

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 38DL PLUS and 35 Series 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 38DL PLUS	2.25 MHz to 30 MHz
35HP, 35DL-HP 38DL PLUS (with HP option)	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	Item Number
	mm	inches		
0.5	25	1.00	M101-SB	U8400017
1.0	25	1.00	M102-SB	U8400018
1.0	13	0.50	M103-SB	U8400020
2.25	13	0.50	M106-RM M106-SM	U8400023 U8400025
2.25	13	0.50	M1036†	U8400019
5.0	13	.050	M109-RM M109-SM	U8400027 U8400028
5.0	6	0.25	M110-RM M110-SM, M110H-RM**	U8400030 U8400031 U8400029
10	6	0.25	M112-RM M112-SM, M112H-RM**	U8400034 U8400035 U8400033
10	3	0.125	M1016	U8400015
20	3	0.125	M116-RM M116-SM	U8400038 U8400039
20	3	0.125	M116H-RM*	U8400037

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.

Sonopen – 15 MHz, 3 mm (0.125 in) transducer					
Straight Handle		Right Angle Handle		45° Handle	
Part	Item Number	Part	Item Number	Part	Item Number
V260-SM	U8411019	V260-RM	U8411018	V260-45	U8411017

Sonopen – Replaceable Delay Lines			
Tip Diameter		Part	Item Number
mm	inches		
2.0	0.080	DLP-3	U8770086
1.5	0.060	DLP-302	U8770088
2.0	0.080	DLP-301*	U8770087

Spring Loaded Holder

Part: SLH-V260-SM*
Item No.: U8770416

* For use with V260-SM only.

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

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	Item Number	Holder	Item Number
	mm	inches				
0.5	25	1.00	M2008	U8415001	—	
2.25	13	0.50	M207-RB	U8410017	—	
5.0	13	0.50	M206-RB	U8410016	—	
5.0	6	0.25	M201-RM	U8410001	—	
5.0	6	0.25	M201H-RM	U8411030	2127	U8770408
10	6	0.25	M202-RM	U8410003	—	
			M202-SM	U8410004	—	
10	6	0.25	M202H-RM	U8507023	2127	U8770408
10	3	0.125	M203-RM	U8410006	—	
			M203-SM	U8410007	—	
20	3	0.125	M208-RM	U8410019	—	
			M208-SM	U8410020	—	
20	3	0.125	M208H-RM	U8410018	2133	U8770412
20	3	0.125	M2055*	U8415013	—	
30	6	0.25	V213-BC-RM*	U8411022	—	

* 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		Maximum Thickness Measurement Limit*					
				Steel - Mode 2		Steel - Mode 3		Plastic - Mode 2	
mm	inches	Part	Item Number	mm	inches	mm	inches	mm	inches
13	0.50	DLH-2	U8770062	25	1.0	13	0.5	13	0.5
6	0.25	DLH-1	U8770054	25	1.0	13	0.5	13	0.5
3	0.125	DLH-3	U8770069	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					
		To 175 °C (350 °F)		To 260 °C (500 °F)		To 480 °C (900 °F)	
mm	inches	Part	Item Number	Part	Item Number	Part	Item Number
13	0.50	DLHT-201	U8770080	DLHT-2	U8770079	DLHT-2G	U8770081
6	0.25	DLHT-101	U8770076	DLHT-1	U8770075	DLHT-1G	U8770078
3	0.125	DLHT-301	U8770083	DLHT-3	U8770082	DLHT-3G	U8770085



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	Item Number
	mm	inches		
2.25	13	0.50	M306-SU	U8410027
5.0	13	0.50	M309-SU	U8420001
5.0	6	0.25	M310-SU	U8420004
10	6	0.25	M312-SU	U8420008
15	6	0.25	M313-SU	U8420009
20	3	0.125	M316-SU	U8420011

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.

Part	Item Number	Opening		Water Path		Fits Transducer
		mm	inches	mm	inches	
B100	U8770433	3	0.125	32	1.250	M310A-SM, M312A-SM, M316A-SM
B103**	U8770354	9	0.350	14.5	0.575	M310-SU, M312-SU, M313-SU, M316-SU
B103W	U8770357	14	0.550	19.7	0.775	M306-SU, M309-SU
B103A**	U8770355	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)

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.

Frequency (MHz)	Nominal Element Size		Focal Length		Transducer	Item Number	Part	Item Number	
	mm	inches	mm	inches					
10	6	0.25	25	1.00	V312B-RM	U8423020	Bubbler Assembly	B120	U8770363
20	3	0.125	19	0.75	V316B-RM	U8423031	Replacement Tip	B120-TIP	U8769006
							Flexible Tip	B120-FLEX-TIP	U8770364

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.

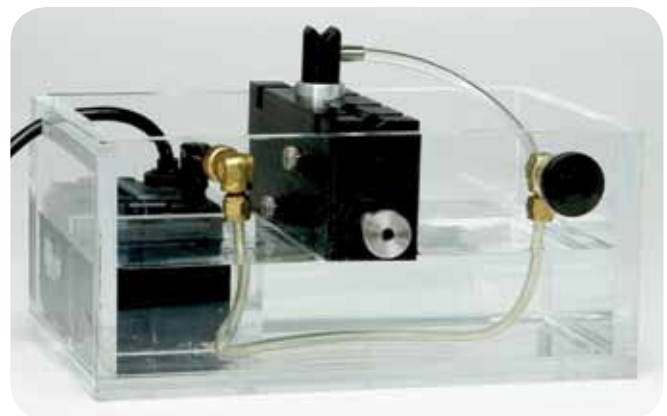
Tank

- 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)

115 V: RBS-1-15 (U8770414); **230 V:** RBS-1-30 (U8770415)



Couplants

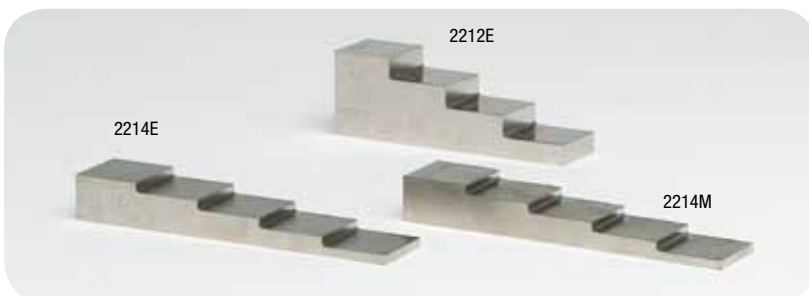
The use of couplant is almost always necessary to provide acoustic coupling between the transducer and the test piece. We offer various types of couplants to suit virtually all applications.



Part	Item Number	Description	Volume	Application
A2	U8770273	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	U8770021		0.47 liter (1 pint)	
AQ	U8770022		0.95 liter (1 quart)	
AG	U8770353		3.78 liter (1 gallon)	
B2	U8770023	Glycerin	0.06 liter (2 oz)	General purpose, more viscous and has a high acoustic impedance making it the preferred couplant for rough surfaces and highly attenuating materials.
BQ	U8770024		0.95 liter (1 quart)	
C2	U8770025	Silicone Oil	0.06 liter (2 oz)	General purpose, non-corrosive, does not evaporate, and is insoluble in water.
D12	U8770026	Gel Type	0.35 liter (12 oz)	Rough surfaces such as sand-cast metals and fiberglass layups. Weld inspections, overhead surfaces, or vertical walls.
DG	U8770030		3.78 liter (1 gallon)	
D-5G	U8770029		18.90 liter (5 gallons)	
E-2	U8770274	Ultratherm	0.06 liter (2 oz)	260 °C to 520 °C (500 °F to 970 °F), remains a stable liquid or paste without boiling off
G-2	U8770276	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	U8770227	Shear Wave	0.12 liter (4 oz)	Normal Incidence Shear Wave, non-toxic, water soluble, organic substance of very high viscosity.
HP-G	U8770298	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	Item Number	Material	Steps
2211E	U8880004	304 Stainless Steel	.100 in., .200 in., .300 in., .400 in., and .500 in.
2212E	U8880008	1018 Carbon Steel	.250 in., .500 in., .750 in., .400 in., and 1.00 in.
2213E	U8880010	7075-T6 Aluminum	.100 in., .200 in., .300 in., .400 in., and .500 in.
2214E	U8880014	1018 Carbon Steel	.100 in., .200 in., .300 in., .400 in., and .500 in.
2214M	U8880016	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	Item Number	Connectors	Available Lengths
LCM-74-3	U8800347	Small LEMO 00 to Microdot	0.9 m (3 ft)
LCM-74-4	U8800348		1.2 m (4 ft)
LCM-74-6	U8800349		1.8 m (6 ft)
LCB-74-3	U8800319	Small LEMO 00 to BNC	0.9 m (3 ft)
LCB-74-4	U8800320		1.2 m (4 ft)
LCB-74-6	U8800321		1.8 m (6 ft)
BCM-74-3	U8800183	BNC to Microdot	0.9 m (3 ft)
BCM-74-4	U8800185		1.2 m (4 ft)
BCM-74-6	U8800189		1.8 m (6 ft)
LCU-74-3	U8800966	LEMO 00 to UHF	0.9 m (3 ft)

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, 14001 certified.

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