

Method of Measuring the Thickness of Coatings on Metal Surfaces

1. Scope:

This procedure covers the use of digital thickness instruments (Gauges) in the nondestructive measurement of the thickness of paint or galvanized coatings on metal surfaces.

2. Apparatus:

2.1 Digital thickness sensor.

3. Procedure:

3.1 Factors affecting accuracy of results.

- A. Thickness of the coating: The precision of the instruments may change with coating thickness depending on the design of the instrument. Generally, the precision may be assumed to be a fixed percentage of the coating thickness.
- B. Distance between point of measurement and edge of specimen: The effect may be significant as far as 1/2" from the edge.

3.2 Calibration of instrument.

- A. Each instrument shall be calibrated in accordance with the manufacturer's instructions before use, by employing suitable thickness standards.
- B. Coated standard: The coated standard is used to calibrate the instrument. The zero reading shall be checked on the bare (Uncoated) base metal of the specimen before measurement. A suitable correction must be applied if the reading is not zero. The thickness of the coating on the standard should be approximately the same as the thickness of the coating on the specimen to be measured.

3.3 Testing.

- A. Each instrument shall be operated in accordance with the manufacturer's instructions.
- B. Preparation of surface: Foreign material such as dirt, grease or corrosion products shall be removed by suitable cleaning, with an organic cleaner, without abrading the surface.

- C. Surface defects: Area on specimens having visible defects such as flux, acid spots, dross, oxides and excess drops should be avoided in making measurements.
- D. Number of readings: Local variation in coating thickness and normal variations in instrument readings require that a minimum of 5 readings be taken and that the average of the readings be used. Individual readings which are obviously out of line with the other readings from the same area should be rejected.
- E. Galvanization shall be uniform and any visible thin areas shall be rejected.

4. Report:

4.1 The report shall include the following:

- A. Producer of the culvert.
- B. Manufacturer of the steel.
- C. Heat number.
- D. Gauge.
- E. Weight of spelter coating per ft² of surface.

5. References:

ASTM D7091