

SVK ELECTRONICS

PRODUCT PROFILE

Phased Array
Probes
&
Wedges



PRODUCT MANUAL



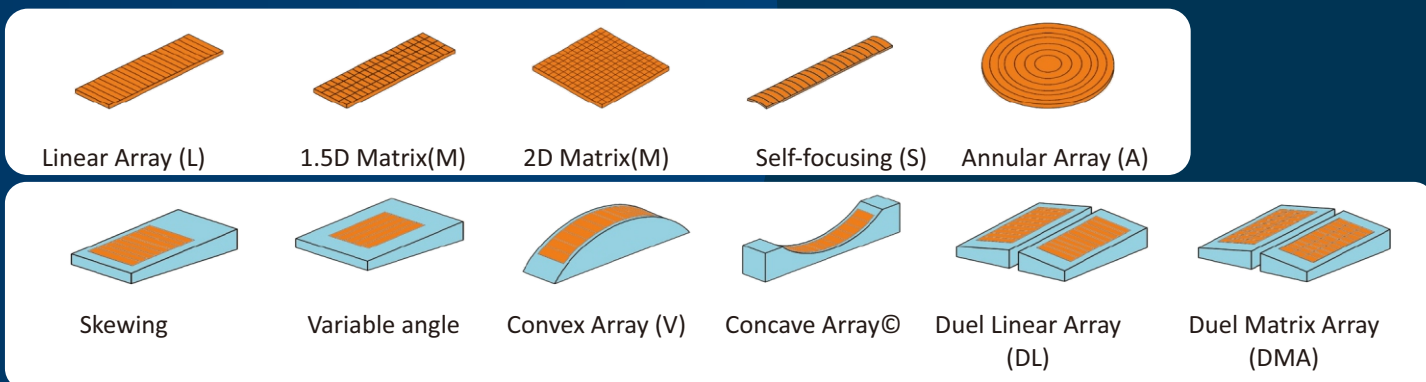
Phased Array Probes and Wedges



- Linear Array Probe
- Laterally Focused Array Probe
- DMA Probe
- Immersion Phased Array Probe
- Wedges

Phased Array Probes

Based on the self-developed piezoelectric composite materials, ULISO can customize the phased array transducer with the frequency range from 1 MHz to 10MHz and the number of elements range from 8 to 128. The normal phased array transducer include Linear Array, Matrix, Annular Array, etc. In addition, we also customize other types of the phased array probe to meet the specific needs of customers. And the shell, wedge, connector, cable, etc. of the phased array probe also can be customized.



Numbering System

5 **L** **32** - **0.6** **10** - **U** **1** - **P** - **2.5** - **OM**

Frequency Array type Number of element Pitch Elevation Probe type Casing type Cable type Cable length Connector type

Glossary Used to Order Phased Array Probes (Typical options shown)

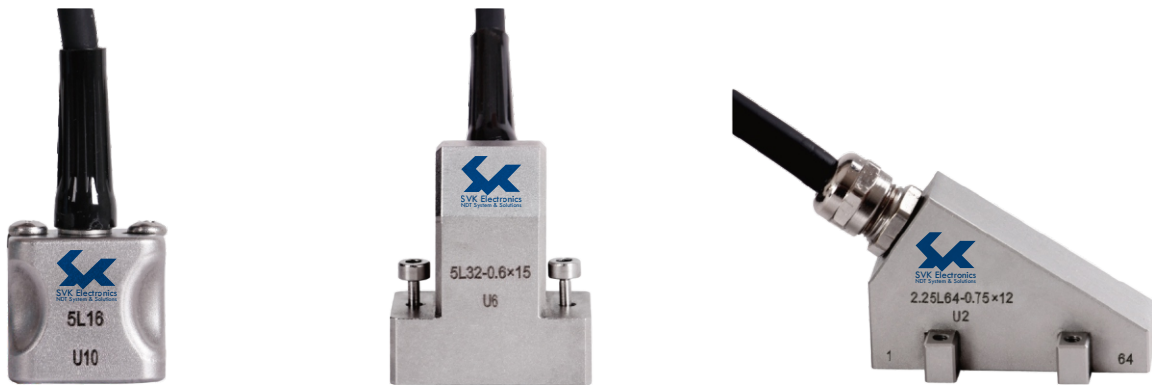
Frequency	Number of elements	Cable type
1 = 1 MHz 5 = 5MHz 7.5 = 7.5MHz 10 = 10MHz	example: 32 = 32 elements	P = PVC outer M = metal armor outer
Array type	Pitch	Cable length
L = Linear A = Annular M = Matrix (15D 2D) V = Convex C = Concave	example: 0.6 = 0.6mm	example: 2.5 = 2.5mm
	Elevation	Connector type
	example: 10 = 10mm	example: OM = OmniScan connector
	Probe type	
	A = angle beam with external wedge W = angle beam with integrated wedge I = immersion R = Convex/Concave	
	Casing type	
	Casing type can customized by customer	

Guide to selection

ULISO can customize the phased array probes according to customer's requirements, which to meet the needs of customer's specific application. To customize the probe for the customer, we need to know:

- Application
- Frequency, Number of elements, Pitch, Elevation
- Array type
- The parameters of the wedges
- Cable length
- PIN-MAP
- Connector
- Limited dimension of shell

Linear Array Probe



Advantages

- Probes are designed to have a low-profile probe/wedge combination for easier access in restricted areas.
- Wave layers with acoustic adaptation to Rexolite
- Captive anchoring screws are provided with the probe.
- A wide selection of wedges is available to suit any angle beam application.

Typical Application

- Manual or automated inspection of 6.35 mm to 38 mm (0.25 in. to 1.5 in.) thick welds
- Detection of flaws and sizing
- Inspections of castings, forgings, pipes, tubes, and machined and structural components for cracks and welding defects

Probe Specifications and Dimensions

Probe type	Part Number	F(MHz)	Number of Element	Pitch (mm)	Active Aperture (mm)	Elevation (mm)
Linear Array Probe	2.25L16-U1	2.25	16	0.75	12	12
Linear Array Probe	5L16-U1	5	16	0.6	9.6	10
Linear Array Probe	2.25L32-U32	2.25	32	1	32	10
Linear Array Probe	5L32-U11	5	32	0.6	19.2	10
Linear Array Probe	5L32-U32	5	32	1	32	10
Linear Array Probe	7.5L32-U31	7.5	32	0.6	19.2	10
Linear Array Probe	10L32-U31	10	32	0.3	9.9	10
Linear Array Probe	2.25L64-U2	2.25	64	0.75	48	12
Linear Array Probe	5L64-U32	5	64	0.5	32	10
Linear Array Probe	5L64-U2	5	64	0.6	38.4	10
Linear Array Probe	10L64-U2	10	64	0.6	38.4	7
Linear Array Probe	5L16-U10	5	16	0.6	9.6	10
Linear Array Probe	10L16-U00	10	16	0.31	5	5
Linear Array Probe	10L32-U10	10	32	0.31	9.9	7
Linear Array Probe	3.5L16-U3	3.5	16	1.6	25.6	16
Linear Array Probe	5L16-U3	5	16	1.2	19.2	12
Linear Array Probe	1.5L16-U4	1.5	16	2.8	44.8	26
Linear Array Probe	2.25L16-U4	2.25	16	2	32	20
Linear Array Probe	2.25L32-US	2.25	32	0.75	24	24
Linear Array Probe	5L32-U5	5	32	0.6	19.2	20

NOTE: These probes come standard with an IPEX connector and a 2.5 m (8.2 ft) cable. We also can customize phased array probes according to customer requirements, such as shell dimension, connector type and cable length.

Laterally Focused Array Probe



Typical Application

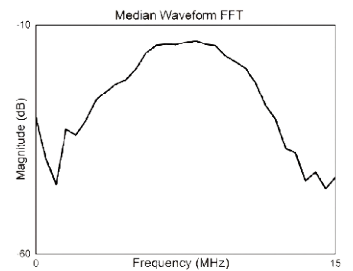
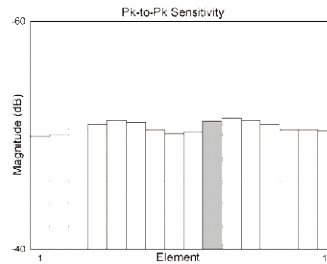
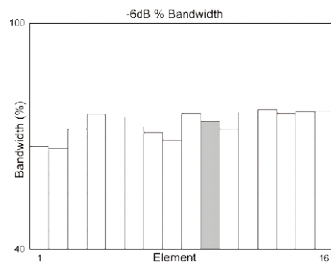
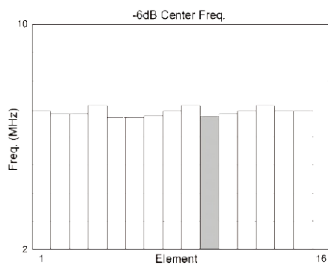
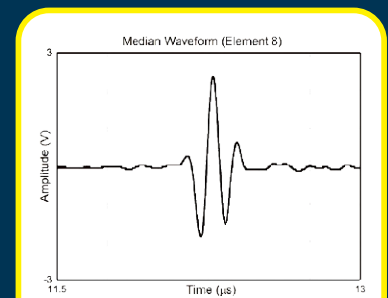
- Detection of weld in small diameter pipe
- Weld inspection of thin wall tube or thin plate
- Limited Space Workpiece Inspection

Advantages

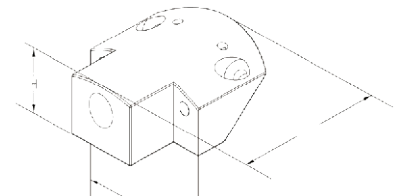
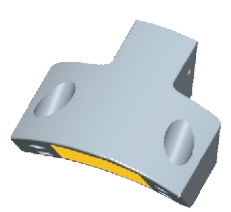
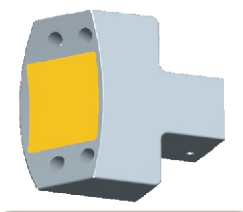
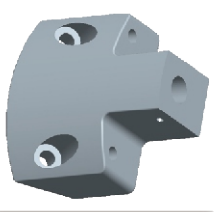
- Wave layers with acoustic adaptation to Rexolite
- Increases lateral defect resolution
- Standard pipe can be detected, the pipe's outer diameter ranges from 20 mm to 115 mm.
- Combined with various wedges, which to use for the application of multi angle detection

Performance Parameter

7.5516-0.5×10



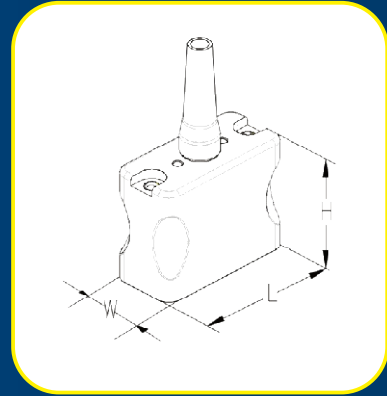
Probe Specifications and Dimensions



Part Number	F (MHz)	Element	Pitch (mm)	Active Aperture (mm)	Elevation (mm)	External Dimension		
						L (mm)	W (mm)	H (mm)
7.5 S16-0.5x10-U15	7.5	16	0.5	8	10	26	22	9.7
5516-0.5x10-U15	5	16	0.5	8	10	26	22	9.7

NOTE: These probes come standard with an IPEX connector and a 2.5 m (8.2 ft) cable. We also can customize phased array probes according to customer requirements, such as shell dimension, connector type and cable length.

Laterally Focused Array Probe

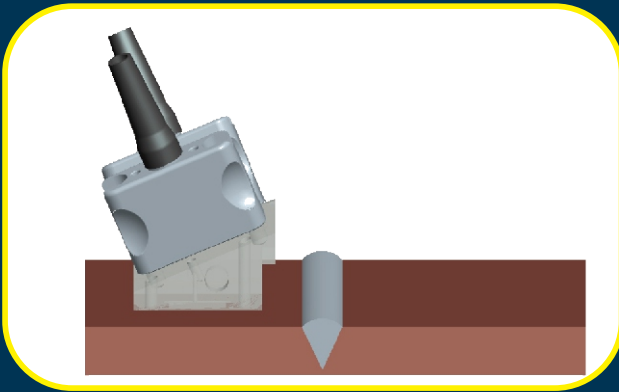


Advantages

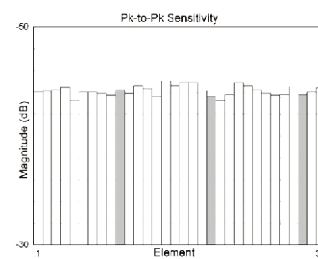
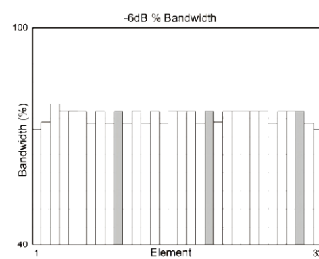
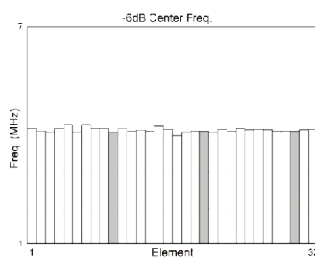
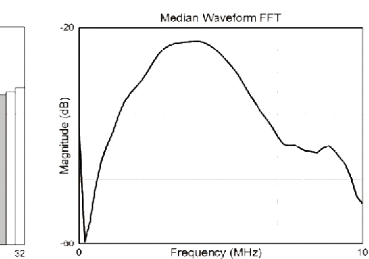
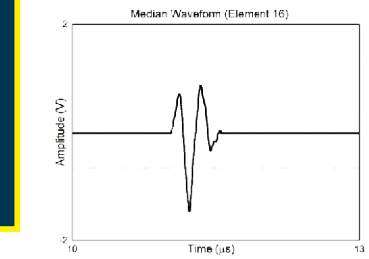
- Ability to transmit and receive longitudinal waves in granular materials.
- Increased penetration in stainless steel, which includes austenitic, corrosion-resistant alloys, and dissimilar welds.
- Excellent signal-to-noise ratio.

Advantages

- Corrosion-Resistant Alloy (CRA)
- Stainless steel
- Austenetic Material
- Cladded Pipes (U27)
- Dissimilar Welds



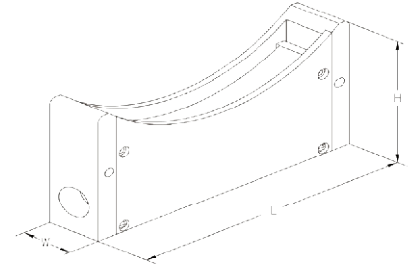
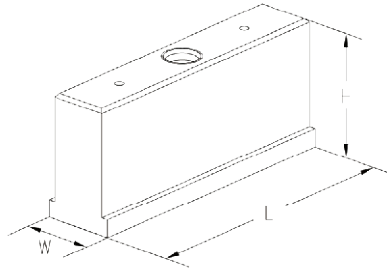
Performance Parameter 4DM16 x 2



Probe type	Application	Part Number	F (Mhz)	Element	Pitch (mm)	Active Aperture (mm)	Elevation (mm)
DMA	Weld	2.25DM7 x 4-U17	2.25	Dual 28	2.71	19 x 12	3
DMA	Weld	4DM16 x 2-U27	4	Dual 16	1	16 x 6	3

NOTE: These probes come standard with an IPEX connector and a 2.5 m (8.2 ft) cable. We also can customize phased array probes according to customer requirements, such as shell dimension, connector type and cable length.

Immersion Phased Array Probe



Immersion probes are designed to be used with a water wedge or in an immersion tank when the test part is partially or wholly immersed. They are longitudinal wave probes that can be set up for refracted shear-wave inspections using a Rexolite wedge.

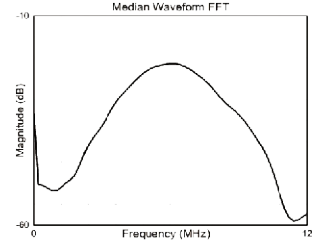
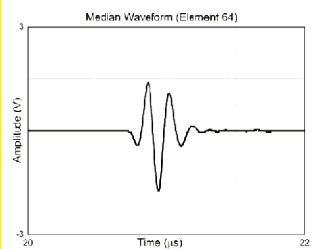
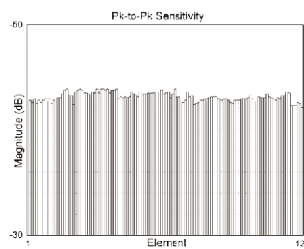
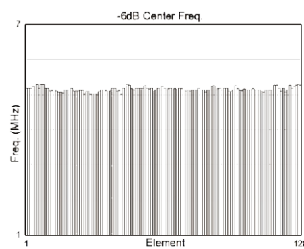
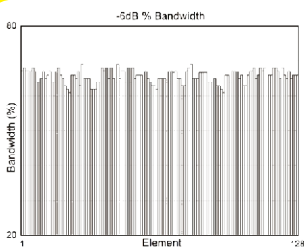
Advantages

- Acoustic impedance matches water
- Design allows fitting on water wedges for easier coupling on many surfaces and an adjustable water path
- Linear scanning allows coverage of 30 mm to 90 mm in one line, with very high accuracy.
- Corrosion-resistant stainless steel case
- Water proof guaranteed up to 1 m (3.28 ft) under water

Typical Applications

- Inspection of thin plate or tubing (steel, aluminum, or other)
- Composite inspection for delamination, disbonding, etc.
- Inline thickness gaging
- Automated scanning

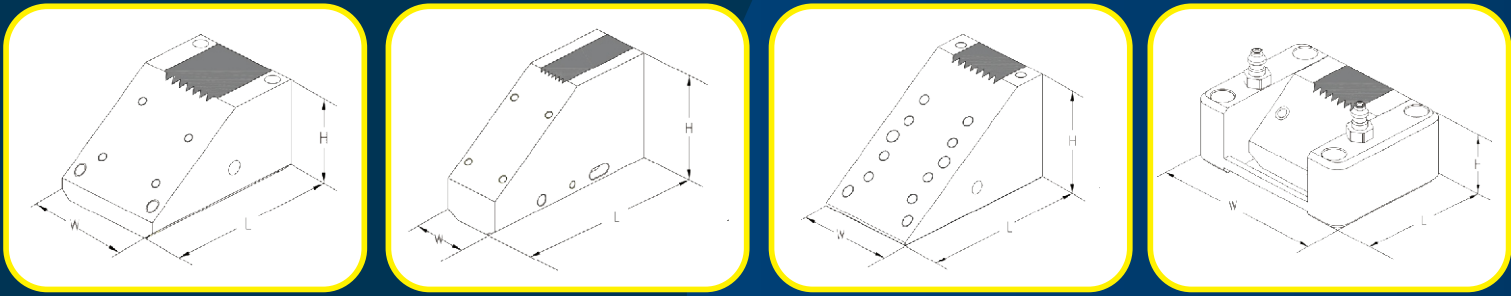
Performance Parameter 5L128-0.6x10



Performance Parameter

Probe type	Application	Part Number	F (Mhz)	Element	Pitch (mm)	Active Aperture (mm)	Elevation (mm)
Linear Array Probe	Immersion test	5L64-11	5	64	0.6	38.4	10
Linear Array Probe	Immersion test	10L64-11	10	64	0.5	32	7
Linear Array Probe	Immersion test	5L128-12	5	128	0.6	76.8	10
Linear Array Probe	Immersion test	10L128-12	10	128	0.5	64	7
Linear Array Probe	Immersion test	2.25L128-13	2.25	128	0.75	96	12
Linear Array Probe	Immersion test	5L128-13	5	128	0.75	96	10
Curved Array Probes	Automatic testing of bar	5CC128-1.0x15	5	128	1	128	15
Curved Array Probes	Automatic testing of bar	7CC128-0.75x12	7	128	0.75	96	12

NOTE: These probes come standard with an IPEX connector and a 2.5 m (8.2 ft) cable. We also can customize phased array probes according to customer requirements, such as shell dimension, connector type and cable length.



Advantages

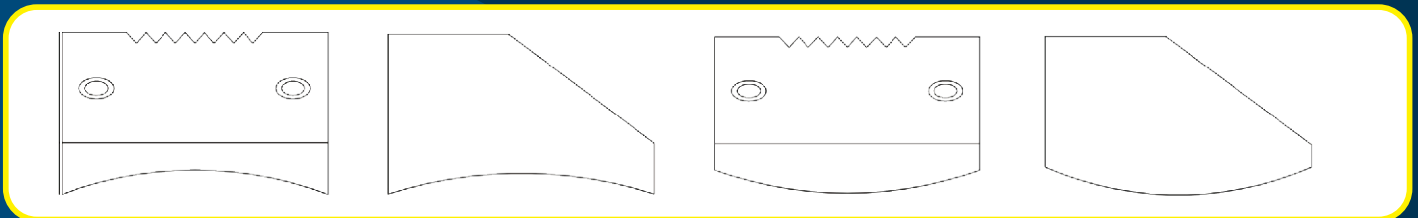
- Stainless steel screw receptacles provide a firm anchoring of probes to wedges.
- The IHC wedge option can be ordered to improve the quality of the inspection: irrigation, mounting holes for the wedge holder to work with any scanner, and carbide pins to increase wear resistance.
- Available in standard refracted angles of 0°, 45°, 55°, and 60° in steel for angle-beam inspections from 30° to 70°, SW or LW
- Wedges are designed to perform manual or automated scans.
- Custom wedges with specific refracted angles can be ordered; wedge shape and contour can also be customized.

Numbering System

SU10 - N 55 S - IHC - AOD 10
 Wedge type Probe mounting Refracted angle in steel Wave type Options Curvature type Pipe diameter

Wedge type
SU = wedge for probe type U
Pipe diameter
Measured external pipe diameter in in.
Curvature type
AOD = Axial outside diameter (circumferential scan)
COD = Circumferential outside diameter (axial scan)
Refracted angle in steel
0 = 0°
55 = 55°

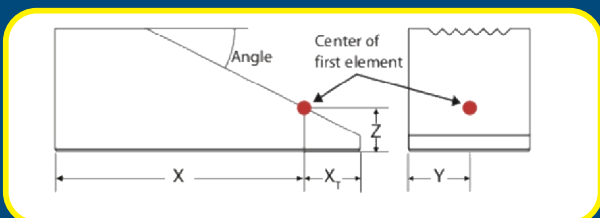
Wave type
S = shear wave
L = longitudinal wave
Probe mounting
N = normal
lateral (90 deg skew) L =
Options
IHC = Irrigation, scanner attachment points, and carbide wear pins
IHS = Irrigation, scanner attachment points, and Stainless steel frame



AOD= Axial outside diameter
 COD =Circumferential outside diameter

AID =Axial inside diameter
 CID =Circumferential inside diameter

Wedge Offset Parameters



Angle	Angle of incidence of wedge
Acoustic Velocity	Rexolite acoustic velocity is 2330 m/s
X	Primary offset
Y	Secondary offset (0 when probe is centered)
Z	Height
XT	Primary axis offset of the middle of the first element (mm)