



Application Note

Ultrasonic Thickness Measurements on Rubber Sheets and Coatings

Rubber sheets and coatings can be difficult to gauge with conventional mechanical thickness measurement techniques. However, ultrasonic thickness gauging enables measurements on any point on the surface of a rubber sheet—not just the edges—without contacting the opposite side. Ultrasound waves travel through the rubber coating and reflect from the acoustic interface of the rubber and the substrate. This acoustic interface can be air, rubber steel, rubber composite, or other materials as long as the outside surface of the rubber is available for probe coupling.

It is important to fully understand the application before taking thickness measurements. Rubber coating on certain materials may require special setups to maintain accurate thickness readings.

Ultrasonic Equipment Used for Thickness Measurements on Rubber Sheets

Ultrasonic thickness measurements on rubber sheets can be performed using precision thickness gauges, such as the 38DL PLUS™ gauge and the 45MG gauge with Single Element software. When combined with the appropriate transducers between 2.25 MHz and 20 MHz, these handheld gauges can typically measure rubber materials in the range of 0.008 to 0.250 in. (0.2 to 6 mm). This range will vary depending on the transducer and setup being used. Thick or attenuating rubber materials will require the High Penetration software option for the 38DL PLUS and 45MG gauges.

The 72DL PLUS™ gauge offers a larger touch-screen display and a higher measurement update rate (up to 2 KHz). This gauge is available in a high-frequency version (up to 125 MHz) for measuring very thin rubber coatings. It can measure much thinner materials than conventional ultrasonic thickness gauges.

Products used for this application



38DL PLUS

The 38DL PLUS advanced ultrasonic thickness gauge uses dual element transducers for internal corrosion applications and has features that include THRU-COAT technology and echo-to-echo. It uses single element transducers for very precise thickness measurements of thin, very thick, or multilayer materials.



45MG

The handheld 45MG ultrasonic thickness gauge is packed with measurement features and software options. This unique instrument is compatible with the complete range of Olympus dual element and single element transducers, making this gauge an all-in-one solution for virtually every thickness gauge application.



72DL PLUS

The 72DL PLUS advanced precision ultrasonic thickness gauge using a single element transducer up to 125 MHz. It features a large high-resolution touch screen display and is ideally suited to measure the thickness of very thin materials, including multilayer paint, coatings, and plastic. It can simultaneously display the thickness of up to 6 layers.

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OLYMPUS CORPORATION OF THE AMERICAS
48 Woerd Avenue, Waltham, MA 02453, USA, Tel.: (1) 781-419-9300
110 Magellan Circle, Webster, TX 77598, USA, Tel.: (1) 281-922-9300

For inquiries - contact
www.olympus-ims.com/contact-us