Stock code:301528

DOPPLER ELECTRONIC TECHNOLOGY

Serve society and benefit human security

Build a world-class NDT brand

CONVENTIONAL ULTRASONIC PROBE

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Build a world class NDT brand

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CONVENTIONAL
UT Probes

Doppler designed a series of standard probes, customized probes and relevant accessories, in total more than 4000 models. Probes are widely used in aerospace, nuclear power, oil and gas, mechanical manufacturing, shipping industry, railway transportation, medicals and so on, and used on a variety of projects around the world. With more than 10 years transducer design experiences and keep improving manufacturing process to ensure high performance and reliability of products. Doppler keep bringing in talents, investing in R&D, testing and production facilities. From ultrasonic field distribution to transducer stack up design, Doppler keep innovating and progressing to bring better products and services to clients.

This mannul collects most standardized transducer products, you can find almost all models you need.

For customized products or unsolving difficult subjects, our application and transducer especialists are very pleased to help to find the viable solutions.

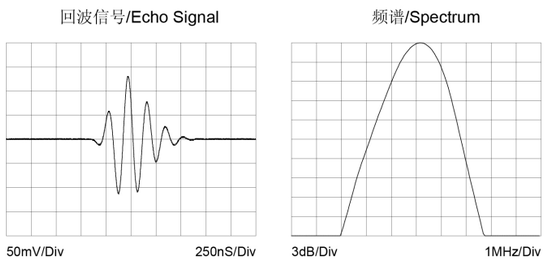
Instruction of Conventional UT Probes

· Ultrasonic Probe is the most essential part of ultrasonic detection systems, to choose the right probe can ensure a smooth detection work and accuracy of test results

· Doppler provides three different kinds of performance probes, with unique application and performance characteristics

· Below shows transmitter, configuration, cable, crystal frequency, crystal size etc., characteristics and applications of three types of probes

PL-Universal Series



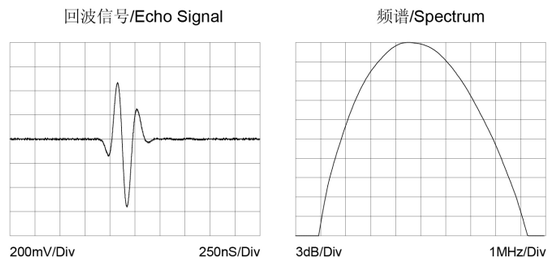
Applications

General inspection environments

Features

· With appropriate sensitivity and resolution
· Longer duration of wave, typically at 3~5 cycles
· Lower bandwidth, typically at 30~50%

PH-Short Pulsing Series



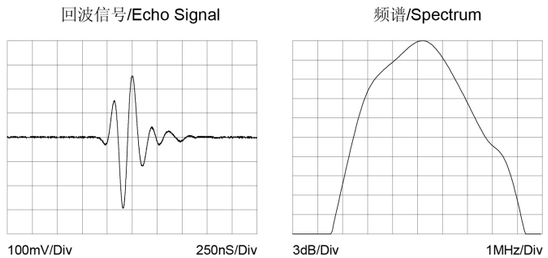
Features

· Excellent vertical and horizontal resolutions
· Tiny blind spot width of initial pulse
· Less Sensitivity than PL and C Series
· Shorter duration of wave, typically at 1.5~2 cycles
· Higher Bandwidth, typically at 80~110%

Applications

Deal for precise thickness measurement, near surfacedetection environments

C-Composite Series



Applications

High penetration power and high SNR for coarse-grained, fiber-reinforced composite materials

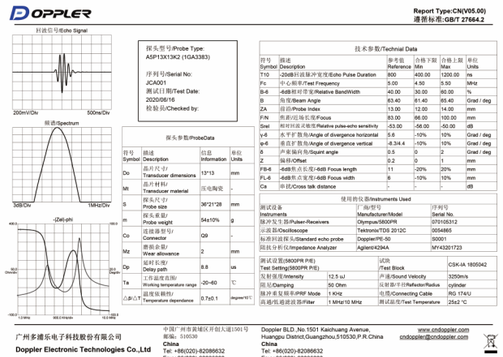
Features

· 1-3 piezo - composite crystal
· Higher sensitivity to PL and PH series
· Shorter duration of wave, typically at 2~2.5 cycles
· Higher bandwidth, typically at 70~100%
· Low acoustic impedance composites enable probes better matching with low acoustic impedance medium such as water, plastics, etc.

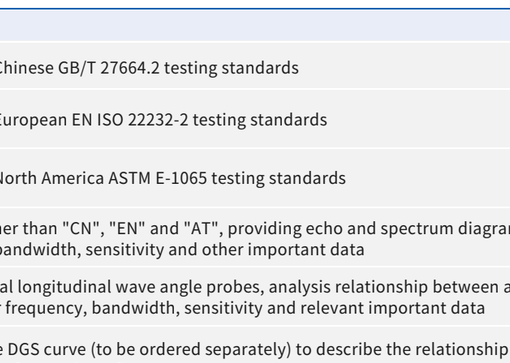
Probe Data Sheet

Each transducer sold by DOPPLER has undergone strict testing and certification with reliable detection equipment and stable testing environment. The data sheet can truly and effectively reflect the performance of the transducer, which contains basic parameters that need to be paid attention to in daily use, as well as a large number of characteristic parameters. It helps users to make comparing and researching of the probes characteristics.

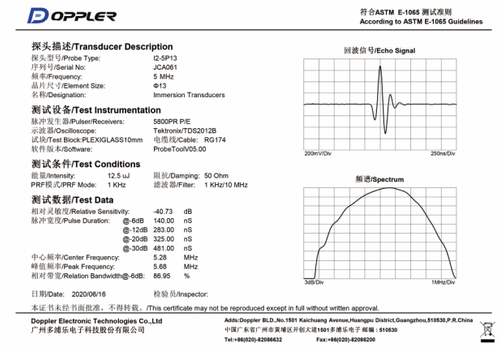
Data Type	Description
CN	Complied to Chinese GB/T 27664.2 testing standards
EN	Complied to European EN ISO 22232-2 testing standards
AT	Complied to North America ASTM E-1065 testing standards
CS	Any probe other than "CN", "EN" and "AT", providing echo and spectrum diagram, center frequency, pulse width, bandwidth, sensitivity and other important data
LFA	For twin crystal longitudinal wave angle probes, analysis relationship between angles, focal depth and focal points, center frequency, bandwidth, sensitivity and relevant important data
DGS	Provide probe DGS curve (to be ordered separately) to describe the relationship between distance, gain and equivalent size for regular reflector



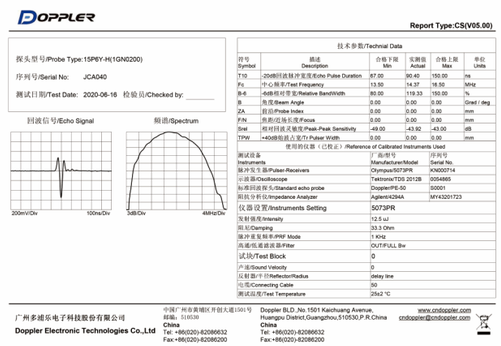
CN



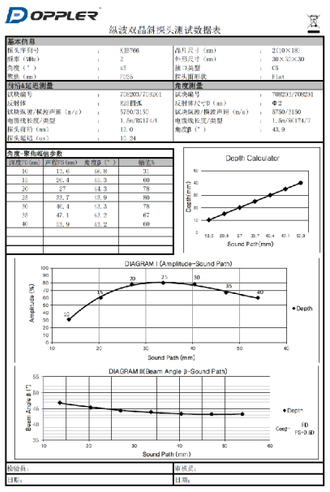
EN



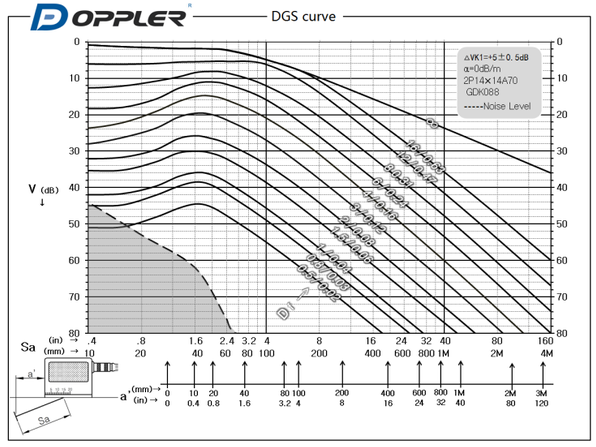
AT



CS



LFA



DGS

Contact - Normal Beam Probes

A single crystal transducer, sound wave vertical incidence and direct contact.

Features

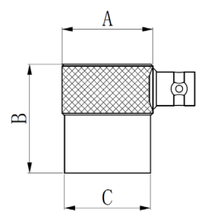
- Wear resistant stainless steel housing
- Wear resistant front end protective layer, long service life
- Good match acoustic impedance with most metals

3 types of performance to meet the cast majority of testing requirements:
“PL” Universal Series, “PH” Short Pulsing Series, “C” Composite Series

Applications

- Simple structure of metals
- Large plates, bars, forgings, metals and non-metals
- Small tanks, pipes, castings, bars
- Sandwich and laminated structures
- Materials velocity and characteristics
- Coarse grain or high attenuation materials

China Standard - N1



Probe Dimensions

Nominal Element Size		A		B		C		Connector Direction
mm	in	mm	in	mm	in	mm	in	
10	0.375	8.5	0.33	25.0	0.98	14.5	0.57	Q6 Side Mounting
14	0.38	20.0	0.79	29.0	1.14	18.6	0.73	BNC Side Mounting
20	1.38	26.0	1.00	31.0	1.22	24.5	0.96	

Probe Specification

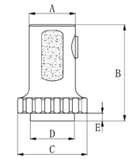
Frequency	Nominal Element Size		Model	
MHz	mm	in	PL	PH
1	20	0.38	N1-1P20	N1-1P20-H
2.5	10	0.375	N1-2.5P10	N1-2.5P10-H
	14	0.55	N1-2.5P14	N1-2.5P14-H
	20	0.55	N1-2.5P20	N1-2.5P20-H
5	10	0.375	N1-5P10	N1-5P10-H
	14	0.79	N1-5P14	N1-5P14-H
	20	0.79	N1-5P20	N1-5P20-H

By default, the probe interface is side mounted BNC and Q6, and the top mounting direction of the interface can be customized.

European Standard - N2

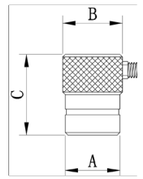
Probe Dimensions

Nominal Element Size		A		B		C		D		E		Connector Direction
mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	
10	0.375	20.0	0.79	42.5	1.67	24.0	0.94	14.0	0.55	2.0	0.08	Lemo-00 Side Mounting
24	0.94	30.0	1.18	59.5	2.34	45.0	1.77	29.0	1.14	2.5	0.10	Lemo-01 Side Mounting



Probe Dimensions

Nominal Element Size		A		B		C		Connector Direction
mm	in	mm	in	mm	in	mm	in	
5	0.20	9.0	0.35	10.0	0.39	15.0	0.59	Microdot Side Mounting



Probe Specification

Frequency	Nominal Element Size		Model	
MHz	mm	in	PL	PH
1	10	0.375	N2-1P10	N2-1P10-H
	24	0.94	N2-1P24	N2-1P24-H
2	10	0.375	N2-2P10	N2-2P10-H
	24	0.94	N2-2P24	N2-2P24-H
4	10	0.375	N2-4P10	N2-4P10-H
	24	0.94	N2-4P24	N2-4P24-H
5	5	0.20	N2-5P5	N2-5P5-H
	10	0.375	N2-5P10	N2-5P10-H
10	5	0.20	/	N2-10P5-H

Microdot(L5), Lemo 00(C5), and Lemo 01(C9) side mounting connectors, for above ϕ5 can be customized as top mounting connector

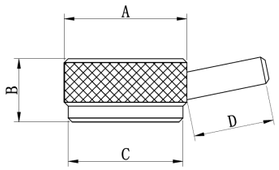
European Standard - N3

Probe Dimensions

Nominal Element Size		A		B		C		D	
mm	in	mm	in	mm	in	mm	in	mm	in
10	0.38	19	0.75	16	0.63	17	0.67	20	0.79
20	0.79	29	1.14	16	0.63	27	1.06	20	0.79

Probe Specification

Frequency	Nominal Element Size		Model	
MHz	mm	in	PL	PH
1	10	0.38	N3-1P10	N3-1P10-H
2	10	0.38	N3-2P10	N3-2P10-H
	20	0.79	N3-2P20	N3-2P20-H
4	10	0.38	N3-4P10	N3-4P10-H
	20	0.79	N3-4P20	N3-4P20-H
5	10	0.38	N3-5P10	N3-5P10-H
	20	0.79	N3-5P20	N3-5P20-H
10	10	0.38	/	N3-10P10-H



Low height probes, suitable for narrow and limited detection environments
Lemo 00 (C5) side mounting connector, with handle bar

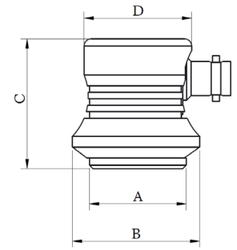
North American Standard - N4

Probe Dimensions

Nominal Element Size		A		B		C		D	
mm	in	mm	in	mm	in	mm	in	mm	in
13	0.50	20	0.79	29.5	1.16	36	1.42	23	0.91
19	0.75	28	1.10	38	1.48	36	1.42	31	1.22
25	1.00	32	1.26	41.5	1.63	36	1.42	35	1.38
29	1.125	38	1.50	41.5	1.63	36	1.42	41	1.61

Probe Specification

Frequency	Nominal Element Size		Model		
MHz	mm	in	PL	PH	C
0.5	19	0.75	/	N4-0.5P19-H	/
	25	1.00	/	N4-0.5P25-H	/
	29	1.125	/	N4-0.5P29-H	/
1	13	0.50	N4-1P13	N4-1P13-H	N4-1C13
	19	0.75	N4-1P19	N4-1P19-H	/
	25	1.00	N4-1P25	N4-1P25-H	/
	29	1.125	N4-1P29	N4-1P29-H	/
2.25	13	0.50	N4-2.25P13	N4-2.25P13-H	N4-2.25C13
	19	0.75	N4-2.25P19	N4-2.25P19-H	/
	25	1.00	N4-2.25P25	N4-2.25P25-H	/
	29	1.125	N4-2.25P29	N4-2.25P29-H	/
3.5	13	0.50	N4-3.5P13	N4-3.5P13-H	/
	19	0.75	N4-3.5P19	N4-3.5P19-H	/
	25	1.00	N4-3.5P25	N4-3.5P25-H	/
5	13	0.50	N4-5P13	N4-5P13-H	/
	19	0.75	N4-5P19	N4-5P19-H	/
	25	1.00	N4-5P25	N4-5P25-H	/
7.5	13	0.50	N4-7.5P13	N4-7.5P13-H	/
10	13	0.50	N4-10P13	N4-10P13-H	/



Large crystal diameter to ensure high sensitivity of probe, and wider coverage area of detection
BNC(Q9) side mounting connector, can be customized as top mounting connector

North American Standard - N5

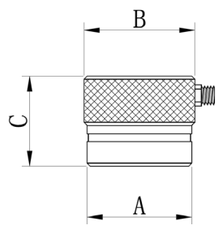
Probe Specification

Frequency	Nominal Element Size		Model		
MHz	mm	in	PL	PH	C
1	13	0.50	N5-1P13	N5-1P13-H	N5-1C13
	19	0.75	N5-1P19	N5-1P19-H	/
	25	1.00	N5-1P25	N5-1P25-H	/
2.25	6	0.25	N5-2.25P6	N5-2.25P6-H	N5-2.25C6
	10	0.375	N5-2.25P10	N5-2.25P10-H	N5-2.25C10
	13	0.50	N5-2.25P13	N5-2.25P13-H	N5-2.25C13
	19	0.75	N5-2.25P19	N5-2.25P19-H	/
	25	1.00	N5-2.25P25	N5-2.25P25-H	/
3.5	6	0.25	N5-3.5P6	N5-3.5P6-H	N5-3.5C6
	10	0.375	N5-3.5P10	N5-3.5P10-H	N5-3.5C10
	13	0.50	N5-3.5P13	N5-3.5P13-H	/
	19	0.75	N5-3.5P19	N5-3.5P19-H	/
	25	1.00	N5-3.5P25	N5-3.5P25-H	/
5	6	0.25	N5-5P6	N5-5P6-H	N5-5C6
	10	0.375	N5-5P10	N5-5P10-H	N5-5C10
	13	0.50	N5-5P13	N5-5P13-H	/
	19	0.75	N5-5P19	N5-5P19-H	/
7.5	6	0.25	N5-7.5P6	N5-7.5P6-H	/
	10	0.375	N5-7.5P10	N5-7.5P10-H	/
	13	0.50	N5-7.5P13	N5-7.5P13-H	/
10	6	0.25	N5-10P6	N5-10P6-H	/
	10	0.375	N5-10P10	N5-10P10-H	/
	13	0.50	N5-10P13	N5-10P13-H	/
15	3	0.125	/	N5-15P3-H	/
	6	0.375	/	N5-15P6-H	/
20	3	0.125	/	N5-20P3-H	/
25	3	0.125	/	N5-25P3-H	/

Probe Dimensions

Nominal Element Size		A		B		C	
mm	in	mm	in	mm	in	mm	in
3	0.125	6.5	0.26	7.5	0.3	10	0.4
6	0.25	9	0.35	10.5	0.41	13	0.51
10	0.375	15	0.59	16	0.63	14	0.55
13	0.50	17	0.66	18	0.71	16	0.64
19	0.75	25	0.98	26	1.02	16	0.64
25	1.00	29	1.15	30	1.18	16	0.64

Low height probes, suitable for narrow and limited detection environments L5(Microdot) side mounting connector, with handle bar can be customized as top mounting connector



Contact—Normal Shear Wave Probes

The normal shear wave probe is a single-element transducer that directly contacts the workpiece and generates transverse wave by vertical incidence.

Features

- Incident vertically and generate shear waves inside thework piece
- Sensitivity is usually lower than that of LW straight probe
- Low probe height, suitable for the situation of limited space
- High viscosity couplant is required, and the order code of couplant is 6JS0124*
- Probe interface is side mounted Microdot by default, top mounting can be customized

Applications

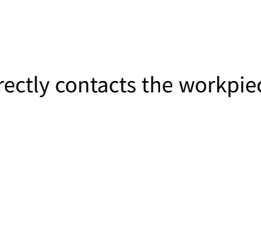
Measurement of shear wave sound velocity of workpiece

Calculation of Young's modulus of elasticity and shear modulus

Analysis of workpiece grain structure

Probe Specification

Frequency	Nominal Element Size		Model
MHz	mm	in	
0.5	25	1.00	SN0.5P25
1	13	0.50	SN1P13
	19	0.75	SN1P19
	25	1.00	SN1P25
2.25	10	0.375	SN2.25P10
	13	0.50	SN2.25P13
2.5	6	0.25	SN2.5P6
	10	0.375	SN2.5P10
	13	0.50	SN2.5P13
4	10	0.375	SN4P10
	13	0.50	SN4P13
5	6	0.25	SN5P6
	10	0.38	SN5P10



Probe Dimensions

Nominal Element Size		A		B		C	
mm	in	mm	in	mm	in	mm	in
6	0.25	9	0.35	10.5	0.41	13	0.51
10	0.375	15	0.59	16	0.63	14	0.55
13	0.50	17	0.66	18	0.71	16	0.64
19	0.75	25	0.98	26	1.02	16	0.64
25	1.00	29	1.15	30	1.18	16	0.64

*In order to obtain the best coupling effect between probe and workpiece, we suggest placing a small amount of high viscosity coupling agent on the surface of the probe and scraping the coupling agent into thin sheets with a blade or card; Couple the probe to the workpiece and rotate it while pressing down.

Special instructions
1. When the shear wave straight probe is excited by a pulse greater than 300 volts for a long time, the polarity of the probe wafer will change slowly, and the longitudinal wave component will become higher and the shear wave component will become lower.
The polarity of thinner wafers (such as 4MHz and 5MHz) will change faster, so the excitation voltage of the shear wave straight probe should be as low as possible, preferably not more than 100V V.
2. The wafer polarization direction of the shear wave straight probe is consistent with the interface direction.

Contact—Soft Protective Membrance Probes

Replaceable protective films, sound wave vertical incidence and direct contact with workpiece

Features

- Provide soft film or wear-resistant cover for different applications
- The soft film can reduce the effect of coupling on uneven or rough surfaces
- The wear-resistant cover is suitable for rapid scanning on rough surfaces
- The front soft film and wear-resistant cover can be replaced to prolong the service life of the probe
- For European standard only provides the soft film option, for the North America standard we can provide both the soft film and wear-resistant cover

Applications

Simple structure of metals

Large plates, bars, forgings, metals and non-metals

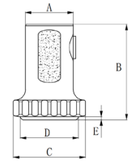
Small tanks, pipes, castings, bars

Sandwich and laminated structures

European Standard PF1

Probe Dimensions

Nominal Element Size		A		B		C		D		E		Connector Direction
mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	
10	0.375	20.0	0.79	42.5	1.67	24.0	0.94	14.0	0.55	1.5	0.06	Lemo-00 Side Mounting Lemo-01 Side Mounting
24	0.94	30.0	1.18	59.5	2.34	45.0	1.77	29.0	1.14	1.8	0.07	



Probe Specification

Frequency	Nominal Element Size		Model
MHz	mm	in	
2	10	0.375	PF1-2P10
	24	0.94	PF1-2P24
4	10	0.375	PF1-4P10
	24	0.94	PF1-4P24
5	10	0.375	PF1-5P10
	24	0.940	PF1-5P24

Membrance Specification

Type	Model	Nominal Element Size	
		mm	in
Soft Film	2QT0150	10	0.375
	3SS0058	24	0.94
Threaded Collar	3WK0545	10	0.375
	3WK0564	24	0.94

North America Standard PF2

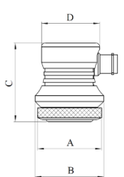
Probe Specification

Frequency	Nominal Element Size		Model	
MHz	mm	in	Soft Film	Wear-Resistant Cover
1	13	0.5	PF2-1P13	PF2-1P13N
	19	0.75	PF2-1P19	PF2-1P19N
	25	1.0	PF2-1P25	PF2-1P25N
2.25	13	0.5	PF2-2.25P13	PF2-2.25P13N
	19	0.75	PF2-2.25P19	PF2-2.25P19N
	25	1.0	PF2-2.25P25	PF2-2.25P25N
3.5	13	0.5	PF2-3.5P13	PF2-3.5P13N
	19	0.75	PF2-3.5P19	PF2-3.5P19N
	25	1.0	PF2-3.5P25	PF2-3.5P25N
5	13	0.5	PF2-5P13	PF2-5P13N
	19	0.75	PF2-5P19	PF2-5P19N
	25	1.0	PF2-5P25	PF2-5P25N

The probe interface is side mounted BNC、Q6 by default, and the top mounted BNC、Q6 can be customized.

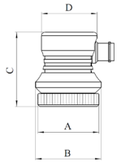
Dimensions(Soft Film)

Nominal Element Size		A		B		C		D	
mm	in	mm	in	mm	in	mm	in	mm	in
13	0.50	25	0.98	28.5	1.12	41	1.61	22	0.87
19	0.75	33	1.30	36.5	1.44	41	1.61	30	1.18
25	1.00	38	1.50	40.5	1.59	41	1.61	34	1.34



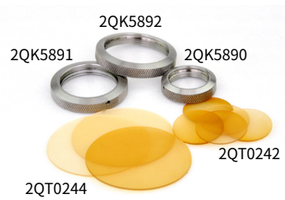
Dimensions(Wear-Resistant Cover)

Nominal Element Size		A		B		C		D	
mm	in	mm	in	mm	in	mm	in	mm	in
13	0.50	25	0.98	28.5	1.12	42	1.65	22	0.87
19	0.75	33	1.30	36.5	1.44	42	1.65	30	1.18
25	1.00	38	1.50	40.5	1.59	42	1.65	34	1.34



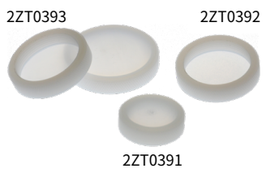
Fittings(Soft Film Probe)

Type	Model	Nominal Element Size	
		mm	in
Soft Film	2QT0242	13	0.500
	2QT0243	19	0.750
	2QT0244	25	1.00
Threaded Collar	2QK5890	13	0.500
	2QK5891	19	0.750
	2QK5892	25	1.00



Fittings(Wear-Resistant Cover Probe)

Type	Model	Nominal Element Size	
		mm	in
Wear-Resistant Cover	2ZT0391	13	0.500
	2ZT0392	19	0.750
	2ZT0393	25	1.00



Contact - Dual Element (TR) Probes

Independent transmit and receive crystals, and creates a creates certain focal length in workpiece.

Features

- No initial pulse dead zone effects
- Less scattering, higher SNR in high attenuation material
- Good coupling on curved and rough surfaces

Two types of performance probes can meet most of detection needs
“PL” Universal Series，“C ” Composite Series

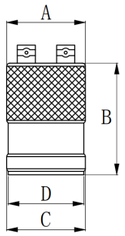
Applications

- Corrosion monitoring
- Residual wall measurement
- Coating measurement
- Near surface defects detection
- Cracks, porosities, impurity and porosity detection of forgings
- High attenuation material detection

China Standard

Probe Dimensions

Nominal Element Size		A		B		C		D		Connector Direction
mm	in	mm	in	mm	in	mm	in	mm	in	
Φ10/2	0.4	18.2	0.72	27.0	1.06	17.0	0.67	15.0	0.59	Microdot Top loading
Φ14/2	0.56	23.0	0.91	33.0	1.30	21.5	0.85	19.0	0.75	Q6 Top loading
Φ20/2	0.79	26.0	1.02	37.0	1.46	26.0	1.02	25.0	0.98	



Probe Specification

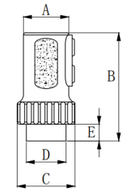
Frequency	Nominal Element Size		Focus Length		Model	
MHz	mm	in	mm	in	PL	C
2.5	Φ10/2	0.4	5	0.20	DA2.5P10FS5	DA2.5C10FS5
2.5	Φ10/2	0.4	10	0.39	DA2.5P10FS10	DA2.5C10FS10
2.5	Φ14/2	0.56	10	0.39	DA2.5P14FS10	DA2.5C14FS10
2.5	Φ14/2	0.56	15	0.59	DA2.5P14FS15	DA2.5C14FS15
2.5	Φ14/2	0.56	20	0.79	DA2.5P14FS20	DA2.5C14FS20
2.5	Φ20/2	0.79	10	0.39	DA2.5P20FS10	DA2.5C20FS10
2.5	Φ20/2	0.79	15	0.59	DA2.5P20FS15	DA2.5C20FS15
2.5	Φ20/2	0.79	20	0.79	DA2.5P20FS20	DA2.5C20FS20
2.5	Φ20/2	0.79	25	0.98	DA2.5P20FS25	DA2.5C20FS25
5	Φ10/2	0.4	5	0.20	DA5P10FS5	DA5C10FS5
5	Φ10/2	0.4	10	0.39	DA5P10FS10	DA5C10FS10
5	Φ10/2	0.4	15	0.59	DA5P10FS15	DA5C10FS15
5	Φ14/2	0.56	10	0.39	DA5P14FS10	DA5C14FS10
5	Φ14/2	0.56	15	0.59	DA5P14FS15	DA5C14FS15
5	Φ14/2	0.56	20	0.79	DA5P14FS20	DA5C14FS20
5	Φ14/2	0.56	25	0.98	DA5P14FS25	DA5C14FS25
5	Φ14/2	0.56	30	1.18	DA5P14FS30	DA5C14FS30
5	Φ20/2	0.79	10	0.39	DA5P20FS10	DA5C20FS10
5	Φ20/2	0.79	15	0.59	DA5P20FS15	DA5C20FS15
5	Φ20/2	0.79	20	0.79	DA5P20FS20	DA5C20FS20
5	Φ20/2	0.79	25	0.98	DA5P20FS25	DA5C20FS25
5	Φ20/2	0.79	30	1.18	DA5P20FS30	DA5C20FS30

PL Series is the default probe type
Top-mounted Microdot and Q6 connector

European Standard

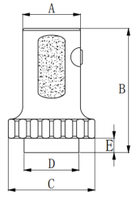
Probe Dimensions

Nominal Element Size		A		B		C		D		E		Connector Direction
mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	
Φ9/2	Φ0.35	20.0	0.79	49.0	1.93	24.5	0.96	12.0	0.47	8.0	0.31	Lemo-00 Side Mounting
Φ11/2	Φ0.43	20.0	0.79	49.0	1.93	24.5	0.96	16.5	0.65	8.0	0.31	
3.5x10	0.14x0.39											



Probe Dimensions

Nominal Element Size		A		B		C		D		E		Connector Direction
mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	
Φ21/2	Φ0.83											Lemo-00 Side Mounting
6x20	0.24x0.79	30	1.18	65.3	2.57	44.5	1.75	28.5	1.12	7.5	0.30	
7x18	0.28x0.71											



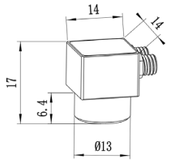
Probe Specification

Frequency	Nominal Element Size		Focus Length		Model	
MHz	mm	in	mm	in	PL	C
1	Φ21/2	Φ0.83	20	0.79	DA1P21FS20	DA1C21FS20
2	Φ8/2	Φ0.314	6	0.24	DA2P8FS6	DA2C8FS6
2	Φ11/2	Φ0.43	8	0.31	DA2P11FS8	DA2C11FS8
2	3.5×10	0.14×0.39	10	0.39	DA2P3.5×10FS10	DA2C3.5×10FS10
2	3.5×10	0.14×0.39	18	0.71	DA2P3.5×10FS518	DA2C3.5×10FS18
2	7×18	0.28×0.71	15	0.59	DA2P7×18FS15	DA2C7×18FS15
2	7×18	0.28×0.71	30	1.18	DA2P7×18F530	DA2C7×18FS30
4	D8/2	Φ0.314	6	0.24	DA4P8FS6	DA4C8FS6
4	3.5×10	0.14×0.39	10	0.39	DA4P3.5×10FS10	DA4C3.5×10FS10
4	3.5×10	0.14×0.39	18	0.71	DA4P3.5×10FS18	DA4C3.5×10FS18
4	6×20	0.24×0.79	12	0.47	DA4P6×20FS12	DA4C6×20FS12
4	6×20	0.24×0.79	25	0.98	DA4P6×20F525	DA4C6×20FS25
5	Φ8/2	Φ0.314	3	0.12	DA5P8FS3	DA5C8FS3
5	Φ9/2	Φ0.35	10	0.39	DA5P9FS10	DA5C9FS10
10	Φ5/2	Φ0.2	3	0.12	DA10P5FS3	DA10C5FS3

PL Series is the default probe type.
Lemo 00(C5) side mounting connector

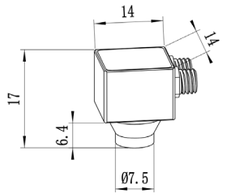
Probe Dimensions

Nominal Element Size		Connector Direction
mm	in	
Φ8/2	0.314	Microdot Side Mounting



Probe Dimensions

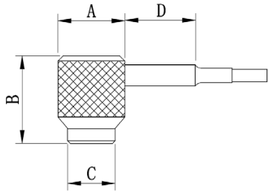
Nominal Element Size		Connector Direction
mm	in	
Φ5/2	0.20	Microdot Side Mounting



North America Standard

Dimensions(Soft Film)

Nominal Element Size		A		B		C		D	
mm	in	mm	in	mm	in	mm	in	mm	in
6	0.25	12.0	0.47	16.5	0.65	9.5	0.37	22.0	0.87
10	0.375	16.0	0.63	16.5	0.65	12.0	0.47	22.0	0.87
13	0.50	19.5	0.77	17.0	0.67	15.5	0.61	22.0	0.87



Probe Specification

Frequency	Wafer Diameter		Model			
			Cable end interface BNC		Cable end interface Lemo-01	
MHz	mm	in	PL	C	PL	C
2.25	6	0.25	DA3-2.25P6-B	DA3-2.25C6-B	DA3-2.25P6-1	DA3-2.25C6-1
	10	0.375	DA3-2.25P10-B	DA3-2.25C10-B	DA3-2.25P10-1	DA3-2.25C10-1
	13	0.50	DA3-2.25P13-B	DA3-2.25C13-B	DA3-2.25P13-1	DA3-2.25C13-1
3.5	6	0.25	DA3-3.5P6-B	DA3-3.5C6-B	DA3-3.5P6-1	DA3-3.5C6-1
	10	0.375	DA3-3.5P10-B	DA3-3.5C10-B	DA3-3.5P10-1	DA3-3.5C10-1
	13	0.50	DA3-3.5P13-B	DA3-3.5C13-B	DA3-3.5P13-1	DA3-3.5C13-1
5	6	0.25	DA3-5P6-B	DA3-5C6-B	DA3-5P6-1	DA3-5C6-1
	10	0.375	DA3-5P10-B	DA3-5C10-B	DA3-5P10-1	DA3-5C10-1
	13	0.50	DA3-5P13-B	DA3-5C13-B	DA3-5P13-1	DA3-5C13-1
7.5	6	0.250	DA3-7.5P6-B	DA3-7.5C6-B	DA3-7.5P6-1	DA3-7.5C6-1
10	6	0.25	DA3-10P6-B	DA3-10C6-B	DA3-10P6-1	DA3-10C6-1

Low height probes, suitable for narrow and limited detection environments

Side mounting with 1.8 meter cable length, cable end with Lemo 01(C9), or BNC(Q9) connectors(optional)

Contact - Angle Beam Probes

Refracting ultrasonic beams and generate shear or longitudinal waves to workpiece through a fix angle of delay line.

Features

- Ergonomic design, with durable cast housing
- Customizable any theoretical angles of ultrasound
- Probe face can be processed into different shapes to ensure good coupling with workpiece:

AID(Axial Inside Diameter) CID(Circumferential Inside Diameter)

AOD(Axial Outside Diameter) COD(Circumferrential Outside Diameter)

Three types of performance can meet the most of detection needs:

“PL ” Universal Series, “PH ” Short Pulsing Series, “C ” Composite Series

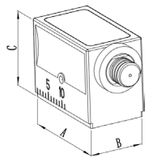
Applications

- For welding inspection
- Pipes, pressure vessels, storage tanks
- Turbine blades
- Wheel axles, castings, forgings
- Bond testing
- Railway wheels and tracks

China Standard

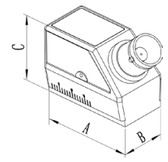
Probe Dimensions

Nominal Element Size		A		B		C		Connector Direction
mm	in	mm	in	mm	in	mm	in	
6x6	0.24x0.24	20.0	0.80	11.7	0.46	15.5	0.61	Microdot Side Mounting



Probe Dimensions

Nominal Element Size		A		B		C		Connector Direction
mm	in	mm	in	mm	in	mm	in	
9×9	0.35×0.35	30.0	1.20	14.0	0.55	21.0	0.80	BNC Oblique Installed
8×12	0.31×0.47	28.5	1.10	16.5	0.65	22.0	0.90	
10×16	0.39×0.63	35.5	1.40	19.5	0.77	28.0	1.10	
13×13	0.51×0.51	35.5	1.40	19.5	0.77	28.0	1.10	



The default "performance type" of probe is PL series.

By default, the probe is installed obliquely or sideways with BNC and Microdot interfaces, and the 6×6 specification can customize the top mounting direction of the interface

A2.5P10X16A60

Probe Specification

Frequency	axb		β (°)	Near Field		Model	
MHz	mm	in	Steel	mm	in	PL	C
2.5	9x9	0.35x0.35	45	21	0.8	A2.5P9x9A45	A2.5C9x9A45
2.5	9x9	0.35x0.35	60	21	0.8	A2.5P9x9A60	A2.5C9x9A60
2.5	9x9	0.35x0.35	70	21	0.8	A2.5P9x9A70	A2.5C9x9A70
2.5	9x9	0.35x0.35	45	21	0.8	A2.5P9x9K1	A2.5C9x9K1
2.5	9x9	0.35x0.35	56.4	21	0.8	A2.5P9x9K1.5	A2.5C9x9K1.5
2.5	9x9	0.35x0.35	63.4	21	0.8	A2.5P9x9K2	A2.5C9x9K2
2.5	9x9	0.35x0.35	68.2	21	0.8	A2.5P9x9K2.5	A2.5C9x9K2.5
2.5	9x9	0.35x0.35	71.6	21	0.8	A2.5P9x9K3	A2.5C9x9K3
2.5	8x12	0.31x0.47	45	25	1.0	A2.5P8x12A45	A2.5C8x12A45
2.5	8x12	0.31x0.47	60	25	1.0	A2.5P8x12A60	A2.5C8x12A60
2.5	8x12	0.31x0.47	70	25	1.0	A2.5P8x12A70	A2.5C8x12A70
2.5	8x12	0.31x0.47	45	25	1.0	A2.5P8x12K1	A2.5C8x12K1
2.5	8x12	0.31x0.47	56.4	25	1.0	A2.5P8x12K1.5	A2.5C8x12K1.5
2.5	8x12	0.31x0.47	63.4	25	1.0	A2.5P8x12K2	A2.5C8x12K2
2.5	8x12	0.31x0.47	68.2	25	1.0	A2.5P8x12K2.5	A2.5C8x12K2.5
2.5	8x12	0.31x0.47	71.6	25	1.0	A2.5P8x12K3	A2.5C8x12K3
2.5	10x16	0.39x0.63	45	42	1.7	A2.5P10x16A45	A2.5C10x16A45
2.5	10x16	0.39x0.63	60	42	1.7	A2.5P10x16A60	A2.5C10x16A60
2.5	10x16	0.39x0.63	70	42	1.7	A2.5P10x16A70	A2.5C10x16A70
2.5	10x16	0.39x0.63	45	42	1.7	A2.5P10x16K1	A2.5C10x16K1
2.5	10x16	0.39x0.63	56.4	42	1.7	A2.5P10x16K1.5	A2.5C10x16K1.5
2.5	10x16	0.39x0.63	63.4	42	1.7	A2.5P10x16K2	A2.5C10x16K2
2.5	10x16	0.39x0.63	68.2	42	1.7	A2.5P10x16K2.5	A2.5C10x16K2.5
2.5	10x16	0.39x0.63	71.6	42	1.7	A2.5P10x16K3	A2.5C10x16K3
2.5	13x13	0.51x0.51	45	44	1.7	A2.5P13x13A45	A2.5C13x13A45
2.5	13x13	0.51x0.51	60	44	1.7	A2.5P13x13A60	A2.5C13x13A60
2.5	13x13	0.51x0.51	70	44	1.7	A2.5P13x13A70	A2.5C13x13A70
2.5	13x13	0.51x0.51	45	44	1.7	A2.5P13x13K1	A2.5C13x13K1
2.5	13x13	0.51x0.51	56.4	44	1.7	A2.5P13x13K1.5	A2.5C13x13K1.5
2.5	13x13	0.51x0.51	63.4	44	1.7	A2.5P13x13K2	A2.5C13x13K2
2.5	13x13	0.51x0.51	68.2	44	1.7	A2.5P13x13K2.5	A2.5C13x13K2.5
2.5	13x13	0.51x0.51	71.6	44	1.7	A2.5P13x13K3	A2.5C13x13K3

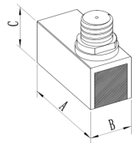
Probe Specification

Frequency	axb		β (°)	Near Field		Model	
MHz	mm	in	Steel	mm	in	PL	C
5	6x6	0.24x0.24	45	19	0.7	A5P6x6A45	A5C6x6A45
5	6x6	0.24x0.24	60	19	0.7	A5P6x6A60	A5C6x6A60
5	6x6	0.24x0.24	70	19	0.7	A5P6x6A70	A5C6x6A70
5	6x6	0.24x0.24	45	19	0.7	A5P6x6K1	A5C6x6K1
5	6x6	0.24x0.24	56.4	19	0.7	A5P6x6K1.5	A5C6x6K1.5
5	6x6	0.24x0.24	63.4	19	0.7	A5P6x6K2	A5C6x6K2
5	6x6	0.24x0.24	68.2	19	0.7	A5P6x6K2.5	A5C6x6K2.5
5	6x6	0.24x0.24	71.6	19	0.7	A5P6x6K3	A5C6x6K3
5	9x9	0.35x0.35	45	42	1.7	A5P9x9A45	A5C9x9A45
5	9x9	0.35x0.35	60	42	1.7	A5P9x9A60	A5C9x9A60
5	9x9	0.35x0.35	70	42	1.7	A5P9x9A70	A5C9x9A70
5	9x9	0.35x0.35	45	42	1.7	A5P9x9K1	A5C9x9K1
5	9x9	0.35x0.35	56.4	42	1.7	A5P9x9K1.5	A5C9x9K1.5
5	9x9	0.35x0.35	63.4	42	1.7	A5P9x9K2	A5C9x9K2
5	9x9	0.35x0.35	68.2	42	1.7	A5P9x9K2.5	A5C9x9K2.5
5	9x9	0.35x0.35	71.6	42	1.7	A5P9x9K3	A5C9x9K3
5	8x12	0.31x0.47	45	50	2.0	A5P8x12A45	A5C8x12A45
5	8x12	0.31x0.47	60	50	2.0	A5P8x12A60	A5C8x12A60
5	8x12	0.31x0.47	70	50	2.0	A5P8x12A70	A5C8x12A70
5	8x12	0.31x0.47	45	50	2.0	A5P8x12K1	A5C8x12K1
5	8x12	0.31x0.47	56.4	50	2.0	A5P8x12K1.5	A5C8x12K1.5
5	8x12	0.31x0.47	63.4	50	2.0	A5P8x12K2	A5C8x12K2
5	8x12	0.31x0.47	68.2	50	2.0	A5P8x12K2.5	A5C8x12K2.5
5	8x12	0.31x0.47	71.6	50	2.0	A5P8x12K3	A5C8x12K3
5	10x16	0.39x0.63	45	84	3.3	A5P10x16A45	/
5	10x16	0.39x0.63	60	84	3.3	A5P10x16A60	/
5	10x16	0.39x0.63	70	84	3.3	A5P10x16A70	/
5	10x16	0.39x0.63	45	84	3.3	A5P10x16K1	/
5	10x16	0.39x0.63	56.4	84	3.3	A5P10x16K1.5	/
5	10x16	0.39x0.63	63.4	84	3.3	A5P10x16K2	/
5	10x16	0.39x0.63	68.2	84	3.3	A5P10x16K2.5	/
5	10x16	0.39x0.63	71.6	84	3.3	A5P10x16K3	/
5	13x13	0.51x0.51	45	88	3.5	A5P13x13A45	/
5	13x13	0.51x0.51	60	88	3.5	A5P13x13A60	/
5	13x13	0.51x0.51	70	88	3.5	A5P13x13A70	/
5	13x13	0.51x0.51	45	88	3.5	A5P13x13K1	/
5	13x13	0.51x0.51	56.4	88	3.5	A5P13x13K1.5	/
5	13x13	0.51x0.51	63.4	88	3.5	A5P13x13K2	/
5	13x13	0.51x0.51	68.2	88	3.5	A5P13x13K2.5	/
5	13x13	0.51x0.51	71.6	88	3.5	A5P13x13K3	/

European Standard

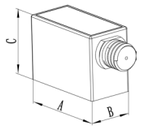
Probe Dimensions

Nominal Element Size		A		B		C		Connector Direction
mm	in	mm	in	mm	in	mm	in	
3x3	0.12x0.16	16.0	0.60	7.0	0.30	7.0	0.30	Microdot Top Mounting



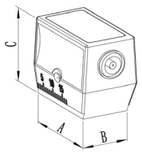
Probe Dimensions

Nominal Element Size		A		B		C		Connector Direction
mm	in	mm	in	mm	in	mm	in	
5x5	0.2x0.2	16.0	0.60	8.0	0.31	11.5	0.45	Microdot Side Mounting



Probe Dimensions

Nominal Element Size		A		B		C		Connector Direction
mm	in	mm	in	mm	in	mm	in	
8x9	0.31x0.35	24.0	0.94	14	0.55	22.0	0.86	Lemo-00Side Mounting
14x14	0.55x0.55	36.0	1.40	21.0	0.80	30.5	1.20	
20x22	0.79x0.87	54.0	2.10	32.0	1.30	44.0	1.70	Lemo-01Side Mounting



PL Series is the default probe type

Microdot(L5), Lemo 00(C5), and Lemo 01 (C9) top side mounting connectors,

all models can be customized for top mounting except size 3*4mm

A4P20X22A45

A5P5X5A70

Probe Specification

Frequency	axb		β (°)	Near Field		Model	
MHz	mm	in	Steel	mm	in	PL	C
1	20x22	0.79x0.87	45	45	1.8	A1P20×22A45	A1C20×22A45
1	20x22	0.79x0.87	60	45	1.8	A1P20×22A60	A1C20×22A60
1	20x22	0.79x0.87	70	45	1.8	A1P20×22A70	A1C20×22A70
2	8x9	0.31x0.35	38	15	0.6	A2P8×9A38	A2C8×9A38
2	8x9	0.31x0.35	45	15	0.6	A2P8×9A45	A2C8×9A45
2	8x9	0.31x0.35	60	15	0.6	A2P8×9A60	A2C8×9A60
2	8x9	0.31x0.35	70	15	0.6	A2P8×9A70	A2C8×9A70
2	8x9	0.31x0.35	90	15	0.6	A2P8×9A90	A2C8×9A90
2	14x14	0.55x0.55	45	39	1.5	A2P14×14A45	A2C14×14A45
2	14x14	0.55x0.55	60	39	1.5	A2P14×14A60	A2C14×14A60
2	14x14	0.55x0.55	70	39	1.5	A2P14×14A70	A2C14×14A70
2	20x22	0.79x0.87	38	92	3.6	A2P20×22A38	A2C20×22A38
2	20x22	0.79x0.87	45	92	3.6	A2P20×22A45	A2C20×22A45
2	20x22	0.79x0.87	60	92	3.6	A2P20×22A60	A2C20×22A60
2	20x22	0.79x0.87	70	92	3.6	A2P20×22A70	A2C20×22A70
4	8x9	0.31x0.35	38	30	1.2	A4P8×9A38	A4C8×9A38
4	8x9	0.31x0.35	45	30	1.2	A4P8×9A45	A4C8×9A45
4	8x9	0.31x0.35	60	30	1.2	A4P8×9A60	A4C8×9A60
4	8x9	0.31x0.35	70	30	1.2	A4P8×9A70	A4C8×9A70
4	8x9	0.31x0.35	90	30	1.2	A4P8×9A90	A4C8×9A90
4	14x14	0.55x0.55	45	78	3.0	A4P14×14A45	A4C14×14A45
4	14x14	0.55x0.55	60	78	3.0	A4P14×14A60	A4C14×14A60
4	14x14	0.55x0.55	70	78	3.0	A4P14×14A70	A4C14×14A70
4	20x22	0.79x0.87	38	184	7.2	A4P20×22A38	/
4	20x22	0.79x0.87	45	184	7.2	A4P20×22A45	/
4	20x22	0.79x0.87	60	184	7.2	A4P20×22A60	/
4	20x22	0.79x0.87	70	184	7.2	A4P20×22A70	/
5	5x5	0.2x0.2	45	13	0.5	A5P5*5A45	A5C5*5A45
5	5x5	0.2x0.2	60	13	0.5	A5P5*5A60	A5C5*5A60
5	5x5	0.2x0.2	70	13	0.5	A5P5*5A70	A5C5*5A70
5	14x14	0.55x0.55	45	100	3.9	A5P14×14A45	/
5	14x14	0.55x0.55	60	100	3.9	A5P14×14A60	/
5	14x14	0.55x0.55	70	100	3.9	A5P14×14A70	/
6	3x4	0.12x0.16	45	7	0.27	A6P3*4A45	A6C3*4A45
6	3x4	0.12x0.16	60	7	0.27	A6P3*4A60	A6C3*4A60
6	3x4	0.12x0.16	70	7	0.27	A6P3*4A70	A6C3*4A70

A2P14X14A70

A4P8X9A45

A6P3X4A70

North America Standard A3

Probe Specification

Frequency	Nominal Element Size		Model			Threads
MHz	mm	in	PL	PH	C	in
1	13	0.50	A3-1P13	A3-1P13-H	A3-1C13	5/8-24
2.25	6	0.25	A3-2.25P6	A3-2.25P6-H	A3-2.25C6	3/8-32
	10	0.375	A3-2.25P10	A3-2.25P10-H	A3-2.25C10	1/2-28
	13	0.50	A3-2.25P13	A3-2.25P13-H	A3-2.25C13	5/8-24
3.5	6	0.25	A3-3.5P6	A3-3.5P6-H	A3-3.5C6	3/8-32
	10	0.375	A3-3.5P10	A3-3.5P10-H	A3-3.5C10	1/2-28
	13	0.50	A3-3.5P13	A3-3.5P13-H	A3-3.5C13	5/8-24
5	6	0.25	A3-5P6	A3-5P6-H	A3-5C6	3/8-32
	10	0.375	A3-5P10	A3-5P10-H	A3-5C10	1/2-28
	13	0.50	A3-5P13	A3-5P13-H	A3-5C13	5/8-24
7.5	6	0.25	A3-7.5P6	A3-7.5P6-H	A3-7.5C6	3/8-32

The probe and delay line can be disassembled quickly

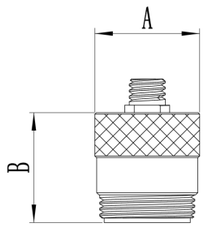
Delay lines are divided into two types: standard cutting edge and short cutting edge

The corresponding thread is 1/2-28 and 5/8-24 for probes and delay line with diameter 10mm and 13mm separately. OP type can be indicated when ordering with corresponding thread 9/16-24 and 11/16-24

Microdot top mounting connector

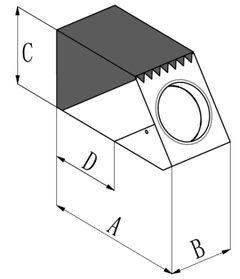
Probe Dimensions

Nominal Element Size		A		B		Connector Direction
mm	in	mm	in	mm	in	
6	0.25	11	0.42	14	0.56	Microdot Top Mounting
10	0.375	14	0.55	15	0.58	
13	0.50	18	0.70	17	0.65	



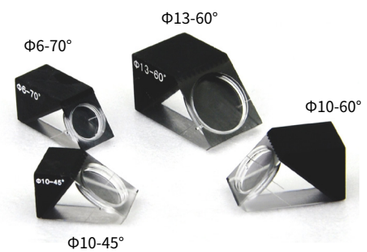
Standard Delay Line Dimensions

Model	β (°)	A		B		C		D		Threads	Nominal Element Size	
	Steel	mm	in	mm	in	mm	in	mm	in	in	mm	in
Φ6-45°	45	19.1	0.75	11.4	0.45	9.4	0.37	9.5	0.37	3/8-32	6	0.25
Φ6-60°	60	21.3	0.84	11.4	0.45	11.2	0.44	10.8	0.43	3/8-32		
Φ6-70°	70	25.4	1.00	11.4	0.45	12.7	0.50	13.5	0.53	3/8-32		
Φ6-90°	90	24.1	0.95	11.4	0.45	12.7	0.50	/	/	3/8-32		
Φ10-45°	45	22.6	0.89	14	0.55	11.9	0.47	12.2	0.48	1/2-28	10	0.375
Φ10-60°	60	26.4	1.04	14	0.55	14	0.55	12.8	0.50	1/2-28		
Φ10-70°	70	30.2	1.19	14	0.55	14.7	0.58	17	0.67	1/2-28		
Φ10-90°	90	29.5	1.15	14	0.55	14.7	0.61	/	/	1/2-28		
Φ13-45°	45	26.7	1.05	17.8	0.70	14	0.55	14.5	0.57	5/8-24	13	0.5
Φ13-60°	60	31.5	1.24	17.8	0.70	16.3	0.64	18.5	0.73	5/8-24		
Φ13-70°	70	35.8	1.41	17.8	0.70	17.3	0.68	20.5	0.81	5/8-24		
Φ13-90°	90	35.5	1.39	17.8	0.70	18.5	0.73	/	/	5/8-24		



Short Delay Line Dimensions

Model	β (°)	A		B		C		D		Threads	Nominal Element Size	
	Steel	mm	in	mm	in	mm	in	mm	in	in	mm	in
Φ6-45°S	45	15.5	0.61	11.4	0.45	10.9	0.43	5.8	0.23	3/8-32	6	0.25
Φ6-60°S	60	18.0	0.71	11.4	0.45	12.2	0.48	6.8	0.27	3/8-32		
Φ6-70°S	70	20.6	0.81	11.4	0.45	12.7	0.50	7.8	0.31	3/8-32		
Φ10-45°S	45	21.6	0.85	14	0.55	15.2	0.60	8	0.31	1/2-28	10	0.375
Φ10-60°S	60	25.4	1.00	14	0.55	17.0	0.67	9	0.35	1/2-28		
Φ10-70°S	70	28.4	1.12	14	0.55	17.5	0.69	10	0.39	1/2-28		
Φ13-45°S	45	26.2	1.03	17.8	0.70	17.8	0.70	8.5	0.33	5/8-24	13	0.5
Φ13-60°S	60	30.2	1.19	17.8	0.70	18.8	0.74	10.8	0.43	5/8-24		
Φ13-70°S	70	34.0	1.34	17.8	0.70	20.1	0.79	12.2	0.48	5/8-24		



North America Standard A4

Probe Specification

Frequency	Nominal Element Size		Model		
MHz	mm	in	PL	PH	C
0.5	Φ25	1	A4-0.5P25	A4-0.5P25-H	/
1	Φ13	0.5	A4-1P13	A4-1P13-H	A4-1C13
	13x25	0.5x1	A4-1P13x25	A4-1P13x25-H	A4-1C13x25
	19x25	0.75x1	A4-1P19x25	A4-1P19x25-H	/
	Φ25	1	A4-1P25	A4-1P25-H	/
2.25	Φ13	0.5	A4-2.25P13	A4-2.25P13-H	A4-2.25C13
	13x25	0.5 1	A4-2.25P13x25	A4-2.25P13x25-H	A4-2.25C13x25
	16x16	0.63x0.63	A4-2.25P16x16	A4-2.25P16x16-H	A4-2.25C16x16
	16x19	0.63x0.75	A4-2.25P16x19	A4-2.25P16x19-H	A4-2.25C16x19
	19x19	0.75x0.75	A4-2.25P19x19	A4-2.25P19x19-H	/
	19x25	0.75x1	A4-2.25P19x25	A4-2.25P19x25-H	/
	Φ25	1	A4-2.25P25	A4-2.25P25-H	/
3.5	Φ13	0.5	A4-3.5P13	A4-3.5P13-H	A4-3.5C13
	13x25	0.5x1	A4-3.5P13x25	A4-3.5P13x25-H	A4-3.5C13x25
	19x25	0.75x1	A4-3.5P19x25	A4-3.5P19x25-H	/
	Φ25	1	A4-3.5P25	A4-3.5P25-H	/
5	Φ13	0.5	A4-5P13	A4-5P13-H	A4-5C13
	13x25	0.5x1	A4-5P13x25	A4-5P13x25-H	A4-5C13x25
	19x25	0.75x1	A4-5P19x25	A4-5P19x25-H	/
	Φ25	1	A4-5P25	A4-5P25-H	/

The larger wafer size enables the detection of thicker workpieces

Delay lines are divided into SL and RL, among which RL series conforms to the requirements of AWS Specification D1.1

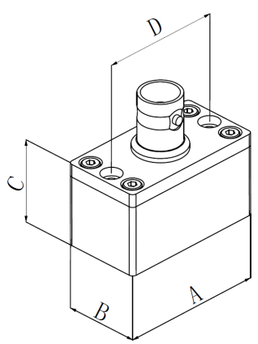
High temperature resistance series delay line can be customized

The probe is equipped with a non - falling screw and delay line can be disassembled tool free

The probe interface is BNC top by default

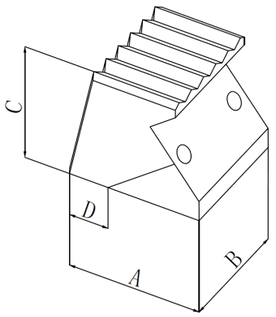
Probe Dimensions

Nominal Element Size		A		B		C		D	
mm	in	mm	in	mm	in	mm	in	mm	in
Φ13	0.5	26	1.02	18.3	0.72	18	0.71	20.6	0.81
13x25	0.5x1	39	1.54	18.5	0.73	18	0.71	33.3	1.31
16x16	0.63x0.63	32	1.26	18.5	0.73	18	0.71	25.4	1.00
16x19	0.63x0.75	32	1.26	18.5	0.73	18	0.71	25.4	1.00
19x19	0.75x0.75	32	1.26	21.5	0.85	18	0.71	25.4	1.00
19x25	0.75x1	39	1.54	25.4	1.00	18	0.71	33.3	1.31
Φ25	1	42	1.65	31	1.22	18	0.71	35.1	1.38



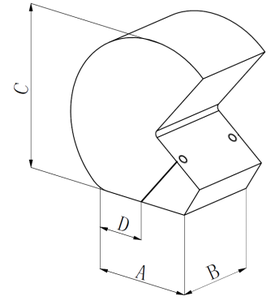
SL Delay Line Dimensions

Model	β (°)	A		B		C		D		Nominal Element Size	
	Steel	mm	in	mm	in	mm	in	mm	in	mm	in
SL-Φ13-45°	45	33.5	1.32	27.5	1.08	31	1.22	18	0.71	13	0.5
SL-Φ13-60°	60	37.5	1.48	27.5	1.08	31	1.22	17.5	0.69		
SL-Φ13-70°	70	40.5	1.59	27.5	1.08	31	1.22	17.5	0.69		
SL-Φ13-90°	90	34	1.34	27.5	1.08	31	1.22	/	/		
SL-13x25-45°	45	35.5	1.40	40.5	1.59	33	1.30	19.5	0.77	13x25	0.5x1
SL-13x25-60°	60	37	1.46	40.5	1.59	33	1.30	17	0.67		
SL-13x25-70°	70	44	1.73	40.5	1.59	34	1.34	21	0.83		
SL-13x25-90°	90	34.5	1.36	40.5	1.59	30	1.18	/	/		
SL-19x25-45°	45	42	1.65	40.5	1.59	35	1.38	20.5	0.81	19x25	0.75x1
SL-19x25-60°	60	47	1.85	40.5	1.59	36	1.42	20	0.79		
SL-19x25-70°	70	53	2.09	40.5	1.59	38	1.50	23	0.91		
SL-19x25-90°	90	50	1.97	40.5	1.59	38	1.50	/	/		
SL-Φ25-45°	45	50	1.97	41.5	1.63	37	1.46	25	0.98	25	1
SL-Φ25-60°	60	56	2.20	41.5	1.63	38	1.50	24	0.94		
SL-Φ25-70°	70	63	2.48	41.5	1.63	38	1.50	28.5	1.12		
SL-Φ25-90°	90	63	2.48	41.5	1.63	38	1.50	/	/		



RL Delay Line Dimensions

Model	β (°)	A		B		C		D		Nominal Element Size	
	Steel	mm	in	mm	in	mm	in	mm	in	mm	in
RL-45°	45	45	1.77	31.8	1.25	54.5	2.15	15.8	0.62	16×16	0.63×0.63
RL-60°	60	46	1.81	31.8	1.25	48.5	1.91	16.5	0.65	16×19	0.63×0.75
RL-70°	70	49	1.93	31.8	1.25	55	2.17	17	0.67	19×19	0.75×0.75



Contact - TRL Angle Beam Probes

Independent transmit and receive crystals, refracting ultrasonic beam angles and creates certain focal length in workpiece.

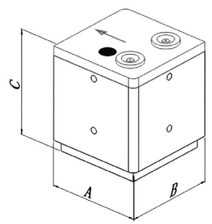
Features

- No initial pulse dead zone effects
- Less scattering, higher SNR in high attenuation material
- All refractive angles are longitudinal waves and can be customized to any longitudinal wave angle within ultrasonic theory
- Probe face can be processed into different shapes to ensure good coupling with workpiece: AID(Axial Inside Diameter), CID(Circumferential Inside Diameter), AOD(Axial Outside Diameter), COD(Circumferrential Outside Diameter)

Two types of performance probes can meet most of detection needs:
"PL" Universal Series, "R" High Performance Series

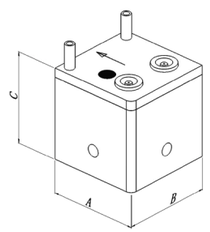
Probe Dimensions(DA Model)

Nominal Element Size		A		B		C		Clamping Holes
mm	in	mm	in	mm	in	mm	in	mm
7×10	0.28×0.39	20.0	0.79	20.0	0.79	25.0	0.98	Φ2
8×14	0.31×0.55	25.0	0.98	25.0	0.98	30.0	1.18	
10×18	0.39×0.71	30.0	1.18	30.0	1.18	30.0	1.18	
15×25	0.59×0.98	40.0	1.57	40.0	1.57	35.0	1.38	
20×34	0.79×1.34	50.0	1.97	50.0	1.97	35.0	1.38	
24×42	0.94×1.65	60.0	2.36	60.0	2.36	40.0	1.57	



Probe Dimensions(CDA Model)

Nominal Element Size		A		B		C		Clamping Holes
mm	in	mm	in	mm	in	mm	in	mm
7×10	0.28×0.39	20.0	0.79	20.0	0.79	25.0	0.98	M4×0.7
8×14	0.31×0.55	25.0	0.98	25.0	0.98	30.0	1.18	
10×18	0.39×0.71	30.0	1.18	30.0	1.18	30.0	1.18	
15×25	0.59×0.98	40.0	1.57	40.0	1.57	35.0	1.38	
20×34	0.79×1.34	50.0	1.97	50.0	1.97	35.0	1.38	
24×42	0.94×1.65	60.0	2.36	60.0	2.36	40.0	1.57	



Applications

- Nuclear power station
- Austenitic stainless steel
- Near surface flaw detection
- Plate weld inspection
- High attenuation materials

Instructions

- R series is the default probe type
- Default delay lines is 4mm exposed, and the delay lines can be customized and embedded
- The default shell of the probe is DA type, with no inlet pipe or water guide groove. If the probe needs to be clamped and scanned with a fixture, it can be replaced with a CDA type shell (inlet pipe+water guide groove+clamping hole)
- FS means sound path, FD means focal depth, conversion of FS, FD and β is: Cosβ=FD/(FS+0.5D), where D is diameter
- The engraved lines on both sides of the shell indicate the incident point, the arrow at the top indicates the direction of the sound axis, and the red circle at the top indicates that the interface on this side is the transmitting end (T)
- The probe interface defaults to the top mounted Lemo-00 and can be customized with a side mounted direction

Probe Specification

Frequency	axb		β (°)	Focal Length(FS)				Model	
				Min		Max			
MHz	mm	in	ss	mm	in	mm	in	PL	R
0.5	20×34	0.79×1.34	45	25	0.98	60	2.36	/	DA0.5R20×34LA45
0.5	20×34	0.79×1.34	60	20	0.79	35	1.38	/	DA0.5R20×34LA60
0.5	20×34	0.79×1.34	70	20	0.79	30	1.18	/	DA0.5R20×34LA60
1	8×14	0.31×0.55	45	10	0.39	25	0.98	DA1P8×14LA45	DA1R8×14LA45
1	8×14	0.31×0.55	60	10	0.39	20	0.79	DA1P8×14LA60	DA1R8×14LA60
1	8×14	0.31×0.55	70	10	0.39	20	0.79	DA1P8×14LA70	DA1R8×14LA70
1	10×18	0.39×0.71	45	15	0.59	30	1.18	DA1P10×18LA45	DA1R10×18LA45
1	10×18	0.39×0.71	60	15	0.59	30	1.18	DA1P10×18LA60	DA1R10×18LA60
1	10×18	0.39×0.71	70	15	0.59	25	0.98	DA1P10×18LA70	DA1R10×18LA70
1	15×25	0.59×0.98	45	20	0.79	55	2.17	DA1P15×25LA45	DA1R15×25LA45
1	15×25	0.59×0.98	60	20	0.79	45	1.77	DA1P15×25LA60	DA1R15×25LA60
1	15×25	0.59×0.98	70	15	0.59	40	1.57	DA1P15×25LA70	DA1R15×25LA70
1	20×34	0.79×1.34	45	30	1.18	80	3.15	DA1P20×34LA45	DA1R20×34LA45
1	20×34	0.79×1.34	60	25	0.98	75	2.95	DA1P20×34LA60	DA1R20×34LA60
1	20×34	0.79×1.34	70	25	0.98	70	2.76	DA1P20×34LA70	DA1R20×34LA70
2	7×10	0.28×0.39	45	10	0.39	25	0.98	DA2P7×10LA45	DA2R7×10LA45
2	7×10	0.28×0.39	60	10	0.39	25	0.98	DA2P7×10LA60	DA2R7×10LA60
2	7×10	0.28×0.39	70	10	0.39	20	0.79	DA2P7×10LA70	DA2R7×10LA70
2	8×14	0.31×0.55	45	15	0.59	30	1.18	DA2P8×14LA45	DA2R8×14LA45
2	8×14	0.31×0.55	60	10	0.39	30	1.18	DA2P8×14LA60	DA2R8×14LA60
2	8×14	0.31×0.55	70	10	0.39	25	0.98	DA2P8×14LA70	DA2R8×14LA70
2	10×18	0.39×0.71	45	20	0.79	45	1.77	DA2P10×18LA45	DA2R10×18LA45
2	10×18	0.39×0.71	60	15	0.59	40	1.57	DA2P10×18LA60	DA2R10×18LA60
2	10×18	0.39×0.71	70	15	0.59	30	1.18	DA2P10×18LA70	DA2R10×18LA70
2	15×25	0.59×0.98	45	25	0.98	85	3.35	DA2P15×25LA45	DA2R15×25LA45
2	15×25	0.59×0.98	60	20	0.79	75	2.95	DA2P15×25LA60	DA2R15×25LA60
2	15×25	0.59×0.98	70	20	0.79	70	2.76	DA2P15×25LA70	DA2R15×25LA70
2	20×34	0.79×1.34	45	40	1.57	120	4.72	DA2P20×34LA45	DA2R20×34LA45
2	20×34	0.79×1.34	60	30	1.18	120	4.72	DA2P20×34LA60	DA2R20×34LA60
2	20×34	0.79×1.34	70	30	1.18	105	4.13	DA2P20×34LA70	DA2R20×34LA70
4	7×10	0.28×0.39	45	10	0.39	35	1.38	DA4P7×10LA45	DA4R7×10LA45
4	7×10	0.28×0.39	60	10	0.39	35	1.38	DA4P7×10LA60	DA4R7×10LA60
4	7×10	0.28×0.39	70	10	0.39	30	1.18	DA4P7×10LA70	DA4R7×10LA70
4	8×14	0.31×0.55	45	20	0.79	60	2.36	DA4P8×14LA45	DA4R8×14LA45
4	8×14	0.31×0.55	60	15	0.59	55	2.17	DA4P8×14LA60	DA4R8×14LA60
4	8×14	0.31×0.55	70	10	0.39	50	1.97	DA4P8×14LA70	DA4R8×14LA70
4	10×18	0.39×0.71	45	25	0.98	85	3.35	DA4P10×18LA45	DA4R10×18LA45
4	10×18	0.39×0.71	60	20	0.79	70	2.76	DA4P10×18LA60	DA4R10×18LA60
4	10×18	0.39×0.71	70	15	0.59	60	2.36	DA4P10×18LA70	DA4R10×18LA70
4	15×25	0.59×0.98	45	30	1.18	100	3.94	DA4P15×25LA45	/
4	15×25	0.59×0.98	60	25	0.98	90	3.54	DA4P15×25LA60	/
4	15×25	0.59×0.98	70	20	0.79	80	3.15	DA4P15×25LA70	/

Contact - Delay Line Probes

With replaceable delay line at the front of probe, and sound wave vertical incidence into workpiece.

Features

- Replaceable delay lines
- High bandwidth and narrow pulse with delay line, ensure excellent near surface resolution
- Higher frequency increases resolution of detection

<Note>: Thickness of delay line decides the maximum thickness of workpiece, Doppler Provide 3 different thicknesses of delay lines to meet the most detection cases; Length and materials of delay line can be customized.

Applications

- Direct flaw detection
- Precise thickness measurements
- Near surface flaw detection
- Surface detection of curved workpiece
- Ultra thin workpiece detection

Delay Line (DL)

Delay line can be purchased separately

Default length of delay lines:

Φ3mm(0.125in) crystal probe with 5.5mm(0.22in) length of delay line

Φ5/6/13mm(0.2/0.25/0.5in) crystal probe with 12.7mm(0.5in) length of delay line

Microdot (L5) side mounting connector

Probe Specification

Frequency	Nominal Element Size		Model
MHz	mm	in	PH
2.25	6	0.25	DL-2.25P6-H
	13	0.50	DL-2.25P13-H
3.5	6	0.25	DL-3.5P6-H
5	5	0.20	DL-5P5-H
	6	0.25	DL-5P6-H
	13	0.50	DL-5P13-H
10	3	0.125	DL-10P3-H
	5	0.20	DL-10P5-H
	6	0.25	DL-10P6-H
	13	0.50	DL-10P13-H
15	5	0.20	DL-15P5-H
	6	0.25	DL-15P6-H
20	3	0.125	DL-20P3-H

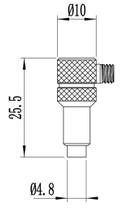
Delay Line Specification

Model	Length		Nominal Element Size	
MHz	mm	in	mm	in
DLΦ3-5.5	5.5	0.22	3	0.125
DLΦ6-9.5	9.5	0.37	5	0.20
			6	0.25
DLΦ6-12.7	12.7	0.50	5	0.20
			6	0.25
DLΦ13-9.5	9.5	0.37	13	0.50
DLΦ13-12.7	12.7	0.50	13	0.50

DLϕ6-12.7

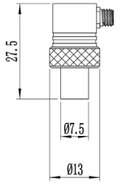
Probe Specification

mm	in
3	0.125



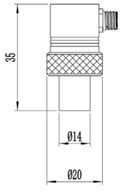
Probe Specification

mm	in
5	0.20
6	0.25



Probe Specification

mm	in
13	0.50



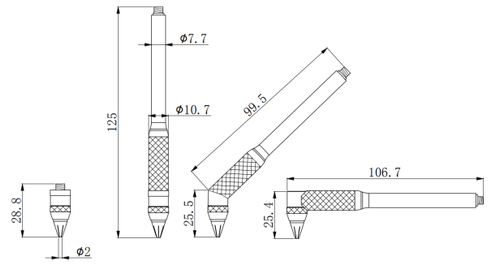
Delay Line (P)

- Replaceable delay lines
- Ultra small contact area of probe front, suitable for high bending
- surface detection, such as turbine blades
- 3 types handle bars: horizontal, 45° and 90°
- Replaceable horizontal handle bar
- Delay line can be purchased separately, model: 1GW2912
- Microdot (L5) tail-end mounting connector

Probe Specification

Frequency	Nominal Element Size		Model
MHz	mm	in	PH
10	3	0.125	P-10P3-H(0°) p-10P3-H (45°) P-10P3-H(90°)
15	3	0.125	P-15P3-H(0°) P-15P3-H (45°) P-15P3-H (90°)

1GW2912



Contact – Spot Weld Probes

The spot welding probe is a single element transducer that contacts the workpiece through a specific water column.

Features

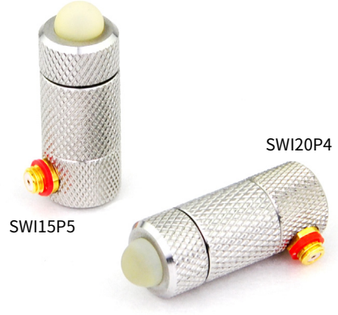
- The soft film can reduce the impact of coupling on uneven spot welding
- Different element sizes are used to measure the quality of spot welding of different sizes
- The probe interface is side mounted Microdot by default

Applications

Integrity measurement of spot welding quality in automobile or other industries

Probe Specification

Frequency MHz	Nominal Element Size mm	Nominal Element Size in	Model SWI(water column)
15	2.5	0.10	SWI15P2.5
	3	0.12	SWI15P3
	3.5	0.14	SWI15P3.5
	4	0.16	SWI15P4
	4.5	0.18	SWI15P4.5
	5	0.20	SWI15P5
	5.5	0.22	SWI15P5.5
	6	0.24	SWI15P6
20	2.5	0.10	SWI20P2.5
	3	0.12	SWI20P3
	3.5	0.14	SWI20P3.5
	4	0.16	SWI20P4
	4.5	0.18	SWI20P4.5
	5	0.20	SWI20P5
	5.5	0.22	SWI20P5.5
	6	0.24	SWI20P6



Structural Accessories

Type	Item	Model Nominal Element Size (mm) 2.5	3	3.5	4	4.5	5	5.5	6
SWI (water column)	Water column tube	2QT0247					2QT0248		
	Sealing O-ring	3SS0880					3SS0881		
	Water film	2QT0245					2QT0008		
	Threaded collar	2QK5893					2QK5894		

Contact - TOFD Probes

TOFD Probe and Delay Line can generate refracting longitudinal in steel, and use time of flight diffraction technique to determine the cracks.

Features

- High damping and wide bandwidth performance
- High efficiency for welding inspection
- Quick change structure of probe and delay line
- IHC for irrigation, holes, carbides of delay line
- IHS stands for delay block with water inlet, clamping holes at both sides and stainless steel structure.

Applications

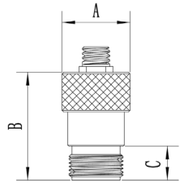
- Plate butt weld inspections
- Directional irregular defects
- Near surface defects detection

Probe Specification

Frequency MHz	Nominal Element Size mm	Nominal Element Size in	Nominal Element Size	Threads in	Delay Line Model
2.25	6	0.25	TF2.25C6L	3/8-32	TF1
	10	0.375	TF2.25C10L	11716-24	TF2
	12	0.5	TF2.25C12L	11/16-24	TF2
3.5	6	0.25	TF3.5C6L	3/8-32	TF1
	10	0.375	TF3.5C10L	11/16-24	TF2
5	3	0.125	TF5C3L	3/8-32	TF1
	6	0.25	TF5C6L	3/8-32	TF1
	10	0.375	TF5C10L	11/16-24	TF2
	12	0.5	TF5C12L	11/16-24	TF2
7.5	3	0.125	TF7.5C3L	3/8-32	TF1
	6	0.25	TF7.5C6L	3/8-32	TF1
10	3	0.125	TF10C3L	3/8-32	TF1
	6	0.25	TF10C6L	3/8-32	TF1
15	3	0.125	TF15C3L	3/8-32	TF1

Probe Dimensions

Nominal Element Size mm	Nominal Element Size in	A mm	A in	B mm	B in	C mm	C in	Connector Direction
3	0.125	11	0.43	16.5	0.65	6	0.24	Microdot Top Mounting
6	0.25							
10	0.375	16	0.63	18	0.71	6.5	0.26	
12	0.50	18	0.71	20	0.79	6.5	0.26	

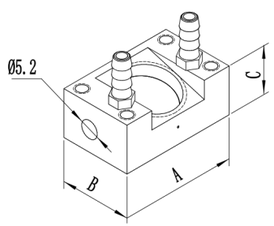


TF1 Delay Line Dimensions								
Model	β(°)	A		B		c		Threads
	Steel	mm	in	mm	in	mm	in	in
TF1-L45-IHC	45	32	1.26	21	0.83	13	0.51	3/8-32
TF1-L60-IHC	60							
TF1-L70-IHC	70							

TF1 Delay Line Dimensions								
Model	β(°)	A		B		C		Threads
	Steel	mm	in	mm	in	mm	in	in
TF1-L45-IHS	45	32	1.26	21	0.83	13	0.51	3/8-32
TF1-L60-IHS	60							
TF1-L70-IHS	70							

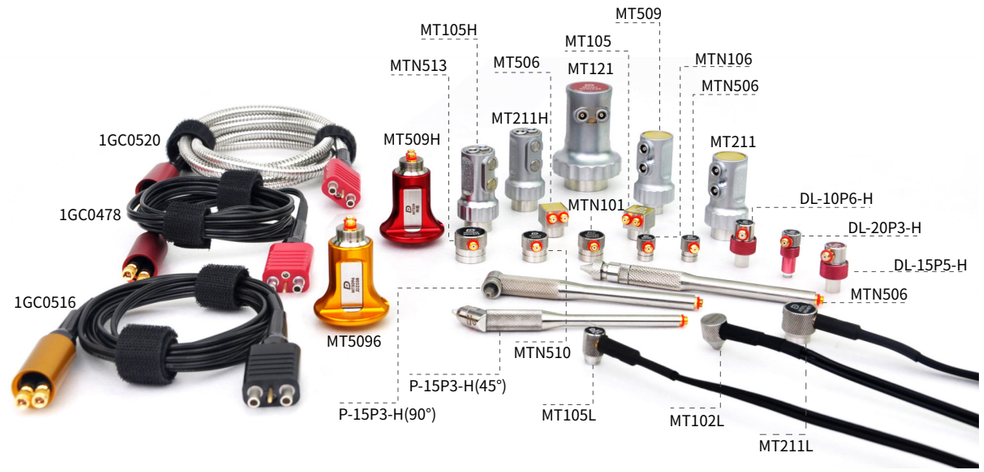
Tf2 Delay Line Dimensions								
Model	β(°)	A		B		C		Threads
	Steel	mm	in	mm	in	mm	in	in
TF2-L45-IHC	45	32	1.26	28	1.1	18	0.71	11/16-24
TF2-L60-IHC	60							
TF2-L70-IHC	70							

Tf2 Delay Line Dimensions								
Model	β(°)	A		B		C		Threads
	Steel	mm	in	mm	in	mm	in	in
TF2-L45-IHS	45	32	1.26	28	1.1	18	0.71	11/16-24
TF2-L60-IHS	60							
TF2-L70-IHS	70							



Contact Probe - Thickness Measurement Probes

Doppler provides an existing solution for most corrosion application sites, providing a complete set of twin- crystal and single-crystal thickness measuring probes for thickness measurement of workpiece, work with Accur 1/3/5 different thickness measuring instruments, to ensure the accuracy of thickness measurement to the greatest extent; besides the measurement of corrosion wall thickness, it can also be used for small diameter pipelines, etc. Measurement and application of tubing, boiler tube wall, penetrating coating, spot weld integrity, probes with different frequencies, contact sizes and special high temperature applications are available for selection.



Twin Crystal

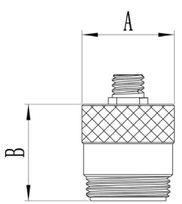
Model	Application	Frequency	Bottom contact OD		Range		Operation TEMP		Line-out	Connector	Cable (option)	Accur-* (option)
		MHz	mm	in	mm	in	°F	°C				
MT509	Standard/Normal/ Through Coating	5	11.5	0.45	1.5-225 (Through Coating3~100)	0.06-8.0 (Through Coating0.19~3.93)	-4+140	-20+60	Side	Lemo-00	1GC0422	1
MT5096	Standard/ Normal	5	11.5	0.45	1.5-50	0.4-2.0	-4+140	-20+60	Top	Microdot	1GC0515 1GC0516 1GC0520	1
MT211	Standard/ Normal	2	16.5	0.65	2-225	0.079-8	-4+140	-20+60	Side	Lemo-00	1GC0422	1/5
MT121	Standard/ Normal	1	28.5	1.12	8-80	0.31-3.15	-4+140	-20+60	Side	Lemo-00	1GC0422	1/5
MT105H*	Standard/ High Temp	10	7.5	0.30	1.2-30	0.047-1.18	+32+932	0+500	Top	Lemo-00	1GC0422	1/5
MT509H*	Standard/ High Temp	5	11.5	0.45	2-200	0.079-7.87	+32+932	0+500	Top	Microdot	1GC0478 1GC0514 1GC0520	1
MT211H*	Standard/ High Temp	2	16.5	0.65	3-200	0.12-7.87	+32+932	0+500	Top	Lemo-00	1GC0422	1/5
MT506	Fingertips/Normal/ Through Coating	5	7.5	0.30	1.2-225 (Through Coating 5~20)	0.05-8.6 (Through Coating0.2~0.79)	-4+140	-20+60	Side	Microdot	1GC0424	1
MT506L	Fingertips/Normal/ Through Coating	5	9.5	0.37	1.2-225 (Through Coating5~20)	0.05-8.6 (Through Coating0.2~0.79)	-4+140	-20+60	Side	Lemo-00	With Cable 1.2m	1
MT102L	Fingertips/Normal	10	3.0	0.12	1-8	0.04-0.31	-4+140	-20+60	Side	Lemo-00	With Cable 1.5m	1/5
MT105	Fingertips/Normal	10	7.5	0.30	0.8-50	0.03-1.97	-4+140	-20+60	Side	Microdot		1/5
MT105L	Fingertips/Normal	10	7.2	0.28	0.8-50	0.03-1.97	-4+140	-20+60	Side	Lemo-00	With Cable 1.5m	1/5
MT211L	Fingertips/Normal	2	15.5	0.61	2-225	0.079-8.0	-4+140	-20+60	Side	Lemo-00	With Cable 1.5m	1/5

Single Crystal

Model	Application	Frequency	Bottom Contact OD		Range		Operation TEMP		Line-out	Connector	Cable (option)	Accur-* (option)
		MHz	mm	in	mm	in	°F	°C				
DL-10P6-H	Delayline/ Normal	10	7.9	0.31	0.5-14.5	0.02-0.57	-4+140	-20+60	Side	Microdot	1GC0423	3
DL-15P5-H		15	7.9	0.31	0.25-14.5	0.01-0.57	-4+140	-20+60	Side			
DL-20P3-H		20	4.8	0.19	0.15-6	0.006-0.24	-4+140	-20+60	Side			
P-15P3-H(0°)	Pen type/ Normal	15	2.0	0.08	0.5-10	0.02-0.39	-4+140	-20+60	Top			
P-15P3-H(45°)		15	2.0	0.08	0.5-10	0.02-0.39	-4+140	-20+60	45°Side			
P-15P3-H(90°)		15	2.0	0.08	0.5-10	0.02-0.39	-4+140	-20+60	Side			
MTN506	Standard/ Normal	5	9.0	0.35	3-50	0.12-1.97	-4+140	-20+60	Side			
MTN510		5	14.0	0.55	3-75	0.12-2.95	-4+140	-20+60	Side			
MTN513		5	17.0	0.67	3-250	0.12-9.84	-4+140	-20+60	Side			
MTN106		10	9.0	0.35	3-25	0.12-0.98	-4+140	-20+60	Side			
MTN101		10	14.0	0.55	3-50	0.12-1.97	-4+140	-20+60	Side			

Contact - High Temperature Delay Line Probes

Single crystal probe with a replaceable delay line, applied for high temperature detection environment.



Features

- Supply 0° (ZH type) longitudinal incidence and 45°/ 60°/70° (AH type) shear wave incidence delay lines
- Supply 13 / 25 / 38mm three ZH types standard height delay lines, and 45°/60°/70° three shear wave AH types delay lines
- Two types of delay lines:
  HT1: maximum 20seconds on workpiece at 200 °C(392 °f)
  HT2: maximum 10seconds on workpiece at 300 °C(572 °f)
- Quick change structure of delay line and probe
- Standard lengths of ZH type delay line matching with probes:
  Φ10 mm (0.375 in) crystal probe with 13 mm (0.5 in) delay line
  Φ13/19 mm (0.5/0.7 in) crystal probe with 25 mm (1.0 in) delay line
- Probe face can be processed into different shapes to ensure good coupling with workpiece
- Top mounting Microdot (L5) connector

Applications

Intermittent contact detection with high temperature workpiece (castings, forgings etc.)
Direct flaw detection
Detection of curved surface of workpiece

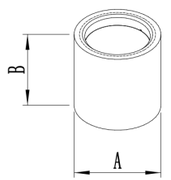
Probe Specification

Frequency	Nominal Element Size		Model	Threads
MHz	mm	in	PL	in
2.25	6	0.25	HT-2.25P6	3/8-32
2.25	10	0.375	HT-2.25P10	1/2-28
2.25	13	0.50	HT-2.25P13	5/8-24
2.25	19	0.75	HT-2.25P19	1-20
5	6	0.25	HT-5P6	3/8-32
5	10	0.375	HT-5P10	1/2-28
5	13	0.50	HT-5P13	5/8-24
5	19	0.75	HT-5P19	1-20

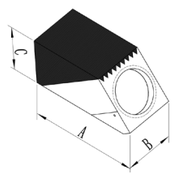
Probe Dimensions

Nominal Element Size		A		B	
mm	in	mm	in	mm	in
6	0.25	11	0.42	14	0.56
10	0.375	14	0.55	15	0.58
13	0.50	18	0.70	17	0.65
19	0.75	25	0.98	20	1.00

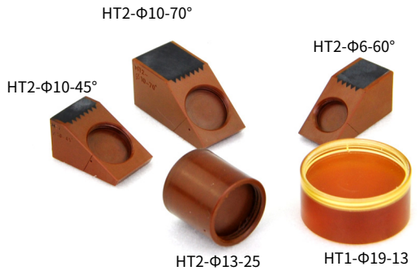
Type	TEMP(°C/°F)/Max Operation Time	
	HT1	HT2
ZH	(170°C/338°F)/10	500°C/932°F)/10
AH	(130C/ 266°F) /10	(270°C/518°F)/10



ZH



AH



6mm (0.25in) AH Type Delay Line Dimensions

Model	β (°)	A		B		C		Threads	Nominal Element Size	
	Steel	mm	in	mm	in	mm	in	in	mm	in
HT1-Φ6-45°	45	19.1	0.75	11.4	0.45	9.4	0.37	3/8-32	6	0.25
HT1-Φ6-60°	60	21.3	0.84	11.4	0.45	11.2	0.44	3/8-32		
HT1-Φ6-70°	70	25.4	1.00	11.4	0.45	12.7	0.50	3/8-32		
HT2-Φ6-45°	45	19.1	0.75	11.4	0.45	9.4	0.37	3/8-32		
HT2-Φ6-60°	60	21.3	0.84	11.4	0.45	11.2	0.44	3/8-32		
HT2-Φ6-70°	70	25.4	1.00	11.4	0.45	12.7	0.50	3/8-32		

10mm (0.375in) AH Type Delay Line Dimensions

Model	β (°)	A		B		C		Threads	Nominal Element Size	
	Steel	mm	in	mm	in	mm	in	in	mm	in
HT1-Φ10-45°	45	22.6	0.89	14	0.55	11.9	0.47	1/2-28	10	0.375
HT1-Φ10-60°	60	26.4	1.04	14	0.55	14	0.55	1/2-28		
HT1-Φ10-70°	70	30.2	1.19	14	0.55	14.7	0.58	1/2-28		
HT2-Φ10-45°	45	22.6	0.89	14	0.55	11.9	0.47	1/2-28		
HT2-Φ10-60°	60	26.4	1.04	14	0.55	14	0.55	1/2-28		
HT2-Φ10-70°	70	30.2	1.19	14	0.55	14.7	0.58	1/2-28		

13mm (0.5in) AH Type Delay Line Dimensions

Model	β (°)	A		B		C		Threads	Nominal Element Size	
	Steel	mm	in	mm	in	mm	in	in	mm	in
HT1-Φ13-45°	45	26.7	1.05	17.8	0.70	14	0.55	5/8-24	13	0.5
HT1-Φ13-60°	60	31.5	1.24	17.8	0.70	16.3	0.64	5/8-24		
HT1-Φ13-70°	70	35.8	1.41	17.8	0.70	17.3	0.68	5/8-24		
HT2-Φ13-45°	45	26.7	1.05	17.8	0.70	14	0.55	5/8-24		
HT2-Φ13-60°	60	31.5	1.24	17.8	0.70	16.3	0.64	5/8-24		
HT2-Φ13-70°	70	35.8	1.41	17.8	0.70	17.3	0.68	5/8-24		

ZH Type Delay Line Dimensions

Model	A		B		Threads	Nominal Element Size	
	mm	in	mm	in	in	mm	in
HT1-Φ10-13	15	0.60	13	0.50	1/2-28	10	0.375
HT1-Φ10-25	15	0.60	25	1.00	1/2-28		
HT1-Φ10-38	15	0.60	38	1.50	1/2-28		
HT1-Φ13-13	18	0.70	13	0.50	5/8-24	13	0.5
HT1-Φ13-25	18	0.70	25	1.00	5/8-24		
HT1-Φ13-38	18	0.70	38	1.50	5/8-24		
HT1-Φ19-13	28	1.10	13	0.50	1-20	19	0.75
HT1-Φ19-25	28	1.10	25	1.00	1-20		
HT1-Φ19-38	28	1.10	38	1.50	1-20		
HT2-Φ10-13	15	0.60	13	0.50	1/2-28	10	0.375
HT2-Φ10-25	15	0.60	25	1.00	1/2-28		
HT2-Φ10-38	15	0.60	38	1.50	1/2-28		
HT2-Φ13-13	18	0.70	13	0.50	5/8-24	13	0.5
HT2-Φ13-25	18	0.70	25	1.00	5/8-24		
HT2-Φ13-38	18	0.70	38	1.50	5/8-24		
HT2-Φ19-13	28	1.10	13	0.50	1-20	19	0.75
HT2-Φ19-25	28	1.10	25	1.00	1-20		
HT2-Φ19-38	28	1.10	38	1.50	1-20		

Immersion - Immersion Probes

Probe is design for total or partial immersion into water or other liquids to create ultrasonic beams.

Features

- Strong pressure and corrosion resistance
- Excellent acoustic impedance in water or other liquids, 1/4 wavelength of matching layer can ensure maximum power outputs
- No coupling issues between probe and liquid
- Acoustic beam can perform spherical focusing (F) or line focusing (CF), to increase ability of defect identifications
- Three types of performance probes can meet most of detection needs

Three types of performance probes can meet most of detection needs

“PL” Universal Series, “PH” Short Pulsing Series, “C” Composite Series

Applications

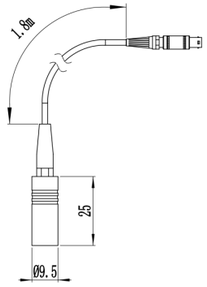
- Unfocused probes (planar) are used for general applications and penetrating thicker materials
- Point focused probe (spherical surface) is generally used to improve the sensitivity and signal-to-noise ratio of small flaw defection
- Line focused probe (cylindrical surface) is generally used for the detection of pipes and bars
- Online thickness measurement; Automatic scanning; Material analysis; Imaging system

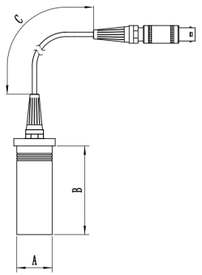
Instruction:

1. Most water immersion probes working between - 10 ~ 55 ° C (14 ~ 131 ° f). If the temperature exceeds the limit, peeling will occur between components, resulting in permanent damage to the probe. Limit working temperature (customized) can reach -55 ~ 120 ° C (- 67 ~ 248 ° f).
2. Transducers should not be submerged for periods exceeding 8 hours. Allow 16 hours of dry time to ensure the life of the unit.
3. The focusing distance of the unfocused probe is about equal to its near-field length. Since the last maximum amplitude of the probe occurs at a distance equivalent to the near-field length, all probes cannot focus when it is greater than the near-field length.
4. At a given frequency and element size, the focal length of the probe is limited. The actual maximum amplitude of unfocused probe is about 0.6 times of the near-field length, and that of point focused probe is about 0.8 times of the near-field length, for line focused probe max amplitude may not correspond to the nominal focusing. When the focus probe exceeds the above maximum but less than the near-field length, the increased sensitivity at the focus is not obvious.
5. For the problem of the long focus length transducer has a large offset in the center frequency near the focus point, please refer to the description on the probe test report.

European Standard - I1

Top mounting with 1.8 meter or 2.5 meter cable length, cable end with Lemo 01 (C9) connector





Probe Specification

Frequency	Nominal Element Size		Model			Focal Range			
						Min		Max	
MHz	mm	in	PL	PH	C	mm	in	mm	in
1	20	0.79	I1-1P20	I1-1P20-H	I1-1C20	32	1.26	50	1.97
2	10	0.39	I1-2P10	I1-2P10-H	I1-2C10	18	0.71	25	0.98
	20	0.79	I1-2P20	I1-2P20-H	I1-2C20	30	1.18	85	3.35
4	10	0.39	I1-4P10	I1-4P10-H	I1-4C10	22	0.87	45	1.77
	20	0.79	I1-4P20	I1-4P20-H	/	45	1.77	180	7.09
5	5	0.20	I1-5P5	I1-5P5-H	I1-5C5	11	0.43	20	0.79
	10	0.39	I1-5P10	I1-5P10-H	I1-5C10	20	0.79	55	2.17
10	5	0.20	I1-10P5	I1-10P5-H	I1-10C5	12	0.47	38	1.50
	10	0.39	I1-10P10	I1-10P10-H	/	15	0.59	100	3.94
15	5	0.20	/	I1-15P5-H	/	12	0.47	35	1.38

Probe Dimensions

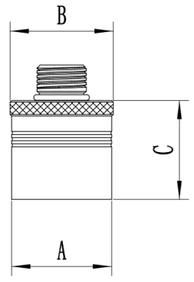
Nominal Element Size	
mm	in
5	0.20

Probe Dimensions

Nominal Element Size		A		B		C	
mm	in	mm	in	mm	in	mm	in
10	0.39	13	0.51	62	2.44	2.5	8.2
20	0.79	24	0.94	62	2.44	2.5	8.2

North America Standard - I2

Top mounting UHF waterproof connector



Probe Dimensions

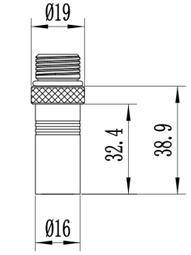
Nominal Element Size		A		B		C	
mm	in	mm	in	mm	in	mm	in
19	0.75	25	1.00	27	1.06	32	1.25
25	1.00	32	1.25	34	1.32	32	1.25
29	1.125	35	1.38	37	1.44	32	1.25
38	1.50	44	1.75	46	1.81	38	1.50

Probe Specification

Frequency	Nominal Element Size		Model			Focal Range			
						Min		Max	
MHz	mm	in	PL	PH	C	mm	in	mm	in
0.5	19	0.75	/	I2-0.5P19-H	/	25	0.98	25	0.98
	25	1.00	I2-0.5P25	I2-0.5P25-H	/	35	1.38	42	1.65
	29	1.125	I2-0.5P29	I2-0.5P29-H	/	40	1.57	52	2.05
	38	1.50	I2-0.5P38	I2-0.5P38-H	/	60	2.36	95	3.74
1	13	0.50	I2-1P13	I2-1P13-H	/	16	0.63	20	0.79
	19	0.75	I2-1P19	I2-1P19-H	I2-1C19	30	1.18	45	1.77
	25	1.00	I2-1P25	I2-1P25-H	/	48	1.89	75	2.95
	29	1.125	I2-1P29	I2-1P29-H	/	55	2.17	90	3.54
	38	1.50	I2-1P38	I2-1P38-H	/	70	2.76	190	7.48
2.25	6	0.25	I2-2.25P6	I2-2.25P6-H	I2-2.25C6	10	0.39	12	0.47
	10	0.375	I2-2.25P10	I2-2.25P10-H	I2-2.25C10	20	0.79	27	1.06
	13	0.50	I2-2.25P13	I2-2.25P13-H	I2-2.25C13	25	0.98	45	1.77
	19	0.75	I2-2.25P19	I2-2.25P19-H	/	32	1.26	95	3.74
	25	1.00	I2-2.25P25	I2-2.25P25-H	/	55	2.17	160	6.30
	29	1.125	I2-2.25P29	I2-2.25P29-H	/	62	2.44	200	7.87
	38	1.50	/	I2-2.25P38-H	/	70	2.76	370	14.57
3.5	10	0.25	I2-3.5P6	I2-3.5P6-H	I2-3.5C6	12	0.47	17	0.67
	6	0.375	I2-3.5P10	I2-3.5P10-H	I2-3.5C10	20	0.79	38	1.50
	13	0.50	I2-3.5P13	I2-3.5P13-H	/	22	0.87	65	2.56
	19	0.75	I2-3.5P19	I2-3.5P19-H	/	40	1.57	150	5.91
	25	1.00	I2-3.5P25	I2-3.5P25-H	/	50	1.97	270	10.63
	29	1.125	/	I2-3.5P29H	/	80	3.15	360	14.17
5	6	0.25	I2-5P6	I2-5P6-H	I2-5C6	12	0.47	25	0.98
	10	0.375	I2-5P10	I2-5P10H	I2-5C10	20	0.79	55	2.17
	13	0.50	I2-5P13	I2-5P13-H	I2-5C13	22	0.87	100	3.94
	19	0.75	I2-5P19	I2-5P19-H	/	40	1.57	210	8.27
	25	1.00	I2-5P25	I2-5P25-H	/	60	2.36	350	13.78
	29	1.125	/	I2-5P29-H	/	80	3.15	420	16.54
7.5	6	0.25	I2-7.5P6	I2-7.5P6-H	I2-7.5C6	15	0.59	30	1.18
	10	0.375	I2-7.5P10	I2-7.5P10-H	/	18	0.71	40	1.57
	13	0.50	I2-7.5P13	I2-7.5P13-H	/	25	0.98	150	5.90
	19	0.75	/	I2-7.5P19-H	/	27	1.06	255	10.04
	25	1.00	/	I2-7.5P25-H	/	80	3.15	530	20.87
	29	1.125	/	I2-7.5P29-H	/	100	3.94	600	23.62
10	6	0.25	I2-10P6	I2-10P6-H	/	13	0.51	40	1.57
	10	0.375	I2-10P10	I2-10P10H	/	15	0.59	100	3.94
	13	0.50	/	I2-10P13-H	/	25	0.98	200	7.87
	19	0.75	/	I2-10P19-H	/	30	1.18	370	14.57
	25	1.00	/	I2-10P25H	/	60	2.36	470	18.50
	29	1.125	/	I2-10P29-H	/	90	3.54	580	22.83
15	6	0.25	/	I2-15P6-H	/	13	0.51	40	1.57
	10	0.375	/	I2-15P10-H	/	20	0.79	120	4.72
	13	0.50	/	I2-15P13-H	/	23	0.91	220	8.66
20	3	0.125	/	I2-20P3-H	/	7	0.28	20	0.79
	6	0.25	/	I2-20P6-H	/	14	0.55	60	2.36
25	3	0.125	/	I2-25P3-H	/	10	0.39	23	0.91
	6	0.250		I2-25P6-H	/	14	0.55	100	3.94

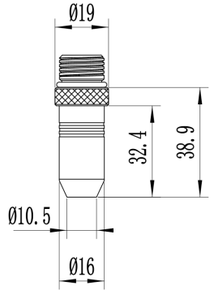
Probe Dimensions

Nominal Element Size	
mm	in
10	0.38
13	0.50



Probe Dimensions

Nominal Element Size	
mm	in
3	0.13
6	0.25



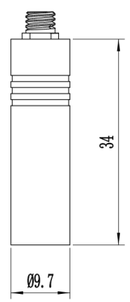
North America Standard - I3

9.7mm (0.375in) outer diameter, suitable for limited detection environment
Top mounting Microdot (L5) non-waterproof connector

Probe Specification

Frequency	Nominal Element Size		Model		Focal Range			
					Min		Max	
MHz	mm	in	PL	PH	mm	in	mm	in
2.25	6	0.25	I3-2.25P6	I3-2.25P6-H	10	0.39	12	0.47
3.5	6	0.25	I3-3.5P6	I3-3.5P6-H	11	0.43	17	0.67
5	6	0.25	I3-5P6	I3-5P6-H	12	0.47	25	0.98
10	6	0.25	/	I3-10P6-H	13	0.51	45	1.77
15	3	0.125	/	I3-15P3-H	7	0.28	15	0.59
	6	0.25	/	I3-15P6-H	13	0.51	40	1.57
20	3	0.125	/	I3-20P3-H	8	0.31	22	0.87
25	3	0.125	/	I3-25P3-H	10	0.39	23	0.91

I3-10P6-H



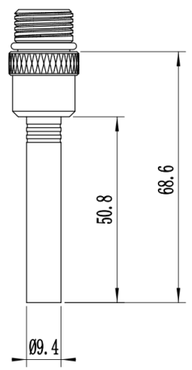
North America Standard - I4

9.4mm (0.37in) outer diameter, 51mm (2in) length, suitable for hard to reach detection areas
Top mounting UHF waterproof connector

I4-10P6-H

Probe Specification

Frequency	Nominal Element Size		Model		Focal Range			
					Min		Max	
MHz	mm	in	PL	PH	mm	in	mm	in
2.25	6	0.25	I4-2.25P6	I4-2.25P6-H	10	0.39	12	0.47
3.5	6	0.25	I4-3.5P6	I4-3.5P6-H	11	0.43	17	0.67
5	6	0.25	I4-5P6	I4-5P6-H	12	0.47	25	0.98
10	6	0.25	/	I4-10P6-H	13	0.51	45	1.77
15	3	0.125	/	I4-15P3-H	7	0.28	15	0.59
	6	0.25	/	I4-15P6-H	13	0.51	40	1.57
20	3	0.125	/	I4-20P3-H	8	0.31	22	0.87
25	3	0.125	/	I4-25P3-H	10	0.39	23	0.91

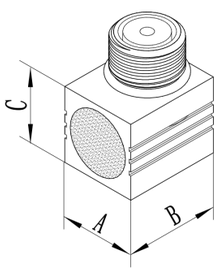


North America Standard - I5

Cuboid profile, sound wave direction and connector into a 90° degree, for specific application environment Top mounting UHF waterproof connector

Probe Specification

Frequency	Nominal Element Size		Model			Focal Range			
						Min		Max	
MHz	mm	in	PL	PH	C	mm	in	mm	in
1	13	0.50	I5-1P13	I5-1P13H	I5-1C13	16	0.63	20	0.79
2.25	6	0.25	I5-2.25P6	I5-2.25P6-H	I5-2.25C6	10	0.39	12	0.47
	10	0.375	I5-2.25P10	I5-2.25P10H	I5-2.25C10	20	0.79	27	1.06
	13	0.50	I5-2.25P13	I5-2.25P13-H	I5-2.25C13	25	0.98	45	1.77
3.5	6	0.25	I5-3.5P16	I5-3.5P6-H	I5-3.5C6	20	0.79	38	1.50
	10	0.375	I5-3.5P10	I5-3.5P10H	I5-3.5C10	20	0.79	38	1.50
	13	0.50	I5-3.5P13	I5-3.5P13-H	I5-3.5C13	22	0.87	65	2.56
5	6	0.25	I5-5P6	I5-5P6-H	I5-5C6	12	0.47	25	0.98
	10	0.375	I5-5P10	I5-5P10H	I5-5C10	20	0.79	55	2.17
	13	0.50	I5-5P13	I5-5P13-H	I5-5C13	22	0.87	100	3.94
10	6	0.25	/	I5-10P6-H	/	13	0.51	45	1.77
	10	0.375	I5-10P10	I5-10P10-H	/	15	0.59	100	3.94
	13	0.50	I5-10P13	I5-10P13-H	/	25	0.98	120	4.72



Probe Dimensions

Nominal Element Size		A		B		C	
mm	in	mm	in	mm	in	mm	in
6	0.25	19	0.75	24	0.94	19	0.75
10	0.375						
13	0.5						

I5-3.5P10

High Frequency Probes

High frequency probe refers to a single element transducer with a frequency higher than 20MHz, which includes HF contact probe, HF immersion probe and HF immersion self – focusing probe.

Features

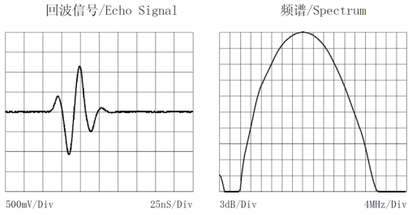
- Both contact probes and immersion probes have integrated delay lines, and self - focusing immersion probes do not have delay lines or lens
- The frequency range is 20 ~ 50MHz
- With broadband and narrow pulse performance, the probe has excellent near surface resolution and vertical and horizontal resolution
- A very small focal spot diameter in the near field or focus point
- Side mounted microdot connector for contact probe by default, and top mounted UHF interface for immersion probe and immersion self- focusing probe by default

Applications

- Minor cracks on the surface
- High resolution detection effect is required, such as the ability to find small cracks or pores
- With the ideal surface condition, temperature and excitation setting, the thinnest thickness that 50MHz probe can reach in steel is 0.05 mm (0.0019 in) in thickness measurement mode
- Scanning acoustic microscope

Direct Contact Type

Frequency	Nominal Element Size		Delay Time	Model
MHz	mm	in	μs	
20	6	0.25	4.25	HFN20V6-4
30	6	0.25	4.25	HFN30V6-4
50	6	0.25	4.25	HFN50V6-4



Liquid Immersion Type

Frequency	Nominal Element Size		Delay Time	Model
MHz	mm	in	μs	
20	6	0.25	4.25	HFN20V6-4
30	6	0.25	4.25	HFN30V6-4
50	6	0.25	4.25	HFN50V6-4

Liquid Immersion Self - Focusing Type("" Custom Length)**

Frequency	Nominal Element Size		Self-Focal Length	Model
MHz	mm	in	mm/in	
20	3	0.125	Custom	HFI20V3BCF**
	6	0.25		HFI20V6BCF**
30	3	0.125		HFI30V3BCF**
	6	0.25		HFI30V6BCF**
50	3	0.125		HFI50V3BCF**

Probes for Custom and Specific Applications

From the beginning of Doppler, it has always been our advantage to provide customers with custom and special probes design,and leading the probe technique frontiers. To understand customers' demands and application requests, our experienced application engineers, probe design experts work together with our customers, using the best way to provide perfect application solutions and product designs, to meet & satisfy the demands of challenging ultrasonic market.

Low frequency nomal probe

The frequency of these probes is usually between 0.05 ~ 0.25MHz. The ultra-low frequency ensures good penetration and signal-to-noise ratio in some attenuation materials such as stone, wood, rubber and concrete.

Hollow focusing probe

Polymer thin film element makes annular self focusing a reality. In the application of imaging system, the probe is used to receive laser beam.

LW + SW dual waveforms probe

The probe has two channels, which excite SW and LW respectively, it is used for the measurement of material parameters, such as elastic modulus, shear modulus, Poisson's ratio and sound velocity.

LW angle probe

The angles of LW angle probe can be 45 ° / 60 ° / 70 °. Compared with the traditional designed probe, this probe has almost no interference of initial blind area in detection.

Dual creeping wave focusing probe

Used for the detection of pillar ceramic insulator materials in power industry.

Water wedge dual element probe

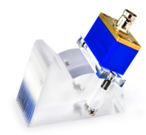
The probe is used to detect PE pipes. The traditional solid wedge is replaced by liquid. Sound wave propagates through the liquid and focuses in the PE pipe for detection.

Low temperature thickness probe

The probe can be used for measuring the thickness of ice layer, and the limit working temperature can reach - 55 ° C (- 67 ° F).

Plate wave probe

Used to generate plate waves in thin plates.



Variable angle probe

Used for measuring the angle and performance before finalizing products, and the angle is adjustable from 0 ~ 90 °.

1T3R steel plate inspection probe

For automatic detection of steel plate in iron and steel industry.

High frequency immersion probe

With a frequency of 20MHz and short pulsing performance, it is used for some special areas that are difficult to deeply penetrate.

Aluminum measurementangle probe

This probe is used for welding inspection of aluminum materials.

I2 immersion probe mirror

This mirror is used to guide the sound beam by 90° refraction.

High temperature resistant dual probe

The probe is used for flaw detection of high-temperature workpiece and can withstand 300 °C (572 °F).

Special immersion probe

15MHz, short pulsing performance, and housing sizes are only ϕ 5 × 5mm. Cooperate with specific probe holder, it can detect the thickness of metal pipe (≤ 0.5mm) during high-speed rotation.

Special probe with guide rail slot

The front end of the probe is equipped with guide rail slot, can be used for axial and circumferential flaw detection of pipes or bars, ensuring the vertical incidence of sound beam, and no need curvatures at the bottom of the probe.

Special probe with handle

Used in limited detection space, such as turbine blade, the front part of the probe can bend 180 °, which improves the contact with the workpiece in a tight space.

I2 immersion probe extension rod

This extension rod can be used for UHF-interfaced immersion probe extensions.

Special dual element straight probe

This probe is dedicated to automatic inspection systems for steel plates.

Wheeled industrial probe

This probe with rolling tires can be used for workpiece inspection such as flat plates,special-shaped workpiece, etc.

T1R2 critical angle probe

This probe is designed for stress detection.

System matching probe

The high-speed rotating probes are applied in the automatic detection system for steel pipe flaw detection and thickness measurement.

Hollow shaft detection probe

This series of probes are used to detect rail and the hollow shaft connecting rod of wheels in the railway industry.

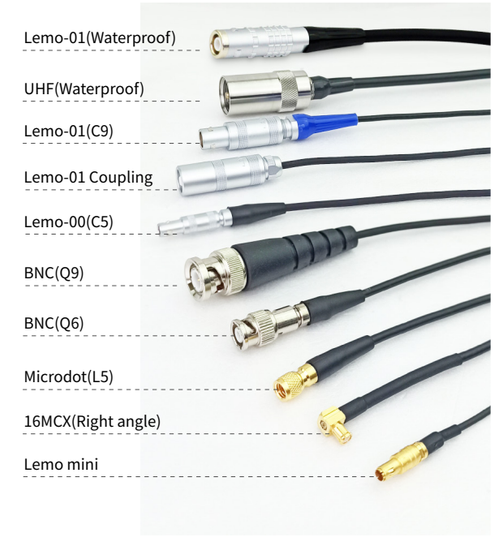
High frequency water filling probe

The working mode of the probe is liquid immersion type. Liquid is injected through the side water pipe, realizing good coupling between the transparent conical tube and workpiece.

Cables

The probe cable is composed of a coaxial cable (wire + insulating layer + shielding network) and two connectors respectively connecting the probe and the instrument, which is used for electrical signal transmission between instrument and probe. Commonly used connectors include BNC (Q9), Microdot (L5), Lemo-00 (C5), Lemo-01 (C9), etc. Coaxial cable include RG174, RG178, RG 316, RG58, etc. Unless specified, the impedance value of all cables is 50 ohms.

"A" and "B" represent the interfaces at the two ends of the cable respectively
Cable length can be customized
Customize special cables available
* Indicates that the cable is the original Lemo connector



Cable No.	Code	Connector Type A —— // —— B		Cable	Length (m /ft)
Single	1GC0017	BNC(Q9)	BNC(Q9)	RG174	1.8/6
	1GC0016	BNC(Q9)	BNC(Q6)	RG174	1.8/6
	1GC0013 1GC0450 *	BNC(Q9)	Lemo-00(C5)	RG174	1.8/6
	1GC0015 1GC0441 *	BNC(Q9)	Lemo-01(C9)	RG174	1.8/6
	1GC0451	BNC(Q9)	Lemo-01(Waterproof)	RG58	1.8/6
	1GC0452	BNC(Q9)	Lemo-01 Coupling	RG174	1.8/6
	1GC0453	BNC(Q9)	Lemo mini	RG178	1.5/4.9
	1GC0018	BNC(Q9)	Microdot(L5)	RG174	1.8/6
	1GC0502	BNC(Q9)	UHF(Waterproof)	RG58	1.8/6
	1GC0455	BNC(Q9)	16MCx(Right angle)	RG174	1.8 /6
	1GC0007 1GC0456 *	Lemo-01(C9)	Lemo-01(C9)	RG174	1.8/6
	1GC0457	Lemo-01(C9)	Lemo-01(Waterproof)	RG58	1.8/6
	1GC0458	Lemo-01(C9)	Lemo-01 Coupling	RG174	1.8/6
	1GC0006 1GC0442 *	Lemo-01(C9)	Lemo-00(C5)	RG174	1.8/6
	1GC0008 1GC0443 *	Lemo-01(C9)	Microdot(L5)	RG174	1.8/6
	1GC0500 1GC0501 *	Lemo-01(C9)	UHF(Waterproof)	RG58	1.8/6
	1GC0460	Lemo-01(C9)	Lemo mini	RG178	1.5/4.9

Cable No.	Code	Connector Type A —— // —— B		Cable	Length (m /ft)
Single	1GC0001 1GC0461*	Lemo-00(C5)	Lemo-00(C5)	RG174	1.8/6
	1GC0002 1GC0319*	Lemo-00(C5)	Microdot(L5)	RG174	1.8/6
Dual	1GC0089	BNC(Q9)x2	BNC(Q9)x2	RG174	1.8/6
	1GC0039	BNC(Q9)x2	BNC(Q6)x2	RG174	1.8/6
	1GC0027 1GC0462*	BNC(Q9)x2	Lemo-00(C5)x2	RG174	1.8/6
	1GC0155 1GC0463*	BNC(Q9)x2	Lemo-01(C9)x2	RG174	1.8/6
	1GC0028	BNC(Q9)x2	Microdot(L5)x2	RG174	1.8/6
	1GC0464	BNC(Q9)x2	Lemo minix2	RG178	1.5/4.9
	1GC0152 1GC0465*	Lemo-01(C9)x2	Lemo-01(C9)x2	RG174	1.8/6
	1GC0024 1GC0466*	Lemo-01(C9)x2	Lem0-00(C5)x2	RG174	1.8/6
	1GC0025 1GC0467*	Lemo-01(C9)x2	Microdot(L5)x2	RG174	1.8/6
	1GC0468	Lemo-01(C9)x2	Lemo minix2	RG178	1.5/4.9
	1GC0122 1GC0469*	Lemo-00(C5)x2	Lemo-00(C5)x2	RG174	1.8/6
	1GC0106 1GC0470*	Lemo-00(C5)x2	Microdot(L5)x2	RG174	1.8/6

Adapters

The adapter can achieve fast switching between different instruments, probes, and connecting wires.

3BQ0021

3BQ0022

3BQ0023

3BQ0024

3BQ0025

3BQ0026

3BQ0027

3BQ0028

3BQ0030

3BQ0031

3BQ0032

3BQ0033

Model	Interface Type
3BQ0021	BNC Male— BNC Male
3BQ0022	BNC Male — BNC Female（right angle）
3BQ0023	BNC Male —SMA Female
3BQ0024	BNC Male —Microdot Female
3BQ0025	BNC Male —Lemo00 Female
3BQ0026	BNC Male —UHF Female
3BQ0027	BNC Female —UHF Male
3BQ0028	BNC Female —BNC Female
3BQ0030	BNC Female —Lemo00 Male
3BQ0031	UHF Male — UHF Female（right angle）
3BQ0032	UHF Female — UHF Female
3BQ0033	BNC Male — 2×BNC Female