

**FEATURES**

- Accuracy of up to ±0.05% of span
- Temperature Compensated from 0°F to 150°F (-18°C to 63°C)
- Weatherproof NEMA 4, IP65
- FM and CSA Approved Intrinsically Safe



**SPECIFICATIONS**

Accuracy:	2089: ±0.05% of span accuracy 2086: ±0.10% of span accuracy 2084: ±0.25% of span accuracy Terminal Point, Total Error Band (TEB) Including Hysteresis, Linearity, Repeatability and Temperature (0°F to 150°F)
Process Connection Location:	Lower, Left, Right, Top
Enclosure Rating:	Weatherproof, IP65
Display:	Full 5 digital LCD
Backlight:	Off by default, programmable Manually turns backlight on and off
Bar Graph:	10 segment
Battery Life:	1000 hrs (3 AAA alkaline batteries)
Zero/Clear:	Zeros display and clears min. and max. values
Calibration Chart:	10 NIST Traceable chart included with 2089, optional for 2084 and 2086
Config:	Access configuration menus to select available options
Update Rate:	100 ms, 200 ms, 500 ms, 1sec

**WETTED COMPONENTS**

Model	Process Connection and Sensor
2084, 2086, 2089	316 SS

**NON-WETTED COMPONENTS**

Model	Case
2084, 2086, 2089	304 SS

**MIN/MAX TEMPERATURE LIMITS**

Version	Process	Storage
2084, 2086, 2089	0°F to 150°F (-18°C to 65°C)	-40°F to 180°F (-40°C to 82°C)

**PRESSURE RATINGS**

Overpressure:	Proof:	Burst:
Vac to ≤300 psi	2 X Range	3 X Range
>300 to ≤3,000 psi	2 X Range	5 X Range
≥5,000 to ≤7,000 psi	2 X Range	2 X Range



**2089**  
3" case size

**AGENCY APPROVALS**

FM and CSA Intrinsically Safe.  
FM Class I to III, Div. 1 Groups A-G  
CSA Class I, Div. 1, Groups A-D, Class II Div. 1, Groups E-G, Class 2 Div. 2 Groups F and G, Class III

**Note: FM/CSA approval not valid on vacuum and 15# & vacuum ranges**



ORDERING CODE	Example:	30	2089	S	D	02	L	XS7	1000#
<b>Dial Size</b>									
30 - 3.0"		30							
<b>Model (Accuracy)</b>									
2089 - ±0.05% of span			2089						
2086 - ±0.10% of span									
2084 - ±0.25% of span									
<b>System</b>									
S - 316 SS				S					
<b>Case</b>									
D - Dry					D				
<b>Process Connection Size</b>									
02 - ¼ NPT Male						02			
<b>Process Connection Location</b>									
L - Lower							L		
E - Left (9 o'clock)									
D - Right (3 o'clock)									
T - Top									
<b>Options (if choosing an option(s) must include a "X")</b>									
6B - Cleaned for oxygen service								X	
6D - Cleaned for liquid oxygen service									
C4 - Individual certified calibration chart (included on 2089 no code required)									
S7 - Weatherproof ABS gauge carrying case									S7
FF - Flange for panel mounting									
B1 - Protective rubber boot (black)									
B2 - Protective rubber boot (orange)									
NH - Metal tag wired to case									
NN - Paper tag bonded to case									
MF - Free from mercury certificate									
TU - Throttle plug									
MN - Mylar tag bonded to case									
<b>Range (coding example, see range table below for all standard ranges)</b>									
1000# - 0-1,000 psi									1000#

2084, 2086, 2089-SINGLE SCALE	
psi	bar
<b>Absolute</b>	
15#	1.6BR
25#	1BR
50#	1.6BR
<b>Compound</b>	
15#&V	1BR&V
30#&V	1.6BR&V
60#&V	4BR&V
100#&V	6BR&V

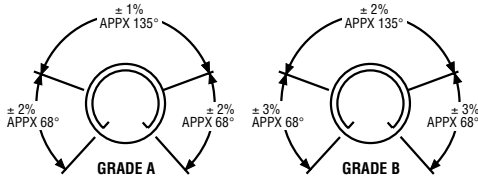
2084, 2086, 2089-SINGLE SCALE	
psi	bar
<b>Pressure</b>	
5#	1BR
10#	1.6BR
15#	
30#	2.5BR
60#	4BR
100#	6BR
160#	10BR
200#	16BR
	25BR
	40BR
300#	60BR
500#	
600#	160BR
800#	250BR
1000#	400BR
2000#	500BR
2500#	
3000#	
5000#	
7000#	

Consult factory for additional ranges.

**ACCURACY:**

Accuracy – the conformity of indication to an accepted standard or true value. Accuracy is the difference (error) between the true value and the indication expressed as a percent of the span. It includes the combined effects of method, observer, apparatus and environment. Accuracy error includes hysteresis and repeatability errors but not friction error. It is determined under specific conditions. (Normal position, 73.4°F (23°C), and 29.92 in Hg barometric pressure.)

The following tables define the ASME B40.1\* accuracy grades used by Ashcroft products.



Accuracy of a pressure gauge may be expressed as percent of span or percent of indicated reading. Percent of span is the most common method. Percent of indicated reading is usually limited to precision test gauges and unless specifically spelled out, it may be assumed that an accuracy of ±0.5% means ±0.5% of span.

**GRADE 4A:**

Gauges offering the highest accuracy and calibrated to ±0.1% of span over the entire range of the gauge. These gauges are called laboratory precision test gauges and are generally 8½", 12" or 16" dials. These high-accuracy gauges may be temperature compensated. They must be handled carefully in order to retain accuracy.

**ACCURACY EXAMPLES**

Range	Accuracy Span	Grade	Permissible Error % of Span
0/100 psi	100 psi	1A	1.0
0/400 kPa	400 kPa	2A	0.5
0/1000 bar	1000 bar	B	3 (0/250 & 750/1000 bar) 2 (250/750 bar)
-100/400	400 kPa	2A	0.5
30 inHg/ 30 psi	44.7 psi	4A	0.1

The last item (30 inHg/30 psi) deserves some explanation. The span is defined as the algebraic difference between the limits of the scale. 30 inHg = -14.7 psi Span = 30 psi - (-14.7) = 44.7 psi. 0.1% of 44.7 psi = 0.045 psi or 0.022 Hg.

\*ASME B40.1 may be ordered from:  
 American Society of Mechanical Engineers  
 Three Park Avenue, New York, NY 10016

**GRADE 3A:**

Gauges are calibrated to an accuracy of ±0.25% of span over the entire range of these gauges. These gauges are called test gauges and are generally 4½", 6" or 8½" dials. The gauges are generally not temperature compensated (except Ashcroft Type 1082).

**GRADE 2A:**

Gauges are calibrated to an accuracy of ±0.5% of span over the entire range of the gauge. They are often referred to as process gauges and are usually supplied as 4½" and 6" cases and are not temperature compensated.

**GRADE 1A:**

Gauges are calibrated to an accuracy of ±1% over the entire range of the gauge. These gauges are high-quality industrial gauges and are supplied in 2½", 3½" and 4½" sizes.

**GRADE A:**

Gauges are calibrated to an accuracy of ±1% of span over the middle half of the scale and ±2% of span over the first and last quarters of the scale.

**GRADE B:**

Gauges are calibrated to an accuracy of ±2% of span over the middle half of the scale and ±3% of span over the first and last quarters of the scale. These gauges are often referred to as commercial or utility gauges and are supplied in 1½", 2", 2½", 3½" and 4½" case sizes.

**GRADE C:**

Gauges are calibrated to an accuracy of ±3% of span over the middle half of the scale and ±4% of span over the first and last quarters of the scale.

**GRADE D:**

Gauges are calibrated to an accuracy of ±5% of span over the entire scale.

**ACCURACY EXAMPLES**

Type of Gauge	Grade	Permissible Error % of Span			Max. Friction (% of Span)
		Lower 25%	Middle 50%	Upper 25%	
Precision Test (A4A)	4A	0.1	0.1	0.1	See Note
Test (1082)	3A	0.25	0.25	0.25	0.25
Process (1279)	2A	0.5	0.5	0.5	0.5
Industrial/Hydraulic (1009)	1A	1.0	1.0	1.0	1.0
Industrial/Hydraulic (1010, 1188, 1490)	A	2.0	1.0	2.0	1.0
Commercial/Utility (1005, 3005, 1008A)	B	3.0	2.0	3.0	2.0

Note: Grade 4A gauges must remain within 0.1% before and after being lightly tapped.