

Dakota Thickness Probe Selection Guide

The following is meant to provide general guidance for probe selection. There are many considerations and dozens of probes not mentioned here. For assistance in selecting the optimal probe for your application, please provide details of your application.

Dakota ZX Thickness Gauges include a 5 MHz, 1/4" diameter probe with a potted 4' long cable.



The 5 MHz, 1/4" diameter probe will meet most thickness gauging needs. However, some applications require:

- Higher resolution
- Higher power
- More or less sensitivity

Considerations:



1- Diameter

Dakota Thickness Probe Selection Guide

- a. A 3/16" diameter probe is better suited for measuring small diameter tubes ~ 1" and less, as it makes better contact
- b. A 1/2" diameter probe is better suited for measuring thick materials as it has 4x the contact area as compared to a 1/4" probe and, therefore, has more power to penetrate thicker materials

2- Frequency

- a. The most common frequency is 5 MHz with a wavelength suitable for detecting pits of ~ 1/32" diameter, and measuring down to about 0.040"
- b. If more sensitivity or better near surface resolution is needed, a 7.5 or 10 MHz should be considered
- c. Lower frequency probes, 1 MHz or 2.25 MHz, provide greater penetration with less noise from grainy material

3- Connector



- a. Potted cables are standard, but replaceable cables are offered when cable wear is an issue. Available probe connectors include dual microdot or dual lemo 00 connectors

4- Orientation

Dakota Thickness Probe Selection Guide



- a. Side mount connectors are standard, but top mount are available for applications with limited access

5- Optimization (Basic & Advanced Thru-Coating Applications)



- a. HD - High Damped – are best suited for Multi-Echo Thru-Coating applications
- b. HR - High Resolution - for best near surface resolution
- c. CT – Coating Enabled - for use with CMX and its Thru-Coating measurement features
- d. CPZT – Composite – High Output PZT damped for additional power/penetration

6- High Temperature

Dakota Thickness Probe Selection Guide



- a. 4" Long probe housing with top-mounted connectors to reach through insulation and protect the operator's fingers
- b. The best of these use temperature stable delay lines for measurements on materials to 950⁰ F.
- c. Available in 1/4" and 1/2" diameters (use the 1/4" for most pipes, the 1/2" diameter probe for large diameter pipe and pressure vessels).

7- High Wear

- a. For scanning applications where probe wear is an issue, probes are available with a hard, wear-resistant ring.

Recommended probes

3- CMX

- a. 1/4", 5 MHz, T-102-2700 Potted Side
- b. 3/16", 7.5 MHz, T-101-3900 Potted Side
- c. 1/2", 3.5 MHz, T-104-9900 Potted Side
- d. 1/4", 5 MHz, T-212-2001 Hi Temp - 900F Microdot Top