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**Test Procedure for****MEASUREMENTS OF DRY FILM COATING  
THICKNESS ON STEEL****TxDOT Designation: Tex-728-I****Effective Dates: March 2008–July 2016.**

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**1. SCOPE**

- 1.1 This method describes the apparatus (magnetic thickness gauges) and procedure for measuring thicknesses of dry film paint or other coatings (galvanizing, fusion bonded epoxy, etc.) on steel.
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**2. PRECAUTIONS**

- 2.1 Follow the manufacturer's instructions when using magnetic thickness gauges.
- 2.2 *Do not:*
- take readings closer than 0.5 in. from edges, holes, and inside corners, unless the gauge has been calibrated for such use;
  - use gauge on items of small radius of curvature unless the gauge has been calibrated for such use;
  - use gauge in heavy vibration areas;
  - use gauge in heavy electrical areas, such as near arc-welding machines, or near any magnetic fields;
  - use gauge for any purpose for which it is not recommended
  - use gauge in any position that is not recommended; or
  - take readings in areas that are coated with dirt, grease, corrosion, flux, acid spots, dross, oxides, etc. Coatings must be completely cured prior to performing thickness measurements.
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**3. APPARATUS**

- 3.1 *Standard Gauges*, used to measure dry paint film coating thickness, adjustable to measure directly and exactly the known thickness of a shim placed on uncoated material similar to that bearing the coating to be measured. These gauges must be readable to at least  $\pm 0.1$  mil over the range of the instrument. Examples: Elcometer 456; PosiTector 6000; QuaNix 1500, 4200, 4500.
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- 3.2 *Standard Thickness Shims*, used for adjusting standard gauges, made of non-magnetic material, with a known thickness uniform over its entire area and accurate within the manufacturer's established tolerances.
- 3.3 *Approximating Gauges*, used to measure coating thickness of other coatings (galvanizing, fusion bonded epoxy, etc.), readable with no adjustment required. Examples: Elcometer 211; Mikrotest FIM; PosiTest FM.
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## 4. PROCEDURE

### 4.1 *Paint Films:*

- 4.1.1 Locate an uncoated area on the coated steel item being checked, or utilize an uncoated base similar to that bearing the coating to be measured.

**Note 1**—Base metal surface must be prepared in the same manner as the coated steel item.

- 4.1.2 Place a standard shim of the required thickness on the uncoated base.

- 4.1.3 Adjust the standard gauge to indicate the known thickness of the shim, following the manufacturer's instructions.

- 4.1.4 With the standard gauge adjusted and using the same base location, measure the thickness of a second shim having a known thickness within 5 mil of the shim used for adjustment. The standard gauge must indicate the known thickness of the second shim within  $\pm 0.2$  mil.

- 4.1.5 Measure the paint film thickness at selected locations. Record the test locations and film thickness.

**Note 2**—Check the accuracy of the Standard Gauge periodically during use.

### 4.2 *Other Coatings (Galvanizing, Fusion Bonded Epoxy, etc.):*

- 4.2.1 Use approximating gauges for measuring thickness of other coatings by reading directly with no required adjustment.

- 4.2.2 Follow the gauge manufacturer's instructions when taking readings from the dial or scale.

- 4.2.3 Record the readings on the appropriate Department worksheet.

**Note 3**—Check the accuracy of the approximating gauge periodically during use.

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## 5. ARCHIVED VERSIONS

- 5.1 Archived versions are available.