	19
A		1.0 in.
		25.4 mm
B		1.3 in.
		33 mm
C		5/8 - 24 UNEF

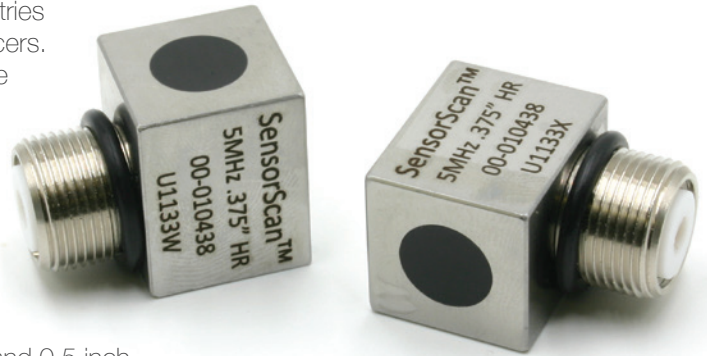


	Element Ø	
	inch	1
	mm	25.4
A		1.25 in.
		31.8 mm
B		1.25 in.
		31.8 mm
C		5/8 - 24 UNEF

## Velocity Testing

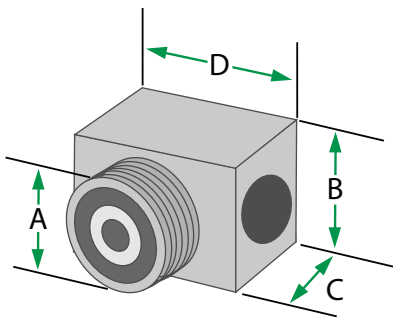
Frequency (MHz)	Element Diameter		Case	Focus	C
	inch	mm			
5	0.25	6.4	I2	None	00-011403
	0.375	9.5	I2	None	00-011404
	0.5	12.7	I2	None	00-010437

► **Immersion Transducers** are typically used in automatic and manual scanning systems using water or other liquid as a coupling medium to enable the inspection of parts with complex geometries and near-surface resolution superior to that of contact transducers. Spherical (point) or cylindrical (line) focusing can further improve sensitivity and resolution. Focal length must be specified.



### ► Models IR Immersion Transducers

Model IR transducers have right-angle-mounted waterproof UHF connectors and small case design for applications where space is limited. Available element diameters are 0.25, 0.375 and 0.5 inch (6, 10 and 13 mm). **GP series\*** offer the best combination of sensitivity and resolution for general applications. **HR series\*** are highly damped for applications where high resolution is required. **C series\*** have piezocomposite elements and offer superior penetration, resolution and signal-to-noise ratio in highly attenuative and coarse grain materials.



### ► Immersion IR

Element Ø		A	B		C		D	
inch	mm							
0.25	6.4	5/8 - 24 UNEF	0.75 in.	19 mm	0.75 in.	19 mm	0.94 in.	23.9 mm
0.375	9.5	5/8 - 24 UNEF	0.75 in.	19 mm	0.75 in.	19 mm	0.94 in.	23.9 mm
0.5	12.7	5/8 - 24 UNEF	0.75 in.	19 mm	0.75 in.	19 mm	0.94 in.	23.9 mm

Frequency (MHz)	Element Diameter		Focus	Part Number		
	inch	mm		GP	HR	C
2.25	0.25	6.4	None	00-011385 NF	00-011386 NF	00-011387 NF
			Spherical	00-011385 X.XS	00-011386 X.XS	00-011387 X.XS
			Cylindrical	00-011385 Y.YC	00-011386 Y.YC	00-011387 Y.YC
	0.375	9.5	None	00-011388 NF	00-011389 NF	00-011390 NF
			Spherical	00-011388 X.XS	00-011389 X.XS	00-011390 X.XS
			Cylindrical	00-011388 Y.YC	00-011389 Y.YC	00-011390 Y.YC
0.5	12.7	None	00-011391 NF	00-011392 NF	00-011393 NF	
		Spherical	00-011391 X.XS	00-011392 X.XS	00-011393 X.XS	
		Cylindrical	00-011391 Y.YC	00-011392 Y.YC	00-011393 Y.YC	
5	0.25	6.4	None	00-011394 NF	00-011395 NF	00-011396 NF
			Spherical	00-011394 X.XS	00-011395 X.XS	00-011396 X.XS
			Cylindrical	00-011394 Y.YC	00-011395 Y.YC	00-011396 Y.YC
	0.375	9.5	None	00-011397 NF	00-011398 NF	00-011399 NF
			Spherical	00-011397 X.XS	00-011398 X.XS	00-011399 X.XS
			Cylindrical	00-011397 Y.YC	00-011398 Y.YC	00-011399 Y.YC
0.5	12.7	None	00-011400 NF	00-011401 NF	00-011402 NF	
		Spherical	00-011400 X.XS	00-011401 X.XS	00-011402 X.XS	
		Cylindrical	00-011400 Y.YC	00-011401 Y.YC	00-011402 Y.YC	

### ► Velocity Testing

Frequency (MHz)	Element Diameter		Focus	C
	inch	mm		
5	0.25	6.4	None	00-010591
	0.375	9.5	None	00-010438
	0.5	12.7	None	00-010475

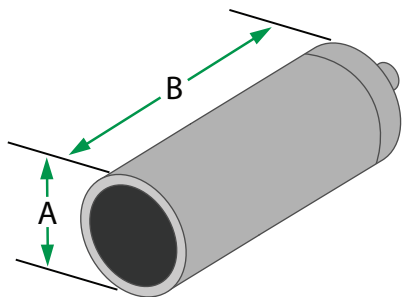
\* GP = General Purpose; HR = High Resolution; C = Composite.  
\* See appendix for technical details.

► **Immersion Transducers** are typically used in automated and manual-scanning systems using water or other liquid as a coupling medium. This enables the inspection of parts with complex geometries and near-surface resolution superior to that of contact transducers. Spherical (point) or cylindrical (line) focusing can further improve sensitivity and resolution. Focal length must be specified.



### ► Model I1 Immersion Transducers

Model I1 are small-diameter, pencil-type transducers with straight-mounted Microdot connectors. Because the connectors are not waterproof, sealing with non-water-soluble grease is recommended. **GP series\*** offer the best combination of sensitivity and resolution for general applications. **HR series\*** are highly damped for applications where high resolution is required. **C series\*** have piezocomposite elements and offer superior penetration, resolution and signal-to-noise ratio in highly-attenuative and coarse-grain materials.



#### ► Model I1

Element Ø		A		B	
inch	mm				
0.25	6.4	0.38 in.	9.7 mm	1.25 in.	31.8 mm

Frequency (MHz)	Element Diameter		Focus	Part Number			Accessories
	inch	mm		GP	HR	C	
2.25	0.25	6.4	None	00-011300 NF	00-011301 NF	00-011302 NF	Cable MD - BNC 6-ft (1.83 m) 07-010012
			Spherical	00-011300 X.XS	00-011301 X.XS	00-011302 X.XS	
			Cylindrical	00-011300 Y.YC	00-011301 Y.YC	00-011302 Y.YC	
5	0.25	6.4	None	00-011303 NF	00-010593 NF	00-010711 NF	
			Spherical	00-011303 X.XS	00-010593 X.XS	00-010711 X.XS	
			Cylindrical	00-011303 Y.YC	00-010593 Y.YC	00-010711 Y.YC	
10	0.25	6.4	None	00-010822 NF	00-010377 NF	00-010823 NF	
			Spherical	00-010822 X.XS	00-010377 X.XS	00-010823 X.XS	
			Cylindrical	00-010822 Y.YC	00-010377 Y.YC	00-010823 Y.YC	
15	0.25	6.4	None		00-010596 NF	00-011304 NF	
			Spherical		00-010596 X.XS	00-011304 X.XS	
			Cylindrical		00-010596 Y.YC	00-011304 Y.YC	

\* GP = General Purpose; HR = High Resolution; C = Composite.

\* See appendix for technical details.

## ► Precision (Single Element) Thickness Gauging Transducers

For use with commercial thickness gauges and flaw detection instruments.

Model	Transducer Type	Contact Diameter		Measuring Range in Steel	Nominal Frequency	SNI Part Number
		inch	mm			
Alpha2 DFR Plus	Delay Line Removable	0.3	7.6	0.007 to 1 inch 0.18 to 25.4 mm	15 MHz	00-010417
CA211 Plus	Standard Contact	0.75	19.1	0.60 to 20 inch 1.5 to 508 mm	5 MHz	00-010415
Alpha2 F Plus	Small Contact	0.38	9.7	0.60 to 10 inch 1.5 to 254 mm	10 MHz	00-010625
Alpha2 Mini DFR Plus	Thin Range Delay Line	0.19	4.8	0.005 to 0.2 inch 0.13 to 5.1 mm	20 MHz	00-010589
Pencil Probe	Delay Line Pencil Case	0.065 or 0.090	1.7 or 2.3	0.008 to 0.175 inch 0.20 to 0.44 mm	20 MHz	00-011039

## ► Corrosion (Dual Element) Thickness Gauging Transducers

For use with commercial corrosion thickness gauges and flaw detection instruments.

Model	Transducer Type	Contact Diameter		Measuring Range in Steel	Temperature Maximum	SNI Part Number
		inch	mm			
FH2E Plus	Fingertip	0.38	9.7	0.030 to 2.0 inch 7.6 to 50.8 mm	<130° F <54° C	00-010424
FH2E Plus WR	Fingertip Wear Resistant	0.55	14	0.030 to 2.0 inch 7.6 to 50.8 mm	<130° F <54° C	00-010565
FH2E Plus MD	Fingertip	0.38	9.7	0.030 to 2.0 inch 7.6 to 50.8 mm	<130° F <54° C	00-011017
FH2E Plus M	Fingertip Small Diameter	0.28	7.1	0.030 to 1.0 inch 7.6 to 25.4 mm	<130° F <54° C	00-010675
FH2E Plus with BNC	Fingertip	0.38	9.7	0.030 to 2.0 inch 7.6 to 50.8 mm	<130° F <54° C	00-010532
FH2E Plus BT	Studded Boiler Tube	0.38	9.7	0.060 to 2.0 inch 1.5 to 50.8 mm	<130° F <54° C	00-010676
DA 512 Plus	Fingertip	0.295	7.5	0.024 to 2.4 inch .6 to 61 mm	<130° F <54° C	00-010638
SNI 525	Potted Fingertip	0.2	5	0.025 to 2 inch .6 to 50.8 mm	<130° F <54° C	00-012223



## ► Dual Linear Phased-Array for Corrosion Inspection

Nominal Frequency	Number of Elements	Element Pitch		Connector	Temperature Maximum	SNI Part Number
		in	mm			
5 MHz	32 Transmit 32 Receive	0.06	1.5	See appendix pg. 27	<130° F <54° C	00-010220 ZPAC or IPEX

## ▶ Phased Array Transducers\*

SNI's phased array transducers are available in many configurations, including linear, matrix, dual matrix, curved, annular and annular sectorial. Standard cable length is 8.2-ft (2.5 m) with ZPAC, IPEX, Phasor, Mentor, or Hypertronics connector. Other cable lengths and connectors are available upon request.

Frequency (MHz)	Number of Elements	Element Pitch in mm	Elevation in mm	Array Description and Application	SNI Part Number**	Type	Case		
1.5	16	0.040	1.00	0.47	12	Low frequency linear, coarse grain materials	00-010328	Wedge Mount	E2
1.5	16	0.110	2.80	1.02	26	Deep penetration probes	00-011416	Wedge Mount	A4
2	8	0.040	1.00	0.35	9	Low frequency linear, coarse grain materials	00-010335	Wedge Mount	E1
2.25	16	0.080	2.00	1.26	32	Deep penetration probes	00-011417	Wedge Mount	A4
2.25	32	0.030	0.75	0.94	24	Deep penetration probes	00-011418	Wedge Mount	A5
2.25	32	0.016	0.40	0.50	12.7	Miniature angle beam; fits conventional wedges	00-010340	Wedge Mount	.5 in. MSWS
2.25	16	0.040	1.00	0.63	16	AWS linear	00-010477	Wedge Mount	AWS
2.25	16	0.030	0.75	0.47	12	General purpose linear	00-010265	Wedge Mount	AM
2.25	16	0.030	0.75	0.47	12	General purpose linear	00-011419	Wedge Mount	A1
2.25	16	0.060	1.50	0.75	19	General purpose linear	00-010330	Wedge Mount	E3
2.25	64	0.024	0.60	0.38	10	General purpose linear	00-010267	Wedge Mount	LM
2.25	64	0.024	0.60	0.38	10	General purpose linear	00-011420	Wedge Mount	A12
2.25	64	0.030	0.75	0.47	12	General purpose linear	00-011421	Wedge Mount	A2
3.5	16	0.016	0.40	0.25	6.25	General purpose linear	00-010379	Wedge Mount	.25 in. MSWS
3.5	32	0.016	0.40	0.50	12.7	General purpose linear	00-010381	Wedge Mount	.5 in. MSWS
4	16	0.020	0.50	0.35	9	General purpose linear	00-010336	Wedge Mount	E1
5	16	0.024	0.60	0.38	10	General purpose linear	00-010266	Wedge Mount	AM
5	16	0.024	0.60	0.38	10	General purpose linear	00-011422	Wedge Mount	A10
5	16	0.024	0.60	0.38	10	General purpose linear	00-011423	Wedge Mount	A1
5	32	0.024	0.60	0.76	20	Deep penetration probes	00-011424	Wedge Mount	A5
5	32	0.024	0.60	0.38	10	General purpose linear	00-010329	Wedge Mount	A11
5	64	0.024	0.60	0.38	10	General purpose linear	00-010268	Wedge Mount	LM
5	64	0.024	0.60	0.38	10	General purpose linear	00-011426	Wedge Mount	A12
5	64	0.024	0.60	0.38	10	General purpose linear	00-011427	Wedge Mount	A2
5	16	0.016	0.40	0.25	6.25	General purpose linear	00-010380	Wedge Mount	.25 in. MSWS
5	32	0.016	0.40	0.50	12.7	Miniature angle beam; fits conventional wedges	00-010339	Wedge Mount	.5 in. MSWS
5	60	0.040	1.00	0.38	10	General purpose linear	00-011425	Wedge Mount	A14
5	16	0.020	0.50	0.38	10	Low profile linear	00-011433	Wedge Mount	AT
5	16	0.020	0.50	0.38	10	Low profile linear	00-011211	Wedge Mount	Cobra
7.5	16	0.020	0.50	0.38	10	Low profile linear	00-011434	Wedge Mount	AT
7.5	16	0.020	0.50	0.38	10	Low profile linear	00-011212	Wedge Mount	Cobra
7.5	32	0.010	0.25	0.38	10	Low profile linear	00-011435	Wedge Mount	AT
7.5	32	0.010	0.25	0.38	10	Low profile linear	00-011213	Wedge Mount	Cobra
7.5	60	0.040	1.00	0.38	10	General purpose linear	00-011428	Wedge Mount	A14
7.5	16	0.016	0.40	0.25	6.25	General purpose linear	00-010867	Wedge Mount	.25 in. MSWS
10	16	0.016	0.40	0.25	6.25	General purpose linear	00-011207	Wedge Mount	.25 in. MSWS
10	16	0.012	0.31	0.20	5	Small footprint, high frequency linear	00-010341	Wedge Mount	A00
10	32	0.016	0.40	0.50	12.7	Miniature angle beam; fits conventional wedges	00-010338	Wedge Mount	.5 in. MSWS
10	32	0.012	0.31	0.28	7	General purpose linear	00-011429	Wedge Mount	A10
10	32	0.012	0.31	0.28	7	General purpose linear	00-011430	Wedge Mount	A1
10	64	0.024	0.60	0.38	10	General purpose linear	00-010269	Wedge Mount	LM
10	16	0.020	0.50	0.38	10	Low profile linear	00-011436	Wedge Mount	AT
10	16	0.020	0.50	0.38	10	Low profile linear	00-011214	Wedge Mount	Cobra
10	32	0.010	0.25	0.38	10	Low profile linear	00-011437	Wedge Mount	AT
10	32	0.010	0.25	0.38	10	Low profile linear	00-011215	Wedge Mount	Cobra
3.5	64	0.040	1.00	0.28	7	Near wall linear immersion (elements close end)	00-010331	Immersion	Near Wall
5	64	0.040	1.00	0.28	7	Near wall linear immersion (elements close end)	00-010332	Immersion	Near Wall
5	128	0.030	0.75	0.38	10	Linear immersion	00-010333	Immersion	I3
5	64	0.024	0.60	0.38	10	Linear immersion	00-011431	Immersion	I1
5	128	0.024	0.60	0.38	10	Linear immersion	00-011432	Immersion	I2
5	32	0.052	1.32	0.24	6	Curved array for composite radius inspection	00-010334	Immersion	R4
5	64	0.050	1.27	0.31	8	Hardwater linear (minimizes water gap needed)	00-010327	Immersion	HW
5	32 Transmit 32 Receive	0.060	1.50	0.20	5	Dual linear, corrosion inspection	00-010863	Contact	Corrosion
1.5	2x15 5x3 element	0.150	3.80	0.16	4	Dual matrix (T/R) - coarse grain materials	00-010337	Wedge Mount	E4
2	2x32 16x2 element	0.070	1.75	0.16	4	Dual matrix (T/R) - coarse grain materials	00-010342	Wedge Mount	E5

\* See page 27 for phased-array transducer connector types.

\*\* When ordering phased-array transducers, please include the part number followed by the desired connector type (ex. 00-010328 ZPAC).



## ▶ Phased-Array Case Dimensions

Case Type	Case Dimensions					
	Length		Width		Height	
A1	0.67 in.	17 mm	1.14 in.	29 mm	0.98 in.	24.9 mm
A2	2.09 in.	53.1 mm	1.14 in.	29 mm	1.38 in.	35.1 mm
A4	2.24 in.	56.9 mm	1.81 in.	46 mm	1.18 in.	30 mm
A5	1.14 in.	29 mm	1.69 in.	42.9 mm	0.94 in.	23.9 mm
A10	0.91 in.	23.1 mm	0.63 in.	16 mm	0.79 in.	20.1 mm
A11	0.98 in.	24.9 mm	0.91 in.	23.1 mm	0.79 in.	20.1 mm
A12	1.77 in.	45 mm	0.91 in.	23.1 mm	0.79 in.	20.1 mm
A14	2.67 in.	68 mm	0.91 in.	23.1 mm	0.79 in.	20.1 mm
A00	0.31 in.	7.9 in.	0.31 in.	7.9 in.	0.91 in.	23.1 mm
E1	1.1 in.	27.9 mm	0.59 in.	15 mm	1.06 in.	26.9 mm
E2	0.75 in.	19 mm	0.75 in.	19 mm	1.0 in.	25.4 mm
E3	1.45 in.	36.8 mm	1.25 in.	31.8 mm	1.0 in.	25.4 mm
E4	1.33 in.	33.8 mm	0.65 in.	16.5 mm	1.0 in.	25.4 mm
E5	1.48 in.	37.6 mm	1.24 in.	31.5 mm	1.0 in.	25.4 mm
I1	1.97 in.	50 mm	0.75 in.	19 mm	0.98 in.	24.9 mm
I2	3.27 in.	83.1 mm	0.83 in.	21.1 mm	1.38 in.	35.1 mm
I3	1.02 in.	25.9 mm	0.83 in.	21.1 mm	1.38 in.	35.1 mm
LM	1.69 in.	42.9 mm	1.1 in.	27.9 mm	0.98 in.	24.9 mm
AM	1.18 in.	30 mm	0.63 in.	16 mm	0.98 in.	24.9 mm
0.25 MSWS	0.5 in.	12.7 mm	0.37 in.	9.4 mm	0.5 in.	12.7 mm
0.5 MSWS	0.76 in.	19.3 mm	0.61 in.	15.5 mm	0.75 in.	19 mm
R4	1.78 in.	45.2 mm	0.59 in.	15 mm	1.67 in.	42.4 mm
Near Wall	2.6 in.	66 mm	0.75 in.	19 mm	0.98 in.	24.9 mm
HW	3.4 in.	86.4 mm	0.5 in.	12.7 mm	1.25 in.	31.8 mm
AWS	1.26 in.	32 mm	0.80 in.	20.3 mm	0.75 in.	19 mm
Corrosion	2.58 in.	65.5 mm	1.0 in.	25.4 mm	0.95 in.	24.1 mm
AT	0.98 in.	24.9 mm	0.87 in.	22.1 mm	0.39 in.	9.9 mm

\* Please contact us for further technical details and dimensions.

### ▶ Phased-Array Wedges

SNi's proprietary **Low-Noise-Blue™** damping material minimizes wedge noise for improved resolution and signal-to-noise ratio.

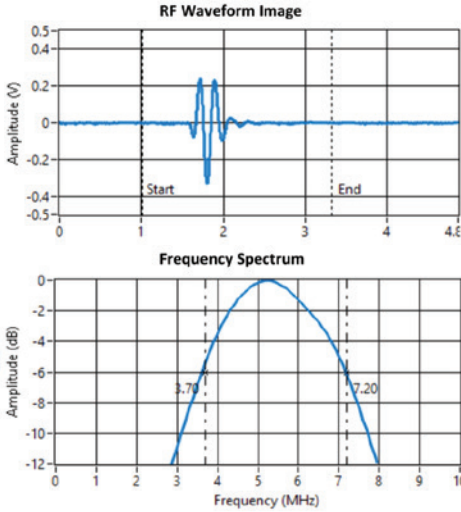
Type	Description	Part Number
E1	Wedge, REX, 38.0 DEG INC, Flat, A, 00-010274/5 Compatible	01-010293
E1	Wedge, REX, 38.0 DEG INC, Flat, B, 00-010274/5 Compatible	01-010294
E2	Wedge, REX, 38.0 DEG INC, Flat, A, 00-010276 Compatible	01-010295
E2	Wedge, REX, 38.0 DEG INC, Flat, B, 00-010276 Compatible	01-010296
E3	Wedge, REX, 38.0 DEG INC, Flat, 00-010277 Compatible	01-010297
E4	Wedge, Dual, REX, 18.0 DEG INC, Flat, 00-010278 Compatible	01-010298
E5	Wedge, Dual 18 INC 2.3RF, REX, Flat	01-010035
MSWS 1/2	Wedge, .5" MSWS, 45S, Plex	01-010535
MSWS 1/2	Wedge, .5" MSWS, 60S, Plex	01-010536
MSWS 1/2	Wedge, .5" MSWS, 70S, Plex	01-010537
MSWS 1/2	Wedge, .50" MSWS PA, REX, 35-75 SW, Flat	01-011015
MSWS 1/2	Wedge, .50" MSWS PA, REX, 35-75 L-WAVE, Flat	01-011016
AM	Wedge 40-70L AM Case	01-010531
AM	Wedge 40-70S AM Case	01-010703
LM	Wedge ODG LM Case	01-010706
LM	Wedge 40-70S LM Case	01-010707
LM	Wedge 40-70L LM Case	01-010708
A11	Wedge 30-70S A11 Case	01-010709
A00	Wedge 30-60S A00 Case	01-010710
A00	Wedge 45-70S A00 Case	01-010711
A1	Wedge 0 Degree	01-011733
A1	Wedge 35-75 Shear	01-011734
A10	Wedge 0 Degree	01-011735
A10	Wedge 35-75 Shear	01-011736
A12	Wedge 0 Degree	01-011737
A12	Wedge 35-75 Shear	01-011738
A14	Wedge 0 Degree	01-011739
A14	Wedge 35-75 Shear	01-011740
A2	Wedge 0 Degree	01-011741
A2	Wedge 35-75 Shear	01-011742
A4	Wedge 0 Degree	01-011743
A4	Wedge 35-75 Shear	01-011744
A5	Wedge 0 Degree	01-011745
A5	Wedge 35-75 Shear	01-011746
MSWS 1/4"	Wedge, .25" MSWS PA, REX, 35-75 SW, Flat	01-010705
MSWS 1/4"	Wedge, .25" MSWS PA, REX, 35-75 L-WAVE, Flat	01-010977
MSWS 1/4"	Wedge, .25" MSWS, 45S, Plex	01-010532
MSWS 1/4"	Wedge, .25" MSWS, 60S, Plex	01-010533
MSWS 1/4"	Wedge, .25" MSWS, 70S, Plex	01-010534
Cobra	Low profile wedge, fits Cobra Style Prbs, Flat	01-011229
Cobra	Low profile wedge, fits Cobra Style Prbs, Curved to Customer request	01-011230-XX
AT	Low profile wedge, fits AT Style Prbs, Flat	01-011231
AT	Low profile wedge, fits AT Style Prbs, Curved to Customer request	01-011232-XX

### ▶ Cables

Cable	Material	Length	Part Number	Price
BNC - BNC	RG58	6-ft (1.83 m)	07-010018	\$60
BNC - MD	RG174 TPR	6-ft (1.83 m)	07-010012	\$52
BNC - MCX	RG174 TPR	6-ft (1.83 m)	07-010007	\$55
BNC - 00-Lemo	RG174 TPR	6-ft (1.83 m)	07-010014	\$75
00-Lemo - MD	RG174 TPR	6-ft (1.83 m)	07-010028	\$80
00-Lemo - 00-Lemo	RG174 TPR	6-ft (1.83 m)	07-010034	\$85

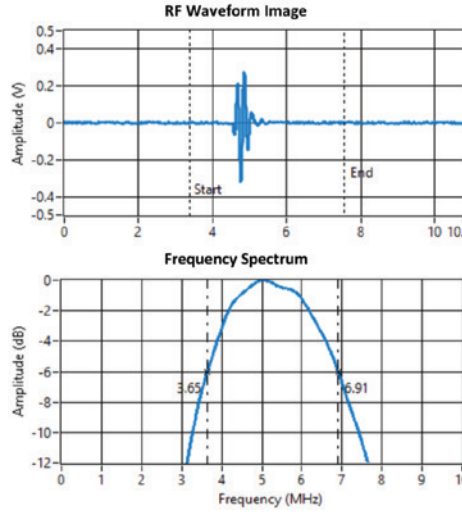
Cable	Material	Length	Part Number	Price
00-Lemo - MCX	RG174 TPR	6-ft (1.83 m)	07-010035	\$80
00-Lemo - MCX (RA)	RG174 TPR	6-ft (1.83 m)	07-010008	\$55
Dual BNC - Dual MD	RG174 TPR	6-ft (1.83 m)	07-010030	\$112
Dual 00-Lemo - Dual MD	RG174 TPR	6-ft (1.83 m)	07-010032	\$169
Lemo 1 - MD	RG174 TPR	6-ft (1.83 m)	07-020175	\$85
Lemo 1 - BNC	RG174 TPR	6-ft (1.83 m)	07-020176	\$110

## ► High Resolution Series



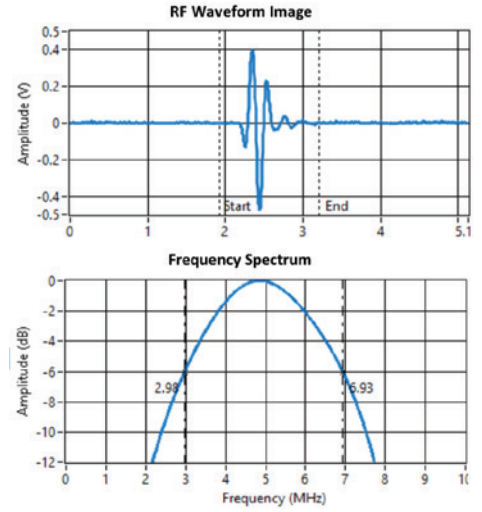
**HR:** High Resolution Series of transducers are highly damped and recommended for applications where enhanced axial and near-surface resolution are more important. Generally includes thickness measurement and near-surface flaw detection. HR series have less sensitivity than the GP or C series with -6db frequency bandwidth of 50-100% range.

## ► General Purpose Series



**GP:** General Purpose Series of transducers are recommended for most applications and have a good trade-off between sensitivity and resolution. They have a medium frequency bandwidth of 30-40% at -6db but with more ring-down cycles in the waveform.

## ► Composite or Piezo-composite Series



**C:** Composite (Piezocomposite) Series of transducers have superior sensitivity and penetration especially in highly-attenuative materials. C Series have both higher resolution, sensitivity, and have wide bandwidth (60-120% at -6db) due to the lower acoustic impedance of the material. They couple more efficiently into plastic wedges, delay lines, and water.

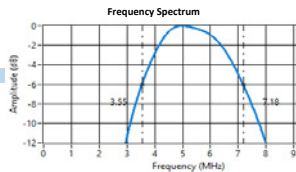
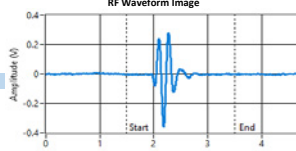
### Ultrasonic Transducer Certification



Generic Image of Transducer



Transducer Information	
*Part Number:	00-010778NF
*Serial Number:	778PRETESTK2
Transducer Description:	H2-5MHz; 50° GP-NF-UHF
Frequency:	5MHz
Element Size:	50°
Transducer Measurements per ASTM E1065	
Date:	Jun 4, 2018
Time:	6:44 PM
Operator:	DEH
**Transducer Disposition:	PASS
Relative Sensitivity:	68dB
Center Frequency:	5.37MHz
-6dB Bandwidth:	67.66%



Test Setup & Conditions	
Test Procedure Number:	Tp
Test Object:	3" H20-SST
Pulser Settings	
Repetition Rate:	4
Pulse Amplitude:	5
Pulse Energy:	2 - LowZ
Damping:	9
Receiver Settings	
Mode:	Pulse Echo
Gain:	10 + 1
Low Pass Filter (MHz):	35 MHz
High Pass Filter (MHz):	1 MHz

Test Equipment	
Pulser/Receiver:	IDPR300
Pulser Serial Number:	DA0901
Pulser Calibration Due Date:	Dec 14, 2018
Oscilloscope Model:	DPO2022B
Oscilloscope Serial Number:	C030032
Oscilloscope Calibration Due Date:	Oct 12, 2018
Software:	1.2.0
Cable:	6FT RG-58

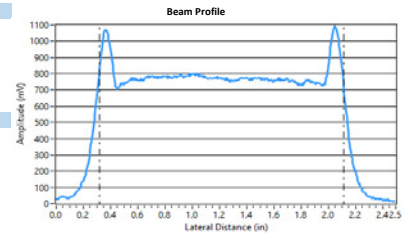
\*Please reference Transducer Part Number and Serial Number in any correspondence

\*\* This item was manufactured and tested according to product specific parameters. The "Pass" Disposition confirms that all steps in the manufacturing process were completed satisfactorily and that all test requirements were satisfied.

### Ultrasonic Beam Profile



Transducer Information	
*Part Number:	XDCR308N
*Serial Number:	U11449
Transducer Description:	308N, 2 X (.375" X 1.0"), 5MHz, 2.5" CYL PCS, 330-3054, B CASE
Frequency:	5
Element Size:	.375X1.00
Transducer Measurements per ASTM E1065	
Date:	Mar 27, 2018
Time:	5:28 PM
Operator:	GRR
Transducer Disposition:	PASS
-3dB Beam Length (in):	1.795"



Test Setup & Conditions	
Test Procedure Number:	
Test Object:	1/4" SST ROD
Water Path (in):	2.5"
Pulser Settings	
Repetition Rate:	1
Pulse Amplitude:	6
Pulse Energy:	2 - LowZ
Damping:	9
Receiver Settings	
Mode:	Pulse Echo
Gain:	30 + 9
Low Pass Filter (MHz):	35 MHz
High Pass Filter (MHz):	1 MHz

Test Equipment	
Pulser/Receiver:	JSR DPR300
Pulser Serial Number:	DA0901
Pulser Calibration Date:	Dec 14, 2018
Oscilloscope Model:	DPO2022B
Oscilloscope Serial Number:	C030032
Oscilloscope Calibration Date:	Oct 12, 2018
Software:	1.0.3
Cable:	6FT RG-58

\*Please reference Transducer Part Number and Serial Number in any correspondence

## ▶ Phased-Array Transducer Connector Types

SNI can build any phased-array transducer with:



GE Phasor



GE Mentor



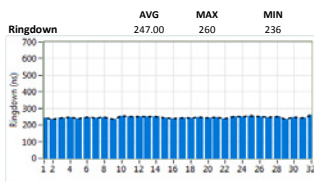
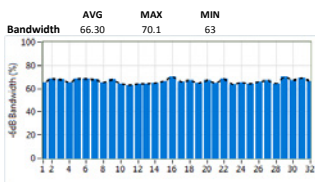
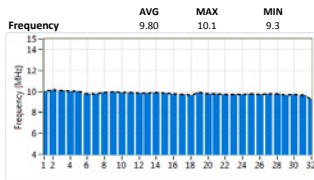
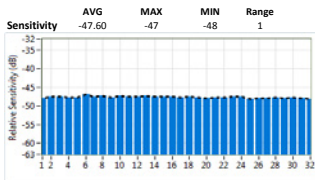
(L to R) Olympus Omniscan, Zetec ZPAC, Hypertronics

### Linear Phased Array Ultrasonic Transducer Certification



**Transducer Information**  
 \*Part Number: 00-010848  
 \*Serial Number: U11795

Parameter	Measurement	Specification	RESULT
Average Center Freq	9.8	+/-10%	PASS
Average Bandwidth	66.3	>=60%	PASS
Sensitivity deviation	1	+/-3dB	PASS
Probe Wiring Configuration Check			PASS
Probe Cable/Connector Check			PASS



\*Please reference Transducer Part Number and Serial Number in any correspondence

### Linear Phased Array Ultrasonic Transducer Certification



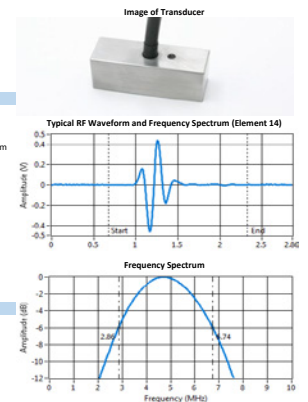
**Transducer Information**  
 \*Part Number: 00-010536-SMT  
 \*Serial Number: U115CV  
 Transducer Description: 5MHz, 28EL, 1.6mmP X 10mm, 30mm CBL, Rectangular

Probe Type: Rectangular  
 Housing: 5.0MHz  
 Element Pitch: 1.6 mm  
 Element Elevation: 10 mm  
 Number of Elements: 28  
 Cable Jacket: PU  
 Cable Length: 30M  
 Connector Type: SAMTEC

**Transducer Measurements per ASTM E1065**  
 Date: 6/13/2018  
 Time: 9:20:55AM  
 Operator: KYLE RYAN  
 \*\*Transducer Disposition: PASS

Average Relative Sensitivity: -45dB  
 Average Center Frequency: 4.80MHz  
 Average -6dB Bandwidth: 78.70%

Test Setup & Conditions	Test Equipment
Test Procedure Number: TP	Acquisition Unit: TC3
Test Object: 20mm REX BW	Acq. Unit Serial Number: 17054368
<b>Pulsar Settings</b>	Acq. Unit Calibration Due Date: April 06, 2019
Pulse Width: 100ns	Hardware Version: 1.1
Pulse Voltage: -12.3V	Software: 1.2.1
	Adapter: 07-020155



Special Notes:

\*Please reference Transducer Part Number and Serial Number in any correspondence

\*\*This item was manufactured and tested according to product specific parameters. The "Pass" Disposition confirms that all steps in the manufacturing process were completed satisfactorily and that all test requirements were satisfied.



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Also see our custom transducer and applications engineering brochure.

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