# Data Sheet for the Probes FTA3.3H and ETA3.3H

| Probe model | **FTA3.3H** | **ETA3.3H** |
|---|---|---|
| Part no.[1] | **604-142** | **602-128** |

**Applications**

Measures the thickness of electrically non-conducting coatings on non-ferrous metal base material (NC/NF). Very damp sensitive: Not suited for measurements on damp (acidic) surface soilings.

**Examples**

**Non-ferrous metal base materials (NF)**

- Paint, varnish or plastic coatings on aluminium, copper or brass (NC/NF)

The probes feature a patented conductivity compensation. So that the different electrical conductivities particularly of various aluminium alloys have no effect of the coating thickness measurement.

**Probe design**

- Axial single tip probes with spring-loaded measuring system
- Robust probe design with wear-resistant probe tip

**Applications**

NC/NF

**Measurement range**

**Non-ferrous metal base materials (NF)**

0 ... 1200 µm / *0 ... 47.24 mils*

**Trueness**

**Non-ferrous metal base materials (NF)**

based on Fischer factory calibration standards

| | |
|---|---|
| 0 ... 50 µm: ≤ 0.5 µm | *0 ... 1.97 mils: ≤ 0.02 mils* |
| 50 ... 800 µm: ≤ 1 % of nominal value | *1.97 ... 31.50 mils: ≤ 1 % of nominal value* |
| 800 ... 1200 µm: ≤ 3 % of nominal value | *31.5 ... 47.24 mils: ≤ 3 % of nominal value* |

**Repeatability precision**

**Non-ferrous metal base materials (NF)**

based on Fischer factory calibration standards
5 single readings per standard

| | |
|---|---|
| 0 ... 100 µm: ≤ 0.4 µm | *0 ... 3.94 mils: ≤ 0.016 mils* |
| 100 ... 1200 µm: ≤ 0.4 % of reading | *3.94 ... 47.24 mils: ≤ 0.4 % of reading* |

**Influences**

**Aluminium base material**

*The following values are valid for a coating thickness with a nominal value of 75 µm / 2.95 mils.*
*The quantity of the influences are stated with the expanded measurement uncertainty U with the expanded factor of k = 2 (defines an interval with the confidence level of 95.45 %) - according to ISO/IEC Guide 98-3:2008-09 "Guide to the expression of uncertainty in measurement".*

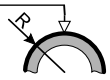
Curvature (R), measurement error from the nominal value with reference to master calibration on flat surface

Measuring spot


No measurement error within the trueness as of R = 299 mm ± 51 mm / *R = 11.77 " ± 2.01 "*
Measurement error of 10 % for R = 29 mm ± 1.3 mm / *R = 1.14 " ± 0. 51 "*
Probe needs a minimum of R = 9 mm (support stand necessary) / *R = 0.354 "*

Curvature (R), measurement error from the nominal value with reference to master calibration on flat surface

Measuring spot




No measurement error within the trueness as of 272 mm ± 46 mm / *R = 10.71 " ± 1.81 "*
Measurement error of 10 % for R = 27 mm ± 2.3 mm / *R = 1.06 " ± 0.09 "*
Probe needs a minimum of R = 1 mm (support stand necessary) / *R = 39.37 mils*

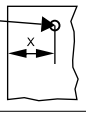
Edge distance (R), specification from probe tip centre, measurement error from the nominal value

Measuring spot in the centre of the circular surface


No measurement error within the trueness as of R = 1.93 mm ± 0.06 mm /
*R = 75.98 mils ± 2.36 mils*
Measurement error of 10 % for R = 1.43 mm ± 0.03 mm / *R ≤ 56.30 mils ± 1.18 mils*
Probe needs a minimum of R = 1 mm (support stand necessary) / *R = 39.37 mils*

Edge distance (X), specification from probe tip centre, measurement error from the nominal value

Measuring spot = Probe pole centre

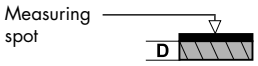



No measurement error within the trueness as of X = 1.2 mm ± 0.1 mm /
*X = 47.24 mils ± 3.94 mils*
Measurement error of 10 % for X = 0.75 mm ± 0.03 mm / *X = 29.53 mils ± 1.18 mils*

| | |
|---|---|
| Influences | **Aluminium base material** |

*The following values are valid for a coating thickness with a nominal value of 75 µm / 2.95 mils.*
*The quantity of the influences are stated with the expanded measurement uncertainty U with the expanded factor of k = 2 (defines an interval with the confidence level of 95.45 %) - according to ISO/IEC Guide 98-3:2008-09 "Guide to the expression of uncertainty in measurement".*

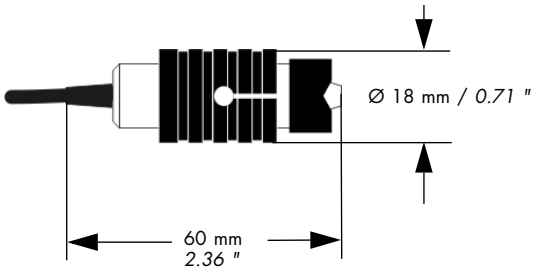
Base material thickness (D), measurement error from the nominal value




No measurement error within the trueness as of D = 103 µm ± 56 µm / *D = 4.06 mils ± 2.21 mils*
Measurement error of 10 % for D = 21 µm ± 0.6 µm / *D = 0.827 mils ± 0.023 mils*

| | |
|---|---|
| Base material | Influence of the el. conductivity of the base material (NF) in the range from 30 to 100 % IACS: Measurement error ≤ 2 %, valid for the total measurement range. |
| Admissible ambient temperature at operation | -10 °C ... +40 °C / *+14 °F ... +104 °F* |
| Admissible specimen temperature | max. +40 °C / *max. +104 °F* |
| Probe tip material | Hard metal |
| Probe tip replaceable | No |
| Probe tip radius | 1.2 mm / *0.05 "* |
| Measuring method | Amplitude sensitive eddy current method according to ISO 2360, ASTM D7091 |
| Scope of supply | Probe, metal plate ISO/NF for instrument check, calibration foil set 605-415 |
| Option | Adapter for support stand: 600-796, is supplied by default with the support stand |
| FTA3.3H works with | All DUALSCOPE® and ISOSCOPE® hand-held instruments of the series FMP and the bench top instruments FISCHERSCOPE® MMS® PC and FISCHERSCOPE® MMS® PC2 with module PERMASCOPE® F-Probes |
| ETA3.3H works with | All DUALSCOPE® and ISOSCOPE® hand-held instruments of the series MP and the bench top instruments FISCHERSCOPE® MMS®, FISCHERSCOPE® MMS® PC and FISCHERSCOPE® MMS® PC2 with module PERMASCOPE® E-Probes |

Dimensions




Cable length: 1.5 m / 59.06 ", other cable lengths on request

[1] *FTA3.3H and ETA3.3H probes with special cable lengths have own part no. and probe model names. This data sheet is also valid for these probes.*