data sheet

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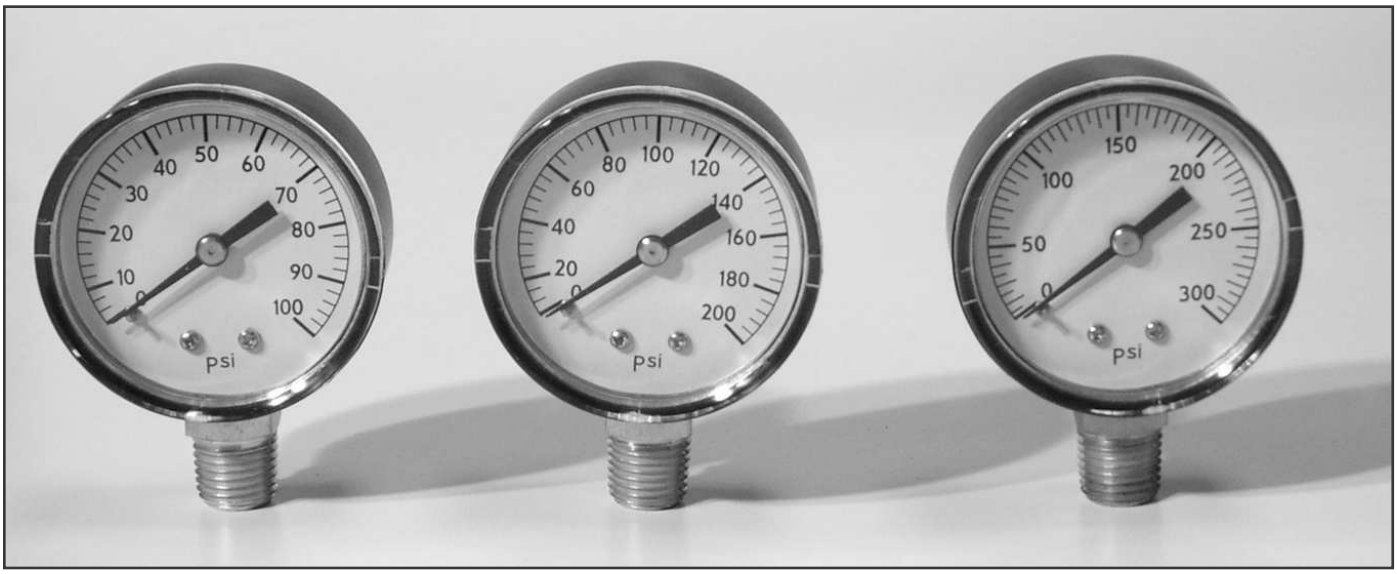
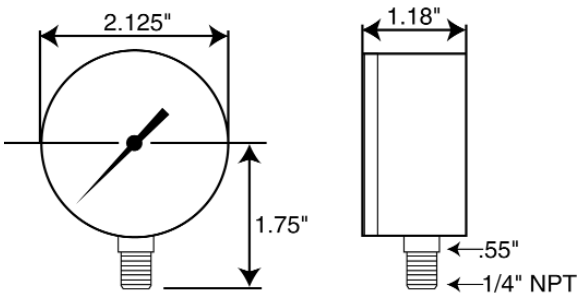
GUARANTEED

2” Pressure Gauges



- Black Plastic Case
- Black Steel Ring
- Glass Lens
- Brass internal connection joint

For measurement of steam, air, oil, water and other pressure media which have no effect on bronze and brass.



65-10-185: 100 psi
65-10-186: 200 psi
65-10-187: 300 psi

Note:
The design of the scale depends on scale range, nominal size (NS, diameter of case) and accuracy class of a pressure gauge.
For gauges with a pointer stop the accuracy class will cover from 10% to 100% of the scale range.
For gauges with a free zero the accuracy class will cover from 0% to 100% of the scale range.

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Pressure Gauge Scale Ranges
Scale spacing and scale numbering

In general

The design of the scale depends on scale range, nominal size (NS, diameter of case) and accuracy class of a pressure gauge.
European norm EN 837-1 and EN 837-3 provide information about the design of dials with concentric scales. In addition to the scales which are in accordance with EN 837, of course all other scale ranges, double and multiple scales, as well as coloured scales, etc., which are customary abroad, are also available.

Scale ranges

The preferred unit of pressure is bar.

Pressure ranges in bar

0 ... 0.6	0 ... 1	0 ... 1.6	0 ... 2.5	0 ... 4
0 ... 6	0 ... 10	0 ... 16	0 ... 25	0 ... 40
0 ... 60	0 ... 100	0 ... 160	0 ... 250	0 ... 400
0 ... 600	0 ... 1000	0 ... 1600		

Pressure ranges in mbar

0 ... 1	0 ... 10	0 ... 100
0 ... 1.6	0 ... 16	0 ... 160
0 ... 2.5	0 ... 25	0 ... 250
0 ... 4	0 ... 40	0 ... 400
0 ... 6	0 ... 60	0 ... 600

Vacuum ranges in bar

Vacuum gauges have anti-clockwise pointer travel with increasing vacuum.
-0.6 ... 0 -1 ... 0

Vacuum ranges in mbar

-1 ... 0	-10 ... 0	-100 ... 0
-1.6 ... 0	-16 ... 0	-160 ... 0
-2.5 ... 0	-25 ... 0	-250 ... 0
-4 ... 0	-40 ... 0	-400 ... 0
-6 ... 0	-60 ... 0	-600 ... 0

Combined pressure and vacuum ranges in bar

-1 ... +0.6 -1 ... +1.5 -1 ... +3 -1 ... +5 -1 ... +9
-1 ... +15 -1 ... +24

as well as corresponding combined pressure and vacuum ranges in mbar.

Nominal sizes

Nominal sizes (NS) of gauges are as follows:
40, 50, 63, 80, 100, 160 and 250

Accuracy classes

The accuracy class stating the limits of permissible error is expressed as a percentage of the span.
The following accuracy classes are defined: 0.1, 0.25, 0.6, 1, 1.6, 2.5 and 4.

For gauges with a pointer stop the accuracy class will cover from 10 % to 100 % of the scale range.
For gauges with a free zero the accuracy class will cover from 0 % to 100 % of the scale range.

Assignment of accuracy classes to nominal sizes

Nominal Size NS	Accuracy class 0.1	0.25	0.6	1	1.6	2.5	4
40 and 50					x	x	x
63				x	x	x	x
80				x	x	x	x
100				x	x	x	
160		x	x	x	x		
250	x	x	x	x	x		

The total errors of indication at reference temperature 20 °C of the gauge shall not exceed the values given in the following table.

Accuracy class	Limits of permissible error (percentage of span)
0.1	± 0.1 %
0.25	± 0.25 %
0.6	± 0.6 %
1	± 1 %
1.6	± 1.6 %
2.5	± 2.5 %
4	± 4 %

Scale interval

The minimum number of minor scale divisions for each accuracy class and nominal size of gauge are shown in the following table:

Scale (pressure range)	Nominal Size	Minimum number of minor scale divisions Accuracy classes						
		0.1	0.25	0.6	1	1.6	2.5	4
0 to 100	40					20	20	20
	50					20	20	20
	63				20	20	20	20
	80				50	50	50	50
	100			100	50	50		
	160		200	100	50	50		
	250	500	200	100	50	50		
0 to 160	40					32	32	32
	50					32	32	32
	63				32	32	32	32
	80				32	32	32	32
	100			80	32	32		
	160		160	80	32	32		
	250	320	320	80	32	32		
0 to 250	40					25	25	25
	50					25	25	25
	63				25	25	25	25
	80				50	50	50	50
	100			125	50	50		
	160		125	125	50	50		
	250	500	250	125	50	50		
0 to 400	40					20	20	20
	50					20	20	20
	63				20	20	20	20
	80				40	40	40	40
	100			80	40	40		
	160		200	200	40	40		
	250	400	200	200	40	40		
0 to 600	40					30	30	30
	50					30	30	30
	63				30	30	30	30
	80				60	60	60	60
	100			120	60	60		
	160		120	120	60	60		
	250	300	300	120	60	60		

Scale spacing: ≥ 1 mm.
Thickness of the scale marks: ≤ 1/5 of the scale spacing.

Examples of scale spacings and scale numberings

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Example 1: accuracy classes from 1 to 4

Nominal Size (NS)	Scale (pressure range)	Scale spacing and scale numbering										Scale interval	Number of minor divisions
40 50 63													
	0 ... 1	0		0.2		0.4		0.6		0.8	1	0.05	
	0 ... 10	0		2		4		6		8	10	0.5	
	0 ... 100	0		20		40		60		80	100	5	20
	0 ... 1000	0		200		400		600		800	1000	50	
	-1 ... 0	-1		- 0.8		-0.6		-0.4		-0.2	0	0.05	
	-1 ... 0 ... +9	-1	0	1	2	3	4	5	6	7	8	9	0.5	
80 100 160 250													
	0 ... 2.5	0		0.5		1		1.5		2	2.5	0.05	
	0 ... 25	0		5		10		15		20	25	0.5	
	0 ... 250	0		50		100		150		200	250	5	
	0 ... 2500	0		500		1000		1500		2000	2500	50	50
	-1 ... 0 ... +1.5	-1		-0.5		0		0.5		1	1.5	0.05	
													
	-1 ... 0 ... +24	-1	0		5		10		15		20	24	0.5	
80 100 160 250													
	0 ... 0.6	0	0.1		0.2		0.3		0.4		0.5	0.6	0.01	
	0 ... 6	0	1		2		3		4		5	6	0.1	
	0 ... 60	0	10		20		30		40		50	60	1	60
	0 ... 600	0	100		200		300		400		500	600	10	
	-0.6 ... 0	-0.6	-0.5		-0.4		-0.3		-0.2		-0.1	0	0.01	
	-1 ... 0 ... +5	-1	0		1		2		3		4	5	0.1	

Example 2: accuracy class 0.6

160 250									
	0 ... 4	0	0.5	1		3	3.5	4	0.02
	0 ... 40	0	5	10		30	35	40	0.2
	0 ... 400	0	50	100		300	350	400	2
	0 ... 4000	0	500	1000		3000	3500	4000	20
	-1 ... 0 ... +3	-1	-0.5	0		2	2.5	3	0.02

Example 3: accuracy class 0.25

250									
	0 ... 1.6	0	0.1	0.2	1.3	1.4	1.5	1.6	0.005
	0 ... 16	0	1	2	13	14	15	16	0.05
	0 ...160	0	10	20	130	140	150	160	0.5
	0 ... 1600	0	100	200	1300	1400	1500	1600	5
	-1 ... 0 ... +0.6	-1	-0.9	-0.8	0.3	0.4	0.5	0.6	0.005
	-1 ... 0 ... +15	-1	0	1	12	13	14	15	0.05