



COATING THICKNESS TESTERS

MODELS PM10 & PM10M (Metric)

Version 3.5

IMPORTANT

The **SERFILCO PM10** uses the magnetic properties of the base material as the basis for measurement. Large masses of ferrous materials and strong electro-magnetic fields adversely affect these measurements. Therefore, do not attempt measurements on steel benchtops or near electric motors, transformers or high current conductors. If it is necessary to make measurements on a steel benchtop, install a one-half inch insulator (wood, plastic, etc.) between the benchtop and the materials under test.

It is imperative that the unit be used in an environment that is thermally stable. Any sudden changes in ambient temperature will adversely affect the accuracy of the calibration. That is, an ambient temperature change of more than ± 5 will result in a considerable deviation of any measurement data. For example, if the unit is transported from a cold automobile trunk into a laboratory at room temperature, the unit should be allowed to equilibrate to room temperature.

It is recommended that after power-up, wait at least fifteen seconds for the electronics to stabilize before measuring and/or calibrating. Also, periodic checks throughout the work day should be made to ascertain the validity of the calibration. This may be accomplished by measuring the values of the base and calibration foil.

NOTE: Unit automatically powers down after 10 minutes of inactivity.

The upper and lower limit calibration standards must be treated with care. The accuracy of the PM10 depends upon this thickness, and improper treatment or misuse will result in erroneous measurement readings. It is strongly recommended that the standard be kept in the provided "Ziploc" bag at all times except when used for calibration procedure. Oil films or oxidation on the standards or materials to be tested adversely affect the accuracy of the measurements.

APPLICATION

The **SERFILCO PM10** is a non-destructive coating thickness measuring instrument based upon the magnetic induction principle. It is capable of measuring:

Non-conductive coatings on ferromagnetic substrates

The **SERFILCO PM10** meets ISO2178, ASTM B499, BS5411(2), and DIN50981 requirements.

EQUIPMENT SUPPLIED

1. **SERFILCO PM10** with probe
2. Two 9 volt batteries
3. Vinyl case
4. Operating instructions
5. 25 Mil Cal. foil
6. Ferrous substrate

PREPARATION FOR MEASUREMENT

The **SERFILCO PM10** is supplied with a spring loaded probe which enables the user to apply a constant pressure and stable positioning.

Before making measurements, always make sure the surface being measured is dry, clean, and free from grease and dust.

When measurements are made, the probe should be held perpendicular and firmly to the surface being measured. Several measurements should be taken in a test area because coatings, by nature, are rarely uniform. To establish the test area for quality control, measure several objects before evaluating.

The **SERFILCO PM10** operates on the magnetic induction principle, and under certain circumstances can be affected by external factors. These external factors lead to a deviation from the true thickness of the coating. When making measurements do not measure the edges, shoulders, or any other material discontinuities.

The MINIMUM COATINGS/SUBSTRATE dimensions are:

- AREA: 1.2" X 1.2" (30 x 30 mm)
- THICKNESS: 32 mil (0.8 mm)
- CURVATURE: 0.6" radius (15mm)

MEASUREMENT

This section describes the step by step test procedure. It is recommended that the user understand this procedure as well as the purpose of each key completely before proceeding. Briefly, the instrument must be powered-up, calibrated to a standard specific to the range of the instrument and a bare base material of identical geometry and composition as the part to be tested.

STEP	KEY TO BE PRESSED	DISPLAY
1. Power-UP	press ON	PM10 Ver X.XX 00.00 - 25.00 MI
		Measure MI N= X=

The instrument is now in the measure mode. Using the last retained calibration, measurements can now be made. If

there is an application change, a new calibration should be entered.

STEP	KEY TO BE PRESSED	DISPLAY
2. Calibrate	press CAL	CALIBRATE MEASURE BASE?
3. Measure Base	press CAL	BASE MEASURE BASE?

At least three random measurements on the base material should be made. The display will show a four digit reading in AD (Analog-Digital Units).

4. Measure Standard	press CAL	XXXX AD MEASURE STD 1?
5. Calibrate to Standard	press CAL	STD 1 AD MEASURE STD 1?

At least three random measurements on the 25 Mil calibration foil should be made.

6. Measure	press CAL	MEASURE MI
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Unit is now back in the measurement mode, results will appear in the display field between MEASURE and MI.

It is recommended that the user now take a specific standard and take measurements. The measurements should be $\pm 5\%$ of the standard value to verify the accuracy of the calibration procedure.

If the readings are not within range, repeat the calibration portion of this procedure as necessary. When powered down, the calibration is retained in memory. When again powered up, measurements can begin immediately without recalibration. It is recommended that the retained calibration be checked periodically. This may be accomplished by making several measurements on the bare base material.

The instrument should read 0.00 mils \pm 0.06 mils (0.0 μ m \pm 1.5 μ m). If not, recalibrate.

STEP	KEY TO BE PRESSED	DISPLAY
7. Test	place probe on surface to be measured repeat as necessary	THICKNESS EQUALS XX.XX MILS
8. Powerdown	press OFF	TURNING OFF

BATTERY AND AC ADAPTOR

The **SERFILCO PM10** requires one 9 volt battery, type NEDA 1604D. The battery compartment is on the underside of the instrument and can be opened by sliding the cover upward.

If the message "BT" appears in the lower right hand corner of the display, low battery power is indicated and the battery should be replaced. Although the **SERFILCO PM10** will continue to measure for approximately 6 hours after the message appears, it is recommended the battery be changed immediately. When the instrument is stored for long periods, remove the battery.

The **SERFILCO PM10** can also be supplied with an optional AC adaptor. The AC adaptor plugs into the top of the instrument.

TECHNICAL DATA

- RANGE: 0-25 MIL (0-635 μ m)
- CASE: Hi-impact polystyrene
- WEIGHT: 1.02 lbs. (0.46kg)
- BATTERY: 1 (one) NEDA 1604D (9v)
- DISPLAY RESOLUTION: +80° viewing angle
- DISPLAY: 16 col. X 2 row dot matrix LCD, 0.22" h X 0.12" w (.56mm X .29mm)
- AC ADAPTOR: Input AC 120V 60Hz 8W or Input AC 220V 50Hz 8W
- DIMENSIONS: 7.08"L X 3.93"W X 1.73"H (180mm X 10mm X 4.4mm)
- ACCURACY: $\pm 5\%$
- AMBIENT TEMPERATURE: 20° C
- PROBE: Single pole with 36" cable
- BATTERY LIFE: 16 hours continuously