OLYMPUS®

Your Vision, Our Future



# Transducers, Cables, Couplants and Test Blocks

Olympus NDT offers a complete selection of transducers, cables, couplants, calibration test blocks, and accessories to meet a wide variety of ultrasonic precision thickness gaging applications.

Ultrasonic thickness gages are used to precisely measure wall thickness in virtually any engineering material — metals, plastics, ceramics, composites, and more. Access to only one side of the part is required and a wide variety of materials can be measured with a single instrument.

Panametrics Microscan transducers are frequently used with the Series 25 and Series 35 thickness gages, as well as other commercially available thickness gages, flaw detectors, and ultrasonic instrumentation.

Microscan transducer part numbers reflect the connector designation:

RM = Right Angle Microdot®
SM = Straight Microdot
RB = Right Angle BNC
SB = Straight BNC
SU = Straight UHF

When selecting a transducer, please review the chart below or consult the Transducer Frequency Range in the Instruction Manual that was shipped with your gage.

| Thickness Gage Model | Transducer Frequency Range |
|---|---|
| 35, 35DL<br>25, 25DL<br>25DL PLUS<br>25MULTI PLUS | 2.0 MHz to 30 MHz |
| 35HP, 35DL-HP<br>25HP PLUS<br>25HPV | 0.5 MHZ to 5.0 MHz |

# Contact Transducers

One of the advantages of a Panametrics Microscan contact transducer is its versatility; a single transducer can cover a broad thickness range in many engineering materials. Contact transducers are constructed with the unique WC-5 wearplate for greater durability and longer life.

| Frequency (MHz) | Element Diameter | | Transducer Part Number |
|---|---|---|---|
| | mm | inches | |
| 0.5 | 25 | 1.00 | M101-SB |
| 1.0 | 25 | 1.00 | M102-SB |
| 1.0 | 13 | 0.50 | M103-SB |
| 2.25 | 13 | 0.50 | M106-RM, M106-SM |
| 2.25 | 13 | 0.50 | M1036† |
| 5.0 | 13 | .050 | M109-RM, M109-SM |
| 5.0 | 6 | 0.25 | M110-RM , M110-SM, M110H-RM** |
| 10 | 6 | 0.25 | M112-RM, M112-SM, M112H-RM** |
| 10 | 3 | 0.125 | M1016-RM |
| 20 | 3 | 0.125 | M116-RM, M116-SM |
| 20 | 3 | 0.125 | M116H-RM* |

RM = Right Angle Microdot; SM = Straight Microdot; SB = Straight BNC
†High Penetration Transducer
*Use with Holder, P/N 2133
**Use with Holder, P/N 2132



# Sonopen® Transducers


The Sonopen® transducer has a replaceable delay line that is tapered to a small contact area. This transducer makes reliable thickness measurements in applications such as turbine blades, threads on plastic bottle necks and tight radii on plastic containers. High-temperature Sonopen delay lines are also available.

| Frequency MHz | Nominal Element Size | | Transducer Part Numbers | | |
|---|---|---|---|---|---|
| | mm | inches | Straight Handle | Right Angle Handle | 45° Handle |
| 15 | 3 | 0.125 | V260-SM | V260-RM | V260-45 |

| Sonopen Replaceable Delay Lines | | |
|---|---|---|
| Tip Diameter | | Part Number |
| inches | mm | |
| 2.0 | 0.080 | DLP-3 |
| 1.5 | 0.060 | DLP-302 |
| 2.0 | 0.080 | DLP-301* |

* High temperature delay for use up to 175° C (350° F)

| Spring Loaded Holder |
|---|
| SLH-V260-SM* |

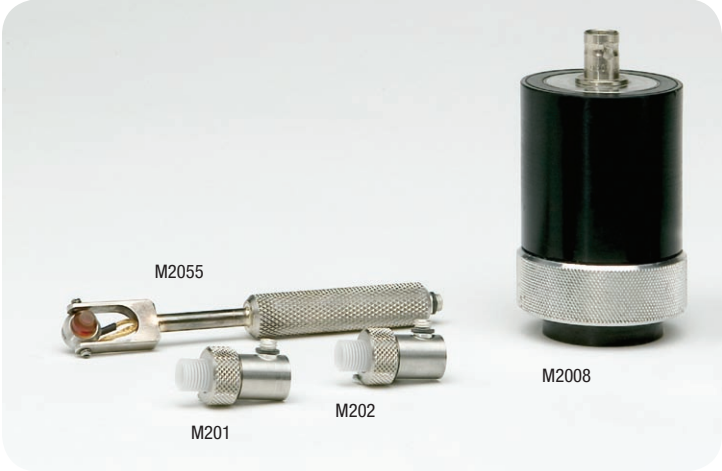
* For use with V260-SM only.

# Delay Line Transducers

Panametrics Microscan delay line transducers provide excellent performance on very thin materials, elevated temperatures, or in applications that require a high degree of thickness resolution.

| Frequency (MHz) | Element Diameter | | Transducer Part Number | Holders |
|---|---|---|---|---|
| | mm | inches | | |
| 0.5 | 25 | 1.00 | M2008 | — |
| 2.25 | 13 | 0.50 | M207-RB | — |
| 5.0 | 13 | 0.50 | M206-RB | — |
| 5.0 | 6 | 0.25 | M201-RM | — |
| 5.0 | 6 | 0.25 | M201H-RM | 2127 |
| 10 | 6 | 0.25 | M202-RM, M202-SM | — |
| 10 | 6 | 0.25 | M202H-RM | 2127 |
| 10 | 3 | 0.125 | M203-RM, M203-SM | — |
| 20 | 3 | 0.125 | M208-RM, M208-SM | — |
| 20 | 3 | 0.125 | M208H-RM | 2133 |
| 20 | 3 | 0.125 | M2055* | — |
| 30 | 6 | 0.25 | V213-BC-RM* | — |

* Delay line is not replaceable on these transducers.






# Replaceable Delay Lines

Delay lines function as a protective buffer between the surface of the test piece and the transducer's crystal.

| Element Diameter | | Delay Line Part Number | Maximum Thickness Measurement Limit* | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Steel - Mode 2 | | Steel - Mode 3 | | Plastic - Mode 2 | |
| mm | inches | | mm | inches | mm | inches | mm | inches |
| 13 | 0.50 | DLH-2 | 25 | 1.0 | 13 | 0.5 | 13 | 0.5 |
| 6 | 0.25 | DLH-1 | 25 | 1.0 | 13 | 0.5 | 13 | 0.5 |
| 3 | 0.125 | DLH-3 | 13 | 0.5 | 5 | 0.2 | 5 | 0.2 |

* Exact range depends on material sound velocity, transducer frequency, part geometry, and surface condition.


## High Temperature Delay Lines

High temperature delay lines function as a protective buffer between the hot surface of the test piece and the transducer's crystal. At elevated temperatures, intermittent contact is recommended to protect the transducer from thermal damage.

| Element Diameter | | High Temperature Delays | | |
|---|---|---|---|---|
| mm | inches | To 350°F (175°C) | To 500°F (260°C) | To 900°F (480°C) |
| 13 | 0.50 | DLHT-201 | DLHT-2 | DLHT-2G |
| 6 | 0.25 | DLHT-101 | DLHT-1 | DLHT-1G |
| 3 | 0.125 | DLHT-301 | DLHT-3 | DLHT-3G |



# Immersion Transducers


Panametrics Microscan immersion transducers are designed to transmit and receive ultrasound in water. Thickness measurements by immersion technique are often preferred when the test piece has a complex geometry or in online applications. Typical offline applications include wall thickness measurements on small diameter plastic or metal tubing, scanned or rotary measurements and thickness measurements on sharply curved parts. Transducer focusing may be necessary depending on the application.

| Frequency (MHz) | Element Diameter | | Transducer Part Number |
|---|---|---|---|
| | mm | inches | |
| 2.25 | 13 | 0.50 | M306-SU |
| 5.0 | 13 | 0.50 | M309-SU |
| 5.0 | 6 | 0.25 | M310-SU |
| 10 | 6 | 0.25 | M312-SU |
| 15 | 6 | 0.25 | M313-SU |
| 20 | 3 | 0.125 | M316-SU |

## Bubblers

We offer bubblers for easy implementation of immersion testing. They act as a holder for the transducers to maintain consistent water flow from transducer to test surface and prevent the accumulation of air bubbles on the transducer face.

## Bubbler Transducer Assembly

Handheld bubbler transducers are available in either 20 MHz (V316B) or 10 MHz (V312B) sizes. They are immersion transducers that screw onto a bubbler assembly (B120), which has a replaceable stainless steel tip and a water feed tube. They offer high resolution and easy access inspection of thin materials.

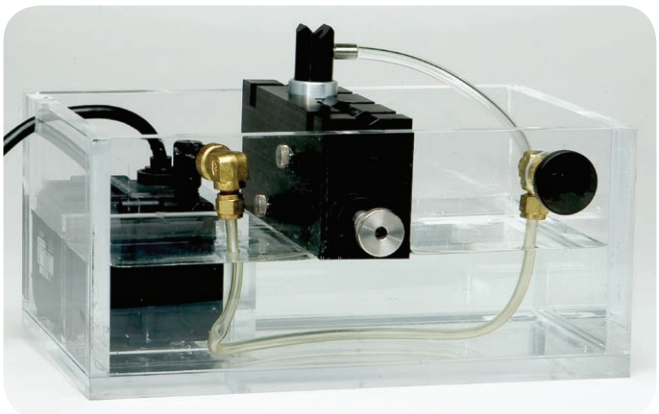
| Part Number | Opening | | Water Path | | Fits Transducer Part Number |
|---|---|---|---|---|---|
| | mm | inches | mm | inches | |
| B100 | 3 | 0.125 | 32 | 1.250 | M310A-SM, M312A-SM, M316A-SM |
| B103** | 9 | 0.350 | 14.5 | 0.575 | M310-SU, M312-SU, M313-SU, M316-SU |
| B103W | 14 | 0.550 | 19.7 | 0.775 | M306-SU, M309-SU |
| B103A** | 9 | 0.350 | 14.5 | 0.575 | same as B103 |

** The B103 has a V-notch shaped opening; the B103A and B103W are flat.
Case diameter is 0.63 in (16 mm) and the length is 38.86 mm (1.53 in)

| Frequency (MHz) | Nominal Element Size | | Focal Length | | Transducer Part Number | Bubbler Assembly | Replacement Tip | Flexible Tip |
|---|---|---|---|---|---|---|---|---|
| | mm | inches | mm | inches | | | | |
| 10 | 6 | 0.25 | 25 | 1.00 | V312B-RM | B120 | B120-TIP | B120-FLEX-TIP |
| 20 | 3 | 0.125 | 19 | 0.75 | V316B-RM | B120 | B120-TIP | B120-FLEX-TIP |

# RBS-1 Immersion Tank

The RBS-1 immersion tank is designed to simplify ultrasonic thickness measurements using immersion techniques. It consists of a clear acrylic tank, a submersible pump, and a transducer fixture in a single, portable unit. It is ideal for offline thickness measurements on metal, glass and plastic products such as small containers, pipe or tubing, sheets or plates, or machined parts.



## Tank

- 140 mm x 305 mm x 200 mm (5.5 in. x 12 in. x 8 in.)
- 3.1 liter (0.83 gallon) capacity

## Pump

- 0 liters to 0.9 liters (0 gallons to 0.25 gallons) per minute
- 115 V or 230 V, 30 watt (voltage range 90 to 135 VAC), 50 Hz to 60 Hz
- Submersible (ground fault interrupter circuit recommended)

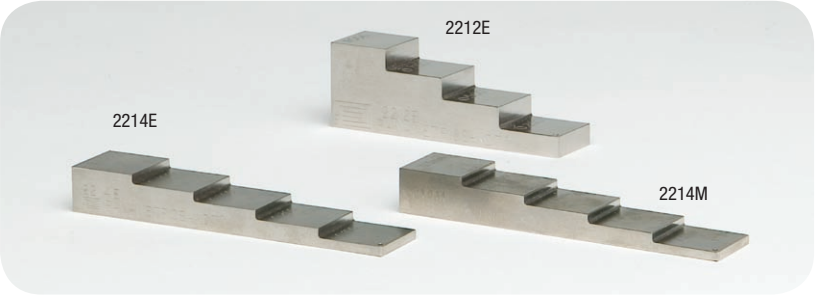
# Couplants

The use of couplant is almost always necessary to provide acoustic coupling between the transducer and the test piece. We offer various types of couplants to suit virtually all applications.


| Part Number | Description | Volume | Application |
|---|---|---|---|
| A2 | Propylene Glycol | 0.06 liter (2 oz) | General purpose couplant for smooth surfaces. Chemically non-reactive, does not evaporate quickly. The maximum recommended temperature is 90° C (200° F) |
| AP | | 0.47 liter (1 pint) | |
| AQ | | 0.95 liter (1 quart) | |
| AG | | 3.78 liter (1 gallon) | |
| B2 | Glycerin | 0.06 liter (2 oz) | General purpose, more viscous and has a high acoustic impedence making it the preferred couplant for rough surfaces and highly attenuating materials. |
| BQ | | 0.95 liter (1 quart) | |
| C2 | Silicone Oil | 0.06 liter (2 oz) | General purpose, non-corrosive, does not evaporate, and is insoluble in water. |
| D12 | Gel Type | 0.35 liter (12 ounces) | Rough surfaces such as sand-cast metals and fiberglass layups. Weld inspections, overhead surfaces, or vertical walls. |
| DG | | 3.78 liter (1 gallon) | |
| D-5G | | 18.90 liter (5 gallons) | |
| E-2 | Ultratherm | 0.06 liter (2 oz) | 260° C to 540° C (500° F to 1,000° F), remains a stable liquid or paste without boiling off |
| G-2 | Medium Temp | 0.06 liter (2 oz) | –12° C to 315° C (0° F to 600° F), easy removal at high temperatures, non-toxic, and biodegradable. |
| SWC | Shear Wave | 0.12 liter (4 oz) | Normal Incidence Shear Wave, non-toxic, water soluble, organic substance of very high viscosity. |
| HP-G | Powdered Couplant | Makes 3.78 liter (1 gallon) | Bulk couplant: Customize the viscosity by adding different amounts of water. Temperature range for this couplant is 0° C to 54° C (32° F to 130° F). Can be winterized by mixing with windshield washer fluid. |
| HP-G-C | | Makes 3.78 liter (1 gallon) | |

# Calibration Test Blocks

Test blocks are necessary for the calibration of ultrasonic thickness gages and should be used to maintain and verify the accuracy, dependability, and reliability of ultrasonic measurements. Blocks are held to tighter tolerances than stated in ASTM E797 code. Metric test blocks are available.




| Part Number | Material | Steps |
|---|---|---|
| 2211E | 304 Stainless Steel | .100 in., .200 in., .300 in., .400 in., and .500 in. |
| 2212E | 1018 Carbon Steel | .250 in., .500 in., .750 in., .400 in., and 1.00 in. |
| 2213E | 7075-T6 Aluminum | .100 in., .200 in., .300 in., .400 in., and .500 in. |
| 2214E | 1018 Carbon Steel | .100 in., .200 in., .300 in., .400 in., and .500 in. |
| 2214M | 1018 Carbon Steel | 2.5 mm, 5.0 mm, 7.5 mm, 10.0 mm and 12.5 mm |

# Transducer Cables


Olympus-NDT offers a wide selection of transducer cables suitable for all ultrasonic thickness gaging instrumentation.

| Part Number | Connectors | Available Lengths |
|---|---|---|
| LCM-74-X | Small LEMO® 00 to Microdot® | 0.9 m (3 ft), 1.2 m (4 ft), 1.8 m (6 ft) |
| LCB-74-X | Small LEMO® 00 to BNC | 0.9 m (3 ft), 1.2 m (4 ft), 1.8 m (6 ft) |
| BCM-74-X | BNC to Microdot® | 0.9 m (3 ft), 1.2 m (4 ft), 1.8 m (6 ft) |
| LCU-74-X | LEMO® 00 to UHF | 0.9 m (3 ft) |

**X = length of cable, please specify from available lengths (3, 4 or 6).**

## Standard

- Standard cables are recommended for normal usage.

## Heavy Duty – Teflon®

- Heavy duty, Teflon® (HD) transducer cables may provide durability and longer life.

## Waterproof

- Waterproof (W) cables are recommended in many tests with immersion transducers. These cables provide a waterproof connection good to approximately 30 ft (10 m) of fresh water. At greater depths, special cables are available.

## Heavy Duty – Armored PVC Jacket

- Heavy duty, armored PVC jacket (HDAP) transducer cables have a spiral stainless steel jacket with a solid PVC coating. Maximum length is 7 m (20 ft).

## Heavy Duty – Armored Silicone Jacket

- Heavy duty, armored super flexible silicone jacket (HDAS) transducer cables combine a spiral stainless steel jacket with a heavy silicone coating for great flexibility. Length can be specified up to 7 m (20 ft).

## Heavy Duty Stainless Steel

- Heavy duty, armored, stainless steel jacket (SSA) transducer cables are recommended for heavy and industrial use to provide flexibility, protection and long life.

**OLYMPUS NDT INC. is ISO 9001 certified.**

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