



Metallux ME550 pressure sensors are made with a ceramic base plate and a flush diaphragm and work following the capacitive principle, in which the pressure measurement is given by the variation of capacitance due to deformation of a capacitor's plates. The moving capacitor plate is screen printed on the flush ceramic diaphragm which is, in turn, glued to the sensor's body. The capacitor plate faces the inside where a cavity is made and the diaphragm's opposite side can therefore be exposed directly to the medium to be measured.

The wide diameter (32.4 mm) and the use of the capacitive technology make the ME550 a sensor suitable for measuring very low pressures, as low as 60 mbar.

Nevertheless, ME550 sensors feature a high burst pressure, making them quite reliable in many applications.

Because of the Al<sub>2</sub>O<sub>3</sub> ceramic excellent chemical resistance (aggressive gases, most of solvents and acids, etc.), no additional protection is normally required. Metallux ME550 sensors can be provided in the gauge or absolute versions.

### FEATURES

**High resistance to corrosion and abrasions**

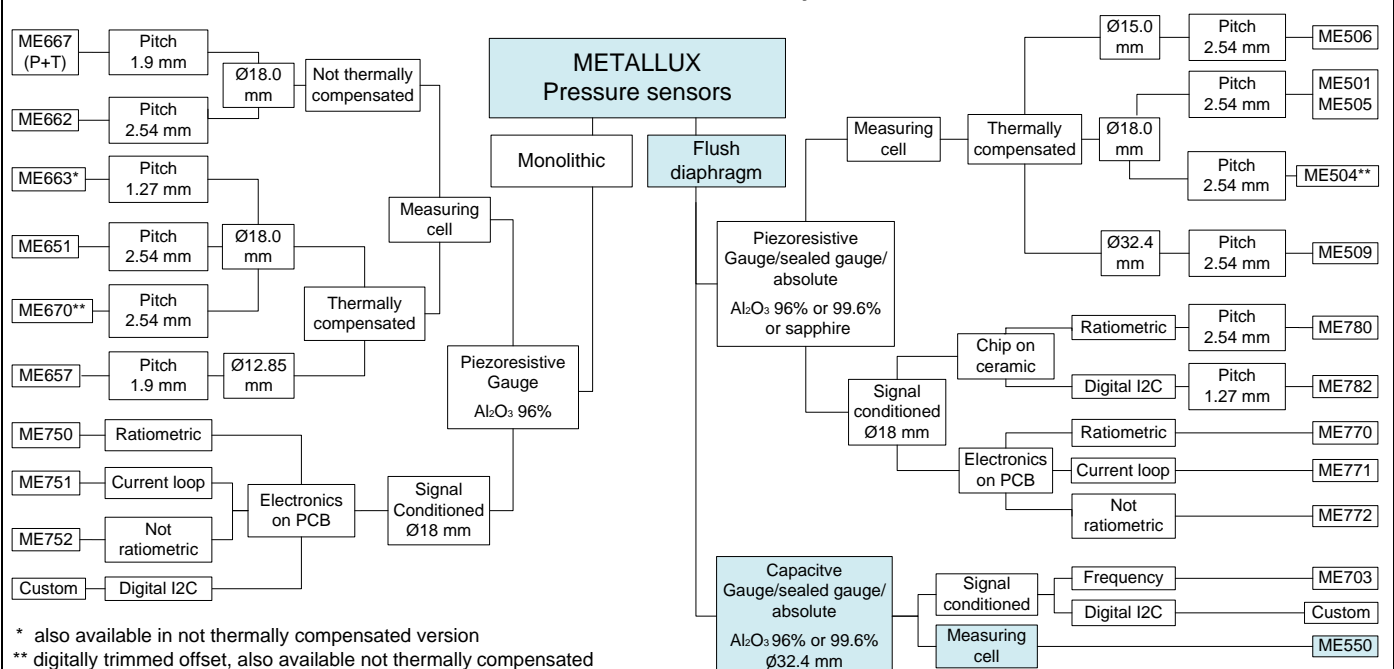
**High sensitivity at very low pressure**

**High burst pressure**

**High immunity to disturbances**



### Pressure sensors family tree



\* also available in not thermally compensated version  
\*\* digitally trimmed offset, also available not thermally compensated

## Technical characteristics

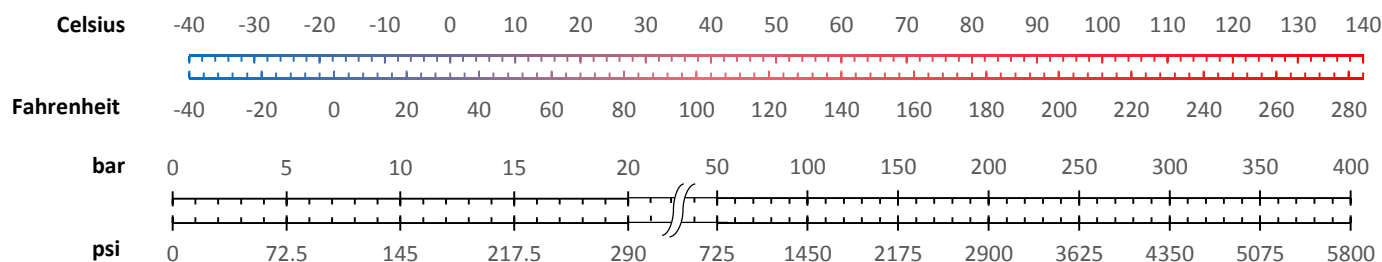
Parameters	Units	Description
Sensor type	-	Flush diaphragm, absolute (A) or gauge (R)
Technology	-	Capacitive / ratio
Base material	-	Ceramic Al <sub>2</sub> O <sub>3</sub> 96%
Diaphragm material	-	Ceramic Al <sub>2</sub> O <sub>3</sub> 96% or 99.9%
Weight	g	≤ 20 (ceramic cell only)
Response time	ms	≤ 10
Capacity (Cx and Cr)	pF	50 - 80
Offset	-	Cx/Cr = 1 ± 0.07
Life Cycles	-	> 1'000'000
Operating temperature	°C	-40...+135 (-40 °F...+275 °F)
Storage temperature	°C	-40...+150 (-40 °F...+302 °F)
Compliant with	-	REACH, RoHS, Conflict Minerals Free

Nominal pressure FSO	bar	0.060	0.160	0.400	1	2	5	10	20
	psi <sup>1</sup>	0.9	2.3	5.8	14.5	29.0	72.5	145.0	290.0
Overload pressure	bar	2	4	6	8	15	25	35	60
	psi <sup>1</sup>	29	58	67	116	217	362	507	942
Vacuum capability	bar	-0.200	-0.300	-0.500	-0.800	-1.00	-1.00	-1.00	-1.00
	psi <sup>1</sup>	-2.9	-4.3	-7	-14	-14	-14	-14	-14
Type	-	R	R	R	A / R	A / R	A / R	A / R	A / R
Total thickness	mm	5.23	5.28	5.41	5.51	5.63	5.85	5.90	6.34
	in	0.206	0.208	0.213	0.217	0.222	0.230	0.232	0.249
Sensitivity <sup>2</sup>	-	0.15 - 0.45	0.15 - 0.45	0.15 - 0.45	0.15 - 0.45	0.15 - 0.45	0.15 - 0.45	0.15 - 0.45	0.15 - 0.45
Non-Linearity (max.)	%FS	±12.0	±12.0	±12.0	±12.0	±12.0	±12.0	±12.0	±12.0
Hysteresis (max.)	%FS	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1
Stability (max)	%FS	±0.2	±0.2	±0.2	±0.2	±0.2	±0.2	±0.2	±0.2
Reliability tests <sup>3</sup>	-	1000 hours @85 °C (185 °F) & 85 %RH		500 thermal shocks -40°C...+150 °C (-40 °F... +302 °F)		1000 hours burn-in @150 °C (302 °F)			
						1 million 0 bar to P <sub>nom</sub> pressure cycles			

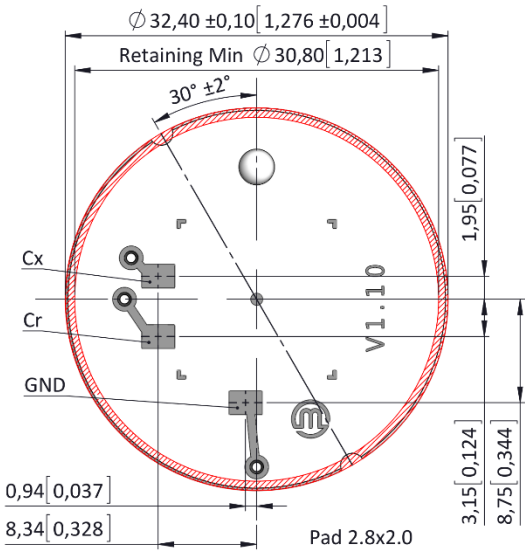
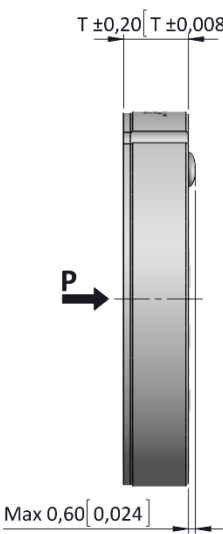
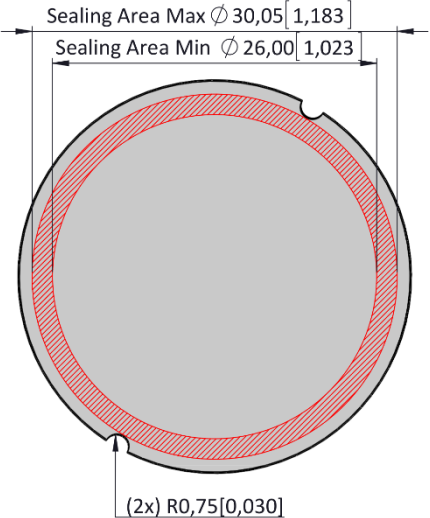
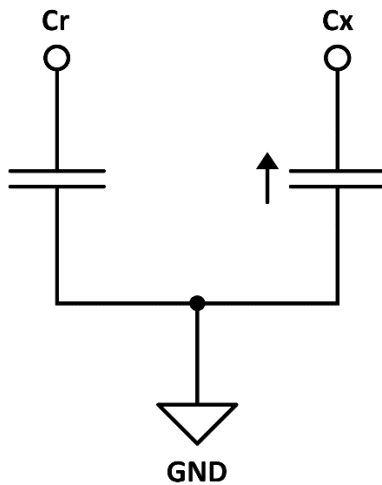
Tests performed at 25°C in Metallux housings, unless otherwise specified. Different housings may affect performances.

1. Psi values for reference only.
2. Sensitivity = Cx/Cr 100% – Cx /Cr 0%
3. All technical characteristics will remain within indicated ranges performing the above-mentioned reliability tests.

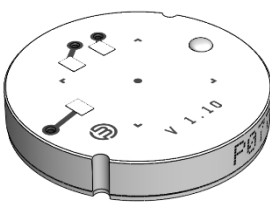
## Conversion tools



## Mechanical drawings and electrical schematics

Top View	Side View
 <p> <math>\varnothing 32,40 \pm 0,10</math> [1,276 ± 0,004]            Retaining Min <math>\varnothing 30,80</math> [1,213]  <math>30^\circ \pm 2^\circ</math>            Cx            Cr            GND            V1.10  <math>1,95</math> [0,077]  <math>0,94</math> [0,037]  <math>8,34</math> [0,328]            Pad 2.8x2.0  <math>3,15</math> [0,124]  <math>8,75</math> [0,344]            (3x) Pads 2.8 x 2.0 [0,11x0,078]         </p>	 <p> <math>T \pm 0,20</math> [T ± 0,008]            P            Max 0,60 [0,024]         </p>
Bottom View	Schematics
 <p>           Sealing Area Max <math>\varnothing 30,05</math> [1,183]            Sealing Area Min <math>\varnothing 26,00</math> [1,023]            (2x) R0,75 [0,030]         </p>	 <p>Cr Cx GND</p>
<p>All quotes are in mm [inch] – General tolerance ISO 2768-1 M</p>	

## Electrical terminations

<p><b>Example: type 0, pretinned soldering pad</b></p>  <p> <i>Max. tin thickness:</i> 0.3 [ 0.01 ]  <i>Op. Temp:</i> -40°C...+135°C ( -40 °F...275 °F )         </p>	<p><b>Other type available on request</b></p> <p> <b>Type 1,</b> pins <math>L = 13 \pm 0.5</math> mm [0.51 ± 0.02 ]  <b>Type 2,</b> wires <math>50.8 \pm 2</math> [ 2 ± 0.08 ]         </p>
<p>All quotes are in mm [inch] – General tolerance ISO 2768-1 M</p>	

## Ordering code

	ME550	-	----	-	-	-
<b>Sensor type</b>	Absolute	A				
	Gauge	R				
<b>Pressure range</b>	0...60 mbar [0...7 psi]		0600			
	0...160 mbar [0...14 psi]		1600			
	0...400 mbar [0...29 psi]		4000			
	0...1 bar [0...72 psi]		1001			
	0...2 bar [0...145 psi]		2001			
	0...5 bar [0...290 psi]		5001			
	0...10 bar [0...720 psi]		1002			
	0...20 bar [0...1450 psi]		2002			
Others on request (please specify)		9999				
<b>Diaphragm material</b>	Al <sub>2</sub> O <sub>3</sub> 96%			0		
	Al <sub>2</sub> O <sub>3</sub> 99.9%			1		
	Others on request (please specify)			9		
<b>Electrical termination</b>	Pretinned soldering pad				0	
	Pins, 13 mm				1	
	Wires				2	
	Others on request (please specify)				9	
<b>Venting hole pipe</b>	Without					0
	Standard metal pipe $\phi$ 1.2mm x 6 mm height					1