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| <b>Probe model</b>                  | <b>FA9</b>  |                      |   |
| <b>Version description</b>          | <b>FA9</b>  |                      |   |
| <b>Part no.</b>                     | 604-188   |                      |   |
| <b>Probe design</b>                 | Single tip probe for angular measurements with spring-loaded measuring system                           |                      | <i>Mechanical design principle of the measurement probe.</i>  |
| <b>Measuring mode</b>               | Single mode   |                      | <i>Specifies, whether this probe is suitable for only one (single mode), for several (DUAL mode) or for a combination of two methods (DUPLICATE mode).</i>  |
| <b>Measuring method</b>             | Eddy current method   |                      | <i>Method used for the specified measuring application.</i>   |
| <b>Measuring application</b>        | Iso/NF  |                      | <i>Measurable coating/substrate material system.</i>  |
| <b>Measuring range</b>              | 0 - 3,5 mm  |                      | <i>Limits of the measurable coating thickness.</i>  |
| <b>Accuracy</b>                     | up to 0.25 mm: up to $\pm 0.005$ mm<br>0.25 - 2.5 mm : up to $\pm 2$ %<br>2.5 - 3.5 mm: up to $\pm 3$ % |                      | <i>The trueness is determined using calibration standards of known thicknesses. It is the difference between the nominal value of the calibration standard and the measured value. The trueness can be stated as an absolute value or as a percentage of the reading.</i> |
| <b>Precision</b>                    | bis/up to 1 mm: $< 0.002$ mm<br>1 - 2.5 mm: $< 0.2$ %<br>2.5 - 3.5 mm: $< 0.4$ %                        |                      | <i>Repeatable standard deviation s of n = 10 single readings.</i>   |
| <b>Ø (concave) for 10 % error</b>   | 175 mm<br>40 mm   | 7"<br>1.6"           | <i>Diameter of a specimen with a concave curvature, under which the error is &gt; 10 %. Min. Ø: Smallest diameter permissible for measurements.</i>   |
| <b>Ø (convex) for 10 % error</b>    | 175 mm<br>2 mm  | 7"<br>80 mils        | <i>Diameter of a specimen with a convex curvature, under which the error is &gt; 10 %. Min. Ø: Smallest diameter permissible for a measurement.</i>   |
| <b>Meas. area Ø for 10 % error</b>  | 8 mm<br>5 mm  | 320 mils<br>200 mils | <i>Diameter of a flat measurement area, under which the error is &gt; 10 %. Min. Ø: Smallest diameter permissible for a measurement.</i>  |
| <b>Edge distance for 10 % error</b> | 3 mm  | 120 mils             | <i>Distance of the probe tip to the edge of the specimen underneath which the error is &gt; 10 %. For 2-tip probes: Parallel distance tip connection line to the edge.</i>  |
| <b>Substrate th. for 10 % error</b> | $< 0.1$ mm  | $< 4$ mils           | <i>This the thickness d of the substrate material, under which the reading will deviate by more than 10 % from an "infinitely" thick substrate material.</i>  |
| <b>Probe tip radius</b>             | 8 mm  | 320 mils             | <i>Radius of the probe measuring tip. The measuring tip establishes the contact with the surface of the specimen.</i>   |
| <b>Probe tip material</b>           | Heat treated steel  |                      | <i>Material of the measuring tip.</i>   |
| <b>Probe tip replaceable</b>        | No  |                      | <i>Specifies, whether a worn measuring tip can be replaced or not.</i>  |
| <b>Height</b>                       | 23 mm   |                      | <i>Ref. graphic in the section „Note regarding the probe dimensions“</i>  |
| <b>Diameter / width</b>             | 14 mm   |                      | <i>Ref. graphic in the section „Note regarding the probe dimensions“</i>  |
| <b>Length</b>                       | 72 mm   |                      | <i>Ref. graphic in the section „Note regarding the probe dimensions“</i>  |
| <b>Works with the instruments</b>   | FMP10/20/30/40/100,<br>MMS® PC & F-Modul PERMAS-<br>COPE®   |                      | <i>Designation of the HELMUT FISCHER instruments to which the respective probe can be connected.</i>  |

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| <b>Applications</b> | Measures electrically non-conducting coatings on non-ferromagnetic metal substrate materials (Iso/NF). Suited for the measurement of thicker plastic or rubber coatings. | <i>Abbreviations:</i><br>NF: Non-ferrous metals (non-ferromagnetic properties).<br>Fe: Iron or steel (with ferromagnetic properties).<br>Iso: Material with isolating properties, i.e., electrically non-conducting e.g., paint. |
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\*) The limits are referenced to a coating thickness that generates a measuring signal at about the center of the usable signal range. With increasing coating thicknesses, the 10 % error will be reached only at smaller radii or substrate material thicknesses, respectively.