

## Inner-Tube Inspection Transducer

### IRA Inner-Ring-Series Wide Beam width & Electric Scanning

The **IRA** Series presents the world's first feeding speed with testing full-cross-section, simultaneous flaw detection and/or thickness measurement by multiple curve-fitted crystals to inside surface of a target tube with Composite crystals with a resonance frequency ranging from 5 to 20 MHz are applied to achieve a high-resolution flaw-detection transducer. Products range: the Angle Beam Transducer Series **IRA** for transversal cracks and.

These series apply line-focus parallel to the target tube-surface, thus providing high resolution and detection features.

A transducer include several crystals to cover 360 degree for full cross-section testing.

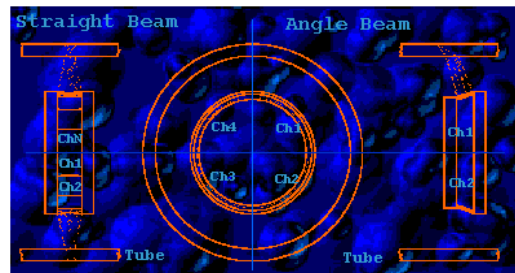
The IRA have low impedance delay-line to avoid mechanical damage (longer life time).

Crystal of all transducers is made by 1-3 composite with curve-fit shape. The effective beam width has been dramatically improved compared to typical ceramic flat crystals. A typical beam width is over 90 degree. Only 4 or 5 transducers cover 360 degree.

Typical IRA Type Transducer  
**IRA14-45A10C1x4**



IRA for large diameter



### Technical Data

No.	Description	Specification
1	Piezoelectric material	1-3 composite
2	Frequency range	5...20MHz
3	Tube Diameter	10...200mm
4	Beam width	5...100degree
5	Focus length	Down to 4mmR
6	Focus shape	Line focused
7	Crystals in a transducer	4..8 as standard, Optionally 1...64ch
8	Housing	Designed for each application
9	Cable	RG174U or 1.5mm dia.Coax.
10	Connector	Microdot, LEMO

### Standard Transducer

Max. Diameter (mm dia.)	Resonance Frequency (MHz)	Refraction angle (degree)	Number of crystals	Order Number	Tube Inner Diameter (mm dia.)
14	10	45	4	<b>IRA14-45A10C1x4</b>	15...20
14	10	45	6	<b>IRA14-45A10C1x6</b>	15...20
20	10	45	6	<b>IRA20-45A10C1x6</b>	21...28

20	10	45	8	<b>IRA20-45A10C1x8</b>	21...28
20	10	45	8	<b>IRA20-45A10C1x8T</b>	
35	10	45	8	<b>IRA35-45A10C1x8</b>	

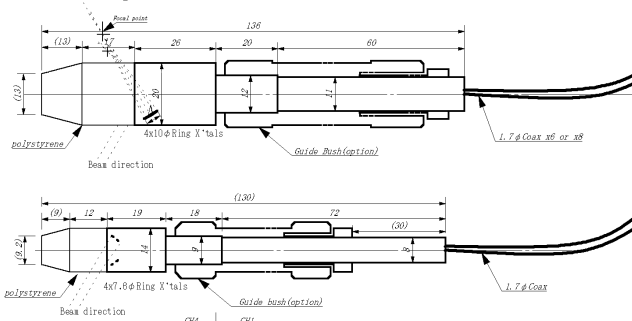
The appearance and specifications are subject to change for modifications without notice.

Mechanical size

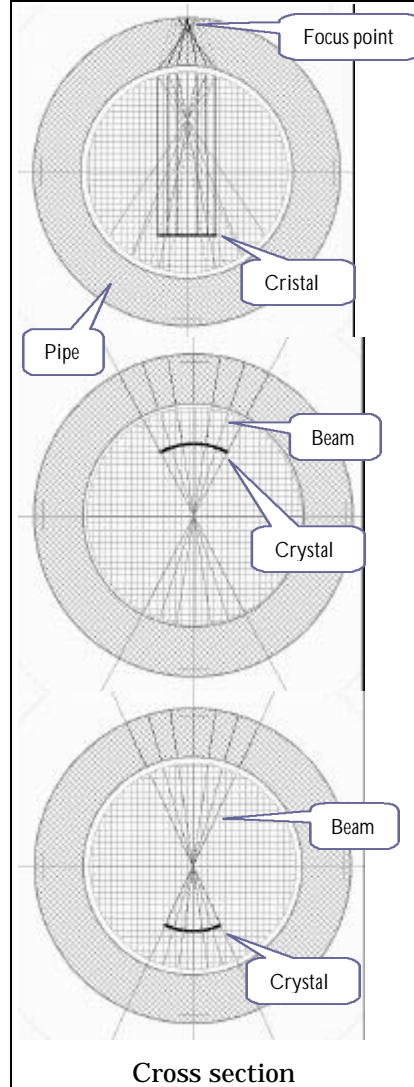
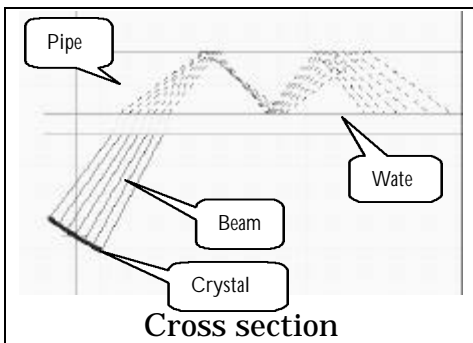
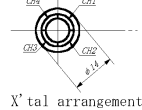
Right/Top: Conventional style of X'tal and beam

Right/Middle or Lower: our IRA way

① 20φ Type



② 14φ Type



### Related products:

- Multi-channel or Array Drivers MIX16: series as multiplexer and parallel firing with any ultrasonic equipment and/or stand alone.
- Fastest Tube Testing System **OTST**
- Outer Tube Transducer ORA Series
- Mechanical Inner Tube Scanning System.

## **Imaging Supersonic Laboratories Co.,Ltd.**

TEL:+81-742-40-2345,FAX: +81-742-40-2346

12-7 Tezukayama-nakamachi Nara-shi Nara Japan

Home-page:<http://www.sikasenbey.or.jp/~isl/index.html> Email:[iSL@sikasenbey.or.jp](mailto:iSL@sikasenbey.or.jp)