



Management Procedure 2530
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Calibration Procedure

DeFelsko Corporation

DeFelsko/PosiTector 6000 F
DeFelsko/PosiTector 6000 FS
DeFelsko/PosiTector 6000 FRS
DeFelsko/PosiTector 6000 SPFS

Coating Thickness Gages

1 Introduction and UUC Performance Requirements

1.1 This procedure describes the calibration of Coating Thickness Gages, DeFelsko/PosiTector 6000 F, 6000 FS, 6000 FRS and 6000 SPFS. All gages have the following ranges:

Table 1-1 Measurement Ranges

Gage	Measurement Range
6000 F	0-1500 μm and 0-60 mils
6000 FS	
6000 FRS	
6000 SPFS	

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

1.3 UUC Environmental Range:
➤ Temperature: $23 \pm 5^\circ \text{C}$.
➤ Relative Humidity: Up to 95%

1.4 UUC Warm-up and Stabilization Period requirements: Does not apply.

Table 1-2 UUC Calibration Requirements and Calibration Description

Unit-Under-Test (UUC) Parameter or Function		Performance Specifications	Test Method
1.1	Accuracy Test 6000 F 6000 FS 6000 FRS 6000 SPFS	0 to 50 μm , $\pm (1 \mu\text{m} + 1\% \text{ of reading})$ >50 μm , $\pm (2 \mu\text{m} + 1\% \text{ of reading})$ 0 to 2 mils, $\pm (0.05 \text{ mils} + 1\% \text{ of reading})$ >2 mils, $\pm (0.1 \text{ mils} \pm 1\% \text{ of reading})$	Compared to Coating Thickness Reference Standards.

2 Measurement Standards and Support Equipment Performance Requirements

2.1 Minimum-Use-Specifications are the calculated minimum performance specifications required for the measurement standards and support equipment to be utilized for comparison measurements required in the Calibration Process.

2.2 The Minimum-Use-Specifications are developed through uncertainty analysis and are calculated through assignment of a defined and documented uncertainty ratio or margin between the specified tolerances of the UUC and the capabilities (uncertainty specifications) required of the measurement standards system.

2.3 The uncertainty ratios applied in this Calibration Procedure are 4:1 or better.

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

4.2 Accuracy Test

4.2.1 Review the Performance Requirements Table 5-1.

Note: DeFelsko/PosiTector 6000 gages with serial numbers greater than 40000 have a high-resolution mode. The gage may be calibrated in either normal or high-resolution mode. Accuracy is the same for both modes. Verify the mode in which the customer wants the gage calibrated prior to beginning the actual calibration.

4.2.2 Using the appropriate Certificate of Calibration template for the UUC, record the reference material values on the form.

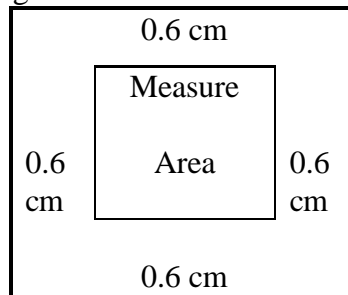
4.2.3 Determine the allowed range of readings using the calculation methods shown in columns D and E of Table 5-1.

4.2.4 Use the UUC to make readings of the applicable reference standard. Verify that the readings are within the allowable limits determined in 4.2.3. Record the reference standard values and the readings on the Certificate of Calibration.

Note: Record all digits displayed on the LCD. This may vary depending on the resolution mode.

4.2.5 In making readings the probe tip should be centered on the Coating Thickness Reference Standard. If not directly in the center, the reading should be taken at least 0.6 cm from the edge of the standard as shown in Figure 4-1.

Figure 4-1 Measurement Area



5 Performance Requirements

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

Table 5-1 Performance Requirements and Calibration Data for DeFelsko/PosiTector 6000 F, FS, FRS & SPFS

Nominal Thickness	Reference Standard	UUC Indication or Reading *		
		Gage Measurement	Min. Reading Allowed	Max. Reading Allowed
A	B	C	D	E
0 mils	uncoated	0 mils	minus 0.05 mils	plus 0.05 mils
3 mils			0.99 times B minus 0.1 mils	1.01 times B plus 0.1 mils
10 mils				
60 mils				

* For metric readings convert using 1 mil = 25.4 microns