

Axial Probes with Short Body – Series 410 and 411

Probes for use with electronic equipment from both TESA and MERCER

Universal probes for common but constraining applications.

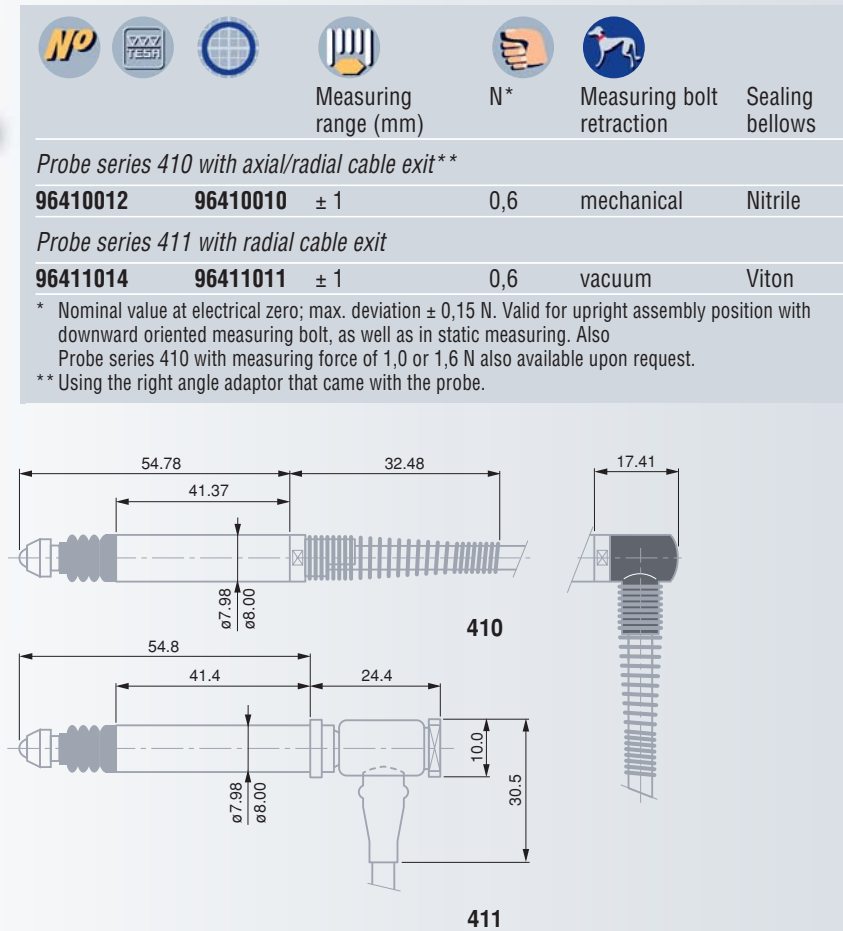
- 8 mm diameter probe body that can be clamped over its entire length.
- Measuring bolt mounted in a ball-bearing.
- Hardened steel body, hard-chrome plated.
- Degree of protection to IP62 (series 410) or IP65 (series 411) as per IEC 60529.
- Probe series 410 provided with a flexible axial cable exit, also steel spring to prevent the cable from breaking.

Compatible with measuring equipment from other makers (see page N-14).



411

410



Measuring range (mm)	N*	Measuring bolt retraction	Sealing bellows
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Probe series 410 with axial/radial cable exit**

96410012	96410010	± 1	0,6	mechanical	Nitrile
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Probe series 411 with radial cable exit

96411014	96411011	± 1	0,6	vacuum	Viton
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* Nominal value at electrical zero; max. deviation ± 0,15 N. Valid for upright assembly position with downward oriented measuring bolt, as well as in static measuring. Also Probe series 410 with measuring force of 1,0 or 1,6 N also available upon request.
** Using the right angle adaptor that came with the probe.



DIN 32876 Part 1



See in tables



Axial probes usable in any position



8 mm body diameter. Measuring bolt mounted on a ball-bearing.

Adjustable distance between both lower stop and electrical zero.

Interchangeable probe insert with a M2,5 mounting thread. 3 mm dia. tungsten carbide ball tip.

Cable length: 2 m.

DIN 45322 connector.

Hardened steel probe body, hard-chrome plated. Stainless steel measuring bolt, hardened.

Rubber bellows in resistant Nitrile or Viton with high-resistance elastomer



Moved mass 3,1 g (probe series 410) or 3,2 g (probe series 411)



Force increase 0,15 N/mm



Highest mechanical frequency 60 Hz



0,025 µm/°C



0°C to 65°C



-40°C to 65°C



IP62 (series 410) IP65 (series 411) as per IEC 60529



Shipping packaging



Identification number



Lower stop of the measuring bolt***, adjustable from... to ex-factory mm mm mm



mm



µm



%****



Technical data sheets

		from... mm	to mm	ex-factory mm	mm	µm	%****	Technical data sheets
410	TESA	-1,2	0	-1,08	2,5	0,1	0,2	F96410012
410	MERCER	-1,2	0	-1,08	2,5	0,1	0,2	F96410010
411	TESA	-1,2	0	-1,08	2,5	0,1	0,2	F96411014
411	MERCER	-1,2	0	-1,08	2,5	0,1	0,2	F96411011

*** Distance from electrical zero.

**** Linearity related max. perm. errors; within the measuring span of 2 mm (measuring range ±1 mm).



DIN 32876 Part 1

See in tables

Axial probes usable in any position

6 and 8 mm probe housing diameters for both series 160 and 430/45, resp.

Ball-bearing measuring bolt. Distance between both stops and electrical zero is either adjustable (series 160, lower stop only) or fixed (series 451).

Interchangeable probe insert. M2 thread for series 160 or M2,5 for both series 430 and 451)

3 mm dia. tungsten carbide ball tip.

2 m long cable.

DIN 45322 connector.

Hardened steel probe body, chrome plated. Measuring bolt in stainless steel, hardened.

Rubber bellows in resistant Nitrile or Viton with high-resistance elastomer

Moved mass 2,5 g (series 160) 1,9 g (series 430) 3,0 g (series 451)

Force increase to 0,3 N/mm (series 160), 0,25 N/mm (series 430) or 0,15 N/mm (series 451)

Highest mechanical frequency 60 Hz

0,025 $\mu\text{m}/^\circ\text{C}$

0°C to 60°C

-40°C to 60°C

IP62 (IEC 60529)

Shipping packaging

Identification number

Axial Probes with Short Body – Series 160, 430 and 451

Probes for use with electronic equipment from both TESA and MERCER

Their compact size and robust construction make them perfect for a frequent use.

- 8 mm diameter probe body that can be clamped over its entire length.
- Chrome-plated, hardened steel body. Ball-bearing probe insert.

Compatible with measuring equipment from other makers (see page N-14).

Measuring range mm	N*	Measuring bolt retraction	Sealing bellows
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Series 160 – Probes with short body, axial cable exit

96160013 96160011 ± 1 0,6 ± 0,15 mechanical Viton

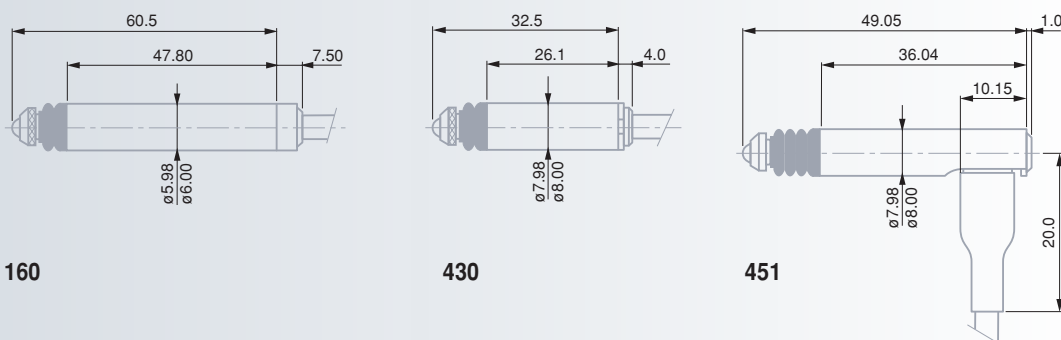
Series 430 – Miniature probes with axial cable exit

96430029 96430028 ± 0,5 0,75 ± 0,2 mechanical Nitrile

Series 451 – Miniature probes with radial cable exit

96441041 96441015 ± 0,5 0,6 ± 0,15 mechanical Nitrile

* Nominal value at electrical zero; max. deviation ± 0,15 N. Valid for upright assembly position with downward oriented measuring bolt, as well as in static measuring.



		Lower stop of the measuring bolt**, adjustable from... to mm	ex-factory mm	mm	μm	%***	Technical data sheets	
160	TESA	-1,2	0	-1,08	3,3	0,1	0,2	F96160013
160	MERCER	-1,2	0	-1,08	3,3	0,1	0,2	F96160011
430	TESA	-0,7	0	-0,58	1,25	0,2	0,2	F96430029
430	MERCER	-0,7	0	-0,58	1,25	0,2	0,2	F96430028
451	TESA	—	—	-0,58	2,1	0,1	0,2	F96441041
451	MERCER	—	—	-0,58	2,1	0,1	0,2	F96441015

** Distance from electrical zero.

*** Linearity related max. perm. errors; within either of both measuring spans of 2 mm (measuring range ±1 mm) and 1 mm (measuring range ±0,5 mm).



TESA Axial Miniature Probes

Standard probes

Compact probes specially designed for use where there's no room for longer probes – Possible assembly on measuring heads for bore measurement and the like.



GT 41 GT 43

GT 41 and GT 43 probes with axial cable exit

			Measuring range (mm)	N*	Measuring bolt retraction	Sealing bellows
<i>Measuring bolt hanging from a diaphragm spring</i>						
03230001	GT 41	± 0,3	0,63	without	Nitrile	
<i>Measuring bolt mounted on a plain bearing</i>						
03230035	GT 43	± 1	0,4	mechanical	Viton	

GT 42 and GT 44 probes with radial cable exit

			Measuring range (mm)	N*	Measuring bolt retraction	Sealing bellows
<i>Measuring bolt hanging from a diaphragm spring</i>						
03230002	GT 42	± 0,3	0,63	vacuum	Nitrile	
<i>Measuring bolt mounted on a plain bearing</i>						
03230017	GT 44	± 1	0,4	vacuum	Viton	

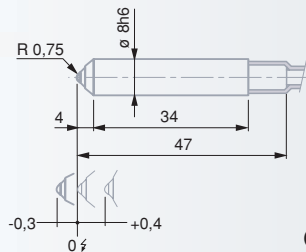
* Nominal value at electrical zero, max. ±25%. Valid for upright assembly position with downward oriented measuring bolt, as well as in static measuring.



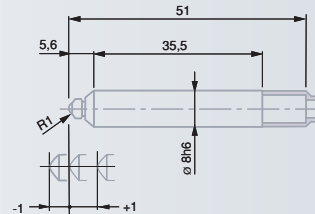
GT 42



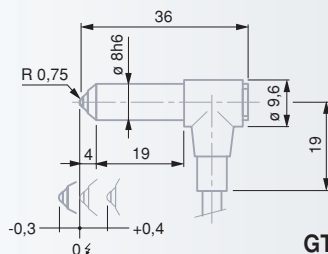
GT 44



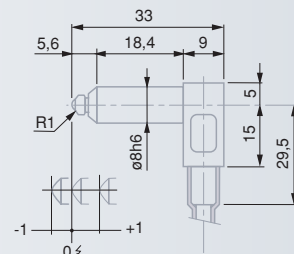
GT 41



GT 43



GT 42



GT 44

	Measuring bolt stops**	mm	µm	µm	µm***	Technical data sheets
	lower (mm)	upper (mm)				
GT 41	-0,3	0,4	0,7	0,01	0,01	0,2 + 5 · L ² 03200258
GT 43	-1,05	1,05	2,1	0,1	0,15	0,2 + 5 · L ² 03200260
GT 42	-0,3	0,4	0,7	0,01	0,01	0,2 + 5 · L ² 03200259
GT 44	-1,05	1,05	2,1	0,1	0,15	0,2 + 5 · L ² 03200261

** Distance from electrical zero. *** Linearity related max perm. errors (L in mm).



Both lower and upper stops are fixed.

GT 41 or GT 42 with a fixed measuring insert; spherical carbide measuring face, R = 0,75 mm.
GT 43 or GT 44 with a selectable measuring insert; spherical carbide face, R = 1 mm.
M2 coupling thread.

Cable length: 2 m.
5-pin DIN 45322 connector.

