DeFelsko®

Management Procedure 2546
Revision: B
Date Issued: August 15, 2013
Date Revised: December 11, 2018

Calibration Procedure

DeFelsko Corporation

PosiTector 6000 FLS

Coating Thickness Probe

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1 Introduction and UUC Performance Requirements

1.1 This procedure describes the calibration of DeFelsko Corporation PosiTector 6000 FLS probe with the following specification:

Table 1-1 Measurement Ranges

Probe	Measurement Range
6000 FLS	0 – 38 mm (0 – 1.5 in)

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 Description

UUC	Performance Specifications		Test Method
6000 FLS	0 – 38 mm (0 – 1.5 in)	± (0.2 mm + 3% of reading) ± (0.01 in + 3% of reading)	Compared to Reference Standards

Table 2-2 Minimum use specification

Range	Accuracy
0 – 38 mm (0 – 1.5 in)	± 0.05 mm (± 2.5 mils)

Table 2-3 Actual Equipment Specification

Equipment Generic Name	Range	Accuracy	Manufacturer / Model #'s Applicable
Certified Polystyrene Blocks	13 – 19 mm (500 - 750 mils)	± (0.0025 mm + 0.05% of thickness) ± (0.1 mil + 0.05% of thickness)	DeFelsko Corporation, STD-P8

***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 ± 5° 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 measurement face of the probe for signs of damage or excessive wear, this could impact probe accuracy.

3.2 Gage Reset

3.2.1 When the unit is powered down, simultaneously hold the "+" and middle buttons for several seconds then release them. Once the buttons are released the reset symbol will appear.

Caution: Be sure to hold the probe in the air and well away from any metal surface during the RESET process.

3.3 Probe Zero Calibration Adjustment

3.3.1 While holding the probe in the air, select the Cal Settings "Zero" function and then indicate the number of readings (1) to be used.

3.3.2 Measure the middle of a flat uncoated (zero) 1018 steel plate at least 7" x 7" x 1/4".

3.3.3 Re-measure the zero plate. If the reading is within +/-0.2 mm (10 mil) continue, otherwise repeat steps 3.3.1 and 3.3.2.

3.4 Material Adjustment

3.4.1 From the Settings menu select 2 pt adjust.

3.4.2 Place the 13 mm (500 mil) polystyrene block in the center of the same uncoated plate used to zero the probe and take a reading. Adjust the displayed value to the value of the block. Note: The gage adjusts in 0.2 mm or 10 mil increments.

3.4.3 Stack a 19 mm (750 mil) block onto the existing block 13 mm block for a total thickness of 32 mm (1250 mil). Take a reading and adjust the displayed value to the total value of the 2 blocks.

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.

Note: The probe calibration may be verified in either normal or high-resolution mode. Accuracy is the same for both modes.

4.2 Using the appropriate Certificate of Calibration template for the UUC, record the thickness from the Reference Standards.

4.3 Determine the allowed range of readings for the UUC using the calculation methods shown in Table 5-1.

4.4 Stack the appropriate blocks, in the center of the same uncoated plate used to zero the probe, to take readings at the following thicknesses: 13 mm (500 mil), 19 mm (750 mil), 26 mm (1000 mil) and 32 mm (1250 mil). Verify that the readings are within the allowable limits determined in section 4.3. Record the readings on the Certificate of Calibration.

Note: Record all digits displayed on the LCD. This may vary depending on the resolution mode. In taking readings the probe shall be centered on the Reference Standards.

5 Performance Requirements

Note: The technician will collect the data needed to complete columns A and B of the appropriate table below. Do not write in this procedure.

Table 5-1 Performance Requirements and Calibration Data for PosiTector 6000 FLS

Thickness on Reference Standard Label (mm)	Min. Reading Allowed❶ (mm)	Max. Reading Allowed❷ (mm)	Actual Probe Measurement (mm)
A			B

❶Calculation (A times 0.97) – 0.2. Round up to the nearest even 0.02 mm increment
❷Calculation (A times 1.03) + 0.2. Round down to the nearest even 0.02 mm increment.

*For imperial/metric readings convert using 1 mil = 0.0254 mm

Management Procedure Change Notice

Procedure Number: MP 2546
Revision Level: B
Date of Change: December 11, 2018
Title: Calibration Procedure for PosiTector 6000 FLS

Reason for Change:

- Update to reduce the potential for standards stacking beyond measurement range of product.
- Align procedure to match units of published specifications.

Description of Change:

- Updated probe measurement range to match published specifications
- Throughout procedure changed 12.7 mm to 13 mm to match product specifications.
- Section 3.2.1 updated reset procedure
- Section 3.3.2 updated minimum zero plate dimensions.
- Section 3.4.3 and 4.4 updated stacking to reduce maximum dimension to 32mm.

I confirm I have read and understand the procedure and the change described above.

Printed Name	Signature	Date

Management Form 0010.02-05/1998