



# PRESSURE GAUGES

## PRESSURE RESOURCES

Information to help in your selection of a pressure gauge

### Units

Unit	Explanation	Preferred by	Std
PSI	Pounds per square inch	USA	14.7
Pa	Pascal (Newton per square meter)	ISO & ISA (low)	101350
kPa	kiloPascal (1000 Pascals)	ISO, ISA, Canada	101.35
MPa	MegaPascal (1000 kiloPascals)	Intl Hydraulics	0.10135
kg/cm2	kilograms per square centimeter	Japan	1.033
Bar	Bar	Europe	1.013
Atm	Atmospheres	Scientists	1
IWC	Inches of water column	USA (low)	407.2
InHg	Inches of Mercury	USA (vacuum)	29.92
IWC	Inches of water column	USA (low)	407.2
OSI	Ounces per square inch	USA (low)	235.2
mmHg	millimeters of Mercury	Europe (vacuum)	760
mmWC	millimeters of water column	Europe (low)	10343



### Pressure Conversion

PCI PRESSURE CROSS-REFERENCE CHART								
psi	in H2O	kg/cm <sup>2</sup>	Ms H2O	mm Hg	cm Hg	bar	mbar	kPa
1	27.72	0.07	0.704	51.884	5.188	0.069	68.947	6.895
0.036	1	0.0025	0.025	1.871	0.187	0.0025	2.486	0.249
14.233	394.408	1	10.018	737.959	73.796	0.981	980.662	98.066
1.422	39.37	0.099	1	73.796	7.379	0.098	98.066	9.807
0.019	0.534	0.0014	0.0136	1	0.1	0.001	1.326	0.133
0.193	5.34	0.014	0.136	10	1	0.0133	13.29	1.328
14.503	402.164	1.02	10.211	752.47	75.247	1	1000	100
0.0145	0.402	0.001	0.0102	0.752	0.075	0.001	1	0.1
0.145	4.021	0.01	0.102	7.525	0.752	0.01	10	1

1Pa = 1N/m<sup>2</sup>    1kPa = 1kN/m<sup>2</sup>    1MPa = 1MN/m<sup>2</sup>

### ASME Accuracy Scales

Grade	Accuracy (% of Full Scale)	Notes
4A	0.10%	Precision Test Gauge
3A	0.25%	Test Gauge
2A	0.50%	Master & Process Gauge
1A	1.00%	Instrument Gauges
A	2%-1%-2%	Quality Gauges
B+	1.50%	Not an ASME grade!
B	3%-2%3%	Industrial Gauges

### Temperature Effects

Temperature Effects	
The variation of indication caused by effects of temperature should not exceed the percentage values given by the formulae:	
<b>Bourdon tube</b>	±0.04 x (t2-t1)% of the span
<b>Diaphragm</b>	±0.06 x (t2-t1)% of the span
<b>Capsule</b>	±0.08 x (t2-t1)% of the span
Where : t2 is the reference temperature in °C t1 is the ambient temperature in °C.	

### Pressure Ranges

Pressure Element	Range (bar)	Range (psi)
Bourdon tube	0.6 bar to 1600bar	8.7 to 23,200psi
Diaphragm	2.5 mbar to 25 mbar	.03 to 360psi
Capsule	1 mbar to 600 mbar	.0145 to 8.70psi