

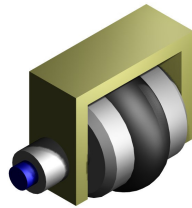
N.T.S. Ultrasonics Pty Ltd
RL-70 Ultrasonic Wheel Probe

The RL-70 ultrasonic wheel probe from N.T.S. Ultrasonics Pty Ltd will be of interest to organizations engaged in ultrasonic non-destructive testing. This wheel probe is intended for ultrasonic inspection applications requiring a single transducer aligned normal to the test surface. It presents a compact design suitable for use in many applications.

Advantages of the RL-70 ultrasonic wheel probe include:

- Compact size for the internal water path length achieved.
- Manual alignment not required.
- Downward pressure not required to ensure good surface contact.
- The acoustic impedance of the tyre material is similar to that of water.
- The design minimizes internal reflections.
- Uses off-the-shelf transducers.

Based on information from the client concerning the end application, N.T.S. Ultrasonics will select a suitable transducer for the RL-70 that matches the client requirements. Alternatively, the client can select a transducer compatible with the requirements of the RL-70.



Wheel probe with transducer and caliper

Features:

- Uses a single transducer in a standard 16 mm diameter immersion style case with UHF, BNC or Microdot connector. Frequencies up to 5 MHz can be used.
- 70 mm water path allows testing thicknesses in excess of 250 mm (10”) in steel.
- Wheel alignment keyed to calliper. 3 orientations available for mounting: left, vertical, right

Materials:

- Axle assembly: stainless steel.
- Hubs: black Delrin (stainless steel optional).
- Tyre: soft rubber.
- Calliper: anodized Aluminium.

Dimensions (subject to change):

- Diameter of inflated wheel: 70 - 80 mm (~2.75”)
- Width across the axle: 120 mm (~4.7”)
- Height with calliper: 105 mm (~4”)

Accessories:

- Hand trolley. Allows convenient manual scanning of work pieces.
- Beam collimator. An internal fitting to the wheel which increases sensitivity by about 6dB by constraining the beam spread.

The RL-70 tyre is made from a rubber with lower ultrasonic attenuation at 5 MHz than typical polyurethane formulations used for wheel probe tyres, and which provides a softer, more compliant contact zone to the work piece than polyurethane.

Properties of tyre materials:

Tyre Material	Attenuation dB/mm			Hardness
	@ 1 MHz	@ 2.25 MHz	@ 5 MHz	
Rubber (RL-70)	1.6	2.0	2.4	Shore A 40-50
Polyurethane (typical)	1.2	1.4	3.4	90-95

Applications:

The RL-70 ultrasonic wheel probe is suited to a wide variety of applications including:

- tank wall inspection,
- drill stem inspection,
- corrosion mapping,
- thickness testing,
- ultrasonic flaw detection.

Calliper:

The optional calliper can be supplied undrilled or drilled with mounting holes to the client's specification.

The calliper can also be supplied with a tube attachment and feed for coupling water.

Customizing:

All N.T.S. Ultrasonics Pty Ltd products can be customized to some extent to suit individual client requirements. With the RL-70 alternative materials can be used in fabrication, adaptors can be supplied for some different styles of transducer, and the calliper design can be modified. Wheel probe mounts for specific applications can be designed to client specifications, e.g. for tank wall inspection. Please enquire about our customized solutions.

Modified RL-70 wheels can be used to generate angled shear waves in test materials.

Other diameter ultrasonic wheel probes:

N.T.S. Ultrasonics Pty Ltd can supply wheel probes with other diameters, larger than the RL-70. Larger diameter wheel probes use a 120 mm rubber tyre for an 85 mm water path, or a 180 mm diameter polyurethane tyre, suitable for multi-transducer configurations as used in rail flaw detection. Please enquire about other wheel probe options if the RL-70 does not meet your requirements.

Ultrasonic instrumentation:

N.T.S. Ultrasonics Pty Ltd can supply cost effective computer controlled ultrasonic instrumentation for applications using the RL-70 wheel probe. These systems use a full speed (480 Mbps) USB2.0 serial link to the computer which can be an embedded, desktop, or notebook computer. Single or multi-channel ultrasonic systems can be configured. Please enquire about our ultrasonic instrumentation.

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