



MEASUREMENT OF GAUGE LOSS FROM CORROSION WITH A MICROMETER

Application

This method is used to measure the thickness reduction of metallic materials after some type of corrosion test or on parts returned from the field.

Apparatus and Materials Required

Screw Thread Micrometer

The micrometer will have a point on both ends. Figure 1.

Sources: Starrett 760 FL Brown & Sharpe 26937

Abrasive Blast Cabinet

From any reliable source.

Abrasive Blast Media

Abrasive blast media must be glass or plastic bead or walnut shells from any reliable source.

Conditioning and Test Conditions

All test values are based on measurements taken at 23 +/- 2 °C and 50 +/- 5 % relative humidity.

Procedure

1. The part or test panel should be reviewed to find the most severe corrosion area. Low magnification, approximately 2X may be used to find the most severe corrosion area.
2. Find the nearest non-corroded area that represents the original material thickness.
Note: Formed parts vary in thickness.
3. Lightly media blast the corrosion area to be measured to remove corrosion products. Be careful not to over blast the area and remove base material.
4. Measure the non-corroded area that represents the original material thickness.
5. Measure the corroded area multiple times at multiple locations and record measurements. Take enough measurements to determine the average gage in the corroded area and the deepest pit. The objective is to find the true average gage and the deepest pit. A minimum of 25 readings should be taken for a small area. A larger area may require 100 or more readings.

Date	Action	Revisions	Rev. 0
2011 03 23	Activated		



Documents

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Evaluation

Report in a table all readings, Highlight original material thickness and deepest pit. Calculate average thickness in the corroded area and average gage loss. Calculate the average gage loss as follows:

$$\frac{(\text{original thickness} - \text{average thickness in corroded area})}{\text{original thickness}} \times 100 = \% \text{ gage loss}$$

Figure 1.

