DeFelsko®

Management Procedure 2535
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Calibration Procedure

DeFelsko Corporation

PosiTector 6000 N
PosiTector 6000 NS
PosiTector 6000 NRS

Coating Thickness Probes

Table of Contents

1 Introduction and UUC Performance Requirements

1.1 This procedure describes the calibration of DeFelsko Corporation PosiTector 6000 N, 6000 NS and 6000 NRS probes with the following specifications:

Table 1-1 Measurement Ranges

Probe	Measurement Range
6000 N 6000 NS 6000 NRS	0-1500 microns (0-60 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 Description

UUC	Performance Specifications		Test Method
6000 N 6000 NS 6000 NRS	0 - 50 microns (0 - 2 mils) >50 microns (>2 mils)	± (1 microns + 1% of reading) ± (0.05 mils + 1% of reading) ± (2 microns + 1% of reading) ± (0.1 mils + 1% of reading)	Compared to Reference Standards

Table 2-2 Minimum Use Specification

Range	Accuracy
0 - 50 microns (0 - 2 mils)	± 0.25 microns (± 0.013 mils)
>50 – 1500 microns (>2 – 60 mils)	± 0.62 microns (± 0.035 mils)

Table 2-3 Actual Equipment Specification

Equipment Generic Name	Range	Accuracy	Manufacturer/Model #'s Applicable
Coating Thickness Reference Standards	75-1500 microns (3-60 mils)	± 0.43 microns (± 0.017 mils)	DeFelsko Corporation, STD-A1

***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 Visual Inspection

3.1.1 Visually inspect the UUC for:

- Damaged LCD readout
- probe wear or coating
- cracked or broken case
- missing probe cover, battery door or other parts
- proper identification

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

3.2 Gage Reset

3.2.1 For bodies with serial numbers after 700000; when the unit is powered down, simultaneously hold the "+" and middle buttons until the reset symbol (2 arrows) appears. All other bodies press and hold the "+" button.

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

3.3 Probe Zero

3.3.1 After Reset, select the Main Menu ZERO function and measure the uncoated Reference Standard. One measurement is sufficient.

3.3.2 Perform a zero check by measuring the same standard. If the probe does not read within tolerance, repeat the Main Menu ZERO function.

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 Standard labels.

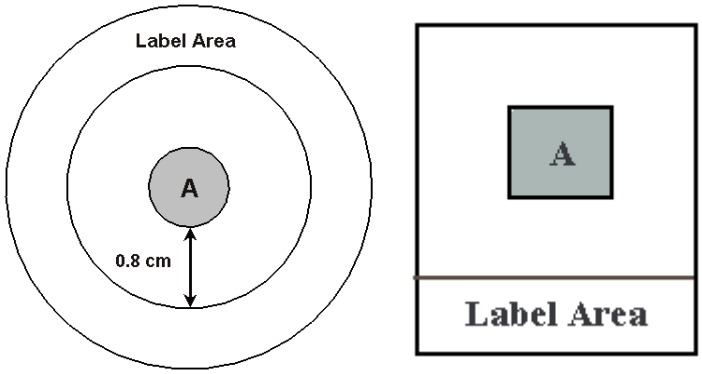
4.3 Determine the allowed range of readings for the UUC using the calculation methods shown in Table 5-1.

4.4 Use the UUC to take readings of all the reference standards. Verify that the readings are within the allowable limits determined in 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.

4.5 In taking readings the probe tip shall be centered on point A of the Reference Standard as shown in Figure 4-1.

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



5 Performance Requirements

Note: The technician shall 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 N, NS & NRS

Thickness on Standard Label (microns)	Min. Reading Allowed❶ (microns)	Max. Reading Allowed❷ (microns)	Actual Probe Measurement (microns)
A			B
0	-1	+1	

❶Calculation ≤50 microns: (A times 0.99) - 1. Round up to the nearest 1 micron.
> 50 microns: (A times 0.99) - 2. Round up to the nearest 1 micron.

❷Calculation ≤ 50 microns: (A times 1.01) + 1. Round down to the nearest 1 micron.
> 50 microns: (A times 1.01) + 2. Round down to the nearest 1 micron.

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

Management Procedure Change Notice

Procedure Number: 2535
Revision Level: E
Date of Change: March 6, 2012
Title: Calibration Procedure for PosiTector 6000 N, NS & NRS

Reason for Change: • Rev E gage updates
Description of Change: • Standardized probe/gage verbiage • Changed section 3.2.1 • Removed gage serial number reference in the note of section 4.1

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

Printed Name	Signature	Date

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