Data Sheet for the Probe Series FGABI1.3

Probe model	**FGABI1.3-150**	**FGABI1.3-260**	**FGABI1.3-400**
Part no.[1]	**604-175**	**604-339**	**604-468**

Applications

Measuring the thickness of electrically non-conductive as well as of non-ferrous metal coatings on steel or iron base material (NC/Fe and NF/Fe). Suited for measurements in bore holes, pipes or grooves. To achieve a very small measurement uncertainty, externally triggered measurement acquisition should be used when measuring small inside diameters.
Smallest permissible inside diameter: 11.5 mm *(0.45 ")*.

Examples

Steel or iron base materials (Fe)

- Paint, varnish or plastic coatings on steel or iron (NC/Fe)
- Copper, brass, zinc, tin and chrome coatings on steel or iron (NF/Fe)

Probe design

Single tip inside probe with spring-loaded measuring system

Applications

NC/Fe or NF/Fe

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The values for measurement range, trueness, repeatability precision and measurement errors are valid for electrically non-conductive coating materials on steel or iron (NC/Fe). The values may differ for measurements on non-ferrous coating materials (NF).

The specifications for trueness) and repeatability precision apply to ambient and specimen temperatures at the time of calibration. The values for trueness and repeatability may increase compared to the values specified here if the temperature during measurement differs from the temperature during calibration.

Measurement range*

Steel or iron base materials (Fe)

0 ... 1000 µm / *0 ... 39.37 mils*

Trueness*

Steel or iron base materials (Fe)

based on Fischer factory calibration standards

0 ... 50 µm: ≤ 0.5 µm
50 ... 1000 µm: ≤ 1 % of nominal value

0 ... 1.97 mils: ≤ 0.02 mils
1.97 ... 39.37 mils: ≤ 1 % of nominal value

Repeatability precision*

Steel or iron base materials (Fe)

based on Fischer factory calibration standards
5 single readings per standard

0 ... 50 µm: ≤ 0.15 µm
50 ... 1000 µm: ≤ 0.3 % of reading

0 ... 1.97 mils: ≤ 0.006 mils
1.97 ... 39.37 mils: ≤ 0.3 % of value

Influence*

Steel or iron base materials (Fe)

The following values are valid for a coating thickness with a nominal value of 75 µm / 2.95 mils.

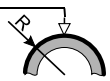
Curvature (R), measurement error from nominal value with reference to master calibration on flat surface

Measuring spot

Measurement error ≥ 10 % for R ≤ 17.5 mm / *R ≤ 0.69 "*
Probe requires a minimum of R = *5.75* mm (support stand necessary) / *R = 0.23"*

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

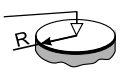
Measuring spot



Measurement error ≥ 10 % for R ≤ 8 mm / *R ≤ 0.31 "*
Probe requires a minimum of R = 1 mm (support stand necessary) / *R = 0.04 "*

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

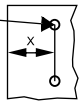
Measuring spot in the center of the circular surface



Measurement error ≥ 10 % for R ≤ 4 mm / *R ≤ 0.16 "*
Probe requires a minimum of R = 1 mm (support stand necessary) / *R = 0.04 "*

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

Measuring spot = Probe pole center



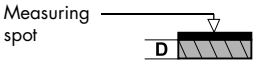
No specification

Coating Thickness | Material Analysis | Nanoindentation | Material Testing

Influence*	**Steel or iron base materials (Fe)**

The following values are valid for a coating thickness with a nominal value of 75 µm / 2.95 mils.

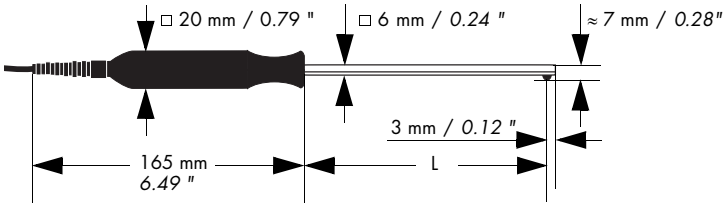
Base material thickness (D), measurement error from nominal value



Measurement error ≥ 10 % for D ≤ 0.2 mm / *D ≤ 7.87 mils*

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	PVD-coated steel
Probe tip replaceable	Yes, by a Fischer service center
Probe tip radius	0.75 mm / *29.53 mils*
Measuring method	Magnetic induction method according to ISO 2178, ASTM D7091
Scope of delivery	Probe, metal plate NF/FE for instrument check, calibration foil set 602-444 (metal plate NF/FE for instrument check, 2 calibration foils with thicknesses of approx. 25 µm/*1 mils* and 350 µm/*13.78 mils*)
Option	Support stand adapter 601-691
FGABI1.3 probes work with	All DUALSCOPE® and DELTASCOPE® hand-held instruments of the series FMP as well as the bench top instruments FISCHERSCOPE® MMS® PC and FISCHERSCOPE® MMS® PC2 with F-Module PERMASCOPE® (12-pin connecting socket)

Dimensions



Cable length: 1.5 m / *59.06 "*, other cable lengths on request[1]

Probe model	FGABI1.3-150	FGABI1.3-260	FGABI1.3-400
L (other lengths on request)	150 mm / *5.91 "*	260 mm/*10.24 "*	400 mm / *15.75 "*

1 FGABI1.3 probes with special cable lengths have own part no. and probe model names. This data sheet also applies to these probes.