



Management Procedure 2575
Revision: B
Date Issued: July 21, 2004
Date Revised: August 20, 2015

Calibration Procedure

DeFelsko Corporation

PosiTest DFT Ferrous and DFT Combo

Coating Thickness Gages

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1 Introduction and UUC Performance Requirements

1.1 This procedure describes the calibration of DeFelsko Corporation PosiTest DFT Ferrous and DFT Combo Gages. All gages have the following ranges:

Table 1-1 Measurement Ranges

Model	Measurement Range
DFT Ferrous	0-1000 microns
DFT Combo	(0-40 mils)

1.2 The unit being calibrated will be referred to as the UUC (unit-under-calibration).

2 Measurement Standards and Support Equipment Performance Requirements

2.1 The UUC accuracy requirements are based upon the published UUC performance specifications.

2.2 The test uncertainty ratio applied in this Calibration Procedure is 4:1 unless otherwise stated.

2.3 The Minimum-Use-Specifications are the minimum test equipment specifications required to meet all the UUC accuracy requirements and the test uncertainty ratio applied.

Table 2-1 UUC Accuracy Requirements and Calibration Description

Model	Range	Performance Specifications	Test Method
DFT Ferrous & DFT Combo	0 - 1000 microns (0 - 40 mils)	$\pm (2 \mu\text{m} + 3\% \text{ of reading})$ $\pm (0.1 \text{ mils} + 3\% \text{ of reading})$	Compared to Reference Standards

Table 2-2 Minimum Use Specification

Range	Accuracy
0 - 1000 microns (0 - 40 mils)	$\pm 0.50 \text{ microns}$ $(\pm 0.025 \text{ mils})$

Table 2-3 Actual Equipment Specification

Equipment Generic Name	Range	Accuracy	Manufacturer/Model #'s Applicable
Coating Thickness Reference Standards	0 - 1000 microns (0 - 40 mils)	$\pm 0.43 \text{ microns}$ $(\pm 0.017 \text{ mils})$	DeFelsko Corporation, STD-S2
	0 - 500 microns (0 - 20 mils)	$\pm 0.43 \text{ microns}$ $(\pm 0.017 \text{ mils})$	DeFelsko Corporation, STD-A2

Caution: The instructions in this Calibration Procedure relate specifically to the equipment and conditions listed in Section 2. If other equipment is substituted, the information and instructions must be interpreted accordingly.

Table 2-4 Calibration Environmental and Warm-up Requirements

Measurement Standards & Support Equipment Environmental Requirements:	Temperature: $23 \pm 5^{\circ}$ C. Relative Humidity: Less than 95%
Measurement Standards & Support Equipment Warm-up and Stabilization Requirements:	Not Required

3 Preliminary Operations

Note: Review the entire document before starting the calibration process.

3.1 Visually inspect the UUC for:

- Damaged LCD readout
- Probe wear or coating
- Cracked or broken case
- Missing battery door or other parts
- Proper identification

3.2 Damage or excess wear shall be repaired prior to beginning the calibration process.

3.3 Gage Reset: Turn gage on by depressing the probe. Perform a Reset by pressing and releasing both buttons simultaneously 3 times.

Caution: Be sure to keep the probe well away from any metal surface during the RESET process.

3.4 Probe Zero

3.4.1 Perform a Zeroing operation by pressing and releasing both buttons simultaneously. When the display blinks “0” measure the ferrous (steel) uncoated Reference Standard. Re-measure the uncoated Reference Standard and verify the reading is within +/- 2 microns (0.1 mils)

3.4.2 For DFT Combo, repeat step 3.4.1 for the non-ferrous (Aluminum) uncoated Reference Standard.

4 Calibration Process

Note: Whenever the test requirement is not met, verify the results of each test and take corrective action before proceeding.

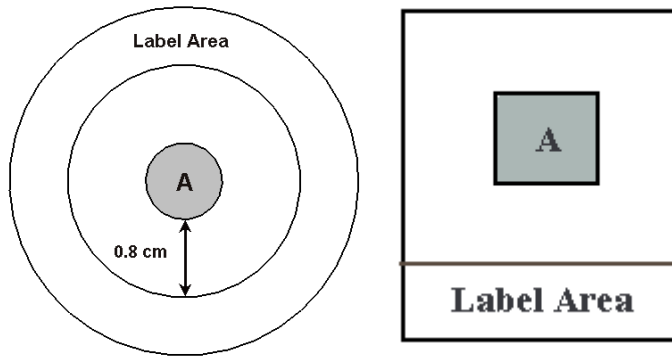
4.1 Review the Performance Requirements Table 5-1.

4.2 Record the thickness of the Reference Standards being used and determine the allowed range of readings for the UUC using the calculation methods shown in Table 5-1.

4.3 Use the UUC to take readings of all the reference standards. Verify that the readings are within the allowable limits determined in table 5-1. Record the readings.

Note: In taking readings the probe tip shall be centered on point A of the Reference Standard as shown below. Record all digits displayed on the LCD.

Figure 4-1 Measurement Area for Square or Round Reference Standards



5 Performance Requirements

Table 5-1 Performance Requirements and Calibration Data for PosiTest DFT Ferrous & DFT Combo

Thickness on Standard Label (microns)	Min. Reading Allowed ❶ (microns)	Max. Reading Allowed ❷ (microns)	Gage Measurement (microns)
A	Ferrous		
A	Non-Ferrous		

❶ Calculation: $(A \text{ times } 0.97) - 2$. Round up to the nearest 1 micron.

❷ Calculation: $(A \text{ times } 1.03) + 2$. Round down to the nearest 1 micron.

* For imperial/metric readings convert using 1 mil = 25.4 microns

Management Form 0010.02-05/1998