Transducers

STARMANS

Transducers for ultrasonic Flaw Detectors,

Inspection systems and Thickness meters

The STARMANS electronics is an engineering and manufacturing company that provides advanced technology products and solutions for nondestructive testing and evaluation. We develop, design and manufacture instruments, systems for ultrasonic, infrared, magnetic testing and of course Transducers.



Angle beam

Angle Beam Transducers are single element transducers used with wedge for flaw detection and sizing, especially of welds.

Standard Angle Beam Transducer

Designation	Angle	Dimensions (mm)	Connector	Frequency
UM 9x8-2C-35	35°	8x9	Lemo 00	2 MHz
UM 9x8-2C-45	45°	8x9	Lemo 00	2 MHz
UM 9x8-2C-60	60°	8x9	Lemo 00	2 MHz
UM 9x8-2C-70	70°	8x9	Lemo 00	2 MHz
UM 9x8-2C-80	80°	8x9	Lemo 00	2 MHz
UM 9x8-4C-35	35°	8x9	Lemo 00	4 MHz
UM 9x8-4C-45	45°	8x9	Lemo 00	4 MHz
UM 9x8-4C-60	60°	8x9	Lemo 00	4 MHz
UM 9x8-4C-70	70°	8x9	Lemo 00	4 MHz
UM 9x8-4C-80	80°	8x9	Lemo 00	4 MHz



Designation	Angle	Dimensions (mm)	Connector	Frequency
UN 20x22-2C-35	35°	20x22	Lemo 00	2 MHz
UN 20x22-2C-45	45°	20x22	Lemo 00	2 MHz
UN 20x22-2C-60	60°	20x22	Lemo 00	2 MHz
UN 20x22-2C-70	70°	20x22	Lemo 00	2 MHz
UN 20x22-2C-80	80°	20x22	Lemo 00	2 MHz
UN 20x22-4C-35	35°	20x22	Lemo 00	4 MHz
UN 20x22-4C-45	45°	20x22	Lemo 00	4 MHz
UN 20x22-4C-60	60°	20x22	Lemo 00	4 MHz
UN 20x22-4C-70	70°	20x22	Lemo 00	4 MHz
UN 20x22-4C-80	80°	20x22	Lemo 00	4 MHz

Large Angle Beam Transducer



Single element

Single Element Transducers are contact transducers with single element, designed for straight beam flaw detection and thickness measurement of plates, castings, forgings, billets, bars and others.

Designation	Dimensions (mm)	Connector	Frequency
PN 10-2C	Ø10	Microdot	2 MHz
PN 10-2D	Ø10	Microdot	2 MHz
PN 10-4C	Ø10	Microdot	4 MHz
PN 10-4D	Ø10	Microdot	4 MHz
PN 10-5C	Ø10	Microdot	5 MHz
PN 10-6C	Ø10	Microdot	6 MHz
PN 20-2C	Ø20	Microdot	2 MHz
PN 20-4C	Ø20	Microdot	4 MHz
PN 20-5C	Ø20	Microdot	5 MHz
PN 20-6C	Ø20	Microdot	6 MHz



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Dual element

Dual Element Transducers are two crystal elements transducers in one housing. These transducers create Vshaped sound path in inspected material. One element is transmitter of longitudinal waves, and other one is receiver. A dual element transducer is used in applications where is needed higher resolution, for instance for wall thickness measurement, corrosion mapping, detection of inclusions, porosity and laminations.

Designation	Dimensions (mm)	Connector	Frequency
PQ 2/10-2C	Ø10	Microdot	2 MHz
PQ 2/10-4C	Ø10	Microdot	4 MHz
PQ 2/10-5C	Ø10	Microdot	5 MHz
PQ 2/10-6C	Ø10	Microdot	6 MHz
PQ 2/20-2C	Ø20	Microdot	2 MHz
PQ 2/20-4C	Ø20	Microdot	4 MHz
PQ 2/20-5C	Ø20	Microdot	5 MHz
PQ 2/20-6C	Ø20	Microdot	6 MHz



Air Coupled

Air-Coupled Transducers are dual element transducers in two separate housing, works as transmitter and receiver. Air-coupled transducers typically operate at frequencies bellow 1 MHz and are used for testing of composite, honeycombs, foams, plastics and timber. Generally there are three methods of testing – through transmission, shear waves by offsetting, plate waves.

Designation	Dimensions (mm)	Connector	Frequency
PNL-45-005T PNL-45-005R	Ø 45 mm	BNC	50 kHz
PNL-19-012T PNL-19-012R	Ø 19 mm	BNC	120 kHz
PNL-11-002T PNL-11-002R	Ø 11 mm	BNC	200 kHz



Phased array

Phased array ultrasonic transducers for nondestructive testing with Flaw detectors. The beam can be moved electronically, without moving the probe, and can be swept through a wide volume of material at high speed. The beam is controllable because a phased array probe is made up of multiple small elements, each of which can be pulsed individually at a computer-calculated timing. The basic probes are in two size (small with 16 elements and large with 32 elements).



Linear small phased array transducers

Designation	Elements	Dimensions (mm)	Connector	Frequency
PPA 2L16W-1610	16	16x10 mm, 1 mm pitch	Molex	2 MHz
PPA 4L16W-1610	16	16x10 mm, 1 mm pitch	Molex	4 MHz
PPA 5L16W-1610	16	16x10 mm, 1 mm pitch	Molex	5 MHz
PPA 10L16W-1610	16	16x10 mm, 1 mm pitch	Molex	10 MHz

Linear large phased array transducers

Designation	Elements	Dimensions (mm)	Connector	Frequency
PPA 2L32W-3210	32	32x10 mm, 1 mm pitch	Molex	2 MHz
PPA 4L32W-3210	32	32x10 mm, 1 mm pitch	Molex	4 MHz
PPA 5L32W-3210	32	32x10 mm, 1 mm pitch	Molex	5 MHz
PPA 10L32W-3210	32	32x10 mm, 1 mm pitch	Molex	10 MHz

Wedges for linear phased array transducers

Designation	Angle
WPA 0°-1610	0°
WPA 36°-1610	36°
WPA 0°-3210	0°
WPA 36°-3210	36°

EMAT

EMAT Transducers are electromagnetic acoustic transducers using a principle of Lorentz force in magnetic field. Main advantage of EMAT transducer is that no coupling is required and not needed to be removed paintings from tested materials. The EMAT probe can be used in contact with or at small distance from material surface.

Designation	Active diameter	Connector	Frequency
EMAT - 20	Ø 20 mm	BNC	2-7 MHz
EMAT - 10	Ø 10 mm	BNC	2-7 MHz



Encoder EMAT

The STARMANS Mini EMAT Manual Encoder is designed for use with STARMANS EMAT probe for thickness measuring and corrosion mapping with B-scan. It is small, light, durable and making it simple to use on tested material. It can be used in harsh environment like dust or water.



Immersion

Immersion Transducers are single element transducers with longitudinal wave and are used for testing where inspected material is immersed in water. The immersion transducers can be either unfocused or focused. Main applications of immersion transducers are high speed automated scanning of plates, pipes, tubes, thickness and velocity measuring.





Tofd

TOFD Transducers are high damped transducers with excellent resolution in TOFD (Time of Flight Diffraction Technique) application. The TOFD probes are used with wedges that generate refracted longitudinal waves in steel.

Transducer	Connector	Frequency
TOFD probe, crystal Ø10 mm	Microdot	2 MHz
Wedge : 45° , 60°, 70°		
TOFD probe, crystal Ø 6 mm	Microdot	5 MHz
Wedge : 45° , 60°, 70°		
TOFD probe, crystal Ø 3mm	Microdot	10 MHz
Wedge : A 45- 3N (copper material) , 60°, 70°		

Special type of transducers

Besides the Company STARMANS may supply some special probe layouts as tandem and LLT probes and special probes for wood and concrete inspecting. Focused probes are developed according to special customer's requirements.



Focused probe for small diameter tubing

Our products, flaw detectors and transducers

Our equipments are used in industrial applications as engineering, petrochemical, manufacturing, power generation, automotive, aerospace, railways, wood industry, consumer products and others. For more information, visit our website <u>www.starmans.net</u> or send us an e-mail to <u>ndt@starmans.net</u>

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