DOPPLER

Ultrasound Probe Catalogue

Doppler Electronic Technologies Co.,Ltd

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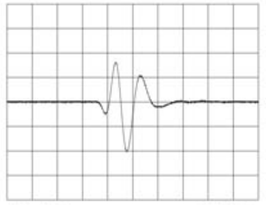
Doppler Electronic Technologies Co.,Ltd

NDT
Ultrasound Probe

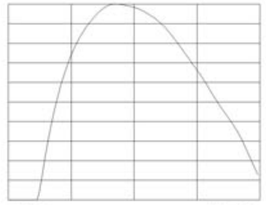
Probe characteristics

Vivid series features

- Based on the typical 1–3 piezoelectric composite crystal of Doppler
- Compared with conventional transducers, the penetrating power is greatly enhanced in the attenuation material
- Composite material reinforced by coarse–grained metal, glass fiber has a higher signal to noise ratio.
- Short pulse resolution is far higher than the conventional series
- Sensitivity generally is higher 3~6dB than conventional series
- Large bandwidth–6dB relative bandwidth from 60% to 120%
- Low acoustic impedance increased the acoustic matching performance of angle probe, delay probe and immersion probe ,can achieve higher sensitivity and bandwidth
- With a regulated mechanical features, and can make self–focusing and other special–shaped



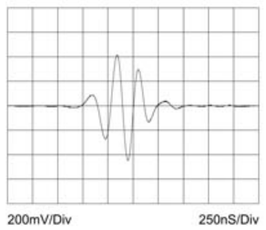
Time domain waveform



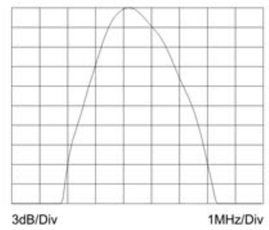
Spectrum

General series features

- General purpose transducer, recommended for most applications
- Middle pulse, medium attenuation –the best combination of gain and resolution
- For general use, can ensures maximum gain and the ideal waveform after the electro–acoustic matching
- Medium bandwidth,the typical bandwidth of 6 dB for measuring range from 40% to 60%
- Typical waveforms is about two and a half to three and a half cycle, the waveform depends on the frequency.



Time domain waveform



Spectrum

Frequency color code

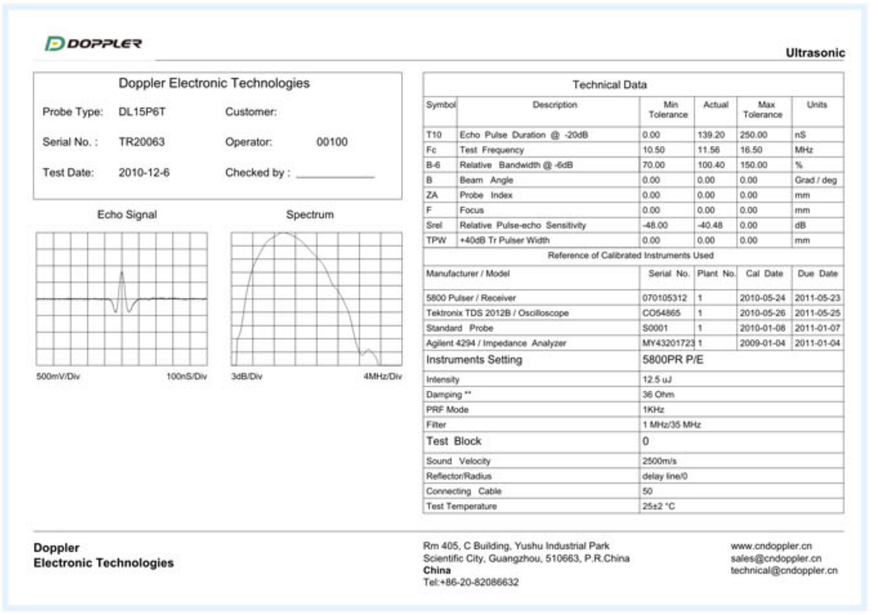
In order to more easily identify from the frequency, most of the probes are to be color–coded as follows:

Frequency (MHz)	0.5	1.0	2 ~ 2.5	4.0	5.0	10.0	15
Color	red	red	yellow	purple	green	black	red

Probe certificate

Real-time waveform and spectrum

Doppler provide actual measurement echo waveform and frequency spectrum for customers customers with unique serial number based on probe corresponding to the measured,all the data listed in the certificate with traceability, the use of test equipment and test pieces comply with the relevant international standards and undergo strict validation.



DOPPLER — Ultrasonic

Doppler Electronic Technologies

Probe Type: DL15P6T Customer:

Serial No. : TR20063 Operator: 00100

Test Date: 2010-12-6 Checked by : _____

Echo Signal

Spectrum

Technical Data

Symbol	Description	Min Tolerance	Actual	Max Tolerance	Units
T10	Echo Pulse Duration @ -20dB	0.00	139.20	250.00	nS
Fc	Test Frequency	10.50	11.56	16.50	MHz
B-6	Relative Bandwidth @ -6dB	70.00	100.40	150.00	%
B	Beam Angle	0.00	0.00	0.00	Grad / deg
ZA	Probe Index	0.00	0.00	0.00	mm
F	Focus	0.00	0.00	0.00	mm
Srel	Relative Pulse-echo Sensitivity	-48.00	-40.48	0.00	dB
TPW	+40dB Tr Pulser Width	0.00	0.00	0.00	mm

Reference of Calibrated Instruments Used

Manufacturer / Model	Serial No.	Plant No.	Cal Date	Due Date
5800 Pulser / Receiver	070105312	1	2010-05-24	2011-05-23
Tektronix TDS 2012B / Oscilloscope	CO54865	1	2010-05-26	2011-05-25
Standard Probe	S0001	1	2010-01-08	2011-01-07
Agilent 4294 / Impedance Analyzer	MY43201723	1	2009-01-04	2011-01-04

Instruments Setting	5800PR P/E
Intensity	12.5 uJ
Damping **	36 Ohm
PRF Mode	1KHz
Filter	1 MHz/35 MHz
Test Block	0
Sound Velocity	2500m/s
Reflector/Radius	delay line/0
Connecting Cable	50
Test Temperature	25±2 °C

Doppler
Electronic Technologies

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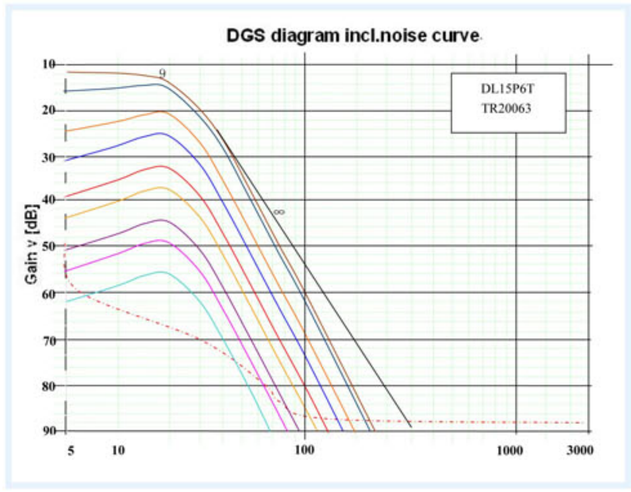
Distance amplitude curve

Distance amplitude curve display the near field(fresnel zone) effects, it also shows the exponential decay of far field. Distance amplitude curve offered according to the customer requirements, is optional certificate.



Normal beam probe

Dimension	A		B	
	mm	in	mm	in
Drawing 4	16	0.6	12	0.5
Drawing 5	25	1.0	17	0.7
Drawing 6	29	1.1	18	0.7
Drawing 7	33	1.3	24.5	1.0

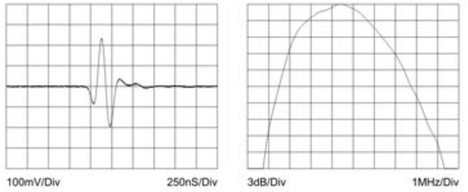
Applications occasion

- General application, metal parts with simple structure
- Plank stuff, large forgings, blank, castings detection

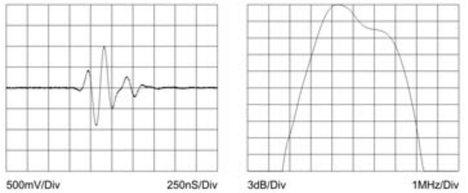
Performance feature

- Probes bottom with good abrasion resistance
- Probes interface for national standard and american standard is mostly BNC (Q9), Q6 connector (sidepiece or top direction)
- Probes interface for europe standard is mostly LEMO-00(C5)、LEMO-1(C9)、microdot(L5)

Echo wave and spectrum



2.5P20N



5P14N

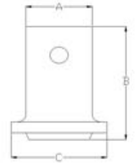
Dimension	A		B		C	
	mm	in	mm	in	mm	in
Drawing 1	20	0.8	42	1.7	25	1.0
Drawing 2	25	1.0	47	1.9	35	1.4
Drawing 3	30	1.2	59	2.3	45	1.8

Specific models and parameters

Model	Frequency	Ceramic size		Near field length		Dimension	Remark
	MHz	in	mm	in	mm		
5P5N	5	0.20	5	0.2	5		
10P5N	10	0.20	5	0.4	10	Drawing 4	
10P6N	10	0.24	6	0.6	15		
5P8N	5	0.31	8	0.6	14		
1P10N	1	0.39	10	0.2	4		
2P10N	2	0.39	10	0.3	8	Drawing	
4P10N	4	0.39	10	0.7	17	1/5	
5P10N	5	0.39	10	0.8	21		
10P10N	10	0.39	10	1.7	42		
2.5P14N	2.5	0.55	14	0.8	21	Drawing 6	
5P14N	5	0.55	14	1.6	41		
1P20N	1	0.79	20	0.7	17		
2P20N	2	0.79	20	1.3	34		
2.5P20N	2.5	0.79	20	1.7	42	Drawing 2/7	
4P20N	4	0.79	20	2.7	68		
5P20N	5	0.79	20	3.3	85		
1P24N	1	0.94	24	0.9	24		
2P24N	2	0.94	24	1.9	49	Drawing 3	
4P24N	4	0.94	24	3.8	97		
5C5N	5	0.20	5	0.2	5	Drawing 4	Composite ceramic
10C5N	10	0.20	5	0.4	10		
5C10N	5	0.39	10	0.8	21	Drawing 1/5	
1C20N	1	0.79	20	0.7	17	Drawing 2/ Drawing 7	
2C20N	2	0.79	20	1.3	34		
4C20N	4	0.79	20	2.7	68		
1C24N	1	0.94	24	0.9	24	Drawing 3	
2C24N	2	0.94	24	1.9	49		

Remark: Queuing discipline of model according to ceramic size;
Provide custom-made service for special model.

Soft protective membrane probe



Dimension	A		B		C	
	mm	in	mm	in	mm	in
Drawing 1	20	0.8	42	1.7	25	1.0
Drawing 2	25	1.0	47	1.9	35	1.4
Drawing 3	30	1.2	59	2.3	45	1.8
Drawing 4	34	1.3	49.5	1.9	55	2.2

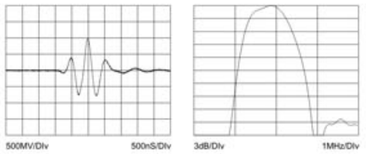
Application

- General test purpose, large parts with simple shape
- Forgeable piece and casting
- Plank stuff and bar material

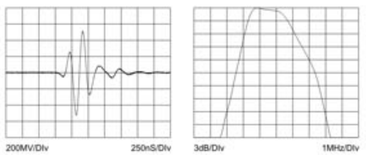
Performance feature

- With replacement protective film, convenient to coupling on the surface of the uneven workpiece, extended the life of probe
- Most of matching connector is LEMO-00 (c5)、LEMO-1 (c9), connectors (direction is lateral)

Echo wave and spectrum



DC2P24



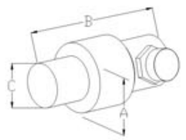
DC5P24

Specific models and parameters

Model	Frequency	Ceramic size		length of near-field		Dimension	Remark
	MHz	in	mm	in	mm		
DC1P10N	1	0.39	10	0.2	4	Drawing 1	
DC2P10N	2	0.39	10	0.3	8		
DC4P10N	4	0.39	10	0.7	17		
DC5P10N	5	0.39	10	0.8	21		
DC1P20N	1	0.79	20	0.7	17	Drawing 2	
DC2P20N	2	0.79	20	1.3	34		
DC4P20N	4	0.79	20	2.7	68		
DC5P20N	5	0.79	20	3.3	85		
DC0.5P24N	0.5	0.94	24	0.5	12	Drawing 3	
DC1P24N	1	0.94	24	0.9	24		
DC2P24N	2	0.94	24	1.9	49		
DC4P24N	4	0.94	24	3.8	97		
DC5P24N	5	0.94	24	4.8	122		
DC0.5P40N	0.5	1.57	40	1.3	34	Drawing 4	
DC2C10N	2	0.39	10	0.3	8	Drawing 1	
DC4C10N	4	0.39	10	0.7	17		
DC5C10N	5	0.39	10	0.8	21		
DC1C20N	1	0.79	20	0.7	17	Drawing 2	
DC2C20N	2	0.79	20	1.3	34		
DC1C24N	1	0.94	24	0.9	24	Drawing 3	
DC2C24N	2	0.94	24	1.9	49		

Remark: Queuing discipline of model according to ceramic size;
Provide custom-made service for special model.

Delay line probe



Dimension	A		B		C	
	mm	in	mm	in	mm	in
Chart1	14	0.6	22.5~29.5	0.9~1.2	7.6	0.3

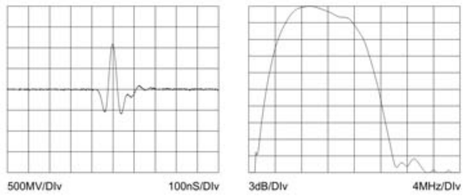
Application

- Thickness measuring
- Near-surface flaw detection
- Detection of thin pieces

Performance features

- Resolution of near flaw is excellent
- Replaceable delay line – long life span
- Connector mostly is microdot

Echo wave and spectrum



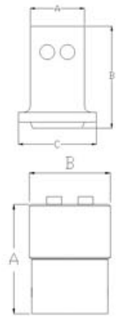
15P6Y-H

Specific models and parameters

Model	Frequency	Ceramic size		Length of near field		Dimension	Remark
	MHz	in	mm	in	mm		
10P6Y	10	0.24	6	0.6	15	Drawing 1	three delay blocks natched 9.5mm (in0.38) 12.5mm (in0.5) 16.5mm (in0.65)
10P6Y-H	10	0.24	6	0.6	15		
15P6Y	15	0.24	6	0.9	23		
15P6Y-H	15	0.24	6	0.9	23		

Provide custom-made service for special model.

Dual element probe



Dimension	A		B		C	
	mm	in	mm	in	mm	in
Drawing 1	20	0.8	42	1.7	25	1.0
Drawing 2	25	1.0	47	1.9	35	1.4
Drawing 3	30	1.2	59	2.3	45	1.8

Dimension	A		B	
	mm	in	mm	in
Drawing 4	29	1.1	18	0.7
Drawing 5	33	1.3	24.5	1.0
Drawing 6	40	1.6	31	1.2

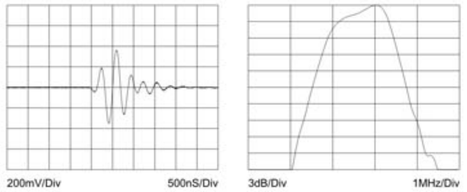
Application

- Wall thickness margin, rust–eaten, corrosion
- Near surface flaw detection
- Small parts–screws, bolts, pin
- Adhesive detection
- Shaft, rod, billet core defects
- Train wheels

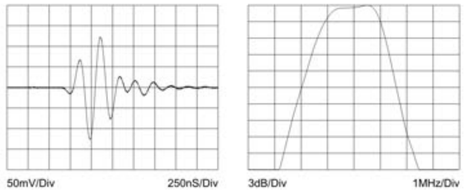
Performance feature

- Near surface resolution is excellent
- Scattered noise is small
- Probes interface for national standard
- Most Europe standard probe with LEMO connector, microdot connector(sidepiece or top direction)

Echo wave and spectrum



DC2P24



DA4P3.5×10F18

Specific models and parameters

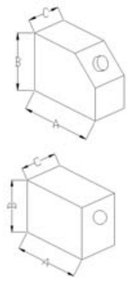
Model	Frequency	a× b		Focus		Dimension	Remark
	MHz	in	mm	in	mm		
2.5P14FGF10	2.5	0.56	14/2 Φ	0.4	10	Drawing 4	
2.5P14FGF15	2.5	0.56	14/2×Φ	0.6	15		
2.5P14FGF20	2.5	0.56	14/2×Φ	0.8	20		
2.5P14FGF25	2.5	0.56	14/2×Φ	1.0	25		
2.5P14FGF30	2.5	0.56	14/2×Φ	1.2	30		
5P14FGF10	5	0.56	14/2×Φ	0.4	10		
5P14FGF15	5	0.56	14/2×Φ	0.6	15		
5P14FGF20×	5	0.56	14/2×Φ	0.8	20		
5P14FGF25×	5	0.56	14/2×Φ	1.0	25		
5P14FGF30×	5	0.56	14/2×Φ	1.2	30		
2.5P20FGF10×	2.5	0.79	20/2×Φ	0.4	10	Drawing 5	
2.5P20FGF15×	2.5	0.79	20/2×Φ	0.6	15		
2.5P20FGF20×	2.5	0.79	20/2×Φ	0.8	20		
2.5P20FGF25×	2.5	0.79	20/2×Φ	1.0	25		
2.5P20FGF30×	2.5	0.79	20/2×Φ	1.2	30		
5P20FGF10×	5	0.79	20/2×Φ	0.4	10		
5P20FGF15×	5	0.79	20/2×Φ	0.6	15		
5P20FGF20×	5	0.79	20/2×Φ	0.8	20		
5P20FGF25×	5	0.79	20/2×Φ	1.0	25		
5P20FGF30×	5	0.79	20/2×Φ	1.2	30		

Model	Frequency	a× b		Focus		Dimension	Remark
	MHz	in	mm	in	mm		
2.5P25FGF10×	2.5	1	25/2×Φ	0.4	10	Drawing 6	
2.5P25FGF15×	2.5	1	25/2×Φ	0.6	15		
2.5P25FGF20×	2.5	1	25/2×Φ	0.8	20		
2.5P25FGF25×	2.5	1	25/2×Φ	1.0	25		
2.5P25FGF30×	2.5	1	25/2×Φ	1.2	30		
5P25FGF10×	5	1	25/2×Φ	0.4	10		
5P25FGF15×	5×	1	25/2×Φ	0.6	15		
5P25FGF20×	5×	1	25/2×Φ	0.8	20		
5P25FGF25×	5×	1	25/2×Φ	1.0	25		
5P25FGF30×	5×	1	25/2×Φ	1.2	30		
DA2P3.5× 10F8	2	0.14× 0.39	3.5× 10	0.3	8		
DA2P3.5× 10F10	2	0.14× 0.39	3.5× 10	0.4	10		
DA2P3.5× 10F18	2	0.14× 0.39	3.5× 10	0.7	18	Drawing 1	
DA4P3.5× 10F10	4	0.14× 0.39	3.5× 10	0.4	10		
DA4P3.5× 10F18	4	0.14× 0.39	3.5× 10	0.7	18		
DA5P9F25	5	0.35	9/2 Φ	1.8	25		
DA2P11F8	2	0.43	11/2 Φ	0.3	8		
DA2P7× 18F15	2	0.28× 0.71	7× 18	0.6	15		
DA2P7× 18F30	2	0.28× 0.71	7× 18	1.2	30		
DA4P6× 20F12	4	0.24× 0.79	6× 20	0.5	12	Drawing 3	
DA4P6× 20F25	4	0.24× 0.79	6× 20	1.0	25		
DA1P21F20	1	0.83	21/2 Φ	0.8	20		

Remark: Queuing discipline of model according to ceramic size;
Provide custom–made service for special model.

Dual element probe

Angle beam probe



Dimension	A		B		C	
	mm	in	mm	in	mm	in
Drawing 1	20	0.8	16	0.6	12	0.5
Drawing 2	29	1.1	22	0.9	14	0.6
Drawing 3	28	1.1	22	0.9	16.5	0.6
Drawing 4	32	1.3	23	0.9	18.5	0.7
Drawing 5	44	1.7	30	1.2	19	0.7
Drawing 6	54	2.1	38	1.5	25	1.0

Model	A		B		C	
	mm	in	mm	in	mm	in
Drawing 7	27	1.1	22	0.9	17	0.7
Drawing 8	36	1.4	30.5	1.2	21	0.8
Drawing 9	54	2.1	44	1.7	32	1.3

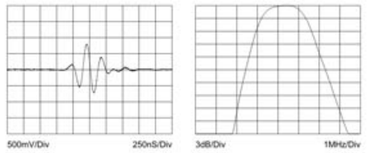
Application

- Common welding inspection
- Pipe casting, pressure wessels, storage tank
- Turbine blades and pressure vessels
- Wheel axle, forged piece and casting
- Railway wheels and railway rail

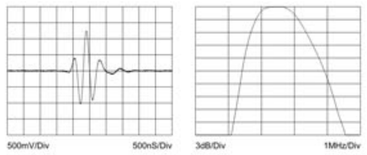
performance features

- Probes connector for national standard and American standard is mostly BNC (Q9), microdot (L5) connector
- Probes connector for Europe standard is mostly LEMO-00(C5)、LEMO-1(C9)connector(sidepiece or top direction)

Echo wave and spectrum



2.5P13×13A70



4P8×9A45

Specific models and parameters

Model	Frequency	a× b	β		Near-field length		Dimensions	Remarks
	MHz	in	mm	Steel	in	mm		
5P6× 6A45	5	0.24× 0.24	6× 6	45	0.7	19	Chart1	
5P6× 6A60	5	0.24× 0.24	6× 6	60	0.7	19		
5P6× 6A70	5	0.24× 0.24	6× 6	70	0.7	19		
2P8× 9A45	2	0.31× 0.35	8× 9	45	0.6	15	Chart 7	
2P8× 9A60	2	0.31× 0.35	8× 9	60	0.6	15		
2P8× 9A70	2	0.31× 0.35	8× 9	70	0.6	15		
4P8× 9A45	4	0.31× 0.35	8× 9	45	1.2	30		
4P8× 9A60	4	0.31× 0.35	8× 9	60	1.2	30		
4P8× 9A70	4	0.31× 0.35	8× 9	70	1.2	30		
2.5P9× 9A45	2.5	0.35× 0.35	9× 9	45	0.8	21	Chart 2	
2.5P9× 9A60	2.5	0.35× 0.35	9× 9	60	0.8	21		
2.5P9× 9A70	2.5	0.35× 0.35	9× 9	70	0.8	21		
5P9× 9A45	5	0.35× 0.35	9× 9	45	1.7	42		
5P9× 9A60	5	0.35× 0.35	9× 9	60	1.7	42		
5P9× 9A70	5	0.35× 0.35	9× 9	70	1.7	42		
2.5P8× 12A45	2.5	0.31× 0.47	8× 12	45	1.0	25	Chart 3	
2.5P8× 12A60	2.5	0.31× 0.47	8× 12	60	1.0	25		
2.5P8× 12A70	2.5	0.31× 0.47	8× 12	70	1.0	25		
5P8× 12A45	5	0.31× 0.47	8× 12	45	2.0	50		
5P8× 12A60	5	0.31× 0.47	8× 12	60	2.0	50		
5P8× 12A70	5	0.31× 0.47	8× 12	70	2.0	50		
2.5P10× 16A45	2.5	0.39× 0.63	10× 16	45	1.7	42	Chart 4	
2.5P10× 16A60	2.5	0.39× 0.63	10× 16	60	1.7	42		
2.5P10× 16A70	2.5	0.39× 0.63	10× 16	70	1.7	42		
5P10× 16A45	5	0.39× 0.63	10× 16	45	3.3	84		
5P10× 16A60	5	0.39× 0.63	10× 16	60	3.3	84		
5P10× 16A70	5	0.39× 0.63	10× 16	70	3.3	84		

Remark: Provide custom-made service for special model.

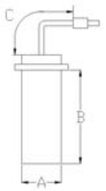
Angle beam probe

Angle beam probe

Model	Frequency	a× b	β		Near-field length		Dimensions	Remarks
	MHz	in	mm	Steel	in	mm		
2.5P13× 13A45	2.5	0.51× 0.51	13× 13	45	1.7	44	Chart 5	
2.5P13× 13A60	2.5	0.51× 0.52	13× 13	60	1.7	44		
2.5P13× 13A70	2.5	0.51× 0.53	13× 13	70	1.7	44		
5P13× 13A45	5	0.51× 0.59	13× 13	45	3.5	88		
5P13× 13A60	5	0.51× 0.60	13× 13	60	3.5	88		
5P13× 13A70	5	0.51× 0.61	13× 13	70	3.5	88		
2P14× 14A45	2	0.55× 0.55	14× 14	45	1.5	39	Chart 8	
2P14× 14A60	2	0.55× 0.55	14× 14	60	1.5	39		
2P14× 14A70	2	0.55× 0.55	14× 14	70	1.5	39		
4P14× 14A45	4	0.55× 0.55	14× 14	45	1.5	39		
4P14× 14A60	4	0.55× 0.55	14× 14	60	1.5	39		
4P14× 14A70	4	0.55× 0.55	14× 14	70	1.5	39		
1P20× 22A45	1	0.79× 0.87	20× 22	45	1.8	45	Chart 9	
1P20× 22A60	1	0.79× 0.87	20× 22	60	1.8	45		
1P20× 22A70	1	0.79× 0.87	20× 22	70	1.8	45		
2P20× 22A45	2	0.79× 0.87	20× 22	45	3.6	92		
2P20× 22A60	2	0.79× 0.87	20× 22	60	3.6	92		
2P20× 22A70	2	0.79× 0.87	20× 22	70	3.6	92		
4P20× 22A45	4	0.79× 0.87	20× 22	45	7.2	184		
4P20× 22A60	4	0.79× 0.87	20× 22	60	7.2	184		
4P20× 22A70	4	0.79× 0.87	20× 22	70	7.2	184		
2.5P20× 22A45	2.5	0.79× 0.87	20× 22	45	4.5	115	Chart 6	
2.5P20× 22A60	2.5	0.79× 0.87	20× 22	60	4.5	115		

Remark: Provide custom-made service for special model.

Immersion probe



Dimension	A		B		C	
	mm	in	mm	in	m	ft
Drawing 1	9.5	0.4	45	1.8	1.8	5.9
Drawing 2	15	0.6	50	2.0	1.8	5.9
Drawing 3	19	0.7	53	2.1	1.8	5.9
Drawing 4	25	1.0	60	2.4	1.8	5.9

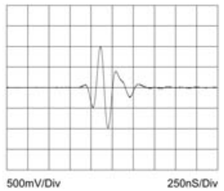
Application

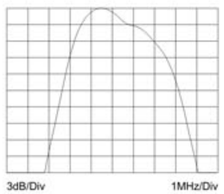
- With anomalous or complex geometrical shape components
- Automated system
- For application situation requires high resolution detection

Performance features

- Match hydroacoustics performance to raise efficiency
- Realize point focusing(spherical surface) or line focusing (cylinder), raise resolution, sensitivity and signal-to-noise ratio
-

Echo wave and spectrum





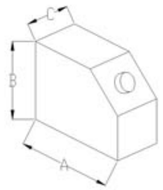
I5P10F30

Specific models and parameters

Model	Frequency	Ceramic size		Near field length		Dimension	Remark
	MHz	in	mm	in	mm		
5P6SJ**DJ	5	0.24	6	1.1	29	Drawing 1	Custom-made for point focusing length (not surpass near field length)
5P6SJ**XJ	5	0.24	6	1.1	29		
10P6SJ**DJ	10	0.24	6	2.3	58		
10P6SJ**XJ	10	0.24	6	2.3	58		
15P6SJ**DJ	15	0.24	6	3.4	87		
15P6SJ**XJ	15	0.24	6	3.4	87		
2.5P10SJ**DJ	2.5	0.39	10	1.6	40	Drawing 2	
2.5P10SJ**XJ	2.5	0.39	10	1.6	40		
5P10SJ**DJ	5	0.39	10	3.2	81		
5P10SJ**XJ	5	0.39	10	3.2	81		
2.5P14SJ**DJ	2.5	0.55	14	3.1	79	Drawing 3	
2.5P14SJ**XJ	2.5	0.55	14	3.1	79		
5P14SJ**DJ	5	0.55	14	6.2	158		
5P14SJ**XJ	5	0.55	14	6.2	158		
2.5P20SJ**DJ	2.5	0.79	20	6.3	161	Drawing 4	
2.5P20SJ**XJ	2.5	0.79	20	6.3	161		
5P20SJ**DJ	5	0.79	20	12.7	323		
5P20SJ**XJ	5	0.79	20	12.7	323		

Remark: Provide custom-made service for special model.

Surface wave probe



Dimension	A		B		C	
	mm	in	mm	in	mm	in
Drawing 1	29	1.1	22	0.9	14	0.6
Drawing 2	54	2.1	38	1.5	25	1.0

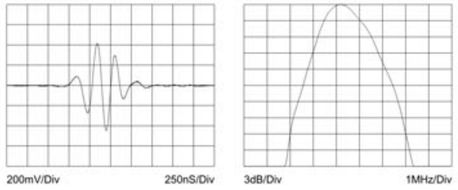
Application

- Detection of surface flaw

Performance features

- Usually match with BNC(Q9) connector(sidepiece or top direction)

Echo and spectrum



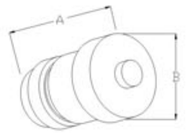
5P9×9BM

Specific models and parameters

Model	Frequency	a× b		β	Near field length		Dimension	Remark
	MHz	in	mm	Steel	in	mm		
5P9× 9BM	5	0.35× 0.35	9× 9	90	1.9	47	Drawing 1	
0.5P20× 22BM	0.5	0.79× 0.87	20× 22	90	1.0	25	Drawing 2	

Remark: Provide custom-made service for special model.

TOFD probe



Dimension	A		B	
	mm	in	m m	in
Drawing 1	16.5	0.6	10	0.4
Drawing 2	18	0.7	12	0.5

Application

- Weld detection for boiler, pressure vessel and pressure pipe

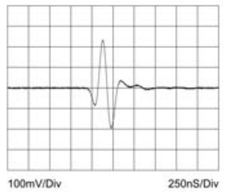
Performance Feature

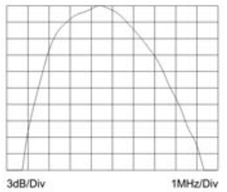
- Usually match with microdot (L5)connetor (top direction)

Specific models and parameters

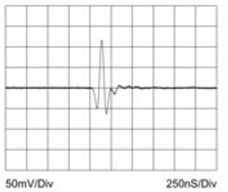
Model	Frequency	Ceramic size		Near field length		Dimension	Remark
	MHz	in	mm	in	mm		
TF5C3N	5	0.12	3	0.1	2	Drawing 1	A45/A60/A70 Available for A45/A60/A70 Wedges
TF10C3N	10	0.12	3	0.2	4		
TF2C6N	2	0.24	6	0.1	3		
TF5C6N	5	0.24	6	0.3	8	Drawing 2	
TF10C6N	10	0.24	6	0.6	15		
TF2C10N	2	0.39	10	0.3	8	Drawing 3	
TF5C10N	5	0.39	10	0.8	21		

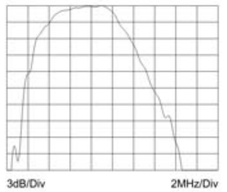
Echo wave and spectrum





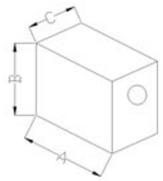
TF5C6N





TF10C3N

TOFD probe wedge



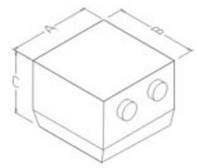
Dimension	A		B		C	
	mm	in	mm	in	mm	in
Drawing 4	22	0.9	12	0.5	15	0.6
Drawing 5	24	0.9	13	0.5	16	0.6
Drawing 6	26	1.0	14	0.6	22	0.9

Specific models and parameters

Model	β Steel	Dimension	Remark
A45-3N	45	Drawing 4	Available probe model: TF5C3N TF10C3N
A60-3N	60		
A70-3N	70		
A45-6N	45	Drawing 5	Available probe model: TF2C6N TF5C6N TF10C6N
A60-6N	60		
A70-6N	70		
A45-10N	45	Drawing 6	Available probe model: TF2C10N TF5C10N
A60-10N	60		
A70-10N	70		

Remark: Provide custom–made service for special model.

Angel beam TR probes for longitudinal waves



Dimension	A		B		C	
	mm	in	mm	in	mm	in
Drawing 1	50	2.0	50	2.0	38	1.5
Drawing 2	40	1.6	40	1.6	32	1.3
Drawing 3	30	1.2	30	1.2	25	1.0
Drawing 4	20	0.8	20	0.8	20	0.8

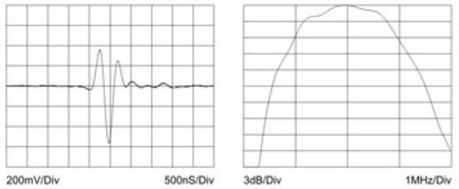
Application

- Macrocrystal weld detection
- Attenuating material
- Austenite welding

Performance features

- Excellent near surface resolution
- Small scattering noise
- Lemo–00(C5)connector for probe(sidepiece or top direction)

Echo and spectrum



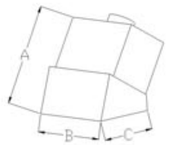
2C8×24FGLA70F10

Specific models and parameters

Frequency MHz	Remark
1	Selection according to ceramic size Drawing 1 ~ Drawing 4
1.5	
2	
2.5	
4	

Remark: Provide custom–made service for special model.

High temperature probe



Dimension	A		B		C	
	mm	in	mm	in	mm	in
Drawing 1	39	1.5	33	1.3	22	0.9

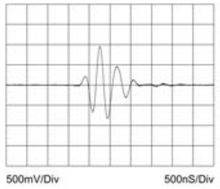
Application

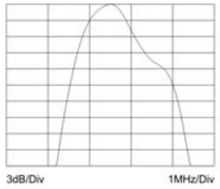
- For environment with high temperature

Performance characteristic

- High temperature delay line prevents probe's performance change during high temperature detection, increase probe service life
- Usually match with BNC(Q9)connector (sidepiece or top direction)

Echo and spectrum





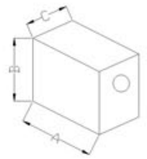
2.5P15×15A45

Specific models and parameters

Model	Frequency	a× b		β	Near field length		Dimension	Remark
	MHz	in	mm	Steel	in	mm		
2.5P15× 15A45	2.5	0.6× 0.6	15× 15	45	2.3	59	Drawing 1	Temperature resistant 180 ° C, the maximum contact time is 10 seconds
2.5P15× 15A60	2.5	0.6× 0.6	15× 15	60	2.3	59		
2.5P15× 15A70	2.5	0.6× 0.6	15× 15	70	2.3	59		

Remark: Provide custom–made service for special model.

Guide wave probe



Dimension	A		B		C	
	mm	in	mm	in	mm	in
Drawing 1	54	2.1	44	1.7	32	1.3

Application

- Detection for plate and pipe with different thickness

Performance features

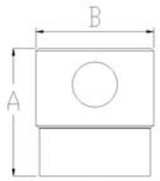
- LEMO–1(C9)connector for probe （sidepiece direction）

Specific models and parameters

Model	Remark	Dimension
CUC	Annular detection for work piece	Drawing 1
CU	Axial detection for work piece	
GW	Detection for thin work piece	

Remark: Provide custom–made service for special model.

Short pulse and small dead area probe



Dimension	A		B	
	mm	in	mm	in
Drawing 1	20	0.8	20	0.8

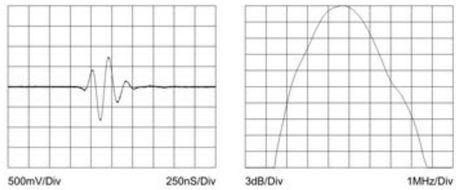
Application

- Design for thin steel plate detection

Performance

- Smaller initial pulse width
- Microdot(L5)connector for probe（sidepiece direction）

Echo and spectrum



SP5P14T

Specific models and parameters

Model	Frequency	Ceramic size		Near field length		Dimension	remark
	MHz	in	mm	in	mm		
SP5P14T	5	0.55	14	1.6	41	Drawing 1	

Remark: Provide custom–made service for special model.

Customize and speical probe

DOPPLER from its establishment, provides customise service and special probe design, that is always our superiority and stands on the front of probe technology. Experienced application engineers and probe design experts work together with our customers, by understanding customer demands and application requests, provide solutions and product design and sample manufacture for customers, satisfies demands of challenging ultrasonic detection application is our continuously pursue.

Special probe design team

Members of this team their specialized background covering acoustics, material technology, machine design, production technique , inspection and test and so on.
This team designs produce special probes for special ultrasonic testing application.Including complete acoustics fold design proposal for transducers , piezo–electric ceramic materials, size and shape, or connector' s type and housing' s shape and so on. Customers may according to their requirment and request the transducer to have electrical performance and sound wave performance, including non–standard frequency, resolution, sensitivity, band width or focusing way. May also design and manufacture special test jig, custom–made wedge, delay line and cable to satisfy customers' technology standard.

- Hollow shaft high resolution compound ceramics probe
- Ceramic insulator detection special–purpose compound materials creeping wave probe
- Austenite macrocrystal detection probe
- Micro focal point immersion probe
- High temperature probe
- Steel plate automatic detection one– transmitter three–receiver probe
- Automobile spot welding probe with soft membrane for sheet detection
- Micro slanting probe for airfoil root detection
- Fresnel annular phased array probe
- Self–focusing thin wall pipe detection 168 elements immersion phased array probe

Auto short welding probe

For auto short welding detection

Micro angle beam probe for inspect aircraft blade root

For inspect defects of aircraft blade root

Steel plate automatic detection

For automatic large system matching detection

Pen type probe

Wall thickness detection for superficial pit base

Hollow shaft probe

For train detection

Creeping wave probe

For prop porcelain insulator, weld and bolt crack detection

Railroad special probe

For rail detection

Aviation Special probe

For aviation detection

Special dual element probe

For coarse grain material detection

Model	Cable Length		Impedance	Instrument's Connector	Probe's Connector
	ft	m	ohms		
Q9-Q9	5.9	1.8	50	Q9 (BNC)	Q9 (BNC)
Q9-Q6	5.9	1.8	50	Q9 (BNC)	Q6
Q9-C5	5.9	1.8	50	Q9 (BNC)	C5 (LEMO-00)
Q9-L5	5.9	1.8	50	Q9 (BNC)	L5 (Microdot)
C9-C9	5.9	1.8	75	C9 (LEMO-1)	C9 (LEMO-1)
C9-C5	5.9	1.8	50	C9 (LEMO-1)	C5 (LEMO-00)
C9-C6	5.9	1.8	50	C9 (LEMO-1)	C6
C9-Q9	5.9	1.8	50	C9 (LEMO-1)	Q9 (BNC)
C5-C5	5.9	1.8	50	C5 (LEMO-00)	C5 (LEMO-00)
C5-L5	5.9	1.8	50	C5 (LEMO-00)	L5 (Microdot)
Q9-Q6 (Dual Cable) '	5.9' '	1.8'	50'	2× Q9 (BNC)	2× Q6
Q9-C5 (Dual Cable)	5.9	1.8	50	2× Q9 (BNC)	2× C5 (LEMO-00) '
Q9-L5 (Dual Cable) '	5.9' '	1.8'	50'	2× Q9 (BNC)	2× L5 (Microdot) '
C9-C5 (Dual Cable) '	5.9' '	1.8'	50'	2× C9 (LEMO-1)	2× C5 (LEMO-00) '
C9-L5 (Dual Cable) '	5.9' '	1.8'	50'	2× C9 (LEMO-1)	2× L5 (Microdot) '
C5-C5 (Dual Cable) '	5.9' '	1.8'	50'	2× C5 (LEMO-00)	2× C5 (LEMO-00) '

Microdot–Lewo 00

Lemo 00–C6

BNC–Q6