Data Sheet for the Probe F20H

Probe model	**F20H**
Part no.[1]	**604-535**
Applications	Measurement of electrically non-conductive and non-ferrous metal coatings on steel or iron base material (NC/Fe and NF/Fe). Because of the large and wear-resistant pole tip the probe is also well suited for measurements on rough surfaces. Measurement of metal (NF) or protective coatings (Iso) on iron and steel (Fe).
Examples	**Steel or iron base materials (Fe)** • Zinc, chromium, copper, paint, varnish, vulcanized rubber or plastic on iron, steel or cast iron (Fe) The probe is applicable for measurements both on smooth and rough surfaces.
Probe design	• Axial single tip probe with spring-loaded measuring system • Robust probe design with wear-resistant probe tip
Applications	NC/Fe or NF/Fe
*	*The values for measurement range, trueness, repeatability precision and measurement deviations 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).*
Measurement range*	**Steel or iron base materials (Fe)** 0 ... 2500 µm / *0 ... 98.43 mils*

Trueness*	**Steel or iron base materials (Fe)**	
based on Fischer factory calibration standards	0 ... 100 µm: ≤ 1.5 µm 100 ... 1000 µm: ≤ 1.5 % of nominal value 1000 ... 2500 µm: ≤ 3 % of nominal value	*0 ... 3.94 mils: ≤ 0.06 mils* *3.94 ... 39.37 mils: ≤ 1.5 % of nominal value* *39.37 ... 98.43 mils: ≤ 3 % of nominal value*
Repeatability precision*	**Steel or iron base materials (Fe)**	
based on Fischer factory calibration standards, 5 single readings per standard	0 ... 100 µm: ≤ 0.3 µm 100 ... 2500 µm: ≤ 0.3 % of reading	*0 ... 3.94 mils: ≤ 0.012 mils* *3.94 ... 98.43 mils: ≤ 0.3 % of reading*

Influences* **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.
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 DIN V ENV 13005 "Leitfaden zur Angabe der Unsicherheit beim Messen" (Guide to the expression of uncertainty in measurement).

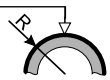
Curvature (R), measurement deviation from the nominal value with reference to master calibration on flat surface

Measuring spot

Measurement deviation of 10 % for R = 33 mm ± 1.1 mm / *R = 1.3 " ± 0.043 "*
Probe needs a minimum of R = 20 mm (support stand necessary) / *R = 0.79 "*

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

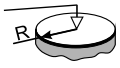
Measuring spot



Measurement deviation of 10 % for R = 31 mm ± 4.2 mm / *R = 1.22 " ± 0.17 "*
Probe needs a minimum of R = 1.5 mm (support stand necessary) / *R = 0.06 "*

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

Measuring spot in the centre of the circular surface

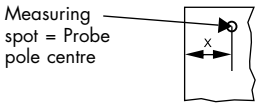


No measurement deviation within the trueness as of R = 13.6 mm ± 0.3 mm / *R = 0.54 " ± 0.012 "*
Measurement deviation of 10 % for R = 6.8 mm ± 0.2 mm / *R = 0.27 " ± 0.0079 "*
Probe needs a minimum of R = 2.5 mm (support stand necessary) / *R = 0.098 "*

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

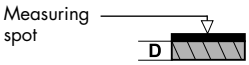
The following values are valid for a coating thickness with a nominal value of 75 µm / 2.95 mils.
The quantity of the influences are stated with the expanded measurement uncertainty U with the expanded factor of k = 2 (defines an interval with the confidence level of 95.45 %) - according to DIN V ENV 13005 "Leitfaden zur Angabe der Unsicherheit beim Messen" (Guide to the expression of uncertainty in measurement).

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



No measurement deviation within the trueness as of X = 4.4 mm ± 0.3 mm / *X = 0.17 " ± 0.012 "*
Measurement deviation of 10 % for X = 1.4 mm ± 0.12 mm / *X = 0.055 " ± 0.0047 "*

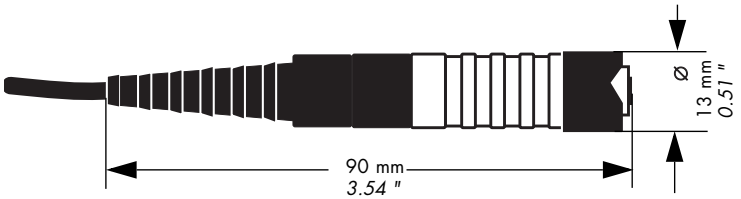
Base material thickness (D), measurement deviation from the nominal value



No measurement deviation within the trueness as of D = 1.1 mm ± 0.12 mm / *D = 0.043 " ± 0.0047 "*
Measurement deviation of 10 % for D = 0.6 mm ± 0.03 mm / *D = 0.024 " ± 0.0012 "*

Base material	Influence of the permeability of the base material (Fe) with reference to Fischer calibration standards (master calibration): No measurement deviation within the trueness as of a ferrite content of 138.1 FN ± 0.05 FN onwards. Measurement deviation of 10 % for ferrite content of 126 FN ± 0.2 FN.
Admissible ambient temperature at operation	-10 °C ... +40 °C / *+14 °F ... +104 °F*
Admissible specimen temperature	max. +40 °C / *+104 °F*
Probe tip material	Hard metal
Probe tip replaceable	No
Probe tip radius	2 mm / *0.079 "*
Measuring method	Magnetic induction method according to ISO 2178, ASTM D7091
Scope of supply	Probe, metal plate NF/FE for instrument check, prism adapter for measurements on pipes and bars, calibration foil set 605-414
Option	Adapter for support stand: 600-173, is supplied by default with the support stand Master calibration set 604-564 with 4 calibration foils
Instruments	All DUALSCOPE® and DELTASCOPE® hand-held instruments of the series FMP and 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]

[1] *F20H probes with special cable lengths have own part no. and probe model names. This data sheet is also valid for these probes.*