

**1**

# **Holetest Mechanical and digital instruments for hole measurement**

Maus Italia offers a **comprehensive range** of instruments designed to fulfil the critical task of measuring the tube sheet holes and the tube internal diameter before and after expansion.

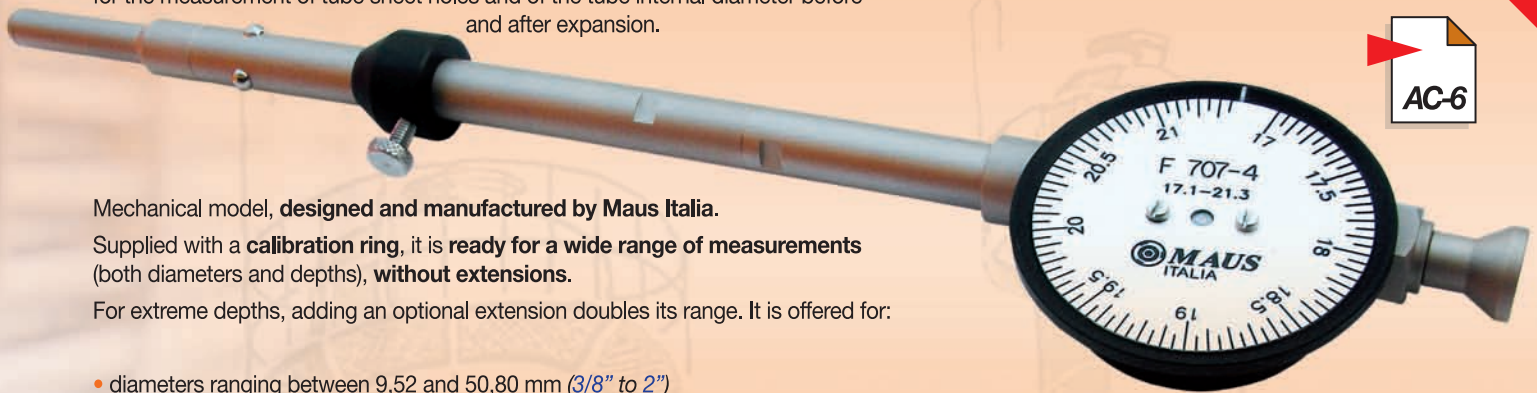
Maus Italia's **technical staff** are at your disposal to recommend the optimum solution for each situation.



NEW

## F/707

Internal **mechanical** gauge (resolution 0.05 mm) with **3 contact points**, designed for the measurement of tube sheet holes and of the tube internal diameter before and after expansion.



Mechanical model, **designed and manufactured by Maus Italia.**

Supplied with a **calibration ring**, it is **ready for a wide range of measurements** (both diameters and depths), **without extensions.**

For extreme depths, adding an optional extension doubles its range. It is offered for:

- diameters ranging between 9,52 and 50,80 mm (3/8" to 2")
- depths up to 203,20 mm (8") without extensions

## F/703

Internal **digital** micrometer with incorporated LCD display and 3 contact points suitable for **series testing. Measured data is recorded and reports can be uploaded as it certifies the work that has been carried out, outputting the measured data report** (Ø of the tube sheet holes and tube inner Ø before and after expansion).

Supplied with calibration rings, it is suitable for a wide range of measurements (both diameters and depths), thanks to its extensions (optional, available upon request).

Offered by Maus Italia in 2 sizes, it is suitable for:

- diameters ranging between 6,0 and 50 mm (0.236" to 1.968")
- depths up to 80 mm (3.15"), without extensions.



## F/700

Internal **mechanical** gauge with 2 contact points, designed for the measurement of tube sheet holes and of the tube internal diameter before and after expansion.

Being particularly lightweight, **F/700** is used with a single hand and is dust and splash resistant.

Offered in 5 sizes (complementary measuring fields), it is suitable for diameters ranging between 6,0 and 150,0 mm (0.236" to 5.905").



Dial for  
reading in mm



Dial for  
reading in inches



Particularly suitable for  
measuring the **tube internal Ø**  
before and after expansion.

Resolution - 0.05 mm

# F/707

**NEW**

Internal mechanical gauges with 3 contact points for tube sheet holes and heat exchanger tubes

### Supplied with:

- Elegant wooden box with anti-shock shaped foam padding
- Calibration ring
- Service screwdriver
- Multifunction service wrench
- Reading dial in mm and inches

### Optional upon request:

- Body extension
- Cursor extension (optional)

Maus Italia expands its internal gauge range with the new **F707** model.

Its ease of use assures extremely accurate instant measurements (in mm and inches).

Internal dial **mechanical** gauge with **3 contact points**, designed for the measurement of **tube sheet hole diameter** and of the tube internal diameter before and after expansion.

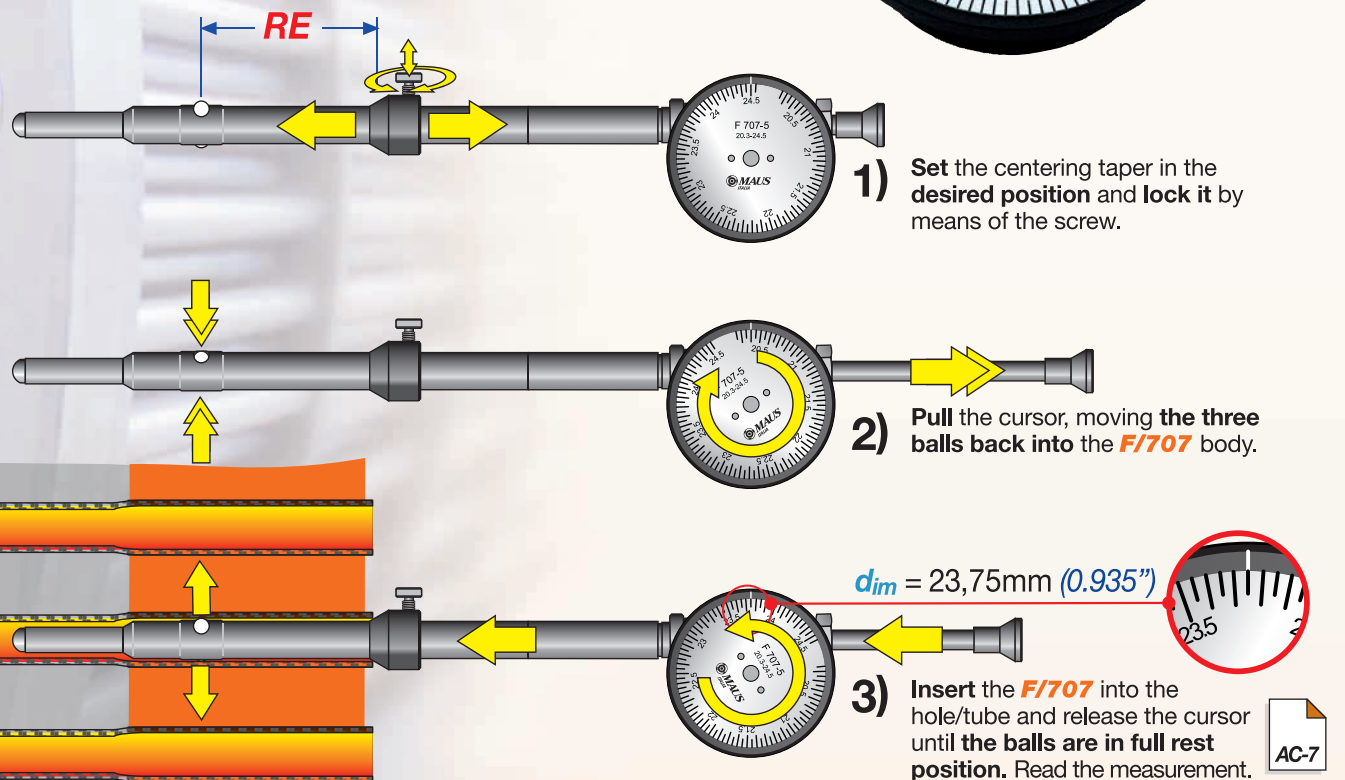
The **F707** model is particularly **accurate** and dust and splash resistant.

This newly designed mechanical model, supplied with a **calibration ring**, is ready for a **good range of measurements (both diameters and depths)**, even without the help of extensions.

**For extreme depths**, adding a fixed 203,2 mm (8") extension doubles its range. It is offered for:

- diameters ranging between 9,52 and 50,80 mm (3/8" to 2")
- depths of up to 203,20 mm (8") without extensions.

## Measuring procedure

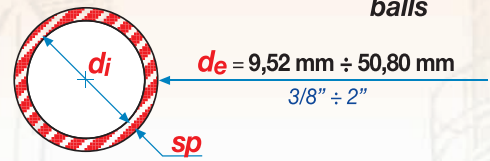
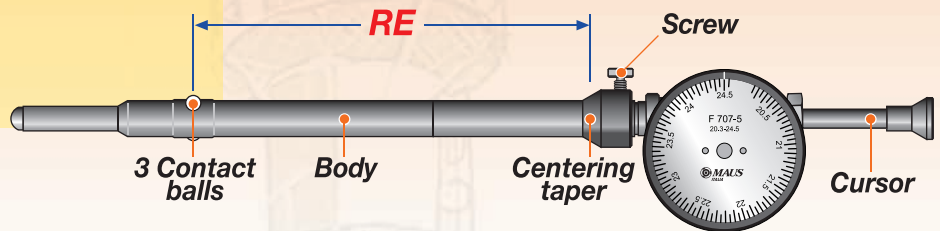


# F/707

## Sample order codes

If you need to measure 1" (25,4 mm) tubes, 18 B.W.G, to a depth of 270 mm (10.63"), the full order to be placed shall consist of:

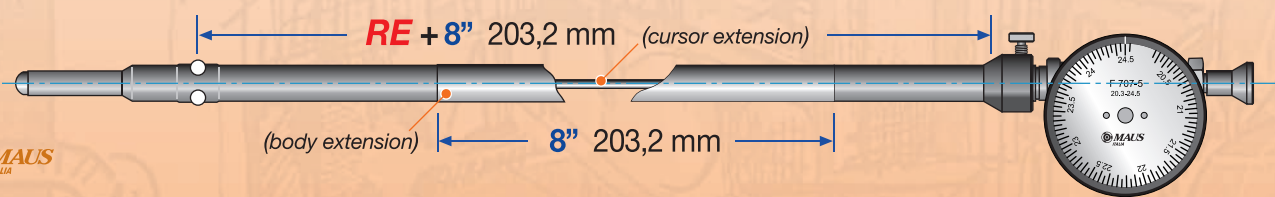
- F/707-5 (1 gauge)
- PC-F707-5 (1 body extension)
- PA-F707-4÷5 (1 cursor extension)



## F/707

Modular extensions  
203.2 mm (8")

Tube					Measuring field		F/707	STD RE depth		PC-F/707	PA-F/707
de	sp		di				Code	mm	inches	Body extension	Cursor extension
inches	mm	B.W.G.	mm	inches	mm	inches				Code	Code
3/8"	9,52	20÷22	7,7÷8,1	0.305÷0.319	7,4÷8,9	0.290÷0.350	F/707-0	152,4	6"	-	-
1/2"	12,70	14	8,4	0.334	7,4÷8,9	0.290÷0.350	F/707-0	152,4	6"	-	-
		22÷24	11,3÷11,6	0.444÷0.456	11,0÷14,2	0.440÷0.560	F/707-2				
5/8"	15,87	12	10,3	0.407	8,9÷11,4	0.350÷0.450	F/707-1	152,4	6"	-	-
		14÷18	11,7÷13,4	0.459÷0.527	11,0÷14,2	0.440÷0.560	F/707-2				
		20÷24	14,1÷14,8	0.555÷0.581	14,0÷18,2	0.550÷0.715	F/707-3				
3/4"	19,05	10÷12	12,2÷13,4	0.482÷0.532	11,0÷14,2	0.440÷0.560	F/707-2	152,4	6"	-	-
		14÷20	14,8÷17,2	0.584÷0.680	14,0÷18,2	0.550÷0.715	F/707-3				
		22÷24	17,6÷17,9	0.694÷0.706	17,1÷21,3	0.675÷0.840	F/707-4				
7/8"	22,22	10÷12	15,4÷16,6	0.607÷0.657	14,0÷18,2	0.550÷0.715	F/707-3	203,2	8"	-	-
		14÷20	18,0÷20,4	0.709÷0.805	17,1÷21,3	0.675÷0.840	F/707-4				
		22÷24	20,8÷21,1	0.819÷0.831	20,3÷24,5	0.800÷0.965	F/707-5				
1"	25,40	10÷12	18,6÷19,8	0.732÷0.782	17,1÷21,3	0.675÷0.840	F/707-4	203,2	8"	-	-
		14÷22	21,2÷24,0	0.834÷0.944	20,3÷24,5	0.800÷0.965	F/707-5				
		24	24,4	0.956	24,5÷29,7	0.950÷1.170	F/707-6				
1.1/4"	31,75	10÷16	25,0÷28,5	0.982÷1.120	24,1÷29,7	0.950÷1.170	F/707-6	203,2	8"	-	-
		18÷24	29,3÷30,7	1.152÷1.206	27,5÷32,9	1.085÷1.295	F/707-7				
1.3/8"	34,92	10÷16	28,6÷31,6	1.126÷1.245	27,5÷32,9	1.085÷1.295	F/707-7	203,2	8"	-	-
		18÷24	32,4÷33,8	1.277÷1.331	31,5÷36,8	1.240÷1.450	F/707-8				
1.1/2"	38,10	10	31,3	1.232	27,5÷32,9	1.085÷1.295	F/707-7	203,2	8"	-	-
		12÷18	32,5÷35,6	1.282÷1.402	31,5÷36,8	1.240÷1.450	F/707-8				
		22÷24	36,7÷37,0	1.444÷1.457	36,4÷42,4	1.433÷1.673	F/707-9				
1.3/4"	44,45	10÷14	37,6÷40,2	1.482÷1.584	36,4÷42,4	1.433÷1.673	F/707-9	203,2	8"	-	-
		16÷24	41,1÷43,3	1.620÷1.706	40,0÷45,0	1.575÷1.772	F/707-10				
2"	50,80	8	42,4	1.670	40,0÷45,0	1.575÷1.772	F/707-10	203,2	8"	-	-
		10÷16	44,0÷47,5	1.732÷1.870	43,2÷49,0	1.700÷1.910	F/707-11				



Resolution - 0,001 mm



# F/703

Internal quick digital micrometer, 3 contact points, for work requiring certification

## Supplied with:

- Case with anti-shock shaped foam padding
- Calibration rings
- Flat service screwdriver
- Multifunction service wrench

## Optional upon request:

- Portable printer with RS-232 cables



Internal digital micrometer (resolution 0,001 mm) with large LCD display and 3 contact points, suitable for **series testing**, as it **certifies the work that has been carried out**, outputting the measured data report (tube sheet holes and tube i.d. before and after expansion).

The **quick activation F/703** model is dust and splash resistant and features a high degree of protection (IP65).

High-end digital model, featuring a practical gun handle for measuring head activation.

**A printer (optional) allows storage/printing of the measured values, providing a certified report of the performed work.**

Supplied with calibration rings (UKAS certificate), it is suitable for a wide range of measurements (both diameters and depths), thanks to the measuring head extensions (**optional**). It is offered in 2 sizes:

### F/703-1

- diameters ranging between 6,0 and 20 mm (0.236" to 0.787")
- depths of up to 62 mm (2.44"), without extensions.

### F/703-2

- diameters ranging between 20,0 and 50 mm (0.787" to 1.968")
- depths of up to 80 mm (3.15"), without extensions.

## Measuring procedure

### Calibrating

Position the display as you prefer and lock it using the special Allen key.

Insert the measuring head (at the height of the anvils) into the stopper ring that is appropriate for the head measuring field, to reset the **F/703**. Reset the instrument.

### Measurement

Insert the micrometer into the hole to be measured, making sure the anvils properly rest on the hole walls.

Thoroughly check that contact surfaces are clean.

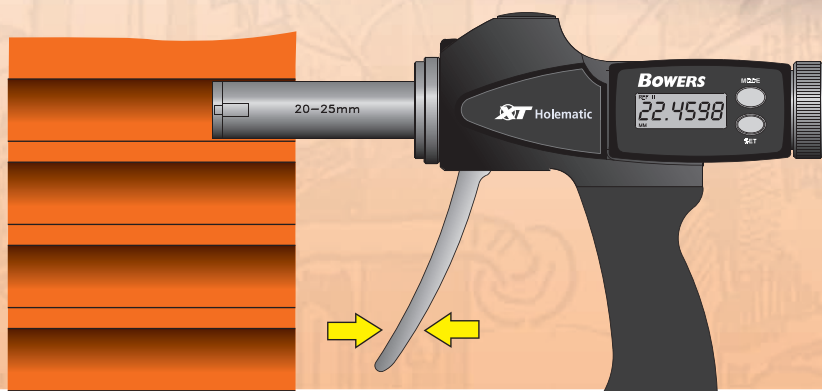
Press the **operating lever** for a couple of times before reading the measurement, to exert the appropriate pressure.

**Read** the measurement on the display.

**Release** the lever, to be able to properly withdraw the **F/703** gauge.

E.g.:  $dim = 22,4598 \text{ mm } (0.8842")$

The measuring head extensions and the calibration rings are supplied complete with UKAS calibration certificate.

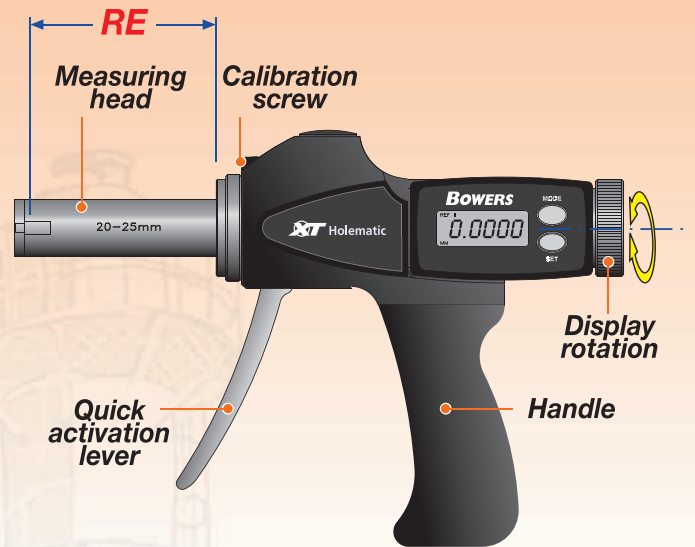


# F/703

## Sample order codes

If you need to measure any tubes having an inner diameter  $d_i$  of 22,00 mm (0.866") and a depth of 100 mm (3.93"), referring to the table you can see that the full order shall consist of:

- F/703-2 (1 gauge)
- PT-F703-2a (1 head extension)



## F/703

Measuring field		F/703 Code	STD RE depth		Extension length		PT-F/703 Head extension Code
mm	inches		mm	inches	mm	inches	
6,0÷8,0	0.236 ÷ 0.315	F/703-1	58,0	2.28	63,0	2.480	PT-F703-1a
8,0÷10,0	0.315 ÷ 0.394		58,0	2.28	76,0	2.992	PT-F703-1b
10,0÷12,5	0.394 ÷ 0.492		58,0	2.28			
12,5÷16,5	0.492 ÷ 0.650		62,0	2.44			
16,5÷20,0	0.650 ÷ 0.787		62,0	2.44	100,0	3.937	PT-F703-1c
20,0÷25,0	0.787 ÷ 0.984	F/703-2	66,0	2.44	150,0	5.906	PT-F703-2a
25,0÷35,0	0.984 ÷ 1.378		66,0	2.44			
35,0÷50,0	1.378 ÷ 1.968		80,0	3.15			



Resolution - 0,01 mm

# F/700

Cost-effective internal mechanical gauges, 2 contact points

## Supplied with:

- Protection box
- Service wrench
- Test certificate

Cost-effective internal mechanical gauge (resolution 0,01 mm) with 2 contact points, for the measurement in mm of tube sheet holes and of the tube interior before and after expansion.

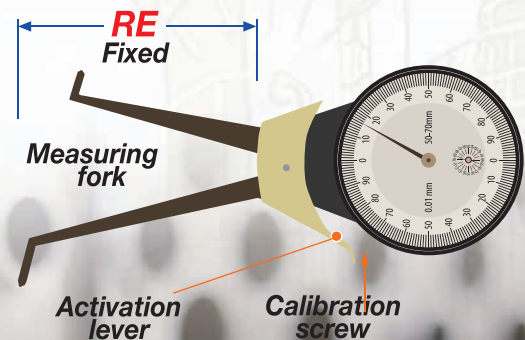
Being particularly lightweight, **F/700** is used with a single hand and is dust and splash resistant

## F/700

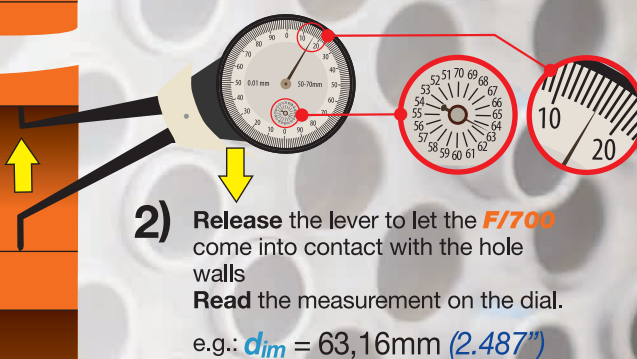
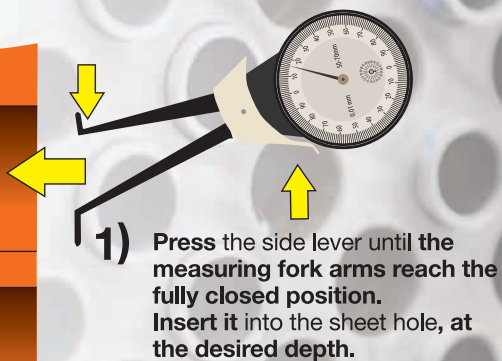
### Sample order codes

If you need to measure any tubes having an inner  $\varnothing$  **d<sub>i</sub>** of 19 mm the order to be placed shall consist of:

F/700-2 (1 gauge)



## Measuring procedure



## F/700

Measuring field	F/700
mm	Code
6,0÷18,0	<b>F/700-1</b>
10,0÷30,0	<b>F/700-2</b>
30,0÷50,0	<b>F/700-3</b>
50,0÷70,0	<b>F/700-4</b>
70,0÷150,0	<b>F/700-5</b>