

PA Probes

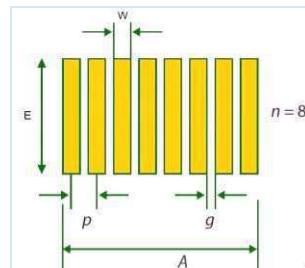
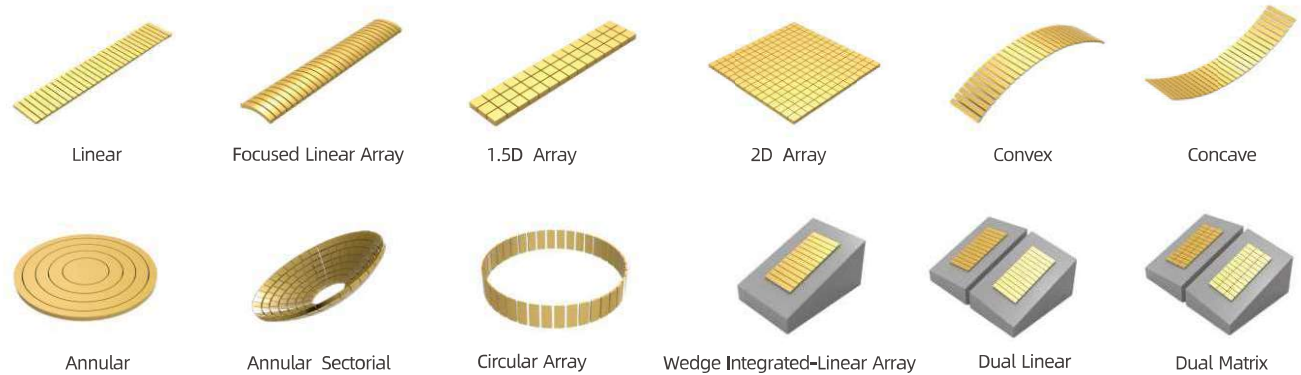


PHASED ARRAY

Probes

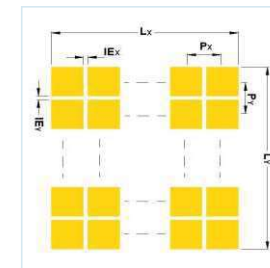
Ordering Instructions

Doppler conventional ultrasonic phased array probes are widely used, with frequency range 0.5MHz to 20MHz, element number 8 to 1024 and internal element pitch 0.2mm to 2.0mm. The array configuration includes Linear(L), Matrix(M), Annular(A), Concave(C), Convex(V), wedge integrated, etc. Other types of probes can be customized according to customers' requirements. Wedge, connectors, adapters and extension cables can also be customized.



1D Probe parameters

A: Active aperture
 E: Elevation
 g: Internal element spacing
 w: Element width
 p: Elementary pitch
 n : Number of elements in the PA probe
 Active aperture: $A = n \times p$
 Precise active aperture: $A = (n - 1) \times p + w$



2D Probe parameters

Px: Primary pitch
 Py: Secondary pitch
 IEx: Primary element spacing
 IEy: Secondary element spacing
 Lx: Primary aperture
 Ly: Secondary aperture

Probe Model Illustration: 10 L 64 - 0.6 x 7 - DP3 - U - 110 - 2.5 - T1

Frequency Array No. Pitch Elevation Probe Cable Cable Cable Connector
type elements type jacket capacitance length type
type elements type type length type

Wedge Model Illustration: SDP3 - N 55 S - IHC - AOD 203.2 (HT)

Wedge Mounting Refraction Wave Auxiliary Curvature Tube High
type method angle type use type diameter temperature

Probe Model Illustration

Frequency	1= 1MHz	2.5= 2.5MHz	5= 5MHz	7.5= 7.5MHz	10= 10MHz	20= 20MHz
Array Type	L(Linear)	V(Convex)	C(Concave)	M(Matrix)	A(Annular)	S(Special)
No. Elements	64= 64 Elements					
Pitch	0.6= 0.6mm					
Elevation	7= 7mm					
Probe Type	DP3= DP3 Series					
Cable Jacket Type	U= PU (Low smoke halogen-free)					
Cable Capacitance	110= 110pf/m					
Cable Length	2.5= 2.5m					
Connector Type	T1: QLC-260P	P1: I-PEX 30056	H1: Hypertronics			
	D1: DL-156P	D2: DL-260P	D3: DL-96P			
	M1: MOLEX 78P	J1: D38999/26FF35SN	C1: CONEC 78PIN			

Wedge Model Illustration

Wedge Type	Casing type matched to the wedge XX
Mounting Method	Angle between primary axis of probe and wedge N= Normal L= Lateral
Refraction Angle	0= 0° 45= 45° 55= 55°
Wave Type	S= Share Wave L= Longitudinal Wave
IHC	I= Irrigation H= Scanner yoke attachment points C= Adjustable carbide wear pins
Curvature Type	AOD= Axial outside diameter (circumferential scan) AID= Axial inner diameter (circumferential scan) COD= Circumferential outside diameter (axial scan) CID= Circumferential inner diameter (axial scan) SOD= Sphere outside diameter SID= Sphere inner diameter
Tube Diameter (HT)	203.2= 203.2mm High temperature wedge

Custom Probe Description

We have a professional R&D technical team and a world-class ultrasonic transducer production line. We can customize transducers according to customer requirements. To develop self-defined transducers for customers, we need to know:

1. Application scenarios, how to use existing probes
2. Probe's frequency, number of array elements, array element spacing, array element length, array configuration, probe type
3. Requirements such as size restrictions
4. Cable length and environmental requirements
5. Connector type and wire sequence requirements

Linear Array Series

Features

- Conventional array probe, standard series for phased array instrument
- Applicable to most conventional scenarios



Specifications and Dimensions

Model	Frequency (MHZ)	Elements	Pitch (mm)	Active Aperture (mm)	Elevation (mm)	Casing Dimensions			Case Type
						Long (L)	Width (W)	Height (H)	
						mm	mm	mm	
5L32-0.3*10	5	32	0.3	9.6	10	13.4	28.5	20	DP1
5L16-0.6*10	5	16	0.6	9.6	10				
5L32-0.6*10	5	32	0.6	19.2	10	23	28.5	23	DP2
5L64-0.6*10	5	64	0.6	38.4	10	42.5	28.5	23	DP3
2.25L32-0.75*24	2.25	32	0.75	24	24	29.5	30.5	25	DP4
5L64-1.0*10	5	64	1	64	10	70	28.5	23	DP5
5L128-1.0*10	5	128	1	128	10	135	29.5	30	DP6
5L32-1.0*10	5	32	1	32	10	36	28.5	23	DP28
10L16-0.31*5	10	16	0.31	4.96	5	8	8	18	DP30
5L32-0.8*10	5	32	0.8	25.6	10	29.5	28.5	23	DP31

Laterally Focused Array

Features

- The element is bent in the length direction to form focused beam on secondary axis
- Can be used for automatic / semi-automatic scanning of pipes with diameter of 20mm-115mm in combination with Doppler scanner



Specifications and Dimensions

Model	Frequency (MHZ)	Elements	Pitch (mm)	Active Aperture (mm)	Elevation (mm)	Casing Dimensions			Case Type
						Long (L) mm	Width (W) mm	Height (H) mm	
7.5S64-0.6*10	7.5	64	0.6	38.4	10	42.5	28.5	24.44	DP7
15S64-0.6*10	15	64	0.6	38.4	10				
7.5S32-0.25*10	7.5	32	0.25	8	10	24.64	22	10	DP8
7.5S16-0.5*10	7.5	16	0.5	8	10				
2.5S16-0.5*10	2.5	16	0.5	8	10	25	22	14	DP9
5S32-0.6*10	5	32	0.6	19.2	10	23	28.5	23	DP29

Matrix Array Series

Features

- Three dimensional imaging
- Sound beam can be deflected in each direction
- Smaller spatial focus, more concentrated energy and better signal-to-noise ratio



Specifications and Dimensions

Model	Frequency (MHZ)	Elements	Pitch Px(mm)	Pitch Py(mm)	Active Aperture Lx(mm)	Active Aperture Ly(mm)	Casing Dimensions			Case Type
							Long (L)	Width (W)	Height (H)	
							mm	mm	mm	
5M8*8-1.0*1.0	5	64	1	1	8	8	21	13	28	DP15

Wheel Series

Features

- With water storage coupling system, good coupling effect
- Very low attenuation tire material
- Optional with angle adjustment block, can obtain incident angle of 0 ° - 20 °
- It can match automatic scanning device, which is suitable for detection of large-area flat or micro curved surface



Specifications and Dimensions

Model	Frequency (MHZ)	Elements	Pitch (mm)	Active Aperture (mm)	Elevation (mm)	Casing Dimensions			Case Type
						Long (L)	Width (W)	Height (H)	
						mm	mm	mm	
5L64-0.8*6.4	5	64	0.8	51.2	6.4	128	25	25	E96
10L64-0.8*6.4	10	64	0.8	51.2	6.4				

Wedge Integrated

Features

- Permanent fixation of elements and wedge
- Built-in wedge or delay line. Smaller size, convenient to use in a narrow space
- With its own wedge, direct angle scanning can be carried out



Specifications and Dimensions

Model	Frequency (MHZ)	Elements	Pitch (mm)	Wedge Angle (°)	Active Aperture (mm)	Elevation (mm)	Casing Dimensions			Case Type
							Long (L) mm	Width (W) mm	Height (H) mm	
5L12-0.5*6	5	12	0.5	36	6	6	24.87	13	10.35	DP16

Concave Series

Features

- Excellent waterproof performance within 1m underwater, acoustic impedance matches well with water
- Especially suitable for automatic on-line detection
- Automatic / semi-automatic detection of pipeline corrosion and thickness measurement with Doppler scanner



Specifications and Dimensions

Model	Frequency (MHZ)	Elements	Pitch (mm)	Active Aperture (mm)	Radius R(mm)	Elevation (mm)	Casing Dimensions			Case Type
							Long (L) mm	Width (W) mm	Height (H) mm	
7.5C32-0.5*10	7.5	32	0.5	16	11	10	28	30	25	DP23
5C128-0.95*12	5	128	0.95	121.6	50	12	120	107	23	DP24

Immersion Series

Features

- Excellent waterproof performance within 1m underwater, acoustic impedance matches well with water
- Easy coupling to multiple surfaces
- Corrosion resistant stainless steel housing
- Combined with automatic system for online detection



Specifications and Dimensions

Model	Frequency (MHZ)	Elements	Pitch (mm)	Active Aperture (mm)	Elevation (mm)	Casing Dimensions			Case Type
						Long (L)	Width (W)	Height (H)	
						mm	mm	mm	
7.5L64-1.0*7	7.5	64	1	64	7	75	19	30	DP18
20L64-0.4*5	20	64	0.4	25.6	5	32	11	20	DP19
5L128-0.8*10	5	128	0.8	102.4	10	114	22	30	DP20
1L64-1.5*22	1	64	1.5	96	22	116	58	30	DP21

DLA/DMA Series

Features

- The probe is designed in a pulse and receive mode, which greatly optimizes the surface resolution of the workpiece to be tested and has a very small surface blind area
- Compared with conventional dual-crystal probe, it has larger coverage, better imaging effect and better signal-to-noise ratio



Specifications and Dimensions

Model	Frequency (MHZ)	Elements	Pitch Px(mm)	Pitch Py(mm)	Active Aperture Lx(mm)	Active Aperture Ly(mm)	Casing Dimensions			Case Type
							Long (L)	Width (W)	Height (H)	
							mm	mm	mm	
2.25DM7*4-2.71*3.0	2.25	56	2.71	3	18.97	12	33.8	16	20	DP10
4DM16*2-1.0*3.0	4	64	1	3	16	6	28.5	10.9	20	DP11
5DL16-0.75*5	5	32	0.75	/	12	5	24	23.6	20	DP12
2.25DL32-0.6*12	2.25	64	0.6	/	19.2	12	33.8	17	25	DP13
4DL32-1.0*10	4	64	1	/	32	10	46	16	20	DP14

Flexible Array Series

Features

- The primary direction of the probe can be bent with surface shape of the workpiece, the curvature is variable with a minimum bending radius 30mm
- With a minimum thickness of 3mm, the probe can enter the narrow space for detection
- Suitable for corrosion / thickness measurement of pipes and bars combined with Doppler scanners



DP26



Specifications and Dimensions

Model	Frequency (MHZ)	Elements	Pitch (mm)	Active Aperture (mm)	Elevation (mm)	Casing Dimensions			Case Type
						Long (L)	Width (W)	Height (H)	
						mm	mm	mm	
7.5S64-0.5*10	7.5	64	0.5	32	10	80	19	4	DP26
7.5S64-1.0*10	7.5	64	1	64	10	150	29	4	DP27

High Temperature Series

Features

- The overall temperature resistance of the probe, combined with the high-temperature resistant wedge, it can continuously detect the workpiece with the surface temperature of 150 °C
- It can be matched with 0° and angled high temperature wedge



DP5

DP28

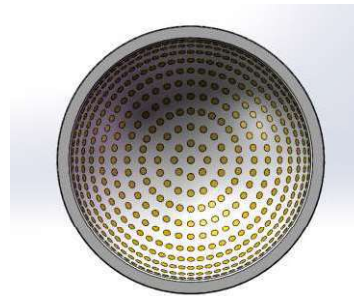
Specifications and Dimensions

Model	Frequency (MHZ)	Elements	Pitch (mm)	Active Aperture (mm)	Elevation (mm)	Casing Dimensions			Case Type
						Long (L)	Width (W)	Height (H)	
						mm	mm	mm	
5L64-1.0*10	5	64	1	64	10	70	28.5	23	DP5
5L32-1.0*10	5	32	1	32	10	36	28.5	23	DP28

Photoacoustic Probe Series

Features

- For receiving and organizing ultrasonic signals in photoacoustic / thermoacoustic imaging
- Optimize receiving bandwidth
- Optimize electromagnetic shielding



Power Probe Series

Features for Single Element

- Frequency: 0.5-10MHz
- Aperture: 1-120mm
- Focusing number: $F > 0.5$
- Sound intensity in focal area $> 5000W / cm^2$
- High efficiency, low heating, allowing continuous wave excitation
- Customized mechanical structure, lead and MRI compatible



Power Ultrasonic Laterally Focused Probe

Features for Array Probe

- Frequency: 0.5-3MHz
- The array configuration includes linear array, circular array, matrix and multi-channel array
- Array element arrangement includes periodic, aperiodic, random array and customized arrangement

Air-coupling Probe

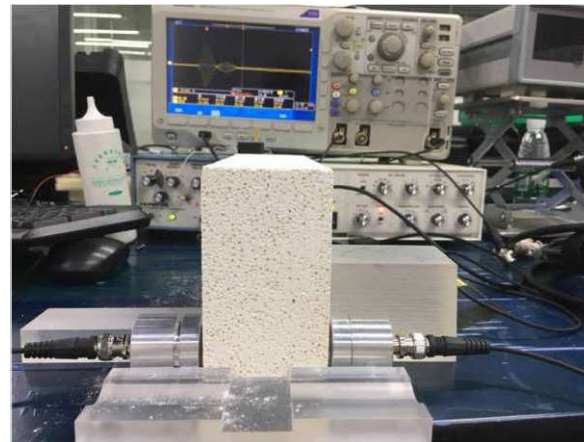
Features

- Non-contact air coupled ultrasound (ACU)
- High sensitivity and high signal to noise ratio
- Optional 60dB built-in amplifier, the amplifier is USB interface
- Customizable series for focusing and working in water mist environment



Specifications and Dimensions

Models	Frequency (KHZ)	Active Aperture (mm)	Focus	Standard Interface	Operating Mode
AB0.25C24NF-T	250	24	NO	BNC	Emission
AB0.25C24NF-R	250	24	NO		Receive
AB0.42C24NF-T	420	24	NO		Emission
AB0.42C24NF-R	420	24	NO		Receive
AB1C13NF-T	1000	13	NO		Emission
AB1C13NF-R	1000	13	NO		Receive



Experiment of 250kHz Air-Coupled Probe
Penetrating 64mm Refractory Brick

Other Special Probes

According to the needs of on-site detection, we can develop special customized probes for customers. Some customized probes are listed below. Doppler is your best choice for solutions for difficult scenes.



Annular taper probe



Conical probe



Self-focusing concave array probe



Inner-through annular convex array probe



Inner-through annular self-focusing convex array probe



Annular convex array probe



Circular sector bolt probe



Multi connector probe



Near wall probe



Profiled surface probe



Replaceable soft protective film probe



Multi circular sector probe



Annular hollow focusing probe

Options

- The corrugated sleeve can protect the cable from corrosion and external impact
- Nylon mesh sleeve can increase protection while maintaining the flexibility of cable
- High sound transmission soft protective film can be directly pasted on the surface of phased array probe, so that the 0° wedge is not needed for detection, the interference caused by multiple echoes on the lower surface of the wedge is effectively eliminated, and the detection cost is effectively reduced



Instructions for Phased Array Probe

- A layer of blue protective film is pasted on the probe surface to avoid scratches during transportation. Please tear off the protective film before use, otherwise it will affect the performance of the probe
- Do not forcibly plug and unplug the connector to avoid pin damage
- Use the probe carefully to avoid impact by external force
- When the probe is not in use, it shall be sealed and stored, such as in the original suitcase, so as not to be affected by environment
- The application scenarios of different types of probes are determined according to the specific application standards. The solutions of different scenarios are welcome to inquire. Website: www.cndoppler.com, Email: cndoppler@cndoppler.com

Warranty Description

The warranty period of Doppler phased array probe is generally one year, and the warranty scope does not include damage or wear caused by misuse or accident, such as:

- Incorrect assembly method
- Incorrect use, including but not limited to the impact of the probe surface, unauthorized disassembly, etc.
- For use in an environment outside the allowable range, the storage temperature range of the probe is generally - 30 ° C to 50 ° C, and the service temperature range is - 20 ° C to 50 ° C
- The excitation voltage is too large. Generally, the maximum repetition frequency is 10 KHz, and the continuous operation is no more than 5 KHz 100V (the details shall be subject to the probe test report)
- Use of substandard couplant

General Index of Phased Array Probe

Doppler has strict quality standards for products, and the general indicators of products are as follows (according to JB / T 11731-2013 test standard):

Sensitivity conformity	±2dB
Sensitivity difference between batches	±2dB
Service temperature	-20°C to 50°C
Storage temperature	-30°C to 50°C

PHASED ARRAY

Probes Accessories

Wedge

Features

- Generally, it is used for SW or LW detection with an angle between 30 ° and 70 °, providing refraction angles in standard steel such as 0 °, 45 °, 55 ° and 60 °
- Composite anti-wear screws can be used on easily scratched surfaces
- High temperature wedge is used in high temperature environment and can withstand high temperature of 260 °C
- Wedge shape and parameters can be customized according to customer requirements



Anti Wear Wedge



Water Wedge



Dual Array Wedge



Angle Wedge



0° Wedge



High Temperature Wedge

Specifications and Dimensions

Wedge Type	Wedge Model	Probe Type	Refraction Angle	Wedge Dimensions			Wedge Angle
				Long(L)	Width(w)	Height(H)	
				mm	mm	mm	
0°Wedge	SDP3-N0L-H	DP3	0°LW	48	30	20	0°
Angle Wedge	SDP2-N55S-IH	DP2	55°SW	41	30	26.64	36°
Anti Wear Wedge	SDP2-N55S-IHC-AOD326	DP2	55°SW	41	30	27.29	36°(φ326mm)
Dual array Wedge	SDP11-N55L-IHC(TR, roofangle3.7°, F=15)	DP11	55°LW	30	40	14.96	18.7°
High temperature Wedge	SDP28-N55S-IH(HT)	DP28	55°SW	64	44	34	39.5°
Water Wedge	SDP8-N65L-IH-AOD270	DP8	65°LW	23.96	22	13.12	36°(φ270mm)

Connectors

Doppler provides compatible connectors for all kinds of Phased Array Probes in the market, such as T1, P1, J1, H1, D1, D2, D3, M1, etc.



T1: QLC-260P



P1: I-PEX 30056



J1: D38999/26FF35SN



D1: DL-156P



D2: DL-260P



H1: Hypertronics

Adapters & Extension Cables

The Doppler phased array ultrasound probe connector adapter box can be arbitrarily switched between T1, P1, J1, H1, D1, D2, D3, M1 and other interfaces, and can be customized according to customer requirements.



T1(Male)-J1(Female)
J1(Probe)-T1(Instrument)



H1(Male)-P1(Female)
P1(Probe)-H1(Instrument)



T1(Male)-H1(Female)
H1(Probe)-T1(Instrument)



T1(Male)-P1(Female)
P1(Probe)-T1(Instrument)



J1(Male)-P1(Female)
P1(Probe)-J1(Instrument)



T1 extension cable
T1(Probe)-T1(Instrument)

UT Probes



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 manual collects most standardized transducer products, you can find almost all models you need. For customized products or unsolving difficult subjects, our application and transducer specialists 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

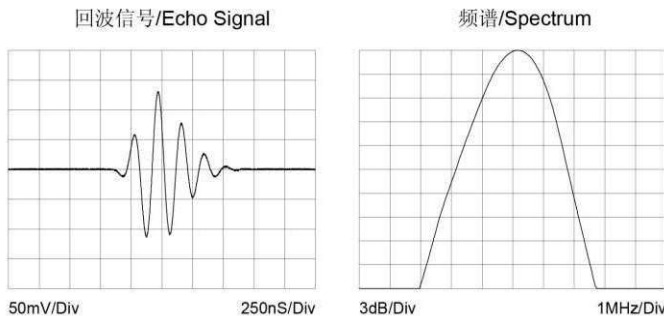
PL-Universal Series

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

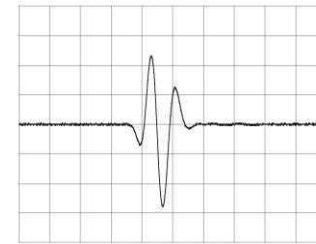
Applications

- Ideal for precise thickness measurement, near surface detection environments

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%

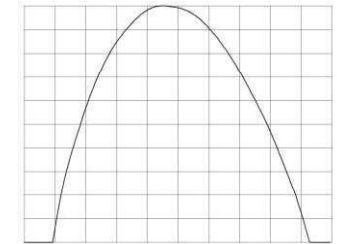
回波信号/Echo Signal



200mV/Div

250nS/Div

频谱/Spectrum



3dB/Div

1MHz/Div

C-Composite Series

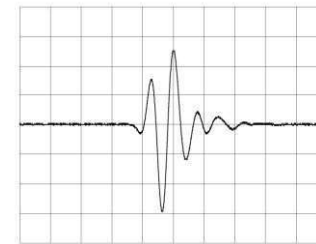
Applications

- 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 70~110%
- Low acoustic impedance composites enable probes better matching with low acoustic impedance medium such as water, plastics, etc.

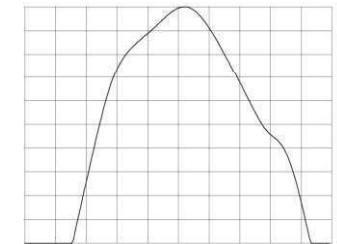
回波信号/Echo Signal



100mV/Div

250nS/Div

频谱/Spectrum



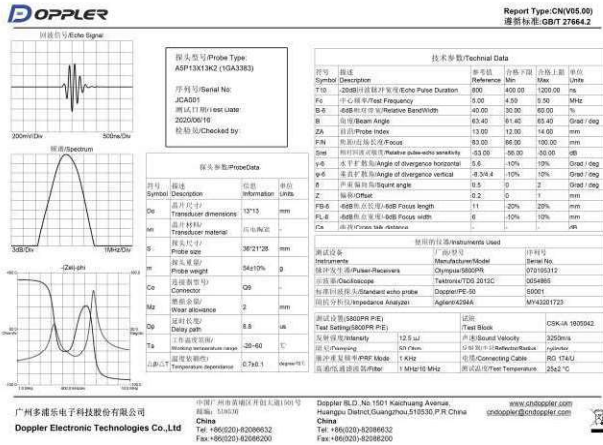
3dB/Div

1MHz/Div

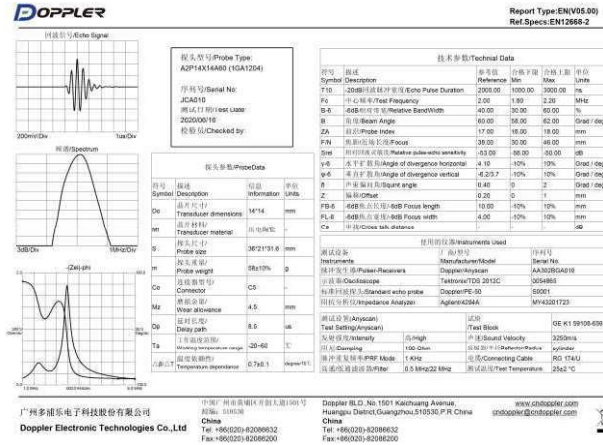
Probe Test Report

The probe produced by Doppler are passed through a rigorous testing and certification, with reliable detection equipment and stable testing environment. Complies with domestic and international relevant detection standards, with a true reflection of performance of probes, and ensure consistency of all same probe models. All data characteristics are reappearable, and saved as archive to make sure data can obtain again in future.

Data Type	Description
CN	Complied to Chinese GB/T 27664.2 testing standards
EN	Complied to European EN 12668-2 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

探头描述/Transducer Description

探头型号/Probe Type: I2-5P13
序列号/Serial No: JCA061
频率/Frequency: 5 MHz
晶片尺寸/Element Size: Φ 13
名称/Designation: Immersion Transducers

测试设备/Test Instrumentation

脉冲发生器/Pulser/Receivers: 5800PR PIE
示波器/Oscilloscope: Tektronix TDS2012B
试块/Test Block-PLEXIGLASS10mm 电线的/Cable: RG174
软件版本/Software: ProbatoolV5.00

测试条件/Test Conditions

能量/Intensity: 12.5 μ J
PRF模式/PRF Mode: 1 KHz
阻抗/Damping: 50 Ohm
滤波器/Filter: 1 KHz/10 MHz

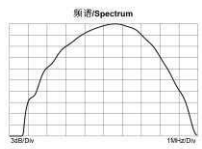
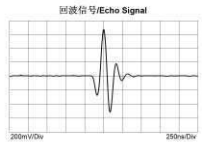
测试数据/Test Data

相对灵敏度/Relative Sensitivity: -40.73 dB
脉冲宽度/Pulse Duration: @-6dB 140.00 nS
@-12dB 283.00 nS
@-20dB 325.00 nS
@-30dB 481.00 nS
中心频率/Center Frequency: 5.28 MHz
峰值频率/Peak Frequency: 5.68 MHz
相对带宽/Relative Bandwidth@-6dB: 86.95 %

日期/Date: 2020/06/16 检验员/Inspector:

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Tel: +86(020)42086632 Fax: +86(020)42086200



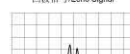
AT

探头型号/Probe Type: 1SPHY-H(10N200)

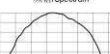
序列号/Serial No: JCA040

测试日期/Test Date: 2020-06-16 检查员/Checked by:

回波信号/Echo Signal



频谱/Spectrum



技术参数/Technical Data					
符号/Symbol	描述/Description	合同下单/Min	实际值/Actual	合同上限/Max	单位/Units
TR1	2000Hz 定制脉冲宽度/Echo Pulse Duration	87.00	99.80	159.00	ns
Fc	中心频率/Center Frequency	13.00	14.37	16.00	MHz
BW	-6dB相对带宽/Relative Bandwidth	80.00	119.33	159.00	%
W	晶片宽度/Element Width	0.00	0.00	0.00	mm
ZL	晶片厚度/Element Thickness	0.00	0.00	0.00	mm
FN	晶片直径/Focal Length	0.00	0.00	0.00	mm
S	灵敏度/Sensitivity	-49.90	-47.92	-43.00	dB
TRPW	-6dB脉冲宽度/Pulse Width	0.00	0.00	0.00	mm

测试设备/Instrumentation			
脉冲发生器/Pulser/Receivers	奥林巴斯/Olympus	型号/Model	序列号/Serial No
示波器/Oscilloscope	泰克/Tektronix	TDS2012B	0564895
校准用标准块/Calibrated echo probe	Doppler	DS-60	58001
阻抗分析仪/Impedance Analyzer	Agilent	4294A	MF43201723

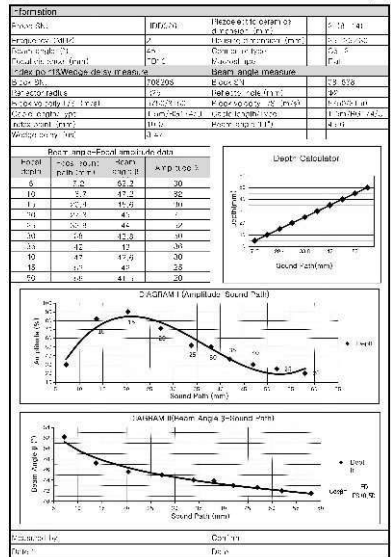
仪器设置/Instrumentation Setting	
发射器/Intensity	12.5 μ J
阻尼/Damping	50 Ohm
脉冲宽度/Pulse Mode	1 KHz
高通滤波器/High Pass Filter	OUT/FULL BW

试块/Test Block	
材料/Material	0
厚度/Thickness	10
连接电缆/Connecting Cable	RG
测试温度/Test Temperature	25 \pm 1°C

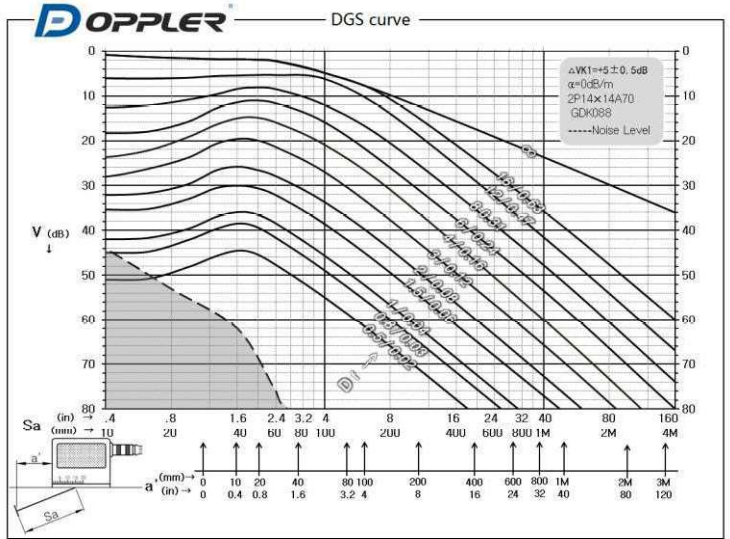
广州多浦乐电子科技有限公司
Doppler Electronic Technologies Co., Ltd
中国广东省广州市黄埔区开创大道1501号
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CS

DOPPLER TRL Angle Beam Probe Data Sheet



LFA



DGS

Contact Probe - Normal Beam Probe

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

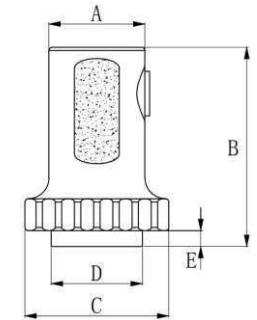
- Simple structure of metals
- Large plates, bars, forgings, metals and non-metals
- Small tanks, pipes, castings, bars
- Sandwich and laminated structures
- Materials velocity and characteristics
- Coarse grain or high attenuation materials



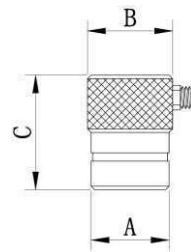
European Standard - N2

- Microdot(L5), Lemo 00(C5), and Lemo 01(C9) side mounting connectors, for above $\phi 5$ can be customized as top mounting connector

Dimensions												
Specification		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-1 / Side Mounting



Housing Dimensions
(10/24mm Crystal Diameter)



Housing Dimensions
(5mm Crystal Diameter)

Dimensions										
Specification		A		B		C		Connector Direction		
mm	in	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

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

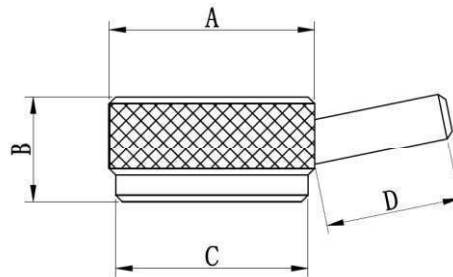


European Standard - N3

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

Dimensions									
Specification		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

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

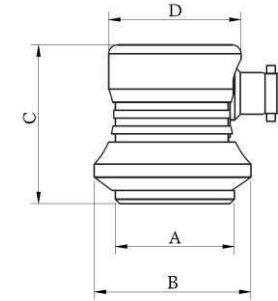


North America Standard - N4

- 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

Wrong typing, it should be

Dimensions									
Specification		A		B		C		D	
mm	in	mm	in	mm	in	mm	in	mm	in
13	0.50	19	0.75	28.5	1.12	36	1.42	22	0.87
19	0.75	27	1.06	37	1.44	36	1.42	30	1.18
25	1.00	31	1.22	41	1.59	36	1.42	34	1.34
29	1.125	37	1.46	47	1.83	36	1.42	40	1.57



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

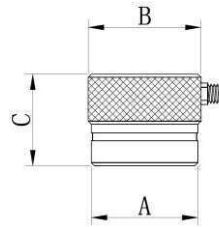


North America Standard - N5

- Low height probes, suitable for narrow and limited detection environments
- ~~Low (C5)~~ side mounting connector, with handle bar
- Can be customized as top mounting connector

Frequency	Specification				
	Nominal Element Size		Model		
	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	/

Specification	Dimensions						
	A		B		C		
	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	14	0.55	15	0.59	14	0.55
13	0.50	17	0.66	18	0.71	16	0.64
19	0.75	24	0.95	25	0.97	16	0.64
25	1.00	29	1.15	30	1.18	16	0.64



Contact Probe - Normal Shear Wave Probe

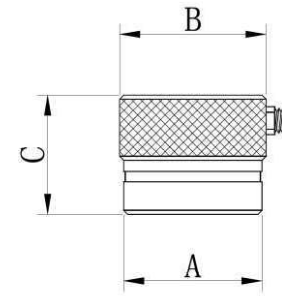
The normal shear wave probe is a single-element transducer that directly contacts the workpiece and generates transverse wave by vertical incidence.

Applications

- Measurement of shear wave sound velocity of workpiece
- Calculation of Young's modulus of elasticity and shear modulus
- Analysis of workpiece grain structure

Features

- Incident vertically and generate shear waves inside the workpiece
- 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*
- The polarization direction of shear wave is consistent with the interface direction
- Probe interface is side mounted Microdot by default, top mounting can be customized



Frequency	Specification		
	Nominal Element Size		Model
	mm	in	
0.5	25	1.00	SN0.5P25
	13	0.50	SN1P13
1	19	0.75	SN1P20
	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
4	13	0.50	SN2.5P14
	10	0.375	SN4P10
5	3	0.125	SN5P3
	6	0.25	SN5P6
	10	0.38	SN5P10
	13	0.50	SN5P13

Specification	Dimensions								
	A		B		C				
	mm	in	mm	in	mm	in	mm	in	
3	0.125	6	0.25	6	0.25	13	0.51		
6	0.25	9	0.35	10.5	0.41	13	0.51		
10	0.375	14	0.55	15	0.59	14	0.55		
13	0.50	17	0.66	18	0.71	16	0.64		
19	0.75	24	0.95	25	0.97	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.

Contact Probe - Soft Protective Membrane Probe

- 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

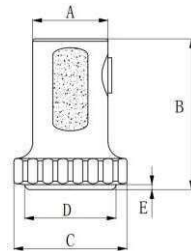
Applications

- Simple structure of metals
- Large plates, bars, forgings, metals and non-metals
- Small tanks, pipes, castings, bars
- Sandwich and laminated structures

European Standard PF1

Specification		Dimensions										Connector Direction
mm	in	A		B		C		D		E		
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
24	0.94	30.0	1.18	59.5	2.34	45.0	1.77	29.0	1.14	1.5	0.06	Lemo-1/Side Mounting

Specification			
Frequency	Nominal Element Size		Model
MHz	mm	in	PL
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	0.94	PF1-5P24



Membrane Specification			
Type	Model	Specification	
		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

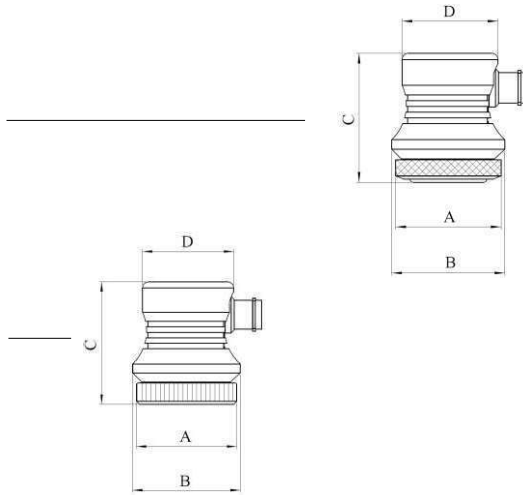
- The probe interface is side mounted BNC by default, and the top mounted BNC can be customized.

Frequency	Nominal Element Size		Models	
	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



Dimensions(Soft Film)									
Specification		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)									
Specification		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	Specification		
		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	Specification		
		mm	in	
Wear-Resistant Cover	2ZT0391	13	0.500	
	2ZT0392	19	0.750	
	2ZT0393	25	1.00	



Contact Probe - Dual Element

Independent transmit and receive crystals, and creates a 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



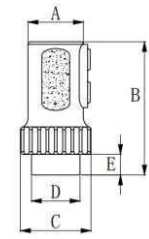
European Standard

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

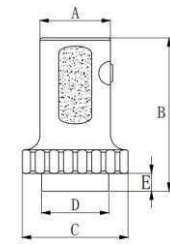
Specification						
Frequency	Nominal Element Size		Focal Length		Model	
	mm	in	mm	in	PL	C
1	Φ21/2	Φ0.83	20	0.79	DA1P21FS20	DA1C21FS20
2	Φ8/2	Φ0.314	6	0.24	DA2P8FS6	DA2C8FS6
2	Φ11/2	Φ0.43	8	0.31	DA2P11FS8	DA2C11FS8
2	3.5 x 10	0.14 x 0.39	10	0.39	DA2P3.5 x 10FS10	DA2C3.5 x 10FS10
2	3.5 x 10	0.14 x 0.39	18	0.71	DA2P3.5 x 10FS18	DA2C3.5 x 10FS18
2	7 x 18	0.28 x 0.71	15	0.59	DA2P7 x 18FS15	DA2C7 x 18FS15
2	7 x 18	0.28 x 0.71	30	1.18	DA2P7 x 18FS30	DA2C7 x 18FS30
4	Φ8/2	Φ0.314	6	0.24	DA4P8FS6	DA4C8FS6
4	3.5 x 10	0.14 x 0.39	10	0.39	DA4P3.5 x 10FS10	DA4C3.5 x 10FS10
4	3.5 x 10	0.14 x 0.39	18	0.71	DA4P3.5 x 10FS18	DA4C3.5 x 10FS18
4	6 x 20	0.24 x 0.79	12	0.47	DA4P6 x 20FS12	DA4C6 x 20FS12
4	6 x 20	0.24 x 0.79	25	0.98	DA4P6 x 20FS25	DA4C6 x 20FS25
5	Φ8/2	Φ0.314	3	0.12	DA5P8FS3	DA5C8FS3
5	Φ9/2	Φ0.35	10	0.39	DA5P9FS10	DA5C9FS10
5	Φ9/2	Φ0.35	25	0.98	DA5P9FS25	DA5C9FS25
10	Φ5/2	Φ0.2	3	0.12	DA10P5FS3	DA10C5FS3



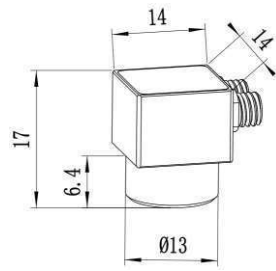
Dimensions												Connector Direction
Specification		A		B		C		D		E		
mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	
Φ9/2	Φ0.35	20.0	0.79	49.0	1.93	24.5	0.96	12.0	0.47	8.0	0.31	Lemo-00/ Side Mounting
Φ11/2	Φ0.43	20.0	0.79	49.0	1.93	24.5	0.96	16.5	0.65	8.0	0.31	
3.5 x 10	0.14 x 0.39											



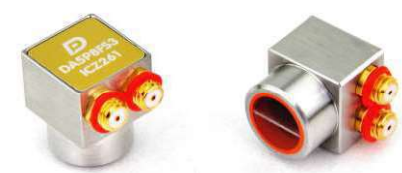
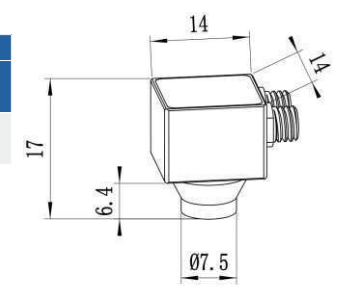
Dimensions												Connector Direction
Specification		A		B		C		D		E		
mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	
Φ21/2	Φ0.83											Lemo-00/ Side Mounting
6 x 20	0.24 x 0.79	30.0	1.18	65.3	2.57	44.5	1.75	28.5	1.12	7.5	0.30	
7 x 18	0.28 x 0.71											



Dimensions		
Specification		Connector Direction
mm	in	
Φ8/2	0.314	Microdot/ Side Mounting



Dimensions		
Specification		Connector Direction
mm	in	
Φ5/2	0.20	Microdot/ Side Mounting



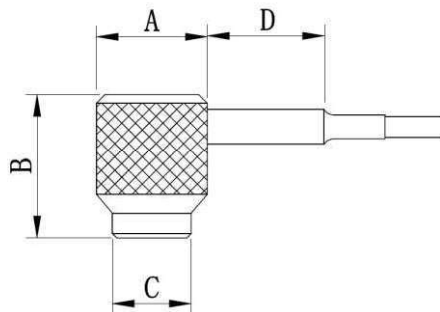
DA5P8FS3

North America Standard

- 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)

Frequency	Nominal Element Size		Specification			
			Model			
	MHz	mm	in	Cable End with BNC		Cable End with Lemo 01
			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

Specification		Dimensions							
mm	in	A		B		C		D	
		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



Contact Probe - Angle Beam

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(Circumferential Outside Diameter)
- Three types of performance can meet the most of detection needs:
“PL ” Universal Series, “PH ” Short Pulsing Series, “C ” Composite Series

Applications

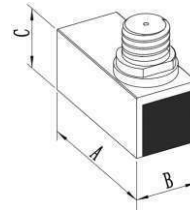
- For welding inspection
- Pipes, pressure vessels, storage tanks
- Turbine blades
- Wheel axles, castings, forgings
- Bond testing
- Railway wheels and tracks



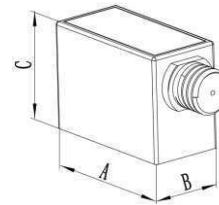
European Standard

- 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

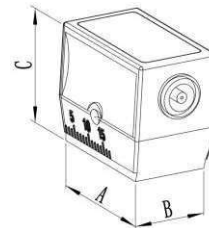
Dimensions								
Specification		A		B		C		Connector Direction
mm	in	mm	in	mm	in	mm	in	
3 x 4	0.12 x 0.16	16.0	0.60	7.0	0.30	7.0	0.30	Microdot/Top Mounting



Dimensions								
Specification		A		B		C		Connector Direction
mm	in	mm	in	mm	in	mm	in	
5x 5	0.2 x 0.2	16.0	0.63	8.0	0.31	11.5	0.45	Microdot/Side Mounting



Dimensions								
Specification		A		B		C		Connector Direction
mm	in	mm	in	mm	in	mm	in	
8x9	0.31 x 0.35	27.0	1.10	16.6	0.65	22.0	0.86	Lemo-00/Side Mounting
14x14	0.55 x 0.55	36.0	1.40	21.0	0.80	30.5	1.20	Lemo-1/Side Mounting
20x22	0.79 x 0.87	54.0	2.10	32.0	1.30	44.0	1.70	



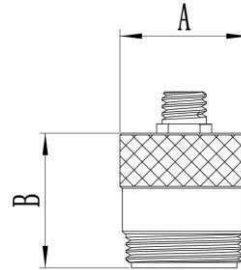
Frequency	Dimensions						
	a x b		β (°)	Near Field		Model	
	mm	in		mm	in	PL	C
1	20 x 22	0.79 x 0.87	45	45	1.8	A1P20 x 22A45	A1C20 x 22A45
1	20 x 22	0.79 x 0.87	60	45	1.8	A1P20 x 22A60	A1C20 x 22A60
1	20 x 22	0.79 x 0.87	70	45	1.8	A1P20 x 22A70	A1C20 x 22A70
2	8 x 9	0.31 x 0.35	38	15	0.6	A2P8 x 9A38	A2C8 x 9A38
2	8 x 9	0.31 x 0.35	45	15	0.6	A2P8 x 9A45	A2C8 x 9A45
2	8 x 9	0.31 x 0.35	60	15	0.6	A2P8 x 9A60	A2C8 x 9A60
2	8 x 9	0.31 x 0.35	70	15	0.6	A2P8 x 9A70	A2C8 x 9A70
2	8 x 9	0.31 x 0.35	90	15	0.6	A2P8 x 9A90	A2C8 x 9A90
2	14 x 14	0.55 x 0.55	45	39	1.5	A2P14 x 14A45	A2C14 x 14A45
2	14 x 14	0.55 x 0.55	60	39	1.5	A2P14 x 14A60	A2C14 x 14A60
2	14 x 14	0.55 x 0.55	70	39	1.5	A2P14 x 14A70	A2C14 x 14A70
2	20 x 22	0.79 x 0.87	38	92	3.6	A2P20 x 22A38	A2C20 x 22A38
2	20 x 22	0.79 x 0.87	45	92	3.6	A2P20 x 22A45	A2C20 x 22A45
2	20 x 22	0.79 x 0.87	60	92	3.6	A2P20 x 22A60	A2C20 x 22A60
2	20 x 22	0.79 x 0.87	70	92	3.6	A2P20 x 22A70	A2C20 x 22A70
4	8 x 9	0.31 x 0.35	38	30	1.2	A4P8 x 9A38	A4C8 x 9A38
4	8 x 9	0.31 x 0.35	45	30	1.2	A4P8 x 9A45	A4C8 x 9A45
4	8 x 9	0.31 x 0.35	60	30	1.2	A4P8 x 9A60	A4C8 x 9A60
4	8 x 9	0.31 x 0.35	70	30	1.2	A4P8 x 9A70	A4C8 x 9A70
4	8 x 9	0.31 x 0.35	90	30	1.2	A4P8 x 9A90	A4C8 x 9A90
4	14 x 14	0.55 x 0.55	45	78	3.0	A4P14 x 14A45	A4C14 x 14A45
4	14 x 14	0.55 x 0.55	60	78	3.0	A4P14 x 14A60	A4C14 x 14A60
4	14 x 14	0.55 x 0.55	70	78	3.0	A4P14 x 14A70	A4C14 x 14A70
4	20 x 22	0.79 x 0.87	38	184	7.2	A4P20 x 22A38	/
4	20 x 22	0.79 x 0.87	45	184	7.2	A4P20 x 22A45	/
4	20 x 22	0.79 x 0.87	60	184	7.2	A4P20 x 22A60	/
4	20 x 22	0.79 x 0.87	70	184	7.2	A4P20 x 22A70	/
5	5 x 5	0.2 x 0.2	45	13	0.5	A5P5*5A45	A5C5*5A45
5	5 x 5	0.2 x 0.2	60	13	0.5	A5P5*5A60	A5C5*5A60
5	5 x 5	0.2 x 0.2	70	13	0.5	A5P5*5A70	A5C5*5A70
5	14 x 14	0.55 x 0.55	45	100	3.9	A5P14 x 14A45	/
5	14 x 14	0.55 x 0.55	60	100	3.9	A5P14 x 14A60	/
5	14 x 14	0.55 x 0.55	70	100	3.9	A5P14 x 14A70	/
6	3 x 4	0.12 x 0.16	45	7	0.27	A6P3*4A45	A6C3*4A45
6	3 x 4	0.12 x 0.16	60	7	0.27	A6P3*4A60	A6C3*4A60
6	3 x 4	0.12 x 0.16	70	7	0.27	A6P3*4A70	A6C3*4A70



North America Standard

- Replaceable delay lines
- Delay lines are divided into two types: standard cutting edge and short cutting edge
- Microdot (L5) top mounting connector

Dimensions						
Specification		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	



Probe Specification							
Frequency	Nominal Element Size		Model			Threads	
	mm	in	PL	PH	C		
1	13	0.50	A3-1P13	A3-1P13-H	A3-1C13	5/8-24	
	6	0.25	A3-2.25P6	A3-2.25P6-H	A3-2.25C6	3/8-32	
2.25	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	

A3-2.25P13



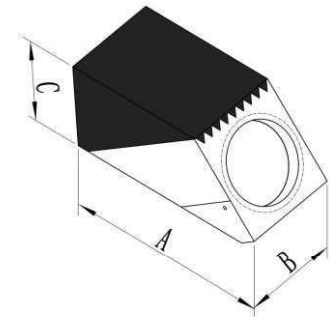
A3-5P10

A3-2.25P6

6mm(0.25in) Standard Delay Line Dimensions												
Model	β (°)	A		B		C		Cutting edge		Threads	Specification	
	Steel	mm	in	mm	in	mm	in	mm	in	in	mm	in
$\Phi 6-45^\circ$	45	19.1	0.75	11.4	0.45	9.4	0.37	9	0.35	3/8-32	6	0.25
$\Phi 6-60^\circ$	60	21.3	0.84	11.4	0.45	11.2	0.44	12	0.47	3/8-32		
$\Phi 6-70^\circ$	70	25.4	1.00	11.4	0.45	12.7	0.50	15	0.59	3/8-32		
$\Phi 6-90^\circ$	90	24.1	0.95	11.4	0.45	12.7	0.50	-	-	3/8-32		

10mm(0.375in) Standard Delay Line Dimensions												
Model	β (°)	A		B		C		Cutting edge		Threads	Specification	
	Steel	mm	in	mm	in	mm	in	mm	in	in	mm	in
$\Phi 10-45^\circ$	45	22.6	0.89	14	0.55	11.9	0.47	11	0.43	1/2-28	10	0.375
$\Phi 10-60^\circ$	60	26.4	1.04	14	0.55	14	0.55	14	0.55	1/2-28		
$\Phi 10-70^\circ$	70	30.2	1.19	14	0.55	14.7	0.58	17	0.67	1/2-28		
$\Phi 10-90^\circ$	90	29.5	1.15	14	0.55	14.7	0.61	-	-	1/2-28		

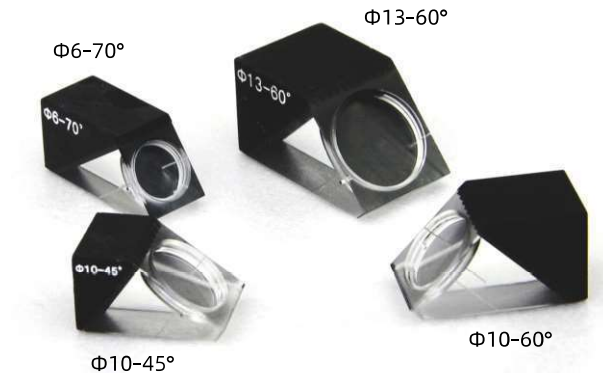
13mm(0.5in) Standard Delay Line Dimensions												
Model	β (°)	A		B		C		Cutting edge		Threads	Specification	
	Steel	mm	in	mm	in	mm	in	mm	in	in	mm	in
$\Phi 13-45^\circ$	45	26.7	1.05	17.8	0.70	14	0.55	13	0.51	5/8-24	13	0.5
$\Phi 13-60^\circ$	60	31.5	1.24	17.8	0.70	16.3	0.64	16	0.63	5/8-24		
$\Phi 13-70^\circ$	70	35.8	1.41	17.8	0.70	17.3	0.68	20	0.79	5/8-24		
$\Phi 13-90^\circ$	90	35.5	1.39	17.8	0.70	18.5	0.73	-	-	5/8-24		



6mm(0.25in) Short Delay Line Dimensions												
Model	β (°)	A		B		C		Cutting edge		Threads	Specification	
	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	6	0.24	3/8-32	6	0.25
Φ6-60°	60	21.3	0.84	11.4	0.45	11.2	0.44	6.5	0.26	3/8-32		
Φ6-70°	70	25.4	1.00	11.4	0.45	12.7	0.50	7.5	0.30	3/8-32		
Φ6-90°	90	24.1	0.95	11.4	0.45	12.7	0.50	-	-	3/8-32		

10mm(0.375in) Short Delay Line Dimensions												
Model	β (°)	A		B		C		Cutting edge		Threads	Specification	
	Steel	mm	in	mm	in	mm	in	mm	in	in	mm	in
Φ10-45°	45	22.6	0.89	14	0.55	11.9	0.47	8	0.31	1/2-28	10	0.375
Φ10-60°	60	26.4	1.04	14	0.55	14	0.55	9.5	0.37	1/2-28		
Φ10-70°	70	30.2	1.19	14	0.55	14.7	0.58	10.5	0.41	1/2-28		
Φ10-90°	90	29.5	1.15	14	0.55	14.7	0.61	-	-	1/2-28		

13mm(0.5in) Short Delay Line Dimensions												
Model	β (°)	A		B		C		Cutting edge		Threads	Specification	
	Steel	mm	in	mm	in	mm	in	mm	in	in	mm	in
Φ13-45°	45	26.7	1.05	17.8	0.70	14	0.55	10	0.39	5/8-24	13	0.5
Φ13-60°	60	31.5	1.24	17.8	0.70	16.3	0.64	11.5	0.45	5/8-24		
Φ13-70°	70	35.8	1.41	17.8	0.70	17.3	0.68	13	0.51	5/8-24		
Φ13-90°	90	35.5	1.39	17.8	0.70	18.5	0.73	-	-	5/8-24		



Contact Probe - TRL Angle Beam

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

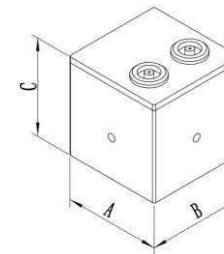
Features

- No initial pulse dead zone effects
- Less scattering, higher SNR in high attenuation material
- 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(Circumferential Outside Diameter)
- Two types of performance probes can meet most of detection needs:

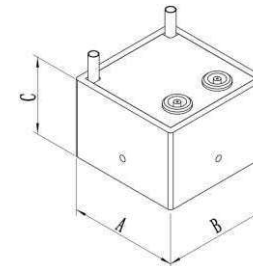
“PL ” Universal Series, “C ” Composite Series



Specification		Dimensions							
		A		B		C			
mm	in	mm	in	mm	in	mm	in	mm	in
7 x 10	0.28 x 0.39	25.0	0.98	25.0	0.98	30.0	1.18		
8 x 14	0.31 x 0.55	25.0	0.98	25.0	0.98	30.0	1.18		
10 x 18	0.39 x 0.71	30.0	1.18	30.0	1.18	30.0	1.18		
15 x 25	0.59 x 0.98	40.0	1.57	40.0	1.57	35.0	1.38		
20 x 34	0.79 x 1.34	50.0	1.97	50.0	1.97	39.5	1.56		



Specification		Dimensions(CDA Model)							
		A		B		C		Clamping Holes	
mm	in	mm	in	mm	in	mm	in	mm	
7x10	0.28x0.39	20.0	0.79	20.0	0.79	20.0	0.79	M4x0.7	
8x14	0.31x0.55	25.0	0.98	25.0	0.98	25.0	0.98		
10x18	0.39x0.71	30.0	1.18	30.0	1.18	25.0	0.98		
15x25	0.59x0.98	40.0	1.57	40.0	1.57	35.0	1.38		
20x34	0.79x1.34	50.0	1.97	50.0	1.97	35.0	1.38		



Applications

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

Instructions

- C - composite series is the default probe type
- Default built-in delay lines, for external delay lines of 3~3.5mm can be customized
- Default probe is without irrigation holes, which can be customized
- FS means sound path, FD means focal depth, conversion of FS, FD and β is: $\text{Cos}\beta = \text{FD} / (\text{FS} + 0.5D)$, where D is diameter
- Lemo 00(C5) top mounting connectors, side mounting can be customized

Frequency	a x b		β (°)	Probe Specification				Model	
				Focal Length(FS)					
				Min	Max		PL	C	
mm	in	mm	in						
0.5	20 x 34	0.79 x 1.34	45	25	0.98	60	2.36	/	DA0.5C20 x 34LA45
0.5	20 x 34	0.79 x 1.34	60	20	0.79	35	1.38	/	DA0.5C20 x 34LA60
0.5	20 x 34	0.79 x 1.34	70	20	0.79	30	1.18	/	DA0.5C20 x 34LA60
1	8 x 14	0.31 x 0.55	45	10	0.39	25	0.98	DA1P8 x 14LA45	DA1C8 x 14LA45
1	8 x 14	0.31 x 0.55	60	10	0.39	20	0.79	DA1P8 x 14LA60	DA1C8 x 14LA60
1	8 x 14	0.31 x 0.55	70	10	0.39	20	0.79	DA1P8 x 14LA70	DA1C8 x 14LA70
1	10 x 18	0.39 x 0.71	45	15	0.59	30	1.18	DA1P10 x 18LA45	DA1C10 x 18LA45
1	10 x 18	0.39 x 0.71	60	15	0.59	30	1.18	DA1P10 x 18LA60	DA1C10 x 18LA60
1	10 x 18	0.39 x 0.71	70	15	0.59	25	0.98	DA1P10 x 18LA70	DA1C10 x 18LA70
1	15 x 25	0.59 x 0.98	45	20	0.79	55	2.17	DA1P15 x 25LA45	DA1C15 x 25LA45
1	15 x 25	0.59 x 0.98	60	20	0.79	45	1.77	DA1P15 x 25LA60	DA1C15 x 25LA60
1	15 x 25	0.59 x 0.98	70	15	0.59	40	1.57	DA1P15 x 25LA70	DA1C15 x 25LA70
1	20 x 34	0.79 x 1.34	45	30	1.18	80	3.15	DA1P20 x 34LA45	DA1C20 x 34LA45
1	20 x 34	0.79 x 1.34	60	25	0.98	75	2.95	DA1P20 x 34LA60	DA1C20 x 34LA60
1	20 x 34	0.79 x 1.34	70	25	0.98	70	2.76	DA1P20 x 34LA70	DA1C20 x 34LA70
2	7 x 10	0.28 x 0.39	45	10	0.39	25	0.98	DA2P7 x 10LA45	DA2C7 x 10LA45
2	7 x 10	0.28 x 0.39	60	10	0.39	25	0.98	DA2P7 x 10LA60	DA2C7 x 10LA60
2	7 x 10	0.28 x 0.39	70	10	0.39	20	0.79	DA2P7 x 10LA70	DA2C7 x 10LA70
2	8 x 14	0.31 x 0.55	45	15	0.59	30	1.18	DA2P8 x 14LA45	DA2C8 x 14LA45
2	8 x 14	0.31 x 0.55	60	10	0.39	30	1.18	DA2P8 x 14LA60	DA2C8 x 14LA60
2	8 x 14	0.31 x 0.55	70	10	0.39	25	0.98	DA2P8 x 14LA70	DA2C8 x 14LA70
2	10 x 18	0.39 x 0.71	45	20	0.79	45	1.77	DA2P10 x 18LA45	DA2C10 x 18LA45
2	10 x 18	0.39 x 0.71	60	15	0.59	40	1.57	DA2P10 x 18LA60	DA2C10 x 18LA60
2	10 x 18	0.39 x 0.71	70	15	0.59	30	1.18	DA2P10 x 18LA70	DA2C10 x 18LA70
2	15 x 25	0.59 x 0.98	45	25	0.98	85	3.35	DA2P15 x 25LA45	DA2C15 x 25LA45
2	15 x 25	0.59 x 0.98	60	20	0.79	75	2.95	DA2P15 x 25LA60	DA2C15 x 25LA60
2	15 x 25	0.59 x 0.98	70	20	0.79	70	2.76	DA2P15 x 25LA70	DA2C15 x 25LA70
2	20 x 34	0.79 x 1.34	45	40	1.57	120	4.72	DA2P20 x 34LA45	DA2C20 x 34LA45
2	20 x 34	0.79 x 1.34	60	30	1.18	120	4.72	DA2P20 x 34LA60	DA2C20 x 34LA60
2	20 x 34	0.79 x 1.34	70	30	1.18	105	4.13	DA2P20 x 34LA70	DA2C20 x 34LA70
4	7 x 10	0.28 x 0.39	45	10	0.39	35	1.38	DA4P7 x 10LA45	DA4C7 x 10LA45
4	7 x 10	0.28 x 0.39	60	10	0.39	35	1.38	DA4P7 x 10LA60	DA4C7 x 10LA60
4	7 x 10	0.28 x 0.39	70	10	0.39	30	1.18	DA4P7 x 10LA70	DA4C7 x 10LA70
4	8 x 14	0.31 x 0.55	45	20	0.79	60	2.36	DA4P8 x 14LA45	DA4C8 x 14LA45
4	8 x 14	0.31 x 0.55	60	15	0.59	55	2.17	DA4P8 x 14LA60	DA4C8 x 14LA60
4	8 x 14	0.31 x 0.55	70	10	0.39	50	1.97	DA4P8 x 14LA70	DA4C8 x 14LA70
4	10 x 18	0.39 x 0.71	45	25	0.98	85	3.35	DA4P10 x 18LA45	DA4C10 x 18LA45
4	10 x 18	0.39 x 0.71	60	20	0.79	70	2.76	DA4P10 x 18LA60	DA4C10 x 18LA60
4	10 x 18	0.39 x 0.71	70	15	0.59	60	2.36	DA4P10 x 18LA70	DA4C10 x 18LA70
4	15 x 25	0.59 x 0.98	45	30	1.18	100	3.94	DA4P15 x 25LA45	/
4	15 x 25	0.59 x 0.98	60	25	0.98	90	3.54	DA4P15 x 25LA60	/
4	15 x 25	0.59 x 0.98	70	20	0.79	80	3.15	DA4P15 x 25LA70	/

Contact Probe - Delay Line

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

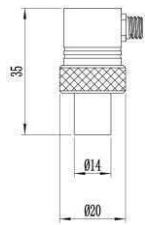
Delay Line Probe

- 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

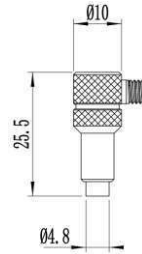
Probe Specification			
Frequency	Nominal Element Size		Model
MHz	mm	in	PH
2.25	6	0.25	DL-2.25P6-H
	13	0.50	DL-2.25P13-H
3.5	6	0.25	DL-3.5P6-H
	5	0.20	DL-5P5-H
5	6	0.25	DL-5P6-H
	13	0.50	DL-5P13-H
10	3	0.125	DL-10P3-H
	5	0.20	DL-10P5-H
	6	0.25	DL-10P6-H
15	13	0.50	DL-10P13-H
	5	0.20	DL-15P5-H
	6	0.25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

Delay Line Specification				
Model	Length		Specification	
	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

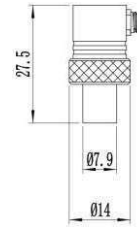




Probe Specification		
mm	in	
13	0.50	



Probe Specification		
mm	in	
3	0.125	



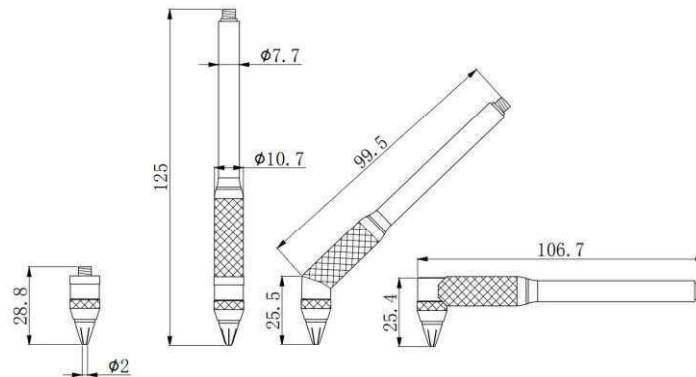
Probe Specification		
mm	in	
5	0.20	
6	0.25	

Delay Line Probe - Pen Type

- 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 MHz	Nominal Element Size		Model PH
	mm	in	
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°)



Contact Probe – Spot Welding Probe

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

Applications

- Integrity measurement of spot welding quality in automobile or other industries

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



Probe Specification			
Frequency	Nominal Element Size		Model
	mm	in	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
20	6	0.24	SWI15P6
	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				2QK5893				
	Threaded collar		2QK5893				2QK5894				



TOFD Probe

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

Applications

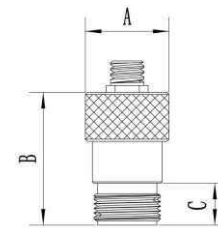
- Plate butt weld inspections
- Directional irregular defects
- Near surface defects detection



Probe Specification					
Frequency	Nominal Element Size		Models	Threads	Delay Line Model
	MHz	mm		in	
2.25	6	0.25	TF2.25C6L	3/8-32	TF1
	10	0.375	TF2.25C10L	11/16-24	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								
Probe Specification		A		B		C		Connector Direction
mm	in	mm	in	mm	in	mm	in	
3	0.125	12	0.47	18	0.71	6	0.24	Microdot/ Top Mounting
6	0.25							
10	0.375	15	0.59	20	0.78	6	0.24	
12	0.50	18	0.71	20	0.78	6	0.24	

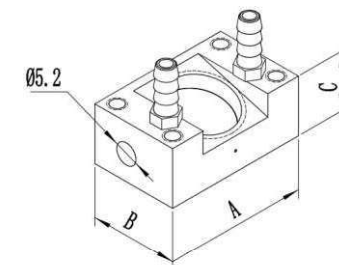


TF1 Delay Line Dimensions								
Model	β (°)	A		B		C		Threads
	Steel	mm	in	mm	in	mm	in	
TF1-L45-IHC	45							3/8-32
TF1-L60-IHC	60	32	1.26	21	0.83	13	0.51	
TF1-L70-IHC	70							

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

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

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



Immersion Probe

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

“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 defecion
- 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.

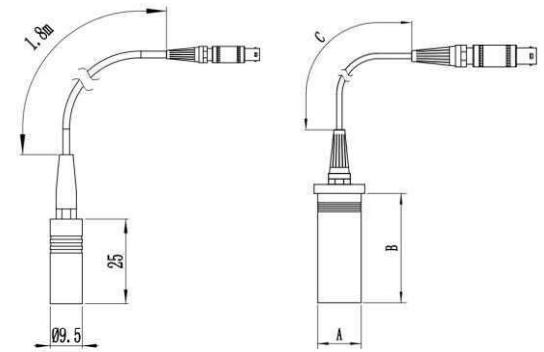
European Standard - I1

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

Dimensions	
Probe Specification	
mm	in
5	0.20

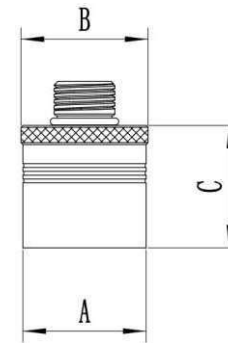
Dimensions								
Probe Specification		A		B		C		
mm	in	mm	in	mm	in	m	ft	
10	0.39	13	0.51	62	2.44	2.5	8.2	
20	0.79	24	0.94	62	2.44	2.5	8.2	



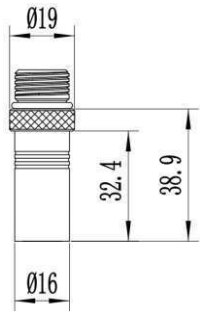
North America Standard - I2

- Top mounting UHF waterproof connector

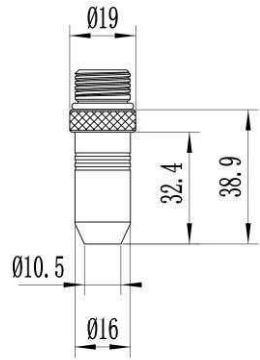
Dimensions							
Probe Specification		A		B		C	
mm	in	mm	in	mm	in	m	in
19	0.75	25	1.00	27	1.06	32	1.25
25	1.00	32	1.25	34	1.32	32	1.25
29	1.125	35	1.38	37	1.44	32	1.25
38	1.50	44	1.75	46	1.81	38	1.50



Dimensions	
Probe Specification	
mm	in
10	0.38
13	0.50



Dimensions	
Probe Specification	
mm	in
3	0.13
6	0.25



Probe Specification										
Frequency	Nominal Element Size		Model			Focal Range				
	MHz	mm	in	PL	PH	C	Min		Max	
							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	I2-1C25	/	48	1.89	75	2.95
	29	1.125	I2-1P29	I2-1P29-H	/	/	55	2.17	90	3.54
2.25	38	1.50	I2-1P38	I2-1P38-H	/	/	70	2.76	190	7.48
	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
3.5	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
5	6	0.25	I2-3.5P6	I2-3.5P6-H	I2-3.5C6	/	12	0.47	17	0.67
	10	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
7.5	25	1.00	I2-3.5P25	I2-3.5P25-H	/	/	50	1.97	270	10.63
	29	1.125	I2-3.5P29	I2-3.5P29-H	/	/	80	3.15	360	14.17
	6	0.25	I2-5P6	I2-5P6-H	I2-5C6	/	12	0.47	25	0.98
	10	0.375	I2-5P10	I2-5P10-H	I2-5C10	/	20	0.79	55	2.17
10	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
15	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	80	3.15
	19	0.75	/	I2-7.5P19-H	/	/	27	1.06	220	8.66
20	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
	6	0.25	I2-10P6	I2-10P6-H	/	/	13	0.51	40	1.57
	10	0.375	I2-10P10	I2-10P10-H	/	/	15	0.59	100	3.94
25	13	0.50	/	I2-10P13-H	/	/	25	0.98	120	4.72
	19	0.75	/	I2-10P19-H	/	/	30	1.18	370	14.57
	25	1.00	/	I2-10P25-H	/	/	60	2.36	470	18.50
	29	1.125	/	I2-10P29-H	/	/	90	3.54	580	22.83
30	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
40	3	0.125	/	I2-20P3-H	/	/	7	0.28	20	0.79
	6	0.25	/	I2-20P6-H	/	/	14	0.55	60	2.36
50	3	0.125	/	I2-25P3-H	/	/	10	0.39	23	0.91
	6	0.250	/	I2-25P6-H	/	/	14	0.55	100	3.94

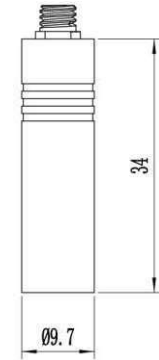
North America Standard - I3

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

Frequency	Nominal Element Size		Model		Probe Specification			
					Focal Range			
	MHz	mm	in	PL	PH	mm	in	mm
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



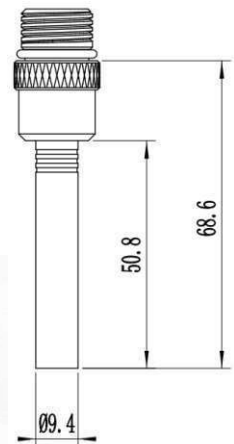
North America Standard - I4

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

Frequency	Nominal Element Size		Model		Probe Specification			
					Focal Range			
	MHz	mm	in	PL	PH	mm	in	mm
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



I4-10P6-H



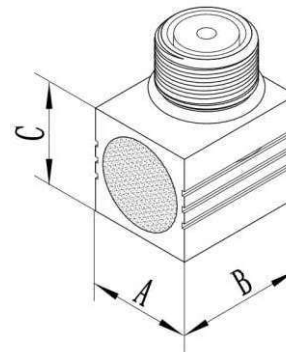
North America Standard - I5

- 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			
	mm	in	PL	PH	C	Min		Max	
MHz						mm	in	mm	in
1	13	0.50	I5-1P13	I5-1P13-H	I5-1C13	16	0.63	20	0.79
	19	0.75	I5-1P19	I5-1P19-H	I5-1C19	30	1.18	45	1.77
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	I5-2.25P10-H	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	I5-3.5P6	I5-3.5P6-H	I5-3.5C6	20	0.79	38	1.50
	10	0.375	I5-3.5P10	I5-3.5P10-H	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	I5-5P10-H	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



Dimensions								
Probe Specification		A		B		C		
mm	in	mm	in	mm	in	m	in	
6	0.25							
13	0.50	19	0.75	24	0.94	19	0.75	
19	0.75							



High Frequency Probe

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

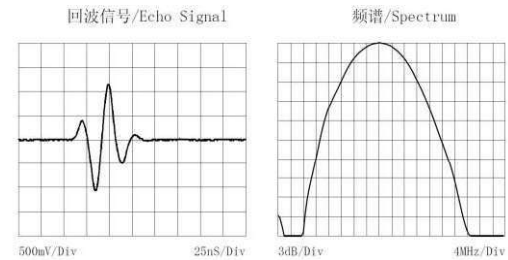
- Minor cracks on the surface
- High resolution detection effect is required, such as the ability to find small cracks or pores
- With the ideal surface condition, temperature and excitation setting, the thinnest thickness that 50MHz probe can reach in steel is 0.05 mm (0.0019 in) in thickness measurement 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	HFI20V6-4
30	6	0.25	4.25	HFI30V6-4
50	6	0.25	4.25	HFI50V6-4

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	HF120V3BCF**
	6	0.25		HF120V6BCF**
30	3	0.125		HF130V3BCF**
	6	0.25		HF130V6BCF**
50	3	0.125		HF150V3BCF**
	6	0.25		HF150V6BCF**

Signal & Spectrum



High Temperature Probe

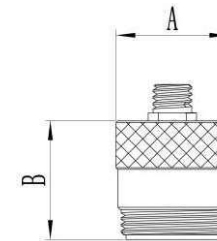
Single crystal probe with a replaceable delay line, applied for high temperature detection environment.

Applications

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

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



Probe Dimensions					
Specification		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

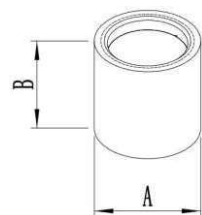
Attention:

1. When reach maximum contact time, probe is required to cool down to room temperature to working again.
2. The contact time is related to the contact temperature. For the specific relationship between them, please consult with Doppler transducer expert.

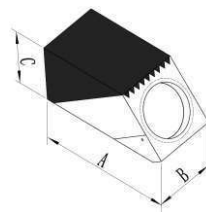


Probe Specification					
Frequency MHz	Nominal Element Size		Model		Threads
	mm	in	PL	in	
2.25	6	0.25	HT-2.25P6		3/8-32
2.25	10	0.375	HT-2.25P10		1/2-28
2.25	13	0.50	HT-2.25P13		5/8-24
2.25	19	0.75	HT-2.25P19		1-20
5	6	0.25	HT-5P6		3/8-32
5	10	0.375	HT-5P10		1/2-28
5	13	0.50	HT-5P13		5/8-24
5	19	0.75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

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



ZH Type



AH Type

ZH Type Delay Line Dimensions							
Model	A		B		Threads	Probe Specification	
	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	19	0.75
HT1-Φ19-13	28	1.10	13	0.50	1-20		
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	13	0.5
HT2-Φ13-13	18	0.70	13	0.50	5/8-24		
HT2-Φ13-25	18	0.70	25	1.00	5/8-24		
HT2-Φ13-38	18	0.70	38	1.50	5/8-24	19	0.75
HT2-Φ19-13	28	1.10	13	0.50	1-20		
HT2-Φ19-25	28	1.10	25	1.00	1-20		
HT2-Φ19-38	28	1.10	38	1.50	1-20		

HT2-Φ10-70°

HT2-Φ6-60°



HT2-Φ10-45°

HT2-Φ13-25

HT1-Φ19-13

6mm (0.25in) AH Type Delay Line Dimensions										
Model	β (°)	A		B		C		Threads	Probe Specification	
	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	Probe Specification	
	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	Probe Specification	
	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		

Contact Probe - Thickness Measurement Probe

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.



Probe Type	Model	Application	Frequency	Bottom Contact OD		Range		Operation TEMP		Line-out	Connector	Cable (option)	Accur- [*] (option)
			MHz	mm	in	mm	in	°F	°C				
Twin Crystal	MT509	Standard/Normal/Through Coating	5	11.5	0.45	1.5-225 (Through Coating 3-100)	0.06-8 (Through Coating 0.19-3.93)	-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	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 Coating 0.2-0.79)	-4 +140	-20 +60	Side	Microdot	1GC0424	1
	MT506L	Fingertips/Normal/Through Coating	5	9.5	0.37	1.2-225 (Through Coating 5-20)	0.05-8.6 (Through Coating 0.2-0.79)	-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	1GC0424	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

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

* Contact for 10 seconds and cool to ambient temperature for reuse. Technical specifications are subject to change without notice.

Custom and Special Probes

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 normal 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.



Plate wave probe

Used to generate plate waves in thin plates.



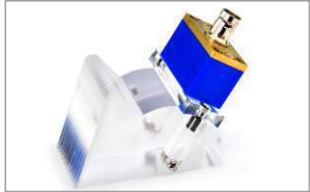
Low temperature thickness probe

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



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.



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.



Special immersion probe

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



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.



High temperature resistant dual probe

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



Aluminum measurement angle probe

This probe is used for welding inspection of aluminum materials.



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.



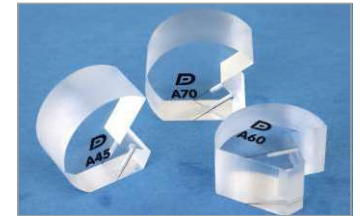
Hollow shaft detection probe

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.



AWS wedge

The wedge complies with D1.1 in AWS specification.



System matching probe

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

Probe 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-1 (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		Cable	Length (m/ft)	Cable No.	Code	Connector Type		Cable	Length (m/ft)
		A	B					A	B		
Single	1GC0017	BNC(Q9)	BNC(Q9)	RG174	1.8 / 6	Single	1GC0001	Lemo-00(C5)	Lemo-00(C5)	RG174	1.8 / 6
	1GC0016	BNC(Q9)	BNC(Q6)	RG174	1.8 / 6		1GC0461 *	Lemo-00(C5)	Microdot(L5)	RG174	1.8 / 6
	1GC0013	BNC(Q9)	Lemo-00(C5)	RG174	1.8 / 6		1GC0002	BNC(Q9) x2	BNC(Q9) x2	RG174	1.8 / 6
	1GC0450 *						1GC0319 *				
	1GC0015	BNC(Q9)	Lemo-1(C9)	RG174	1.8 / 6		1GC0089	BNC(Q9) x2	Lemo-00(C5) x2	RG174	1.8 / 6
	1GC0441 *						1GC0039				
	1GC0451	BNC(Q9)	Lemo-1(Waterproof)	RG58	1.8 / 6		1GC0155	BNC(Q9) x2	Lemo-1(C9) x2	RG174	1.8 / 6
	1GC0452	BNC(Q9)	Lemo-1 Coupling	RG174	1.8 / 6		1GC0463 *				
	1GC0453	BNC(Q9)	Lemo mini	RG178	1.5 / 4.9		1GC0028	BNC(Q9) x2	Microdot(L5) x2	RG174	1.8 / 6
	1GC0018	BNC(Q9)	Microdot(L5)	RG174	1.8 / 6		1GC0464	BNC(Q9) x2	Lemo mini x2	RG178	1.5 / 4.9
	1GC0502	BNC(Q9)	UHF(Waterproof)	RG58	1.8 / 6	1GC0152	Lemo-1(C9) x2	Lemo-1(C9) x2	RG174	1.8 / 6	
	1GC0455	BNC(Q9)	16MCX(Right angle)	RG174	1.8 / 6	1GC0465 *					
	1GC0007	Lemo-1(C9)	Lemo-1(C9)	RG174	1.8 / 6	1GC0024	Lemo-1(C9) x2	Lemo-00(C5) x2	RG174	1.8 / 6	
	1GC0456 *					1GC00466 *					
	1GC0457	Lemo-1(C9)	Lemo-1(Waterproof)	RG58	1.8 / 6	1GC0025	Lemo-1(C9) x2	Microdot(L5) x2	RG174	1.8 / 6	
	1GC0458	Lemo-1(C9)	Lemo-1 Coupling	RG174	1.8 / 6	1GC0467 *					
	1GC0006	Lemo-1(C9)	Lemo-00(C5)	RG174	1.8 / 6	1GC0468	Lemo-1(C9) x2	Lemo mini x2	RG178	1.5 / 4.9	
	1GC0442 *					1GC0122	Lemo-00(C5) x2	Lemo-00(C5) x2	RG174	1.8 / 6	
	1GC0008	Lemo-1(C9)	Microdot(L5)	RG174	1.8 / 6	1GC0469 *	Lemo-00(C5) x2	Microdot(L5) x2	RG174	1.8 / 6	
	1GC0443 *					1GC0106					
1GC0500	Lemo-1(C9)	UHF(Waterproof)	RG58	1.8 / 6	1GC0470 *	Lemo-00(C5) x2	Microdot(L5) x2	RG174	1.8 / 6		
1GC0501 *					1GC0470 *						
1GC0460	Lemo-1(C9)	Lemo mini	RG178	1.5 / 4.9							