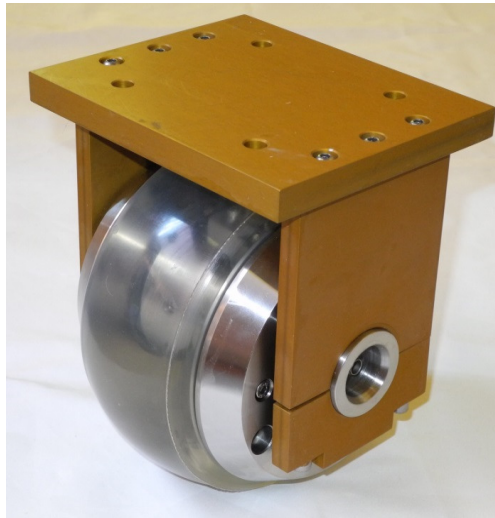


## PL-180 ULTRASONIC WHEEL PROBE



The PL-180 ultrasonic wheel probe (or roller search unit) 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 heavy duty ultrasonic inspection applications requiring multiple transducers. It is suitable for railway and steel mill applications.

Advantages of the PL-180 ultrasonic wheel probe include:

- Large internal space for fitting transducers.
- Manual alignment not required.
- Easily customizable with different transducer configurations.
- Can accept paintbrush style transducers.
- Can be modified to accept phased array transducers.
- Can be customized.
- Can be built with an internal water path length of 100 mm or more, allowing sections of steel in excess of 400 mm thick to be inspected in pulse-echo mode.

Based on information from the client concerning the end application, N.T.S. Ultrasonics will select suitable transducers for the PL-180 that meet the client's requirements. Alternatively, the client can supply transducers compatible with the requirements of the PL-180.

### **Applications.**

The PL-180 ultrasonic wheel probe is suited to a wide variety of applications including:

- Ultrasonic rail flaw detection.
- Drill stem inspection.
- Steel mill applications.

- Ultrasonic flaw detection.

### PL-180 tyres.

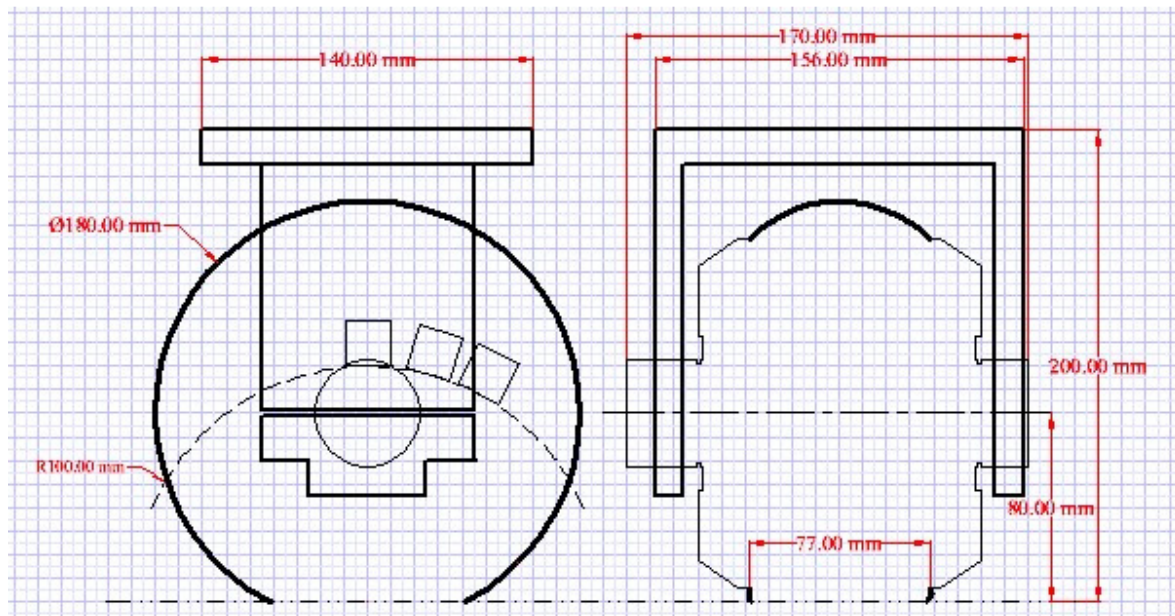
The PL-180 tyres are manufactured from a commercially available resin. They are suitable for use with ultrasonic frequencies up to 2.25 MHz.

Property	Value
Hardness	Shore A 90-95
Insertion loss @ 2.25 MHz	9-10 dB
Attenuation @ 2.25 MHz	Approx. 1.4 dB/mm
Insertion loss @ 5 MHz	13-14 dB
Attenuation @ 5 MHz	Approx. 3.4 dB/mm

The PL-180 tyre requires a liquid couplant layer between the tyre and the test surface. Usually this would be water sprayed either onto the test surface or the surface of the tyre. The wheel is filled with a liquid for internal coupling. If it is intended to use the wheel to produce shear waves in the test item, the wheel must be filled with a fluid mixture that provides a minimal variation of ultrasonic velocity with temperature. NTS Ultrasonics provides instructions on how to make such a mixture.

### Caliper.

The PL-180 can be supplied with a caliper to allow attachment to test carriages and other structures. The caliper can be a simple bracket or can incorporate a full suspension system.



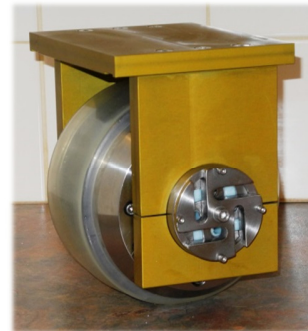
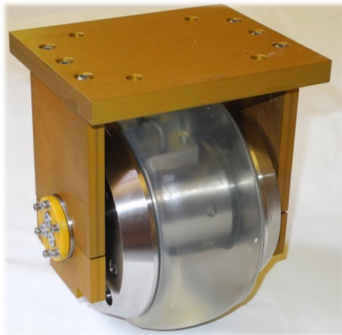
KEY DIMENSIONS OF A TYPICAL PL-180 WHEEL PROBE WITH CALIPER

### **Configurations.**

For railway applications, a preferred PL-180 configuration will comprise a 0 degree, 38 degree, and 70 degree transducer in a single wheel. The configuration will be either a forward shooting wheel or a backward shooting wheel, to avoid internal echoes. However, different configurations suggested by the client can also be supplied.

### **Customizing.**

The PL-180 ultrasonic wheel probe can be customized. The transducer configuration can be changed and the wheel design can be modified to take phased array transducers. Design variations accepting up to four PA transducers have been produced and built.



For more information on the PL-180 wheel probe, please contact:

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