NDT1-220K Ultrasonic Transducer

Low cost ultrasonic transducer
Flexible Format
3 MHz nominal center frequency
High Bandwith; Low Q Performance
Low Impedance

The NDT1-220K element offers outstanding ultrasonic transducer performance in a low-cost, flexible format for general-purpose use. 3 MHz nominal center frequency, with extremely low Q-factor of 1.3 (air-backed, into PMMA). Electrical impedance is well matched to conventional NDT instrumentation (pulsar/receivers). Unit-to-unit repeatability is very good. The transducer is robust, and conforms perfectly to cylindrical surfaces such as pipe or tank walls. Epoxies, transfer adhesives, or even double-coated tapes may be used as bonding agents.

Description	Model No.	Part No.
Dual layer 110 µm	NDT1-220K	1005935-1

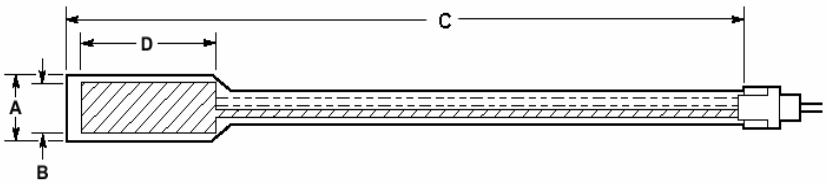
APPLICATIONS

- Liquid Presence/Absence (through-wall)
- Thickness Measurement (solids, elastomers)
- Liquid Depth (bottom-up)
- Speed of Sound Measurement
- Tamper Detection

FEATURES

- High Bandwidth, Low Q Performance
- Excellent Acoustic Match to Liquids, Polymers
- Low Electrical Impedance (30 to 100 ohms typ)
- Lightweight, Robust, Flexible Design
- Conforms to Flat or Curved Surfaces
- Low Cost, Disposable Transducers

Dimensions in Inches [in millimeters]

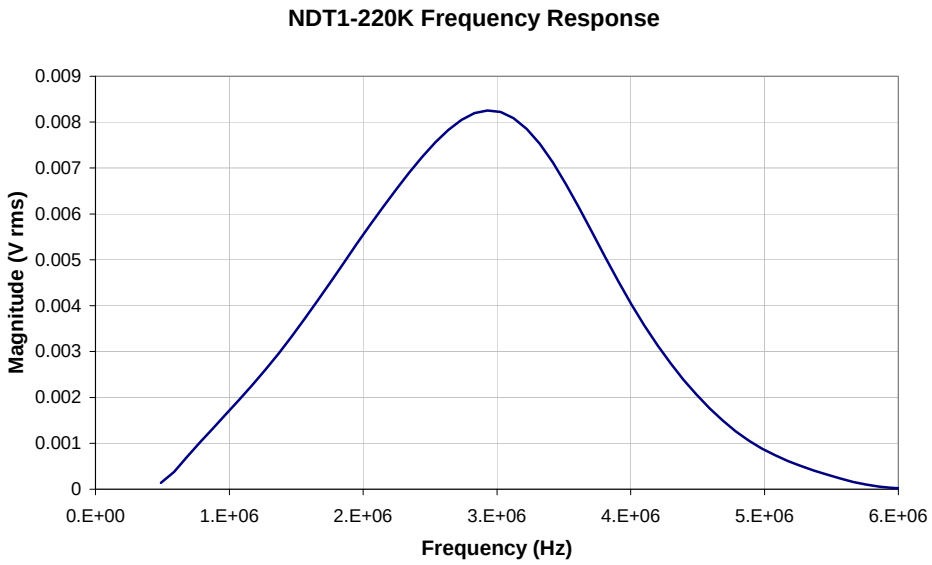


A (film)	B (electrode)	C (film)	D (electrode)
.650 [17]	.485 [12]	5.51 [140]	1.18 [30]

Connector provides two 0.025" square pins on 0.1" spacing and will mate with a wide range of FFC (flexible flat cable) receptacles.

NDT1-220K Ultrasonic Transducer

performance specifications



Typical properties/specifications

Typical Properties (at 25 °C)

Parameter	NDT1-220K	Units
Capacitance	670	pF @ 1 kHz
Center Frequency	3	MHz (in PPMA)
Lower -6 dB Freq	1.7	MHz
Upper -6 dB Freq	4.0	MHz
Q-Factor	1.3	(none)
Impedance at f(c)	100	ohms
Thickness (over length “C”)	0.30	mm

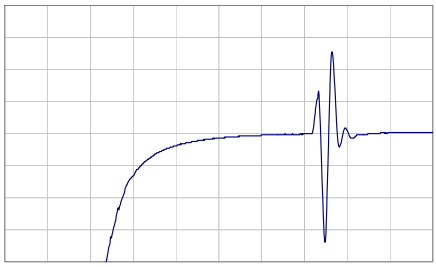
Environmental Specifications

Storage Temperature	-40 to +80 deg C
Operating Temperature	-20 to +60 deg C

NDT1-220K Ultrasonic Transducer

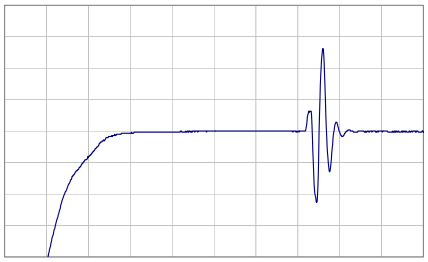
examples of typical receiver waveforms

damping = 0



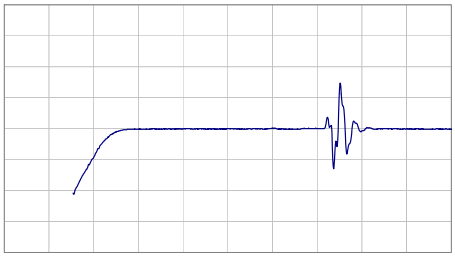
Y-axis: 0.2 V/div

damping = 5



Y-axis: 0.1 V/div

damping = 10



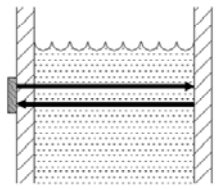
Y-axis: 10 mV/div

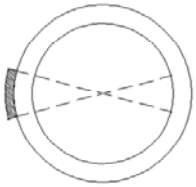
X-axis 1 µs/div, overall system gain: +10 dB
(note: transmit pulse amplitude varies according to damping setting).

Traces above taken using NDT1-220K element bonded with epoxy resin to nominal 9.5 mm thickness PMMA block.

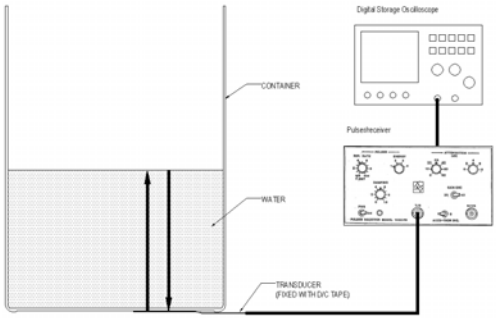
examples of applications

Liquid presence/absence in tank – through-wall





Liquid presence/absence in pipe or cylindrical vessel
(high S/N ratio)



Liquid depth in tank
(< 3 mm min depth, with polymer tank)

ordering information

North America

Measurement Specialties, Inc.
1000 Lucas Way
Hampton, VA 23666
Sales and Customer Service
Tel: +1-800-745-8008 or
+1-757-766-1500
Fax: +1-757-766-4297
Technical Support
Email: piezo@meas-spec.com

Europe

MEAS Deutschland GmbH
Hauert 13
44227 Dortmund
Germany
Sales and Customer Service
Tel: +49 (0)231 9740 21
Technical Support
Tel: +49 (0)6074 862822
Email: piezoeurope@meas-spec.com

Asia

Measurement Specialties (China), Ltd.
No. 26 Langshan Road
Shenzhen High-Tech Park (North)
Nanshan District, Shenzhen 518107
China
Tel: +86 755 3330 5088
Fax: +86 755 3330 5099
Technical Support
Email: piezo@meas-spec.com