

Dakota MX Corrosion Thickness Gauges

Can be used in accordance with:
NIST & MIL-STD-45662



The Dakota MX Corrosion Thickness Gauge range have large, easy to read displays and provides users with A and B-Scan options for accurate interpretation of measurements.

The Dakota MX corrosion thickness gauge is available in two models: MX1-DL Thickness Gauge and MX2-DL Thickness Gauge. Both models offer 2D cross sectional block view, providing a graphical representation of a material's thickness, ideal for accurate analysis and identification of pits and corroded areas.

MX1-DL Ultrasonic Thickness Gauge: Taking 250 readings per second in scan mode, the internal data logger stores up to 4GB worth of data together with their waveforms.

MX2-DL Ultrasonic Thickness Gauge: As well as all the features of the MX1-DL Thickness Gauge, the MX2-DL Thickness Gauge also features an A-Scan display, allowing users to fully interpret and control measurement readings. The user can select to view either the full waveform (RF) or the rectified waveform (RECT) showing either the positive or the negative cycle of the full waveform.

Detection Methods

Zero Crossing: The gate detects the flank of the pulse, but the measurement is taken at the next crossing of the x axis. This is the most common type of detect in ultrasonic measurement.

Flank: The gate is triggered by the flank (or side) of the pulse on the graph and the measurement taken at this exact point.

Peak: The gate is triggered by the intersection with the A-scan pulse and the detection is taken from the next peak in the signal (when it stops rising and starts falling).

TRIG: TRIG enabling location of flaws in both surface distance and depth. Trigonometric display of beam path, depth, surface distance, and curved surface correction. Used with angle beam transducers.

DAC: Distance amplitude correction for the creation of DAC curves which are used to inform the operator of the size of any given flaw at any depth.

AWS: The American Weld Standard function provides automatic defect sizing in accordance with AWS D1.1 structural welding code.

TCG: Time corrected gain increases gain as distance increases, in order to achieve an overall level of sensitivity for the same flaw/reflector at different distances.

Introducing the Dakota MX Corrosion Thickness Gauges

The Dakota MX Corrosion Thickness Gauge range have large, easy to read displays and provides users with A and B-Scan options for accurate interpretation of measurements.



Powerful

Taking 250 readings per second in scan mode, the internal data logger stores up to 4GB of readings together with their waveforms.

Customizable

The Dakota MX ultrasonic thickness gauge range has a choice of display modes allowing the user to select the most appropriate for their needs; Readings, B-Scan, B-Scan combined with readings, Scan bar & the A-Scan on the MX2-DL Corrosion Thickness Gauge.



Versatile

Flexible & easy to use, the Dakota MX Corrosion Thickness range doesn't just measure uncoated surfaces but can also measure coated surfaces. Using Echo Echo ThruPaint Mode (EE), coatings up to 1mm are ignored.

Features Explained

Repeatability / Stability Indicator

Consisting of 6 vertical bars, when all the bars are fully illuminated and the last digit on the digital thickness value is stable, the gauge is reliably measuring the material thickness.

Differential Mode

Once a user defined nominal thickness value has been set, the gauge will display the +/- thickness difference from the nominal value entered.



V-Path Correction

Dual element transducers consist of a probe with two crystals (one to transmit and one to receive the sound pulse). The crystals are separated by an acoustic barrier - generating a 'V-shaped' sound path as the sound travels from one element to the other. This path is slightly longer than the direct path therefore V-path correction is used to calculate the correct thickness.

High Speed Scan with Minimum Thickness Display

By significantly increasing the measurement refresh rate this mode allows the user to make scanned passes over the test material. The smallest thickness value is held in memory and displayed when scanning is complete. This feature can also be used in conjunction with the minimum & maximum limit alarm feature (model dependant).

Limit Alarm Mode

The user can define minimum and maximum thickness limits. If the measurement falls outside the upper or lower limit a red LED will light and the beeper sounds. A green LED will light to indicate an acceptable thickness.

Measurement Modes Explained

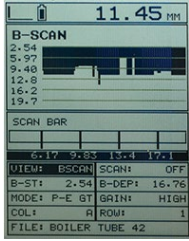
Pulse Echo (PE):

The normal display mode measures the total thickness from the base of the transducer probe to the material density boundary (typically the back wall). Ideal for pit and flaw detection.

Echo - Echo Mode (EE):

Also known as the ThruPaint Mode, EE ignores the coating thickness, displaying the material thickness from the top surface of the material to the material density boundary.

Display Modes Explained

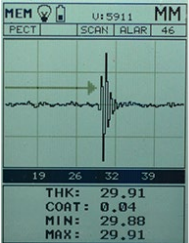


Material Thickness Digits Display:

The standard display on all models, this displays the numerical thickness value in either millimetres (MM) or inches (IN).

Scan Bar Display:

A linear graphic display which allows users to graphically monitor changes in thickness readings. As the scale range can be adjusted by the user, this display is ideal for observing tiny variations in material thicknesses.



A-Scan Display; Full Wave (RF): *

The A-Scan display shows the sine wave created by the reflected sound, or oscillation, from the material being measured. In RF mode the full wave form is displayed.

A-Scan Display; Rectified (+ or -): *

Users can select to view either the positive or the negative cycle of the full waveform (RF). This rectified (RECT) display shows the amplitude of the echo versus the transit time.

* Available on MX2-DL Model only

Product Features

Model	MX1-DL	MX2-DL
Display Mode		
Material thickness digits display	■	■
B-Scan cross sectional display	■	■
Combined B-Scan and digits display	■	■
Scan Bar Display	■	■
A-Scan Display		+ Rectified, - Rectified, Full Waveform (RF)
Measurement Rate		
Manual	8 readings per second	8 readings per second
Scan Mode	250 readings per second	250 readings per second
Scan bar display	10 readings per second	10 readings per second
Measurement Resolution	0.01mm	0.01mm
Velocity Calibration Range	309.88 - 18,542m/s	309.88 - 18,542m/s
Additional Features		
High Speed Scan Mode	■	■
Differential Mode		
Limit alarm mode	■	■
B-Scan Display Speed	10 to 200 readings per second	10 to 200 readings per second
Calibration Setups	64 user-definable setups transferable to and from a PC archive	64 user-definable setups transferable to and from a PC archive
Gates		PE: 1 gate; EE: 2 gates, 1 gate with hold off Adjustable threshold
Pulser Type	150-volt square wave pulser	Square wave pulser with adjustable pulse width (spike, thin, wide)
Gain	Manual or automatic gain control (AGC) with 50dB range (depending on mode selected)	Manual or automatic gain control (AGC) with 40dB range (depending on mode selected)
Timing	Precision temperature-controlled crystal oscillator (TCXO) timing with single shot 100MHz 8bit ultra-low power digitizer	20 MHz with ultra-low power 8 bit digitizer
Memory and Data Logging	4GB internal memory Sequential and grid logging Alpha numeric batch identification OBSTRUCT indicates inaccessible locations Bitmap graphic capture and capture viewer	4GB internal memory Sequential and grid logging Alpha numeric batch identification OBSTRUCT indicates inaccessible locations Bitmap graphic capture and capture viewer

Transducer Probe Type	Dual element	Dual element
Transducer Frequency Range	1 - 10MHz	1 - 10MHz
Transducer Recognition	Manual - selectable from a list	Manual - selectable from a list
V-path/Dual path error correction	Automatic	Automatic
Probe Zero	Manual (via integrated probe disk)	Manual (via integrated probe disk)
Display	1/8 VGA (greyscale) 62 x 45.7mm viewable area	1/8 VGA (greyscale) 62 x 45.7mm viewable area
Display Refresh Rate	25Hz	25Hz
Units (selectable)	mm	mm
LED Backlight	on/off/auto	on/off/auto
Repeatability / Stability Indicator	■	■

Technical Specifications

Part Number	Description	Certificate
Z-160-0005	Dakota MX1-DL Thickness Gauge (MMX-7)	●
Z-149-0006	Dakota MX2-DL Thickness Gauge (MVX)	●
Transducer Probe Type	Dual Element	
Measurement Accuracy ¹	0.01mm	
Memory	4GB Internal Memory	
Operating Temperature	-10 to 60°C	
Data Output	USB	
Power Supply	3 x AA batteries and via USB	
Battery Life	Alkaline – 35 hrs, Nicad – 10 hrs and NI-MH – 35 hrs	
Gauge Weight	383g - including batteries	
Gauge Dimensions	63.5 x 165 x 31.5mm	

¹Measuring range & accuracy depends on material, surface conditions and the transducer selected

²Approximate battery life, when in continuous measurement mode.

- Certificate of Calibration supplied as standard

Packing List

Dakota MX1-DL or MX2-DL Thickness Gauge
Selectable Transducer
Couplant
Manual
Plastic Carrying Case
Certificate of Calibration
AA Batteries
PC Software
Data Transfer Cable



Part Numbers

Dakota MX1-DL Corrosion Thickness Gauge



Part Number: Z-160-0005

Dakota MX2-DL Corrosion Thickness Gauge



Part Number: Z-149-0006