How to do a Grid Corrosion Inspection using the Elcometer MTG8 & PTG8

Throughout the service life of an asset; such as a pipeline, a pressure vessel, or a storage tank for example; it is necessary to do regular non-destructive testing using an ultrasonic thickness gauge, to inspect for corrosion.

One way of doing this inspection, is to use a grid. Using a grid allows you to inspect large areas in an organised way, clearly mark and identify areas of concern, and helps you easily report to the asset manager exactly where corrosion is occurring. Also, by repeating grid-based inspections in the same location over time, this allows you to predict corrosion rates, and perform preventative maintenance to avoid a breakdown.

To help you undertake and report grid-based corrosion inspections quickly and easily; the Elcometer MTG8 Material Thickness Gauge, designed for measuring both coated and uncoated materials; and the Elcometer PTG8 Precision Thickness Gauge, designed to measure thin uncoated materials; both come with Grid Batching, which allows you to save your readings instantly into a grid making it easy to complete and report your inspection.

A batch is a group of readings, which could be saved sequentially or into a grid format, and you can have multiple batches which represent multiple locations around your asset.

So, how does it work?

To get started, draw your grid on the area to be inspected. The size of your grid, where you place it, and how many grids you use on one asset, will be dependent on what it is you are inspecting, on the job specification, and/or the customer requirements; but typically once you've marked out your grid, you label your columns as letters, and your rows as numbers, just like a spreadsheet.

With your grid complete you then set up the Elcometer MTG8 or PTG8 with a corresponding grid batch. In this video we are using the Elcometer MTG8, however the steps we are about to follow are the same for either gauge.

From the main screen, press the Batch softkey, select New Batch, and the New Batch creation screen opens. Here you can Rename your batch, select the batch Measurement Mode and Calibration method, and set Limits so your gauge alarms when readings are outside of specification. The setting we need to focus on right now though, is Batch Type. Here is where you set up your Grid Batch. First, select whether you want to take readings from left to right, or top to bottom; then select the number of rows and columns your grid has. So for our example, we have 6 rows, and 8 columns.

Once complete, go back to the New Batch creation screen, and select Open Batch. The gauge now displays the grid reference of the square you should take a reading in first.

Simply take a reading in each square as instructed by the gauge, with the grid reference updating after each saved measurement, and the reading stability indicator ensuring you only save accurate and reliable measurements.

Sometimes, when undertaking a grid inspection, it's not always possible to take a reading in every square, or cell, due to obstructions; such as weld seams, valves, or coating irregularities for example. When this happens - for example here we have a weld seam in square A6 and can't take a reading - simply press the Obstruction button, which is available to press when the gauge is not receiving a signal from the transducer. Pressing this button allows you to put an Obstruction label in the grid cell, so you can clearly report that it was not possible to take a reading in that particular square. The gauge then moves on to the next grid cell, and you continue taking measurements as normal.

And, once you have completed your grid, the gauge lets you know, and closes the batch. But even though the inspection is done, it doesn't stop there, as it's what you do with the readings that counts.

Typically you'd have to create an inspection report manually, either by hand or using word processing or spreadsheet software, which can be both time consuming and open to human-error.

However, if you connect your Elcometer MTG8 or PTG8, via USB or Bluetooth, to ElcoMaster®, Elcometer's free software application, you can transfer your grid batch with full statistics, calibration information, and limits, and add any additional notes and photographs; and then instantly create a professional inspection report that can be sent out before you've even left the site.

Alternatively using ElcoMaster®'s Collects feature, you can import a picture of your inspection area into ElcoMaster®, add the locations you need to take measurements in, and then simply follow the template live your Android or Apple mobile device, or on your PC, so you know exactly where to measure, you can see instantly where corrosion is occurring, and ultimately include this in your final report. To learn how to create a collection template in ElcoMaster®, make you watch our ElcoMaster® Collects video.

And for more information on grid batching, or any of the features of the Elcometer MTG8 and PTG8 Ultrasonic Thickness Gauges, simply visit Elcometer.com, or click on one of the links on-screen.

And please, don't forget to Subscribe to all the Elcometer Channels, to be notified of any new videos.