Coating Thickness Meter

Ascott Analytical Equipment Limited
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Coating Thickness Meter

The Coating Thickness Meter will measure all coatings on metallic substrates using the magnetic induction or eddy-current principles, ensuring the correct coating thickness has been applied.

One of the most advanced portable Coating Thickness Meters on the market, incorporating all the following user functions.

Calibration. Calibrate on any blasted profile or any shape of substrate using the Calibration Foils supplied.

Calibration Memories. The calibration settings for different substrates and shapes can be stored and recalled when required.

Statistics. shows Mean, Number of Readings, Max/Min, Coefficient of Variation and Standard Deviation.

Limits. Pass and fail with audible and visual alarm.

Metric/Imperial. Select measurement units.

Batching. Measurements can be stored into batches which incorporate batch number, job number, and date and time. You can also go back to previous batches and look at the statistics and add or cancel readings.

Download. Measurements, statistics and out-of-limit readings can be downloaded to a computer either by batch number or job number into Microsoft Word or Excel using the optional PC Download Cable (CA101).

Specification

Accuracy: ±1 to 3%.

Resolution 0–1000µm/0–2000µm: 1µm (0.1mil).

Resolution 0–5.00mm: 0.01mm (0.1mil).

Resolution 0–20.0mm: 0.1mm (0.1mil).

Compliance

ISO 2008, ISO19840, ISO 2360, ISO 1461, ISO 2063, ASTM D7091, ASTM E376 and ASTM G12.

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Supply

Supplied in an industrial foam-filled Carrying Case with Probes, set of 8 Calibration Foils and Zero Disks.

Ordering

T01-53050 Coating Thickness Meter. Inc Ferrous Probe 0–1000µm

T01-53051 Coating Thickness Meter. Inc Ferrous Probe 0–2000µm & 0–5.00mm

T01-53052 Coating Thickness Meter. Inc Ferrous Probe 1–20.0mm

T01-53053 Coating Thickness Meter. Inc Non-Ferrous Probe 0–1000µm

T01-53054 Coating Thickness Meter. Inc Non-Ferrous Probe 0–2000µm

T01-53055 Coating Thickness Meter. Inc Ferrous Probe & CS304 Non-Ferrous Probe 0–1000µm

T01-53056 Coating Thickness Meter. Inc F Probe 0–2000µm/0–5.00mm & N Probe 0–2000µm

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Ferrous Probes

T01-53058

0–1000µm

Probe Diameter: 9mm (360mils).
Working Headroom: 75mm (3″).
Minimum Convex Radius: 4mm (160mils).
Minimum Concave Radius: 25mm (1″).
Minimum Sample Area: 4mm (160mils).

T01-53059

0–2000µm & 0–5.00mm

Probe Diameter: 15mm (600mils).
Working Headroom: 75mm (3″).
Minimum Convex Radius: 10mm (400mils). Minimum Concave Radius: 50mm (2″).
Minimum Sample Area: 10mm (400mils).

T01-53060

1–20.0mm

Probe Diameter: 50mm (2″).
Working Headroom: 150mm (6″).
Minimum Convex Radius: 100mm (4″).
Minimum Concave Radius: 500mm (20″).
Minimum Sample Area: 100mm (4″).

T01-53063

0–1000µm

Probe Diameter: 9mm (360mils).
Working Headroom: 40mm (1.5″).
Minimum Convex Radius: 4mm (160mils).
Minimum Concave Radius: 25mm (1″).
Minimum Sample Area: 4mm (160mils).

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Ferrous Probes

Ferrous Probes for use with the Coating Thickness Meter. They will measure all non-ferromagnetic coatings on steel and iron. Example: Paint on steel. galvanising on steel, metal spray on steel and chrome on steel etc.

Accuracy: ±1 to 3%

Resolution T01-53058: 1µm (0.1mil). Resolution
T01-53059: 0.01mm (0.1mil). Resolution
T01-53060: 0.1mm (0.1mil).

Ordering

T01-53058 Spare Ferrous Probe 0–1000µm (to fit C5001 & C5006 Thickness Coating Meters)

T01-53059 Spare Ferrous Probe 0–2000µm & 0–5.00mm (to fit C5002, C5007 Coating Thickness Meters)

T01-53060 Spare Ferrous Probe 1–20.0mm (to fit C5003 Coating Thickness Meter)

T01-53063 Ferrous Probe Right Angle 0–1000µm (to fit C5001 & C5006 Coating Thickness Meters

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Non-Ferrous Probes

T01-53061

0–1000µm

Probe Diameter: 10mm (400mils).
Working Headroom: 75mm (3″).
Minimum Convex Radius: 5mm (200mils).
Minimum Concave Radius: 25mm (1″).
Minimum Sample Area: 5mm (200mils).

T01-53062

0–2000µm

Probe Diameter: 10mm (400mils).
Working Headroom: 75mm (3″).
Minimum Convex Radius: 5mm (200mils).
Minimum Concave Radius: 25mm (1″).
Minimum Sample Area: 5mm (200mils).

T01-53064

0–1000µm

Probe Diameter: 10mm (400mils).
Working Headroom: 40mm (1.5″).
Minimum Convex Radius: 5mm (200mils).
Minimum Concave Radius: 25mm (1″).
Minimum Sample Area: 5mm (200mils).

Non-Ferrous Probes

Non-Ferrous Probes for use with the Coating Thickness Meter. They will measure all non-conductive, non-ferromagnetic coatings on conductive non-ferrous substrates. Example: Paint on aluminium, paint on stainless steel and anodising on aluminium etc.

Accuracy: ±1 to 3%.

Resolution T01-53061,T01-53062 & T01-53064: 1µm (0.1mil).

Ordering

T01-53061 Spare Non-Ferrous Probe 0–1000µm (to fit T01-53053 & T01-53055 Coating Thickness Meters)

T01-53062 Spare Non-Ferrous Probe 0–2000µm (to fit T01-53054 & T01-53056 Coating Thickness Meters)

T01-53064 Non-Ferrous Probe Right Angle 0–1000µm (to fit T01-53053 & T01-53055 Coating Thickness Meters)

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Calibration Foils

Calibration Foils for calibrating the Coating Thickness Meters.

All values shown are nominal values.

Foil Accuracy: ±2%.

Supplied in packs of eight in a protective Wallet.

Ordering

T01-53065 Spare Calibration Foils 0–1000µm (25, 50, 75, 125, 175, 250, 500, 750µm)
T01-53066 Spare Calibration Foils 0–40mils (1, 2, 3, 5, 7, 10, 20, 30mils)
T01-53067 Spare Calibration Foils 0–2000µm (50, 250, 500, 750, 1000, 1250, 1500, 2000µm)
T01-53068 Spare Calibration Foils 0–80mils (2, 10, 20, 30, 40, 50, 60, 80mils)
T01-53069 Spare Calibration Foils 0–5.00mm (50, 250, 500, 750, 1000, 1500, 2000, 3000µm)
T01-53070 Spare Calibration Foils 0–200mils (2, 10, 20, 30, 40, 60, 80, 120mils)
T01-53071 Spare Calibration Foils 1–20.0mm (5, 9.5, 15mm)
T01-53072 Spare Calibration Foils 1–800mils (200, 360, 600mils)

T01-53073 Spare Zero Disk Ferrous
T01-53074 Spare Zero Disk Non-Ferrous
T01-53075 Spare Zero Plate Ferrous (1–20mm Coating Thickness Meter)

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Instructions

Switch On/Off

To switch the Coating Thickness Meter on, press the on/off keypad for approximately 1 second. The display will show the last reading taken.
The Meter will automatically switch off after approximately 5 minutes if no readings have been taken. The instrument can also be switched off by pressing the on/off keypad again.

Connecting Probe

With the Coating Thickness Meter switched off, plug the Probe into the connector located on the bottom of the instrument. Take care to align the red dots before pushing the plug in.

On combined Ferrous and Non-Ferrous instruments the display will show Setting up Probe when the Probes are changed.

On the Non-Ferrous Probe the display will ask you to place the Probe on the Non-Ferrous Zero Disk. Hold the Probe on the Zero Disk until Zero Detected is shown.

When changing Ferrous and Non-Ferrous Probes the display will ask you to enter a job number. This will enable the readings taken with the last Probe to be stored. If you do not require the readings to be stored, press Enter.

Taking Readings

Ensure that the correct Probe for the substrate is selected. If you have a combined Ferrous and Non-Ferrous Coating Thickness Meter, the display will show if a Ferrous or Non-Ferrous Probe is connected.

Place the Probe onto the surface to be measured – there will be a double beep and the reading will be displayed. This reading will be retained on the display until replaced by the next reading.

Replacing Batteries

When the batteries require replacement, Low Battery will flash on the display and the instrument will switch off.

With the instrument switched off remove the cover located on the rear of the instrument, replace the batteries with two alkaline AAA batteries, ensuring correct polarity.

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Instructions

Menu

All functions are accessed through a menu-driven display. To scroll through the menus use the up and down arrows and enter where indicated.

To exit from the menu, press the Menu button again and the Coating Thickness Meter will revert back to normal measurement mode.

Instructions

Calibration

Calibration of the Coating Thickness Meter can be checked at any time by using the Calibration Foils and Zero Disks supplied.

Zero and Calibration

This function will work from Factory Calibration (standard calibration) or Operator Calibration (special calibration).

For the highest accuracy of measurement, the instrument has a variable calibration facility, enabling precise measurements to be obtained on virtually all substrate types.

The zero is carried out by placing the Probe onto an uncoated substrate or Zero Disk – this will set the zero value.

The calibration is carried out by placing a Calibration Foil on the same uncoated substrate or Zero Disk (select the Calibration Foil value to be just above the coating thickness value to be measured). Place the Probe on this Calibration Foil and enter the Foil value into the instrument.

When Calibrating the C5003 1–20.0mm Coating Thickness meter add a 0 when entering the Calibration Foil value when under 9.9mm.

Factory Calibration

When selected this will reset the Coating Thickness Meter to a standard calibration.

Example using a 5.0mm Foil you enter 05.0.

If you are using a combined Ferrous and Non-Ferrous instrument, the calibration is only reset to the Probe fitted.

Calibration Foils are not required for this calibration.

Calibrations stored in Calibration Memories are not affected. Limits, if selected, will be cleared.

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Operator Calibration

This calibration enables the operator to access a special calibration curve that has been set up under Control in the menu. This will assist in overcoming inaccuracies due to slight probe wear.

When selected, the operator can still use the other functions under Calibration.

Factory Calibration will revert the instrument back to the standard calibration.

Profile

This facility enables a special zero calibration that will assist in calibration on blast-cleaned surfaces and will also enable a top coat to be measured in a multiple-coating application – for example, if a coating of 25 microns has another coating of 50 microns applied then the profile feature will allow the operator to zero the Coating Thickness Meter on the 25 micron coat, and the instrument will measure the top coat only.

To use this facility, the operator must first select Factory Calibration.

Calibration Memories

For specific calibrations that have to be retained on a temporary basis the Coating Thickness Meter has nine calibration memories which will retain any special calibrations.

These can be recalled when required – for example, the current calibration can be stored under Calibration Memory 1, then the calibration can be changed for another job and saved under Calibration Memory 2. Then if required the first stored calibration can be recalled from Calibration Memory 1.

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Clear Memory

Clears the Coating Thickness Meter memory of all batches and stored readings. Does not affect calibration values and Calibration Memories.

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Instructions

Statistics

At any time the appropriate statistics can be displayed on the lower line of the display. The statistics will be automatically updated when additional readings are taken.

Mean

Average of all readings.

Number Readings

Number of readings taken.

Standard Deviation

Standard Deviation of readings taken.

Coefficient of Variation

Coefficient of Variation of readings taken (SDV/ Mean)*100.

Maximum Reading

Maximum reading.

Minimum Reading

Minimum reading.

Statistics Off

Removes the displayed Statistics.

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Instructions

Batching

Multiple batches can be stored to a maximum of 10,000 readings.

Batch Store

Readings taken can be stored in a batch and a job number allocated (up to 6 digits). Multiple batches can be stored with a maximum of 100 readings per batch. The 100th reading taken will automatically enter into a batch and you will be asked to enter the job number.

Batch Recall

Previous batches stored can be recalled either by batch number or by job number, so that further readings can be added, statistics viewed or job number changed.

Auto Batch

A batch quantity can be allocated and the Coating Thickness Meter will automatically enter the batch and you will be asked to enter the job number when this quantity of readings has been taken (the maximum batch limit is 99 readings).

Batching On/Off

Always ensure that batching is on if you need to store readings. When you do not need to store readings switch the batching off. This will enable you to take readings above 100 without automatically being stored into a batch.

When changing Probes on combined Ferrous and Non- Ferrous instruments with batching on, your readings will automatically be entered into a batch and you will be asked to enter the job number

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Download

This enables the stored batches to be downloaded to a computer directly into Microsoft Word and Excel.

Connection is made using the optional USB PC Download Cable to the download socket on the Coating Thickness Meter and the USB port on the computer. Ensure the Coating Thickness Meter is switched off when connecting the cable.

Switch the Coating Thickness Meter on and USB Connected will show on the display. Locate the PteMeter storage device on the computer and view the files.

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Instructions

Control

Check Bat Life

Battery Life can be accessed to check the percentage of battery life available. Low Battery will appear on the display when the batteries require replacement.

To replace, remove the cover located on the rear of the instrument. Replace with 2 alkaline AAA batteries, ensuring correct polarity.

All readings and calibrations stored in the memory will not be affected by the battery change.

Set Limits

Limits can be set to establish a high and also a low pass/fail threshold.

For out-of-limit readings an error display will be shown and the alarm will be sounded. The error amount will be shown as a percentage, which is the difference between the set high or low limit and the particular reading.

To remove Limits press Clear Entry instead of Entering numbers when setting limits.

To remove Limits press Clear Entry instead of Entering numbers when setting limits.

Set Date/Time

The date and time can be set. This will be recorded with every batch stored, and appear on all batches downloaded.

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Operator Calibration Set

Enables the operator to create a special calibration curve by entering 8 Calibration Foil values. This will assist in overcoming inaccuracies in the calibration due to slight probe wear.

The zero is carried out by placing the probe onto the Zero Disk – this will set the zero. The values of the 8 Calibration Foils can then be entered by placing the lowest value Calibration Foil onto the Zero Disk, place the Probe on this Calibration Foil and enter the Foil value into the instrument. Then enter the other Calibration Foils in order of value.

The instrument will revert to normal measurement mode when the last Foil value has been entered.

Once set up, the calibration curve can be accessed through Operator Calibration under Calibration in the menu.

Micron/Thou

Enables the instrument to operate either in metric or imperial measurements.

Install Name

The Coating Thickness Meter can be personalised with your company, department or operator's name. This will appear on every download and on the display when the instrument is switched on.

By entering the following Ascii codes the name can be entered:

A-65, B-66, C-67, D-68, E-69, F-70, G-71, H-72, I-73, J-74, K-75, L-76, M-77, N-78, O-79, P-80, Q-81, R-82, S-83, T-84, U-85, V-86, W-87, X-88, Y-89, Z-90.

a-97, b-98, c-99, d-100, e-101, f-102, g-103, h-104, i-105, j-106, k-107, l-108, m-109, n-110, o-111, p-112, q-113, r-114, s-115, t-116, u-117, v-118, w-119, x-120, y-121, z-122.

Space character is 32.

When Enter is pressed without a character input, then the display will exit to normal measurement mode.

Select Probe

This function is only available on instruments with the ferrous range of 0–2000µm/0–5mm. On other models this function will not be shown.

This gives the operator the option of selecting either a 0 to 2000µm measurement range with a display resolution of 1 micron, or a 0 to 5.00mm measurement range with a display resolution of 0.01mm.

Probe Speed

Select a fast or slow reading speed when the Probe is placed on the surface.