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# PRESSURE GAUGE SELECTION



## Considerations when selecting pressure gauges

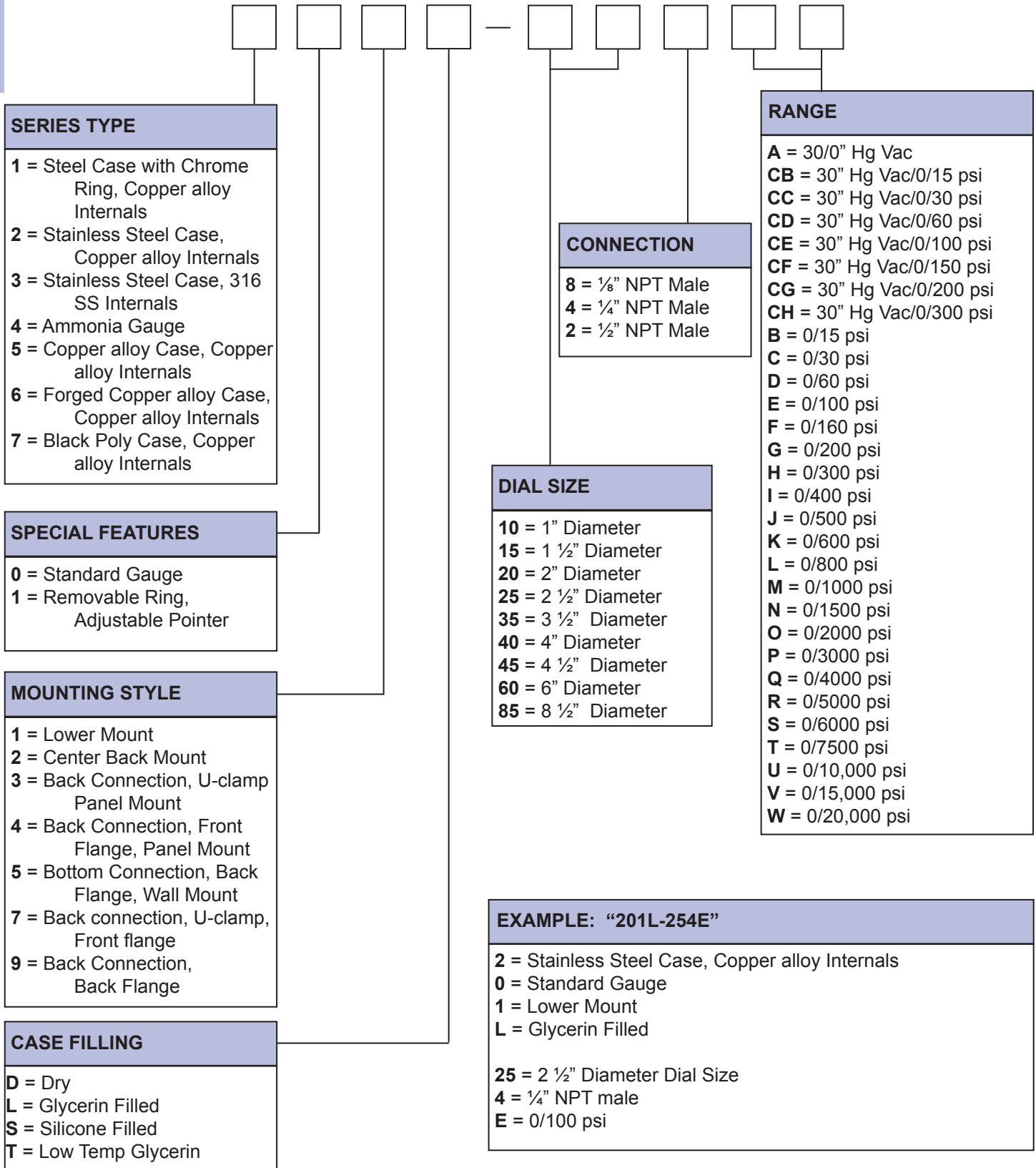
<b>DIAL SIZE</b>	Standard available dial sizes: 1", 1 1/2", 2", 2 1/2", 3 1/2", 4", 4 1/2", 6", or 8 1/2". Other dial sizes are available. Determine dial size by measuring across the diameter of the face.
<b>CONNECTION LOCATION</b>	Lower mount is the most common. Center back mount or lower back mount is also considered standard. Other locations can be supplied by special request.
<b>CONNECTION SIZE</b>	Typical sizes include 1/8", 1/4" and 1/2" NPT. Other sizes and types of connections are available upon request. Please call to verify if there are special requirements.
<b>MOUNTING</b>	Lower mount or back mount (without special mounting hardware). Panel mount - U-clamp. Panel mount - Front flange. Wall mount - Back flange.
<b>MATERIAL OF WETTED PARTS</b>	Refers to all parts in contact with process fluid. Please check corrosion guides for suitable materials. Most applications are compatible with copper alloy or bronze tube and socket. More severe applications may require 316 stainless steel. Most severe applications require Monel parts. If none of these materials are adequate for the application, a diaphragm seal will be required.
<b>DRY OR LIQUID FILLED</b>	Dry gauges are suitable for most applications. Glycerine filled gauges will be specified for applications with pulsation or vibration or for other reasons based on customer preference. Silicone filling may be required where process conditions do not allow the use of glycerin filling, such as temperature extremes or concerns regarding interaction with the process media. Other fluids are available, please call for assistance.
<b>CASE MATERIAL</b>	Industry standard case materials for gauges include: black painted steel, chrome plated steel, aluminum, stainless steel, Phenolic and polypropylene.
<b>RANGE</b>	Specified in psi for pressures from 0 up to 15,000 psi or in inches of mercury vacuum for 0 to 30" Hg vacuum. Compound ranges have both pressure and vacuum. Other available scales: Metric (BAR, kPa, kg/cm2, mPa), Low pressure (inches of water column or millibar), Altitude (feet of water or meters of water), Force (tons on ram) and many others.
<b>ACCURACY</b>	Typically will be determined by size and type of gauge specified above. Accuracy grades are specified by ASME standards.
<b>CERTIFICATION AND CLEANING</b>	Conformance Certificate - States that gauge meets catalog and/or order specifications. Certificate of Accuracy - Gauge is tested up scale and down scale with accuracy and percentage of error noted. Traceable to NIST. Special Certification/Material Certification - By customer request, particular aspect of gauge certified to meet customer requirement. Oxygen Cleaning - Gauge cleaned and bagged, suitable for oxygen service. Special Cleaning - By customer request, cleaned to a particular cleanliness level required by customer.
<b>OTHER</b>	Any other special process conditions to be aware of or any special requirements the customer may have, such as approvals for 3A, NACE, UL or others.

NOTE: While this is a good model to follow, it does not guarantee that the gauge will meet all requirements. Please contact your ESP representative with any questions.

1-888-650-6923 / [www.picgauges.com](http://www.picgauges.com)

# PART NUMBERING SYSTEM

1

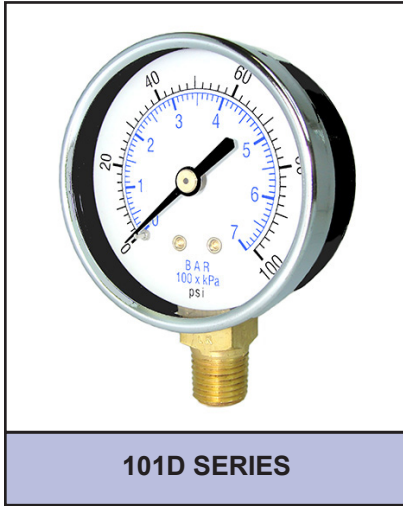


NOTE: Not all part numbers or options are available from stock. Consult ESP for availability.

# 100 SERIES UTILITY GAUGE



Utility gauge for commercial and industrial markets  
Steel case, chrome bezel, copper alloy internals



101D SERIES



102D SERIES



103D SERIES



107D SERIES

## STANDARD DIAL CONFIGURATIONS FOR 100 SERIES

Dial Range	Figure Intervals	Graduation Intervals	Dial Range	Figure Intervals	Graduation Intervals	Dial Range	Figure Intervals	Graduation Intervals
30/0"hg Vac	5" hg	0.5" hg	0/30 psi	5 psi	0.5 psi	0/1000 psi	200 psi	10 psi
30/0/15 psi	10" hg/5 psi	1" hg/0.5 psi	0/60 psi	10 psi	1 psi	0/1500 psi	200 psi	20 psi
30/0/30 psi	10" hg/10psi	1" hg/1 psi	0/100 psi	20 psi	2 psi	0/2000 psi	400 psi	50 psi
30/0/60 psi	10" hg/10psi	2" hg/1 psi	0/160 psi	20 psi	2 psi	0/3000 psi	500 psi	50 psi
30/0/100 psi	30" hg/20psi	5" hg/2 psi	0/200 psi	40 psi	5 psi	0/4000 psi	800 psi	100 psi
30/0/150 psi	30" hg/20psi	5" hg/2 psi	0/300 psi	50 psi	5 psi	0/5000 psi	1000 psi	100 psi
30/0/300 psi	30" hg/50psi	10" hg/5 psi	0/400 psi	50 psi	5 psi	0/6000 psi	1000 psi	100 psi
0/15 psi	2 psi	0.1 psi	0/600 psi	100 psi	10 psi			

NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.

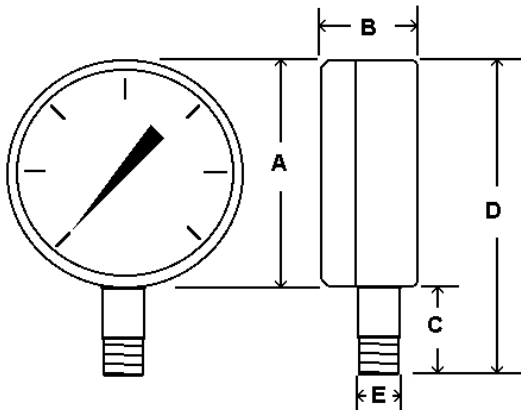
# 101D UTILITY GAUGE LOWER MOUNT

**1 Utility gauge for commercial and industrial markets**  
**Black steel case, chrome bezel, copper alloy internals**

## SPECIFICATIONS

<b>Dial</b>	1 ½" (40 mm), 2" (50 mm), 2 ½" (63 mm), 3 ½" (88 mm), 4 ½" (114 mm)
<b>Case</b>	Black steel, dry non-fillable
<b>Wetted Parts</b>	Copper alloy
<b>Bezel</b>	Chrome plated steel, fixed
<b>Lens</b>	Plastic (4 ½" = glass lens)
<b>Pointer</b>	Black aluminum
<b>Connection</b>	Lower mount 1 ½" dial = ⅛" NPT 2" dial = ⅛" or ¼" NPT 2 ½" dial = ¼" NPT 3 ½" dial = ¼" NPT 4 ½" dial = ¼" NPT
<b>Scale</b>	Standard: psi/BAR (x 100 = kPa) Single scale psi available from stock
<b>Accuracy</b>	3-2-3% of span, ASME B40.1 Grade B
<b>Ambient Temp</b>	-50° F to 160° F

*Design meets or exceeds ASME B40.100 pressure gauge standard.*



Dial	Unit	A	B	C	D	E
1 ½"	In.	1.64"	0.93"	0.65"	2.26"	⅛" NPT
	mm	42	24	17	57	
2"	In.	2.07"	1.06"	0.83"	2.83"	⅛" or ¼" NPT
	mm	53	27	21	72	
2 ½"	In.	2.5"	1.13"	0.88"	3.31"	¼" NPT
	mm	63	29	22	84	
3 ½"	In.	3.54"	1.12"	1.02"	4.49"	¼" NPT
	mm	90	28	26	114	
4 ½"	In.	4.79"	1.12"	1.10"	5.8"	¼" NPT
	mm	122	29	28	147	



## AVAILABLE OPTIONS\*

- Certificate of Accuracy, NIST traceable
- Custom Dial
- Anti-Vibration Movement, see page 107
- Glass Lens
- Stainless Steel Case
- Cleaned for Oxygen Service
- Special Connection Size
- Protective Rubber Cover, see page 119
- Max/Min Pointer, see page 120

\*Lead times/minimums may apply

## APPROXIMATE SHIPPING WEIGHTS/ BOX QUANTITIES

Dial Size	Est. Unit Weight	Box Qty
1 ½"	0.20 lbs (0.10 kg)	200
2"	0.26 lbs (0.12 kg)	100
2 ½"	0.34 lbs (0.15 kg)	125
3 ½"	0.50 lbs (0.23 kg)	50
4 ½"	0.60 lbs (0.27 kg)	50

NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.

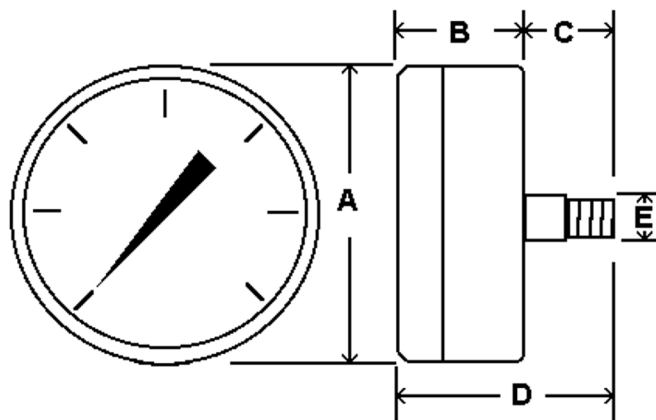
# 102D UTILITY GAUGE CENTER BACK MOUNT

Utility gauge for commercial and industrial markets  
Black steel case, chrome bezel, copper alloy internals

### SPECIFICATIONS

<b>Dial</b>	1 1/2" (40 mm), 2" (50 mm), 2 1/2" (63 mm), 3 1/2" (88 mm), 4 1/2" (114 mm)
<b>Case</b>	Black steel, dry non-fillable
<b>Wetted Parts</b>	Copper alloy
<b>Bezel</b>	Chrome plated steel, fixed
<b>Lens</b>	Plastic
<b>Pointer</b>	Black aluminum
<b>Connection</b>	Center back mount 1 1/2" dial = 1/8" NPT 2" dial = 1/8" or 1/4" NPT 2 1/2" dial = 1/4" NPT 3 1/2" dial = 1/4" NPT 4 1/2" dial = 1/4" NPT
<b>Scale</b>	Standard: psi/BAR (x 100 = kPa)
<b>Accuracy</b>	3-2-3% of span, ASME B40.1 Grade B
<b>Ambient Temp</b>	-50° F to 160° F

*Design meets or exceeds ASME B40.100 pressure gauge standard.*



Dial	Unit	A	B	C	D	E
1 1/2"	In.	1.64"	0.93"	0.63"	1.54"	1/8" NPT
	mm	42	24	16	39	
2"	In.	2.07"	1.03"	0.89"	1.90"	1/8" or 1/4" NPT
	mm	53	26	23	48	
2 1/2"	In.	2.5"	1.17"	0.90"	1.97"	1/4" NPT
	mm	63	30	23	50	
3 1/2"	In.	3.49"	1.22"	0.83"	2.02"	1/4" NPT
	mm	89	31	21	51	
4 1/2"	In.	4.5"	1.31"	0.94"	2.18"	1/4" NPT
	mm	114	33	24	55	

**NOTE:** Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.

### AVAILABLE OPTIONS\*

- Certificate of Accuracy, NIST traceable
- Custom Dial
- Anti-Vibration Movement, see page 107
- Glass Lens
- Stainless Steel Case
- Cleaned for Oxygen Service
- Special Connection Size
- Protective Rubber Cover, see page 119
- Max/Min Pointer, see page 120

\*Lead times/minimums may apply

### APPROXIMATE SHIPPING WEIGHTS/ BOX QUANTITIES

Dial Size	Est. Unit Weight	Box Qty
1 1/2"	0.20 lbs (0.10 kg)	200
2"	0.26 lbs (0.13 kg)	100
2 1/2"	0.34 lbs (0.17 kg)	125
3 1/2"	0.45 lbs (0.22 kg)	50
4 1/2"	0.65 lbs (0.30 kg)	25

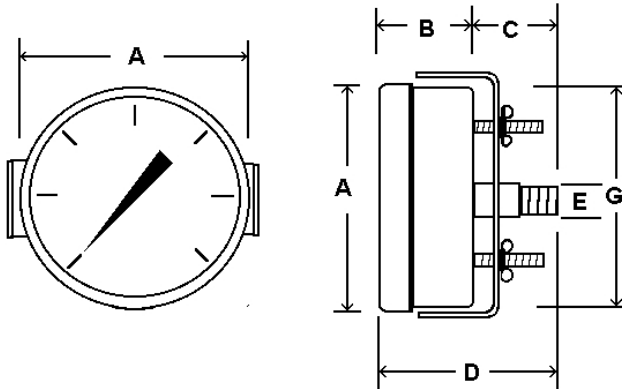
# 103D UTILITY GAUGE U-CLAMP PANEL MOUNT

**1 Utility gauge for commercial and industrial markets**  
**Chrome case and bezel, copper alloy internals**

## SPECIFICATIONS

<b>Dial</b>	1 1/2" (40 mm), 2" (50 mm), 2 1/2" (63 mm), 3 1/2" (88 mm)
<b>Case</b>	Chrome plated steel, dry non-fillable (3 1/2" = black painted steel with plastic, twist-off lens)
<b>Wetted Parts</b>	Copper alloy
<b>Bezel</b>	Chrome plated steel, fixed
<b>Lens</b>	Plastic
<b>Pointer</b>	Black aluminum
<b>Connection</b>	Center back mount with u-clamp 1 1/2" dial = 1/8" NPT 2" dial = 1/8" or 1/4" NPT 2 1/2" dial = 1/4" NPT 3 1/2" dial = 1/4" NPT
<b>Scale</b>	Standard: 1 1/2"-2 1/2"- psi/BAR (x 100 = kPa) 3 1/2" psi only
<b>Accuracy</b>	3-2-3% of span, ASME B40.1 Grade B
<b>Ambient Temp</b>	-50° F to 160° F

*Design meets or exceeds ASME B40.100 pressure gauge standard.*



Dial	Unit	A	B	C	D	G	E
1 1/2"	In.	1.84"	1.03"	0.63"	1.61"	1.61"	1/8" NPT
	mm	47	26	16	41	41	
2"	In.	2.31"	1.18"	0.73"	1.84"	2.04"	1/8" or 1/4" NPT
	mm	59	30	19	47	52	
2 1/2"	In.	2.68"	1.12"	0.76"	1.87"	2.44"	1/4" NPT
	mm	68	28	19	48	62	
3 1/2"	In.	3.98"	1.23"	0.67"	2.02"	3.59"	1/4" NPT
	mm	101	31	17	51	91	



## AVAILABLE OPTIONS\*

- Certificate of Accuracy, NIST traceable
- Custom Dial
- Anti-Vibration Movement, see page 107
- Glass Lens
- Stainless Steel Case
- Cleaned for Oxygen Service
- Special Connection Size
- Protective Rubber Cover, see page 119
- Max/Min Pointer, see page 120

\*Lead times/minimums may apply

## APPROXIMATE SHIPPING WEIGHTS/ BOX QUANTITIES

Dial Size	Est. Unit Weight	Box Qty
1 1/2"	0.20 lbs (0.10 kg)	100
2"	0.30 lbs (0.14 kg)	100
2 1/2"	0.35 lbs (0.18 kg)	100
3 1/2"	0.60 lbs (0.26 kg)	50

NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.



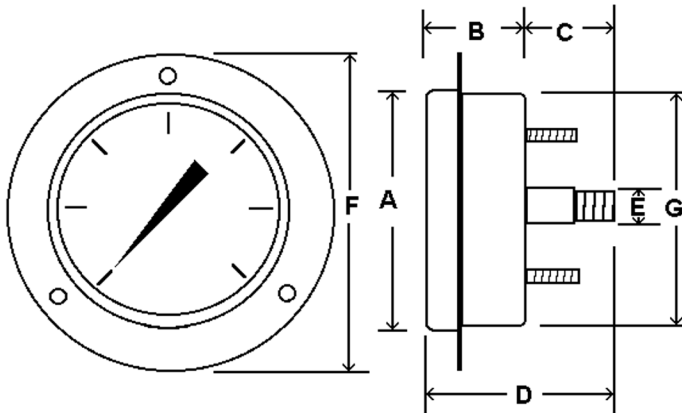
# 107D UTILITY GAUGE FRONT FLANGE PANEL MOUNT

Utility gauge for commercial and industrial markets  
Chrome case and bezel, copper alloy internals

## SPECIFICATIONS

<b>Dial</b>	1 1/2" (40 mm), 2" (50 mm), 2 1/2" (63 mm), 3 1/2" (88 mm) - See 203D-354 p. 20
<b>Case</b>	Chrome plated steel, dry non-fillable
<b>Wetted Parts</b>	Copper alloy
<b>Bezel</b>	Chrome plated steel, fixed
<b>Lens</b>	Plastic
<b>Pointer</b>	Black aluminum
<b>Connection</b>	Center back mount with front flange Ships with u-clamp 1 1/2" dial = 1/8" NPT 2" dial = 1/8" or 1/4" NPT 2 1/2" dial = 1/4" NPT
<b>Scale</b>	Standard: psi/BAR (x 100 = kPa)
<b>Accuracy</b>	3-2-3% of span, ASME B40.1 Grade B
<b>Ambient Temp</b>	-50° F to 160° F

*Design meets or exceeds ASME B40.100 pressure gauge standard.*



Dial	Unit	A	B	C	D	F	G	E
1 1/2"	In.	1.84"	1.03"	0.63"	1.61"	2.23"	1.61"	1/8" NPT
	mm	47	26	16	41	57	41	
2"	In.	2.31"	1.18"	0.73"	1.84"	2.81"	2.04"	1/8" or 1/4" NPT
	mm	59	30	19	47	71	52	
2 1/2"	In.	2.68"	1.12"	0.76"	1.87"	3.47"	2.44"	1/4" NPT
	mm	68	28	19	48	88	62	

For complete flange dimensions, see page 121.



## AVAILABLE OPTIONS\*

- Certificate of Accuracy, NIST traceable
- Custom Dial
- Anti-Vibration Movement, see page 107
- Glass Lens
- Stainless Steel Case
- Cleaned for Oxygen Service
- Special Connection Size
- Protective Rubber Cover, see page 119
- Max/Min Pointer, see page 120

\*Lead times/minimums may apply

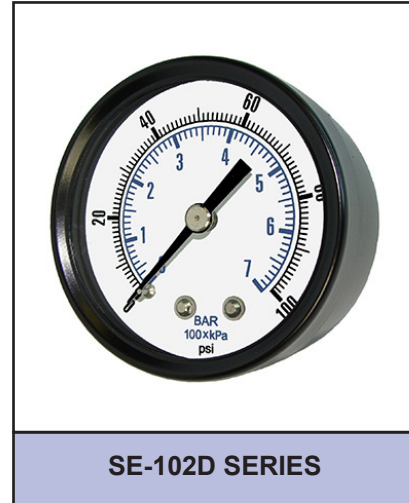
## APPROXIMATE SHIPPING WEIGHTS/ BOX QUANTITIES

Dial Size	Est. Unit Weight	Box Qty
1 1/2"	0.20 lbs (0.10 kg)	upon request
2"	0.35 lbs (0.16 kg)	upon request
2 1/2"	0.40 lbs (0.18 kg)	upon request

NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.

# SE-100 SERIES UTILITY GAUGE

1 Utility gauge for commercial and industrial markets  
Black steel case and bezel, copper alloy internals



### STANDARD DIAL CONFIGURATIONS FOR SE-100 SERIES

Dial Range	Figure Intervals	Graduation Intervals
30/0"hg Vac	5" hg	0.5" hg
0/15 psi	2 psi	0.1 psi
0/30 psi	5 psi	0.5 psi
0/60 psi	10 psi	1 psi
0/100 psi	20 psi	2 psi
0/160 psi	20 psi	2 psi
0/200 psi	40 psi	5 psi
0/300 psi	50 psi	5 psi
0/400 psi	50 psi	5 psi
0/600 psi	100 psi	10 psi

NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.

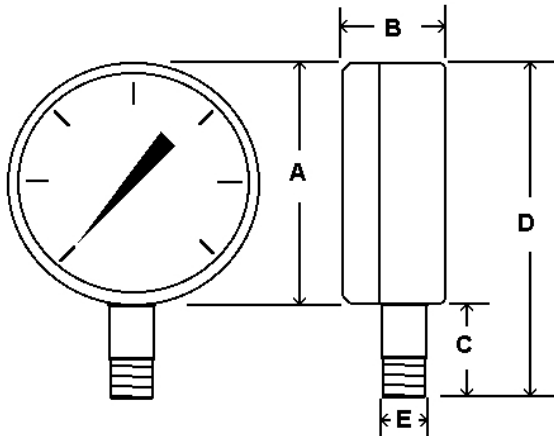
# SE-101D UTILITY GAUGE LOWER MOUNT

Utility gauge for commercial and industrial markets  
Black steel case and bezel, copper alloy internals

### SPECIFICATIONS

<b>Dial</b>	1 ½" (40 mm), 2" (50 mm), 2 ½" (63 mm)
<b>Case</b>	Black steel, dry non-fillable
<b>Wetted Parts</b>	Copper alloy
<b>Bezel</b>	Black painted steel, fixed
<b>Lens</b>	Glass
<b>Pointer</b>	Black aluminum
<b>Connection</b>	Lower mount 1 ½" dial = ⅛" NPT 2" dial = ⅛" or ¼" NPT 2 ½" dial = ¼" NPT
<b>Scale</b>	Standard: psi/BAR (x 100 = kPa)
<b>Accuracy</b>	3-2-3% of span, ASME B40.1 Grade B
<b>Ambient Temp</b>	-50° F to 160° F

*Design meets or exceeds ASME B40.100 pressure gauge standard.*



Dial	Unit	A	B	C	D	E
1 ½"	In.	1.64"	0.93"	0.63"	2.27"	⅛" NPT
	mm	42	24	16	58	
2"	In.	2.07"	1.03"	0.83"	2.90"	⅛" or ¼" NPT
	mm	53	26	21	74	
2 ½"	In.	2.5"	1.17"	0.86"	3.36"	¼" NPT
	mm	63	30	22	26	

### AVAILABLE OPTIONS\*

- Certificate of Accuracy, NIST traceable
- Custom Dial
- Anti-Vibration Movement, see page 107
- Cleaned for Oxygen Service
- Special Connection Size
- Protective Rubber Cover, see page 119
- Plastic Lens
- Max/Min Pointer, see page 120

\*Lead times/minimums may apply

### APPROXIMATE SHIPPING WEIGHTS/ BOX QUANTITIES

Dial Size	Est. Unit Weight	Box Qty
1 ½"	0.10 lbs (0.06 kg)	100
2"	0.20 lbs (0.10 kg)	100
2 ½"	0.30 lbs (0.14 kg)	100

NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.

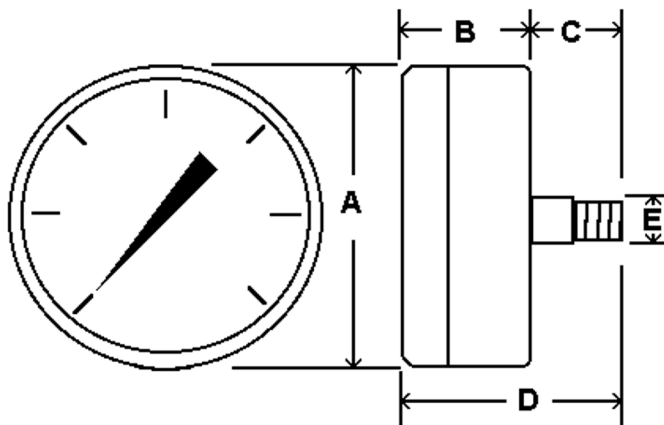
# SE-102D UTILITY GAUGE CENTER BACK MOUNT

## 1 Utility gauge for commercial and industrial markets Black steel case and bezel, copper alloy internals

### SPECIFICATIONS

<b>Dial</b>	1 ½" (40 mm), 2" (50 mm), 2 ½" (63 mm)
<b>Case</b>	Black steel, dry non-fillable
<b>Wetted Parts</b>	Copper alloy
<b>Bezel</b>	Black painted steel, fixed
<b>Lens</b>	Glass
<b>Pointer</b>	Black aluminum
<b>Connection</b>	Center back mount 1 ½" dial = ⅛" NPT 2" dial = ⅛" or ¼" NPT 2 ½" dial = ¼" NPT
<b>Scale</b>	Standard: psi/BAR (x 100 = kPa)
<b>Accuracy</b>	3-2-3% of span, ASME B40.1 Grade B
<b>Ambient Temp</b>	-50° F to 160° F

*Design meets or exceeds ASME B40.100 pressure gauge standard.*



Dial	Unit	A	B	C	D	E
1 ½"	In.	1.64"	0.93"	0.63"	1.54"	⅛" NPT
	mm	42	24	16	39	
2"	In.	2.07"	1.03"	0.83"	1.86"	⅛" or ¼" NPT
	mm	53	26	21	47	
2 ½"	In.	2.5"	1.17"	0.90"	1.97"	¼" NPT
	mm	63	30	23	50	

### AVAILABLE OPTIONS\*

- Certificate of Accuracy, NIST traceable
- Custom Dial
- Anti-Vibration Movement, see page 107
- Cleaned for Oxygen Service
- Special Connection Size
- Protective Rubber Cover, see page 119
- Plastic Lens
- Max/Min Pointer, see page 120

\*Lead times/minimums may apply

### APPROXIMATE SHIPPING WEIGHTS/ BOX QUANTITIES

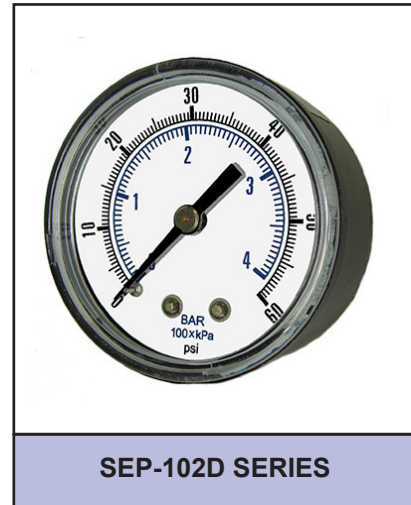
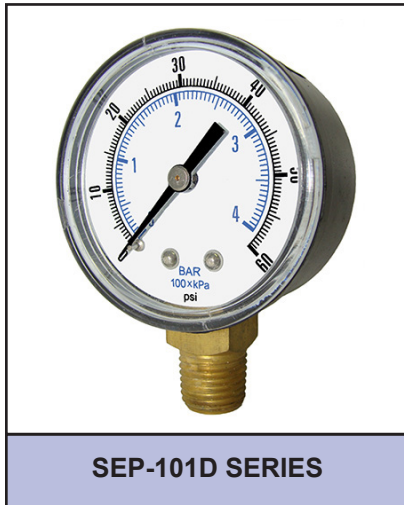
Dial Size	Est. Unit Weight	Box Qty
1 ½"	0.15 lbs (0.06 kg)	100
2"	0.25 lbs (0.10 kg)	100
2 ½"	0.37 lbs (0.17 kg)	100

NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.

# SEP-100 UTILITY GAUGE ABS PLASTIC CASE

ABS plastic case utility gauge for commercial and industrial markets  
Black plastic case, copper alloy internals

1



STANDARD DIAL CONFIGURATIONS FOR SEP-100 SERIES		
Dial Range	Figure Intervals	Graduation Intervals
30/0"hg Vac	5" hg	0.5" hg
0/15 psi	2 psi	0.1 psi
0/30 psi	5 psi	0.5 psi
0/60 psi	10 psi	1 psi
0/100 psi	20 psi	2 psi
0/160 psi	20 psi	2 psi
0/200 psi	40 psi	5 psi
0/300 psi	50 psi	5 psi

NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.

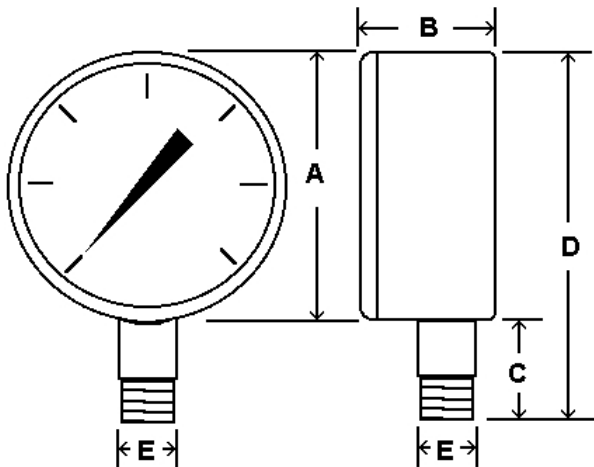
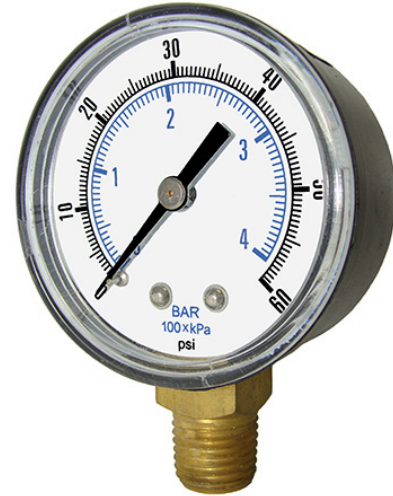
# SEP-101D UTILITY GAUGE ABS PLASTIC CASE

## 1 ABS plastic case utility gauge for commercial and industrial markets Black plastic case, copper alloy internals

### SPECIFICATIONS

<b>Dial</b>	2" (50 mm)
<b>Case</b>	ABS plastic, dry non-fillable
<b>Wetted Parts</b>	Copper alloy
<b>Lens</b>	Plastic
<b>Pointer</b>	Black aluminum
<b>Connection</b>	Lower mount
	2" dial = 1/8" or 1/4" NPT
<b>Scale</b>	Standard: psi/BAR (x 100 = kPa)
<b>Accuracy</b>	3-2-3% of span, ASME B40.1 Grade B
<b>Ambient Temp</b>	-40° F to 140° F

*Design meets or exceeds ASME B40.100 pressure gauge standard.*



Dial	Unit	A	B	C	D	E
2"	In.	2.09"	1.14"	0.83"	2.83"	1/8" or 1/4"
	mm	53	29	21	72	NPT

### AVAILABLE OPTIONS\*

- Certificate of Accuracy, NIST traceable
- Custom Dial
- Anti-Vibration Movement, see page 107
- Cleaned for Oxygen Service
- Special Connection Size
- Protective Rubber Cover, see page 119
- Max/Min Pointer, see page 120

\*Lead times/minimums may apply

### APPROXIMATE SHIPPING WEIGHTS/ BOX QUANTITIES

Dial Size	Est. Unit Weight	Box Qty
2"	0.15 lbs (0.08 kg)	100

NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.

# SEP-102D UTILITY GAUGE ABS PLASTIC CASE



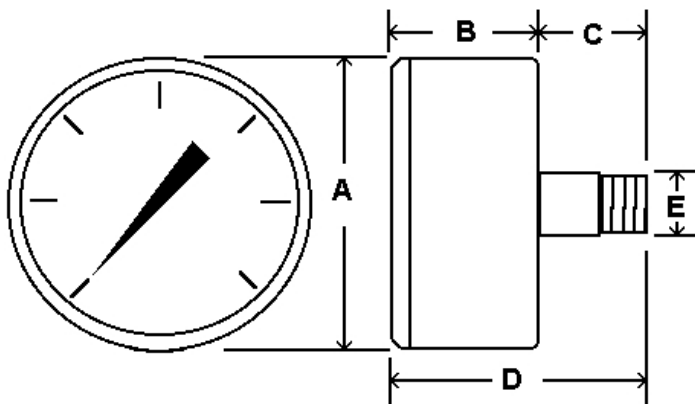
1

**ABS plastic case utility gauge for commercial and industrial markets**  
**Black plastic case, copper alloy internals**

## SPECIFICATIONS

<b>Dial</b>	2" (50 mm)
<b>Case</b>	ABS plastic, dry non-fillable
<b>Wetted Parts</b>	Copper alloy
<b>Lens</b>	Plastic
<b>Pointer</b>	Black aluminum
<b>Connection</b>	Center back mount 2" dials = 1/4" NPT
<b>Scale</b>	Standard: psi/BAR (x 100 = kPa)
<b>Accuracy</b>	3-2-3% of span, ASME B40.1 Grade B
<b>Ambient Temp</b>	-40° F to 140° F

*Design meets or exceeds ASME B40.100 pressure gauge standard.*



Dial	Unit	A	B	C	D	E
2"	In.	2.11"	1.06"	0.71"	1.77"	1/4" NPT
	mm	54	27	18	45	

## AVAILABLE OPTIONS\*

- Certificate of Accuracy, NIST traceable
- Custom Dial
- Anti-Vibration Movement, see page 107
- Cleaned for Oxygen Service
- Special Connection Size
- Protective Rubber Cover, see page 119
- Max/Min Pointer, see page 120

\*Lead times/minimums may apply

## APPROXIMATE SHIPPING WEIGHTS/ BOX QUANTITIES

Dial Size	Est. Unit Weight	Box Qty
2"	0.20 lbs (0.08 kg)	100

NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.

# 200 SERIES LIQUID FILLED GAUGE

Glycerine filled for added durability in applications where vibration or pulsation is present  
Stainless steel case and bezel, copper alloy internals

2



201L SERIES



202L SERIES



203L SERIES



204L SERIES

## STANDARD DIAL CONFIGURATIONS FOR 200 SERIES

Dial Range	Figure Intervals	Graduation Intervals	Dial Range	Figure Intervals	Graduation Intervals	Dial Range	Figure Intervals	Graduation Intervals
30/0"hg Vac	5" hg	0.5" hg	0/60 psi	10 psi	0.5 psi	0/1000 psi	200 psi	20 psi
30/0/15 psi	10" hg/5 psi	1" hg/0.5 psi	0/100 psi	20 psi	2 psi	0/1500 psi	200 psi	20 psi
30/0/30 psi	10" hg/5psi	1" hg/0.5 psi	0/160 psi	20 psi	2 psi	0/2000 psi	400 psi	40 psi
30/0/60 psi	30" hg/10psi	2" hg/1 psi	0/200 psi	40 psi	5 psi	0/3000 psi	500 psi	50 psi
30/0/100 psi	30" hg/20psi	5" hg/2 psi	0/300 psi	50 psi	5 psi	0/4000 psi	500 psi	50 psi
30/0/150 psi	30" hg/30psi	5" hg/2 psi	0/400 psi	50 psi	5 psi	0/5000 psi	1000 psi	100 psi
30/0/300 psi	30" hg/50psi	10" hg/5 psi	0/500 psi	100 psi	10 psi	0/6000 psi	1000 psi	100 psi
0/15 psi	2 psi	0.1 psi	0/600 psi	100 psi	10 psi	0/10,000 psi	2000 psi	200 psi
0/30 psi	5 psi	0.5 psi	0/800 psi	100 psi	10 psi	0/15,000 psi	2000 psi	200 psi

NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.



# 201L LIQUID FILLED LOWER MOUNT

Glycerine filled for added durability in applications where vibration or pulsation is present  
Stainless steel case and bezel, copper alloy internals

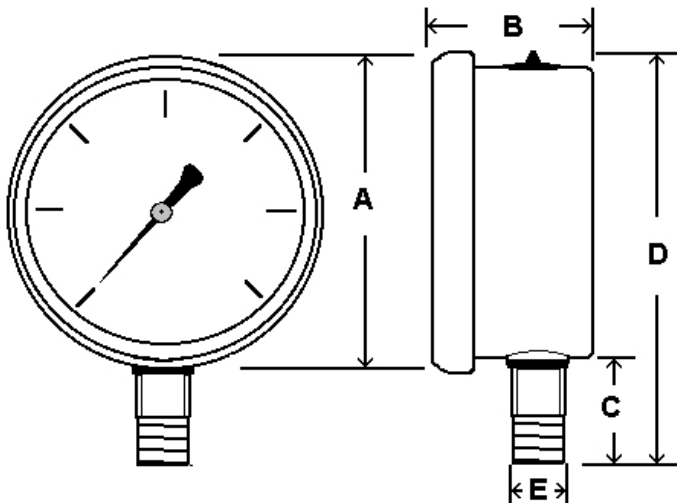
2

## SPECIFICATIONS

<b>Dial</b>	1 ½" (40 mm), 2" (50 mm), 4" (100 mm)
<b>Case</b>	Stainless steel, glycerine filled
<b>Wetted Parts</b>	Copper alloy
<b>Bezel</b>	Stainless steel, fixed
<b>Lens</b>	Polycarbonate
<b>Pointer</b>	Black aluminum
<b>Connection</b>	Lower mount 1 ½" dial = ⅛" NPT 2" dial = ⅛" or ¼" NPT 4" dial = ¼" or ½" NPT
<b>Scale</b>	Standard: psi/BAR (x 100 = kPa)
<b>Accuracy</b>	3-2-3% of span 1 ½" & 2" ASME B40.1 Grade B 2-1-2% of span 4" ASME B40.1 Grade A
<b>Ambient Temp</b>	Glycerine Filled = 30° F to 160° F Dry = -30° F to 180° F



Design meets or exceeds ASME B40.100 pressure gauge standard.



Dial	Unit	A	B	C	D	E
1 ½"	In.	1.85"	1.00"	0.67"	2.28"	⅛" NPT
	mm	47	25	17	58	
2"	In.	2.27"	1.20"	0.91"	2.95"	⅛" or ¼" NPT
	mm	58	31	23	75	
4"	In.	4.29"	1.75"	1.17"	5.21"	¼" or ½" NPT
	mm	109	45	30	132	

## AVAILABLE OPTIONS\*

- Certificate of Accuracy, NIST traceable
- Custom Dial
- Liquid Fill Options, see page 173
- Anti-Vibration Movement, see page 107
- Glass Lens
- Dry, Fillable Case
- Cleaned for Oxygen Service (dry only)
- Special Connection Size
- Protective Rubber Cover, see page 119
- Max/Min Pointer, see page 120

\*Lead times/minimums may apply

## APPROXIMATE SHIPPING WEIGHTS/ BOX QUANTITIES

Dial Size	Est. Unit Weight	Box Qty
1 ½"	0.20 lbs (0.10 kg)	100
2"	0.40 lbs (0.18 kg)	100
4"	1.5 lbs (0.68 kg)	30

NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.

# 202L LIQUID FILLED CENTER BACK MOUNT

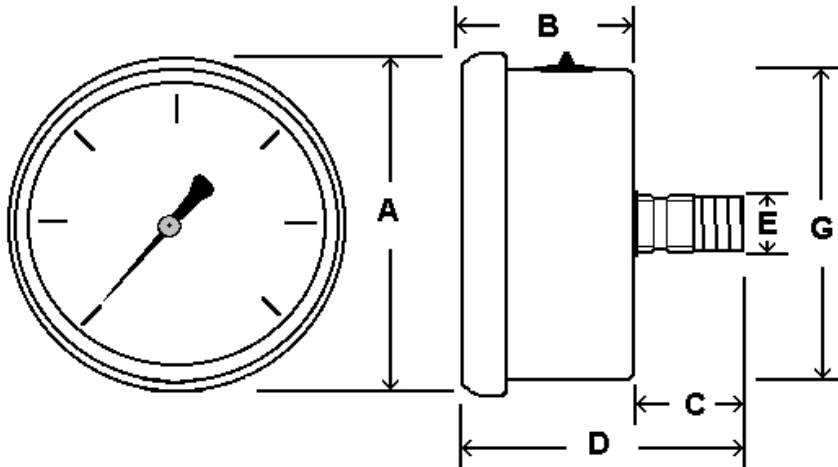
Glycerine filled for added durability in applications where vibration or pulsation is present  
Stainless steel case and bezel, copper alloy internals

## SPECIFICATIONS

2	<b>Dial</b>	1 1/2" (40 mm), 2" (50 mm), 4" (100 mm)
	<b>Case</b>	Stainless steel, glycerine filled
	<b>Wetted Parts</b>	Copper alloy
	<b>Bezel</b>	Stainless steel, fixed
	<b>Lens</b>	Polycarbonate
	<b>Pointer</b>	Black aluminum
	<b>Connection</b>	Center back mount 1 1/2" dial = 1/8" NPT 2" dial = 1/8" or 1/4" NPT 4" dial = 1/4" NPT
	<b>Scale</b>	Standard: psi/BAR (x 100 = kPa)
	<b>Accuracy</b>	3-2-3% of span 1 1/2" & 2" ASME B40.1 Grade B 2-1-2% of span 4" ASME B40.1 Grade A
	<b>Ambient Temp</b>	Glycerine Filled = 30° F to 160° F Dry = -30° F to 180° F



Design meets or exceeds ASME B40.100 pressure gauge standard.



Dial	Unit	A	B	C	D	E	G
1 1/2"	In.	1.85"	1.02"	0.72"	1.74"	1/8" NPT	1.63"
	mm	47	26	18	44		42
2"	In.	2.28"	1.18"	0.94"	2.08"	1/8" or 1/4" NPT	2.05"
	mm	58	30	24	53		52
4"	In.	4.29"	1.78"	1.37"	3.15"	1/4" NPT	3.91"
	mm	109	45	35	80		99

## AVAILABLE OPTIONS\*

- Certificate of Accuracy, NIST traceable
- Custom Dial
- Liquid Fill Options, see page 173
- Anti-Vibration Movement, see page 107
- Glass Lens
- Dry, Fillable Case
- Cleaned for Oxygen Service (dry only)
- Special Connection Size
- Protective Rubber Cover, see page 119
- Max/Min Pointer, see page 120

\*Lead times/minimums may apply

## APPROXIMATE SHIPPING WEIGHTS/ BOX QUANTITIES

Dial Size	Est. Unit Weight	Box Qty
1 1/2"	0.20 lbs (0.10 kg)	100
2"	0.40 lbs (0.18 kg)	100
4"	1.50 lbs (0.70 kg)	30

NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.

# 203L LIQUID FILLED U-CLAMP PANEL MOUNT

Glycerine filled for added durability in applications where vibration or pulsation is present  
Stainless steel case and bezel, copper alloy internals

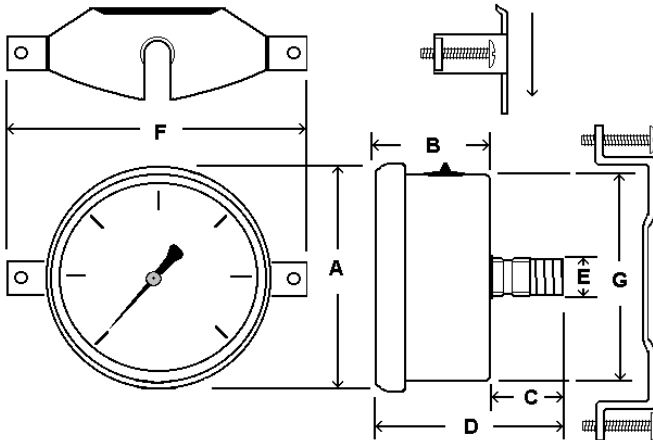
2

## SPECIFICATIONS

<b>Dial</b>	1 1/2" (40 mm), 2" (51 mm), 4" (100 mm)
<b>Case</b>	Stainless steel, glycerine filled
<b>Wetted Parts</b>	Copper alloy
<b>Bezel</b>	Stainless steel, fixed
<b>Lens</b>	Polycarbonate
<b>Pointer</b>	Black aluminum
<b>Connection</b>	Center back mount with u-clamp 1 1/2" dial = 1/8" NPT 2" dial = 1/8" or 1/4" NPT 4" dial = 1/4" NPT
<b>Scale</b>	Standard: psi/BAR (x 100 = kPa)
<b>Accuracy</b>	3-2-3% of span 1 1/2" & 2" ASME B40.1 Grade B 2-1-2% of span 4" ASME B40.1 Grade A
<b>Ambient Temp</b>	Glycerine Filled = 30° F to 160° F Dry = -30° F to 180° F



Design meets or exceeds ASME B40.100 pressure gauge standard.



Dial	Unit	A	B	C	D	E	F	G
1 1/2"	In.	1.85"	1.02"	0.72"	1.74"	1/8" NPT	2.75"	1.63"
	mm	47	26	18	44		70	42
2"	In.	2.28"	1.18"	0.94"	2.08"	1/8" or 1/4" NPT	3.13"	2.05"
	mm	58	30	24	53		80	52
4"	In.	4.29"	1.78"	1.37"	3.15"	1/4" or 1/2" NPT	5.6"	3.91"
	mm	109	45	35	80		141	99

## AVAILABLE OPTIONS\*

- Certificate of Accuracy, NIST traceable
- Custom Dial
- Liquid Fill Options, see page 173
- Anti-Vibration Movement, see page 107
- Glass Lens
- Dry, Fillable Case
- Cleaned for Oxygen Service (dry only)
- Special Connection Size
- Max/Min Pointer, see page 120

\*Lead times/minimums may apply

## APPROXIMATE SHIPPING WEIGHTS/ BOX QUANTITIES

Dial Size	Est. Unit Weight	Box Qty
1 1/2"	0.30 lbs (0.13 kg)	100
2"	0.50 lbs (0.23 kg)	100
4"	1.70 lbs (0.76 kg)	30

NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.

# 3 1/2" 203D FILLABLE U-CLAMP PANEL MOUNT

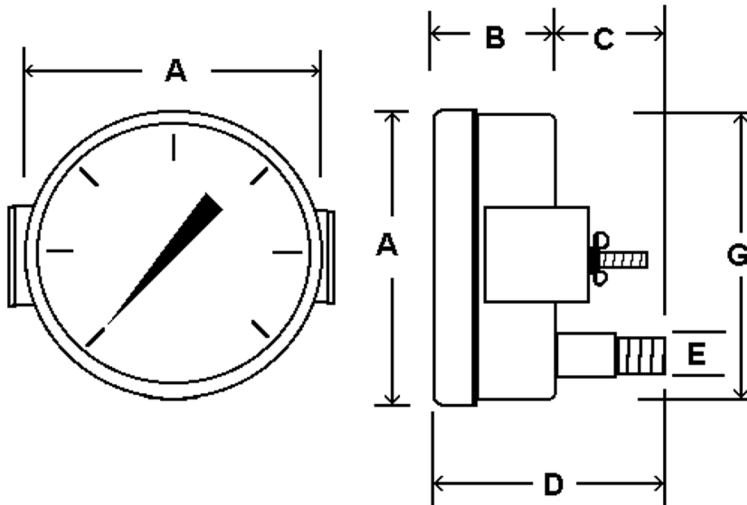
Dry yet fillable gauge for durability in applications where vibration or pulsation is present  
Stainless steel case and bezel, copper alloy internals

## SPECIFICATIONS

2	<b>Dial</b>	3 1/2" (88 mm)
	<b>Case</b>	Stainless steel, dry yet fillable
	<b>Wetted Parts</b>	Copper alloy
	<b>Bezel</b>	Stainless steel, fixed
	<b>Lens</b>	Polycarbonate
	<b>Pointer</b>	Black aluminum
	<b>Connection</b>	Lower back mount with u-clamp 3 1/2" dial = 1/4" NPT
	<b>Scale</b>	Standard: psi/BAR (x 100 = kPa)
	<b>Accuracy</b>	2-1-2% of span, ASME B40.1 Grade A
	<b>Ambient Temp</b>	Dry = -30° F to 180° F Glycerine Filled = 30° F to 160° F



*Design meets or exceeds ASME B40.100 pressure gauge standard.*



## AVAILABLE OPTIONS\*

- Certificate of Accuracy, NIST traceable
- Custom Dial
- Liquid Fill Options, see page 173
- Anti-Vibration Movement, see page 107
- Glass Lens
- Cleaned for Oxygen Service (dry only)
- Special Connection Size
- Max/Min Pointer, see page 120

\*Lead times/minimums may apply

## APPROXIMATE SHIPPING WEIGHTS/ BOX QUANTITIES

Dial	Unit	A	B	C	D	E	G
3 1/2"	In.	3.83"	1.13"	1.00"	2.15"	1/4" NPT	3.50"
	mm	97	29	25	55		89

Dial Size	Est. Unit Weight	Box Qty
3 1/2"	0.60 lbs (0.28 kg)	50

NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.

# 204L LIQUID FILLED FRONT FLANGE PANEL MOUNT

Glycerine filled for added durability in applications where vibration or pulsation is present  
Stainless steel case and bezel, copper alloy internals

## SPECIFICATIONS

<b>Dial</b>	1 1/2" (40 mm), 2" (50 mm), 3 1/2" (88 mm), 4" (100 mm)
<b>Case</b>	Stainless steel, glycerine filled
<b>Wetted Parts</b>	Copper alloy
<b>Bezel</b>	Stainless steel, fixed
<b>Lens</b>	Polycarbonate
<b>Pointer</b>	Black aluminum
<b>Connection</b>	Center back mount with front flange 1 1/2" dial = 1/8" NPT 2" dial = 1/8" or 1/4" NPT 3 1/2" dial = 1/4" NPT 4" dial = 1/4" NPT
<b>Scale</b>	Standard: psi/BAR (x 100 = kPa)
<b>Accuracy</b>	3-2-3% of span 1 1/2" & 2" ASME B40.1 Grade B 2-1-2% of span 4" ASME B40.1 Grade A
<b>Ambient Temp</b>	Glycerine Filled = 30° F to 160° F Dry = -30° F to 180° F

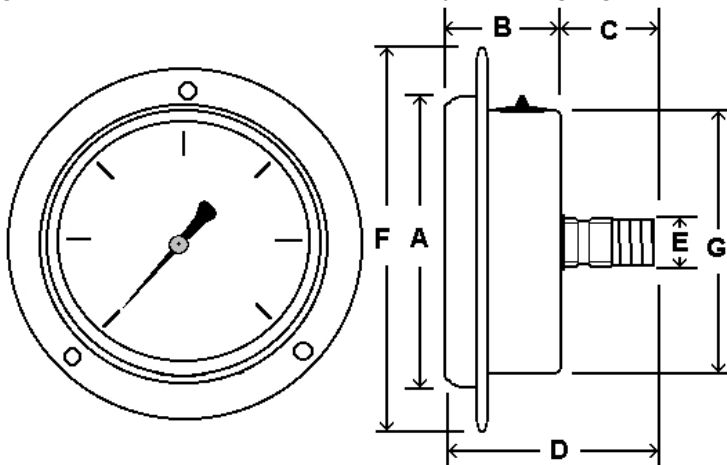


2

## AVAILABLE OPTIONS\*

- Certificate of Accuracy, NIST traceable
- Custom Dial
- Liquid Fill Options, see page 173
- Anti-Vibration Movement, see page 107
- Glass Lens
- Dry, Fillable Case
- Cleaned for Oxygen Service (dry only)
- Special Connection Size
- Max/Min Pointer, see page 120

Design meets or exceeds ASME B40.100 pressure gauge standard.



\*Lead times/minimums may apply

## APPROXIMATE SHIPPING WEIGHTS/ BOX QUANTITIES

Dial	Unit	A	B	C	D	E	F	G
1 1/2"	In.	1.85"	1.02"	0.72"	1.74"	1/8" NPT	2.46"	1.63"
	mm	47	26	18	44		63	42
2"	In.	2.28"	1.18"	0.94"	2.08"	1/8" or 1/4" NPT	2.81"	2.05"
	mm	58	30	24	53		72	52
4"	In.	4.29"	1.78"	1.37"	3.15"	1/4" or 1/2" NPT	5.14"	3.91"
	mm	109	45	35	80		130	99

Dial Size	Est. Unit Weight	Box Qty
1 1/2"	0.30 lbs (0.13 kg)	100
2"	0.50 lbs (0.23 kg)	100
4"	1.70 lbs (0.76 kg)	30

For complete flange dimensions, see page 121.

NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.

# 210 SERIES FILLABLE GAUGE

Dry yet fillable gauge with removable bezel, adjustable pointer  
Stainless steel case and bezel, copper alloy internals

2



211D SERIES



212D SERIES



213D SERIES



214D SERIES

## STANDARD DIAL CONFIGURATIONS FOR 210 SERIES

Dial Range	Figure Intervals	Graduation Intervals	Dial Range	Figure Intervals	Graduation Intervals	Dial Range	Figure Intervals	Graduation Intervals
30/0"hg Vac	5" hg	0.5" hg	0/60 psi	10 psi	0.5 psi	0/1000 psi	200 psi	20 psi
30/0/30 psi	10" hg/5 psi	1" hg/0.5 psi	0/100 psi	20 psi	2 psi	0/1500 psi	200 psi	20 psi
30/0/60 psi	30" hg/10psi	2" hg/1 psi	0/160 psi	20 psi	2 psi	0/2000 psi	200 psi	20 psi
30/0/100 psi	30" hg/20psi	5" hg/2 psi	0/200 psi	40 psi	5 psi	0/3000 psi	500 psi	50 psi
30/0/150 psi	30" hg/30psi	5" hg/2 psi	0/300 psi	50 psi	5 psi	0/4000 psi	500 psi	100 psi
0/15 psi	2 psi	0.1 psi	0/400 psi	50 psi	5 psi	0/5000 psi	1000 psi	100 psi
0/30 psi	5 psi	0.25 psi	0/600 psi	100 psi	10 psi	0/6000 psi	1000 psi	100 psi
						0/10,000 psi	2000 psi	200 psi

NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.

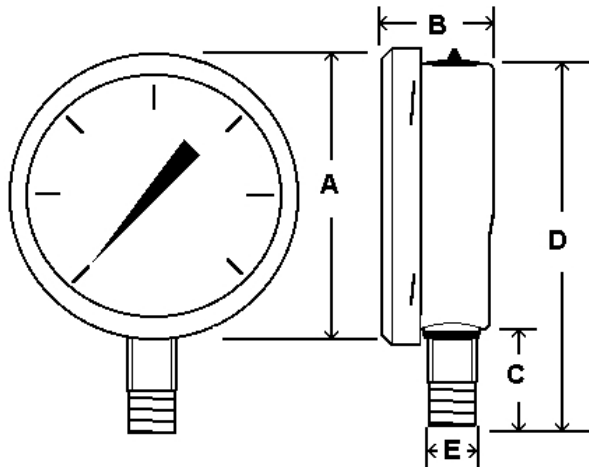
# 211D REMOVABLE BEZEL LOWER MOUNT

Dry yet fillable gauge with removable bezel, adjustable pointer  
Stainless steel case and bezel, copper alloy internals

## SPECIFICATIONS

<b>Dial</b>	2 ½" (63 mm)
<b>Case</b>	Stainless steel, dry - fillable
<b>Wetted Parts</b>	Copper alloy
<b>Bezel</b>	Removable, stainless steel
<b>Lens</b>	Glass
<b>Pointer</b>	Adjustable, black aluminum
<b>Connection</b>	Lower mount 2 ½" dial = ¼" NPT
<b>Scale</b>	Standard: psi/BAR (x 100 = kPa)
<b>Accuracy</b>	2-1-2% of span ASME B40.1 Grade A
<b>Ambient Temp</b>	Dry = -30° F to 180° F Glycerine Filled = 30° F to 160° F

*Design meets or exceeds ASME B40.100 pressure gauge standard.*



Dial	Unit	A	B	C	D	E
2 ½"	In.	2.83"	1.42"	1.06"	3.54"	¼"
	mm	72	36	27	90	NPT



2

## AVAILABLE OPTIONS\*

- Certificate of Accuracy, NIST traceable
- Custom Dial
- Liquid Fill Options, see page 173
- Anti-Vibration Movement, see page 107
- Cleaned for Oxygen Service (dry only)
- Special Connection Size
- Protective Rubber Cover, see page 119
- Plastic Lens
- Max/Min Pointer, see page 120

\*Lead times/minimums may apply

## APPROXIMATE SHIPPING WEIGHTS/ BOX QUANTITIES

Dial Size	Est. Unit Weight	Box Qty
2 ½"	0.40 lbs (0.20 kg)	100

NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.



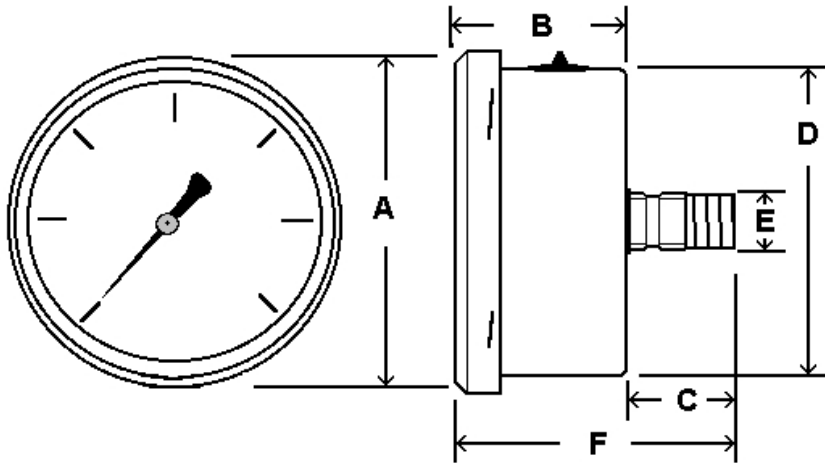
# 212D REMOVABLE BEZEL CENTER BACK MOUNT

Dry yet fillable gauge with removable bezel, adjustable pointer  
Stainless steel case and bezel, copper alloy internals

## SPECIFICATIONS

2	Dial	2 1/2" (63 mm),
	Case	Stainless steel, dry yet fillable
	Wetted Parts	Copper alloy
	Bezel	Removable, stainless steel
	Lens	Glass
	Pointer	Adjustable, black aluminum
	Connection	Center back mount 2 1/2" dial = 1/4" NPT
	Scale	Standard: psi/BAR (x 100 = kPa)
	Accuracy	2-1-2% of span ASME B40.1 Grade A
	Ambient Temp	Dry = -30° F to 180° F Glycerine Filled = 30° F to 160° F

Design meets or exceeds ASME B40.100 pressure gauge standard.



Dial	Unit	A	B	C	D	E	F
2 1/2"	In.	2.83"	1.37"	1.00"	2.49"	1/4"	2.29"
	mm	72	35	25	63	NPT	58

## AVAILABLE OPTIONS\*

- Certificate of Accuracy, NIST traceable
- Custom Dial
- Liquid Fill Options, see page 173
- Anti-Vibration Movement, see page 107
- Cleaned for Oxygen Service (dry only)
- Special Connection Size
- Protective Rubber Cover, see page 119
- Plastic Lens
- Max/Min Pointer, see page 120

\*Lead times/minimums may apply

## APPROXIMATE SHIPPING WEIGHTS/ BOX QUANTITIES

Dial Size	Est. Unit Weight	Box Qty
2 1/2"	0.40 lbs (0.20 kg)	50

NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.



# 213D REMOVABLE BEZEL U-CLAMP PANEL MOUNT

Dry yet fillable gauge with removable bezel, adjustable pointer  
Stainless steel case and bezel, copper alloy internals

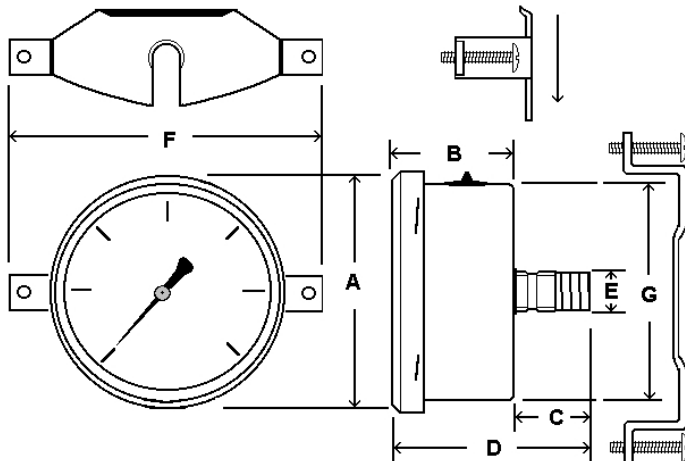
2

## SPECIFICATIONS

<b>Dial</b>	2 1/2" (63 mm)
<b>Case</b>	Stainless steel, dry yet fillable
<b>Wetted Parts</b>	Copper alloy
<b>Bezel</b>	Removable, stainless steel
<b>Lens</b>	Glass
<b>Pointer</b>	Adjustable, black aluminum
<b>Connection</b>	Center back mount with u-clamp 2 1/2" dial = 1/4" NPT
<b>Scale</b>	Standard: psi/BAR (x 100 = kPa)
<b>Accuracy</b>	2-1-2% of span ASME B40.1 Grade A
<b>Ambient Temp</b>	Dry = -30° F to 180° F Glycerine Filled = 30° F to 160° F



Design meets or exceeds ASME B40.100 pressure gauge standard.



## AVAILABLE OPTIONS\*

- Certificate of Accuracy, NIST traceable
- Custom Dial
- Liquid Fill Options, see page 173
- Anti-Vibration Movement, see page 107
- Cleaned for Oxygen Service (dry only)
- Special Connection Size
- Plastic Lens
- Max/Min Pointer, see page 120

\*Lead times/minimums may apply

Dial	Unit	A	B	C	D	E	F	G
2 1/2"	In.	2.83"	1.37"	1.00"	2.29"	1/4"	3.84"	2.48"
	mm	72	35	25	58	NPT	98	63

## APPROXIMATE SHIPPING WEIGHTS/ BOX QUANTITIES

Dial Size	Est. Unit Weight	Box Qty
2 1/2"	0.55 lbs (0.25 kg)	50

NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.

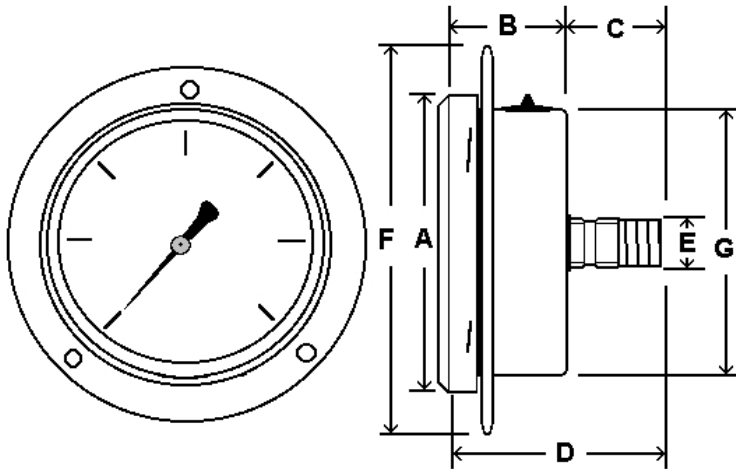
# 214D REMOVABLE BEZEL FRONT FLANGE PANEL MOUNT

Dry yet fillable gauge with removable bezel, adjustable pointer  
Stainless steel case and bezel, copper alloy internals

## SPECIFICATIONS

<b>2 Dial</b>	2 1/2" (63 mm)
<b>Case</b>	Stainless steel, dry yet fillable
<b>Wetted Parts</b>	Copper alloy
<b>Bezel</b>	Removable, stainless steel
<b>Lens</b>	Glass
<b>Pointer</b>	Adjustable, black aluminum
<b>Connection</b>	Center back mount with front flange 1/4" NPT
<b>Scale</b>	Standard: psi/BAR (x 100 = kPa)
<b>Accuracy</b>	2-1-2% of span ASME B40.1 Grade A
<b>Ambient Temp</b>	Dry = -30° F to 180° F Glycerine Filled = 30° F to 160° F

Design meets or exceeds ASME B40.100 pressure gauge standard.



Dial	Unit	A	B	C	D	E	F	G
2 1/2"	In.	2.83"	1.37"	1.00"	2.29"	1/4"	3.45"	2.48"
	mm	72	35	25	58	NPT	88	63

For complete flange dimensions, see page 121.

## AVAILABLE OPTIONS\*

- Certificate of Accuracy, NIST traceable
- Custom Dial
- Liquid Fill Options, see page 173
- Anti-Vibration Movement, see page 107
- Cleaned for Oxygen Service (dry only)
- Special Connection Size
- Plastic Lens
- Max/Min Pointer, see page 120

\*Lead times/minimums may apply

## APPROXIMATE SHIPPING WEIGHTS/ BOX QUANTITIES

Dial Size	Est. Unit Weight	Box Qty
2 1/2"	0.55 lbs (0.25 kg)	50

NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.

# PRO-200 SERIES LIQUID FILLED GAUGE

Glycerine filled for added durability in applications where vibration or pulsation is present  
Stainless steel case and bezel, copper alloy internals



PRO-201L SERIES



PRO-202L SERIES



PRO-203L SERIES



PRO-204L SERIES

## STANDARD DIAL CONFIGURATIONS FOR SEC-200 SERIES

Dial Range	Figure Intervals	Graduation Intervals	Dial Range	Figure Intervals	Graduation Intervals	Dial Range	Figure Intervals	Graduation Intervals
30/0"hg Vac	5" hg	0.5" hg	0/60 psi	10 psi	1 psi	0/1000 psi	200 psi	20 psi
30/0/30 psi	10" hg/10psi	1" hg/1 psi	0/100 psi	20 psi	2 psi	0/1500 psi	200 psi	20 psi
30/0/60 psi	10" hg/10psi	2" hg/1 psi	0/160 psi	20 psi	2 psi	0/2000 psi	400 psi	40 psi
30/0/100 psi	30" hg/20psi	5" hg/2 psi	0/200 psi	40 psi	4 psi	0/3000 psi	500 psi	50 psi
30/0/150 psi	30" hg/20psi	5" hg/2 psi	0/300 psi	50 psi	5 psi	0/4000 psi	500 psi	50 psi
30/0/300 psi	30" hg/50psi	10" hg/5 psi	0/400 psi	50 psi	5 psi	0/5000 psi	1000 psi	100 psi
0/15 psi	2 psi	0.1 psi	0/500 psi	100 psi	10 psi	0/6000 psi	1000 psi	100 psi
0/30 psi	5 psi	0.5 psi	0/600 psi	100 psi	10 psi	0/10,000 psi	2000 psi	200 psi

NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.



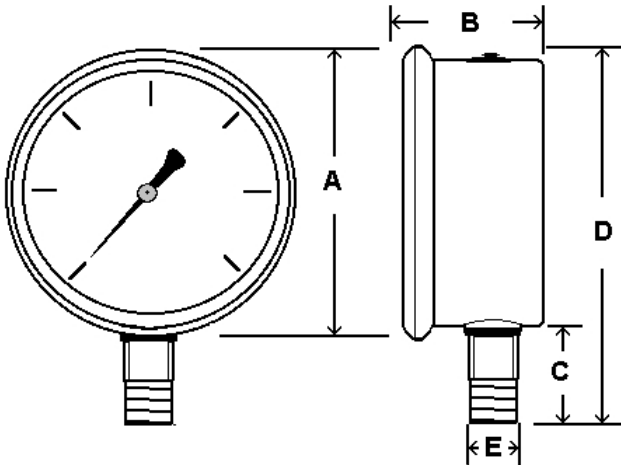
# PRO-201L LIQUID FILLED LOWER MOUNT

Improved accuracy to ASME B40.1 Grade A. One piece design for toughness during installation. Glycerin filled for added durability during in application. Stainless steel case and bezel with copper alloy internals.

2

<b>Dial</b>	2 ½" (63 mm)
<b>Case</b>	Stainless steel, glycerine filled
<b>Wetted Parts</b>	Copper alloy
<b>Bezel</b>	Stainless steel, fixed
<b>Lens</b>	Polycarbonate
<b>Pointer</b>	Black aluminum
<b>Connection</b>	Lower mount 2 ½" dial = ¼" NPT
<b>Scale</b>	Standard: psi/BAR (x 100 = kPa)
<b>Accuracy</b>	2-1-2% of span ASME B40.1 Grade A
<b>Ambient Temp</b>	Glycerine Filled = 30° F to 160° F Dry = -30° F to 180° F

Design meets or exceeds ASME B40.100 pressure gauge standard.



Dial	Unit	A	B	C	D	E
2 ½"	In.	2.65"	1.20"	0.88"	3.30"	¼"
	mm	68	30	22	84	NPT

- Certificate of Accuracy, NIST traceable
- Custom Dial
- Liquid Fill Options, see page 180
- Anti-Vibration Movement, see page 113
- Dry, Fillable Case
- Special Connection Size
- Protective Rubber Cover, see page 125
- Max/Min Pointer, see page 126

\*Lead times/minimums may apply

Dial Size	Est. Unit Weight	Box Qty
2 ½"	0.45 lbs (0.20 kg)	100

NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.

# PRO-202L LIQUID FILLED CENTER BACK MOUNT



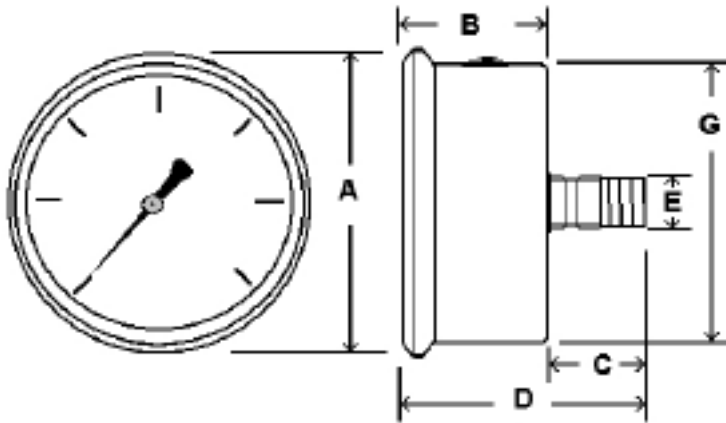
Improved accuracy to ASME B40.1 Grade A. One piece design for toughness during installation. Glycerin filled for added durability during in application. Stainless steel case and bezel with copper alloy internals.

<b>Dial</b>	2 1/2" (63 mm),
<b>Case</b>	Stainless steel, glycerine filled
<b>Wetted Parts</b>	Copper alloy
<b>Bezel</b>	Stainless steel, fixed
<b>Lens</b>	Polycarbonate
<b>Pointer</b>	Black aluminum
<b>Connection</b>	Center back mount 2 1/2" dial = 1/4" NPT
<b>Scale</b>	Standard: psi/BAR (x 100 = kPa)
<b>Accuracy</b>	2-1-2% of span ASME B40.1 Grade A
<b>Ambient Temp</b>	Glycerine Filled = 30° F to 160° F Dry = -30° F to 180° F

*Design meets or exceeds ASME B40.100 pressure gauge standard.*



2



- Certificate of Accuracy, NIST traceable
- Custom Dial
- Liquid Fill Options, see page 180
- Anti-Vibration Movement, see page 113
- Dry, Fillable Case
- Special Connection Size
- Protective Rubber Cover, see page 125
- Max/Min Pointer, see page 126

\*Lead times/minimums may apply

Dial	Unit	A	B	C	D	G	E
2 1/2"	In.	2.65"	1.21"	0.91"	2.09"	2.44"	1/4"
	mm	68	31	23	53	61.85	NPT

Dial Size	Est. Unit Weight	Box Qty
2 1/2"	0.45 lbs (0.22 kg)	60

NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.



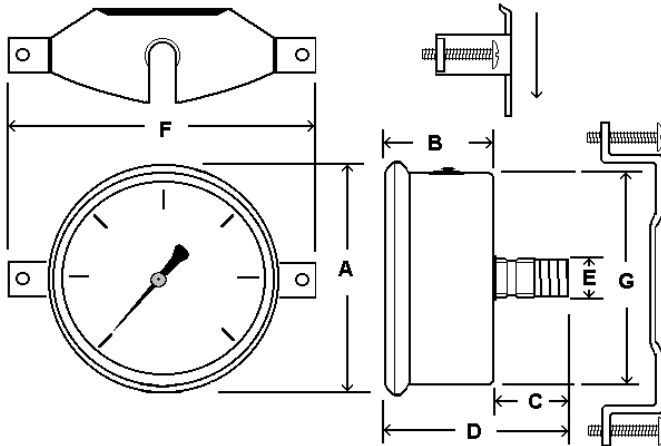
# PRO-203L LIQUID FILLED U-CLAMP PANEL MOUNT

Improved accuracy to ASME B40.1 Grade A. One piece design for toughness during installation. Glycerin filled for added durability during in application. Stainless steel case and bezel with copper alloy internals.

2	<b>Dial</b>	2 1/2" (63 mm),
	<b>Case</b>	Stainless steel, glycerine filled
	<b>Wetted Parts</b>	Copper alloy
	<b>Bezel</b>	Stainless steel, fixed
	<b>Lens</b>	Polycarbonate
	<b>Pointer</b>	Black aluminum
	<b>Connection</b>	Center back mount with u-clamp 2 1/2" dial = 1/4" NPT
	<b>Scale</b>	Standard: psi/BAR (x 100 = kPa)
	<b>Accuracy</b>	2-1-2% of span ASME B40.1 Grade A
	<b>Ambient Temp</b>	Glycerine Filled = 30° F to 160° F Dry = -30° F to 180° F



Design meets or exceeds ASME B40.100 pressure gauge standard.



- Certificate of Accuracy, NIST traceable
- Custom Dial
- Liquid Fill Options, see page 180
- Anti-Vibration Movement, see page 113
- Dry, Fillable Case
- Special Connection Size
- Max/Min Pointer, see page 126

\*Lead times/minimums may apply

Dial	Unit	A	B	C	D	E	F	G
2 1/2"	In.	2.65"	1.21"	0.91"	2.12"	1/4"	3.84"	2.44"
	mm	68	31	23	54	NPT	98	61

Dial Size	Est. Unit Weight	Box Qty
2 1/2"	0.55 lbs (0.26 kg)	60

NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.

# PRO-204L LIQUID FILLED FRONT FLANGE PANEL MOUNT



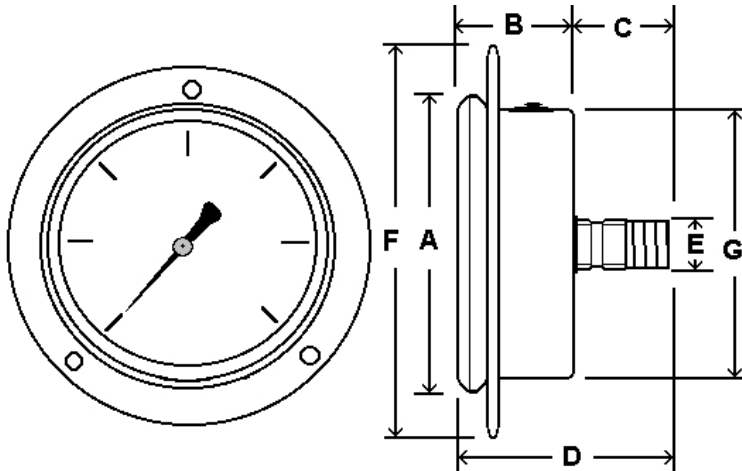
Improved accuracy to ASME B40.1 Grade A. One piece design for toughness during installation. Glycerin filled for added durability during in application. Stainless steel case and bezel with copper alloy internals.

<b>Dial</b>	2 1/2" (63 mm)
<b>Case</b>	Stainless steel, glycerine filled
<b>Wetted Parts</b>	Copper alloy
<b>Bezel</b>	Stainless steel, fixed
<b>Lens</b>	Polycarbonate
<b>Pointer</b>	Black aluminum
<b>Connection</b>	Center back mount with front flange 2 1/2" dial = 1/4" NPT
<b>Scale</b>	Standard: psi/BAR (x 100 = kPa)
<b>Accuracy</b>	2-1-2% of span ASME B40.1 Grade A
<b>Ambient Temp</b>	Glycerine Filled = 30° F to 160° F Dry = -30° F to 180° F



2

Design meets or exceeds ASME B40.100 pressure gauge standard.



- Certificate of Accuracy, NIST traceable
- Custom Dial
- Liquid Fill Options, see page 180
- Anti-Vibration Movement, see page 113
- Dry, Fillable Case
- Special Connection Size
- Max/Min Pointer, see page 126

\*Lead times/minimums may apply

Dial	Unit	A	B	C	D	E	F	G
2 1/2"	In.	2.65"	1.21"	0.91"	2.12"	1/4"	3.46"	2.44"
	mm	68	31	23	54	NPT	88	61

For complete flange dimensions, see page 127.

Dial Size	Est. Unit Weight	Box Qty
2 1/2"	0.55 lbs (0.26 kg)	60

NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.

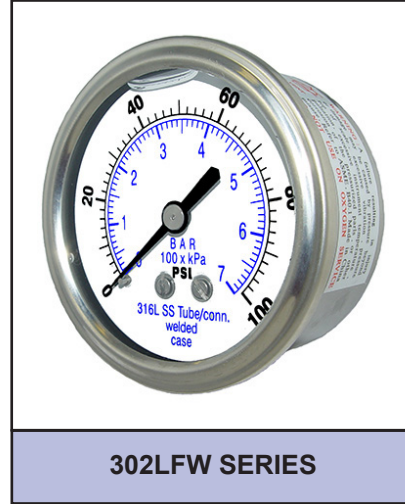
# 300 SERIES ALL STAINLESS LIQUID FILLED GAUGE

Heavy duty, all stainless steel gauge with welded case-to-stem connection  
Stainless steel case and bezel, 316 stainless steel internals

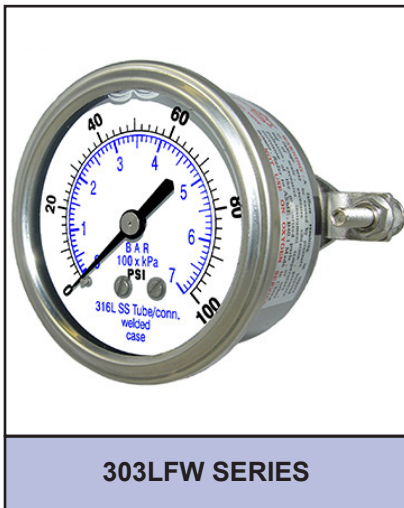
3



301LFW SERIES



302LFW SERIES



303LFW SERIES



304LFW SERIES

## STANDARD DIAL CONFIGURATIONS FOR 300 SERIES - 2 1/2" DIALS

Dial Range	Figure Intervals	Graduation Intervals	Dial Range	Figure Intervals	Graduation Intervals	Dial Range	Figure Intervals	Graduation Intervals
30/0"hg Vac	5" hg	0.5" hg	0/60 psi	10 psi	1 psi	0/2000 psi	400 psi	50 psi
30/0/15 psi	10" hg/5 psi	1" hg/.5 psi	0/100 psi	20 psi	2 psi	0/3000 psi	500 psi	50 psi
30/0/30 psi	10" hg/5psi	1" hg/.5 psi	0/160 psi	20 psi	2 psi	0/4000 psi	800 psi	100 psi
30/0/60 psi	10" hg/10psi	2" hg/1 psi	0/200 psi	40 psi	5 psi	0/5000 psi	1000 psi	100 psi
30/0/100 psi	30" hg/20psi	5" hg/2 psi	0/300 psi	50 psi	5 psi	0/6000 psi	1000 psi	100 psi
30/0/150 psi	30" hg/20psi	5" hg/2 psi	0/400 psi	50 psi	5 psi	0/10,000 psi	2000 psi	200 psi
30/0/300 psi	30" hg/50psi	10" hg/10psi	0/600 psi	100 psi	10 psi	0/15,000 psi	2000 psi	200 psi
0/15 psi	2 psi	0.2 psi	0/1000 psi	200 psi	10 psi	0/20,000 psi	4000 psi	400 psi
0/30 psi	5 psi	0.5 psi	0/1500 psi	200 psi	20 psi			

NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.



# 301LFW ALL STAINLESS LOWER MOUNT

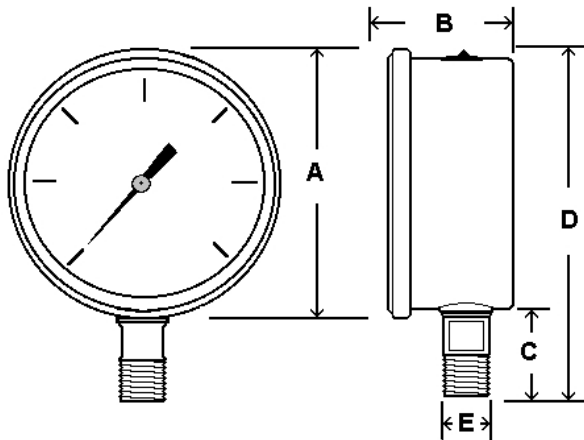


Heavy duty, all stainless steel gauge with welded case-to-stem connection  
Stainless steel case and bezel, 316 stainless steel internals  
Glycerine filled for added durability in applications where vibration or pulsation is present

## SPECIFICATIONS

<b>Dial</b>	1 ½" (40 mm), 2" (50 mm), 2 ½" (63 mm), 4" (100 mm) See page 37, 6" (150 mm) - See 6001 page 53
<b>Case</b>	Stainless steel, glycerine filled (available dry) Welded case-to-stem connection
<b>Wetted Parts</b>	316 stainless steel
<b>Bezel</b>	Stainless steel, fixed
<b>Lens</b>	Polycarbonate
<b>Pointer</b>	Black aluminum
<b>Connection</b>	Lower mount 1 ½" dial = ⅛" NPT 2" dial = ⅛" or ¼" NPT 2 ½" dial = ¼" NPT
<b>Scale</b>	Standard: psi/BAR (x 100 = kPa)
<b>Accuracy</b>	3-2-3% of span 1 ½" & 2" ASME B40.1 Grade B 2-1-2% of span 2 ½" ASME B40.1 Grade A
<b>Ambient Temp</b>	Glycerine Filled = 30° F to 160° F Dry = -30° F to 180° F

Design meets or exceeds ASME B40.100 pressure gauge standard.



Dial	Unit	A	B	C	D	E
1 ½"	In.	1.84"	1.03"	0.73"	2.32"	⅛" NPT
	mm	47	26	19	59	
2"	In.	2.25"	1.15"	0.91"	2.93"	⅛" or ¼" NPT
	mm	57	30	23	75	
2 ½"	In.	2.70"	1.39"	1"	3.61"	¼" NPT
	mm	69	35	25	92	



3

## AVAILABLE OPTIONS\*

- Certificate of Accuracy, NIST traceable
- Custom Dial
- Liquid Fill Options, see page 173
- Anti-Vibration Movement, see page 107
- Dry, Fillable Case
- Glass Lens
- Cleaned for Oxygen Service (dry only)
- Special Connection Size
- Protective Rubber Cover, see page 119
- Single Scale
- Max/Min Pointer, see page 120

\*Lead times/minimums may apply

## APPROXIMATE SHIPPING WEIGHTS/ BOX QUANTITIES

Dial Size	Est. Unit Weight	Box Qty
1 ½"	0.20 lbs (0.10 kg)	100
2"	0.40 lbs (0.18 kg)	100
2 ½"	0.55 lbs (0.24 kg)	90

NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.

# 302LFW ALL STAINLESS CENTER BACK MOUNT

Heavy duty, all stainless steel gauge with welded case-to-stem connection

Stainless steel case and bezel, 316 stainless steel internals

Glycerine filled for added durability in applications where vibration or pulsation is present

## SPECIFICATIONS

<b>Dial</b>	1 ½" (40 mm), 2" (50 mm), 2 ½" (63 mm), 4" (100 mm) - See 312D page 40 6" (150 mm) - See 6002 page 54
<b>Case</b>	Stainless steel, glycerine filled (available dry) Welded case-to-stem connection
<b>Wetted Parts</b>	316 stainless steel
<b>3 Bezel</b>	Stainless steel, fixed
<b>Lens</b>	Polycarbonate
<b>Pointer</b>	Black aluminum
<b>Connection</b>	Center back mount 1 ½" dial = ⅛" NPT 2" dial = ⅛" or ¼" NPT 2 ½" dial = ¼" NPT
<b>Scale</b>	Standard: psi/BAR (x 100 = kPa)
<b>Accuracy</b>	3-2-3% of span 1 ½" & 2" ASME B40.1 Grade B 2-1-2% of span 2 ½" ASME B40.1 Grade A 1% of span 4" ASME B40.1 Grade 1A
<b>Ambient Temp</b>	Glycerine Filled = 30° F to 160° F Dry = -30° F to 180° F

*Design meets or exceeds ASME B40.100 pressure gauge standard.*



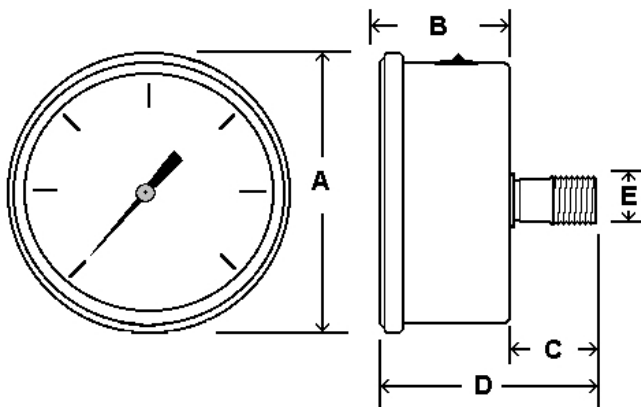
## AVAILABLE OPTIONS\*

- Certificate of Accuracy, NIST traceable
- Custom Dial
- Liquid Fill Options, see page 173
- Anti-Vibration Movement, see page 107
- Dry, Fillable Case
- Glass Lens
- Cleaned for Oxygen Service (dry only)
- Special Connection Size
- Protective Rubber Cover, see page 119
- Single Scale
- Max/Min Pointer, see page 120

\*Lead times/minimums may apply

## APPROXIMATE SHIPPING WEIGHTS/ BOX QUANTITIES

Dial Size	Est. Unit Weight	Box Qty
1 ½"	0.20 lbs (0.10 kg)	100
2"	0.40 lbs (0.18 kg)	100
2 ½"	0.60 lbs (0.28 kg)	50



Dial	Unit	A	B	C	D	E
1 ½"	In.	1.83"	1.01"	0.89"	1.90"	⅛"
	mm	46	26	23	48	NPT
2"	In.	2.25"	1.17"	1.00"	2.17"	⅛" or
	mm	57	30	25	55	¼"
2 ½"	In.	2.71"	1.40"	1.31"	2.71"	¼"
	mm	69	36	33	69	NPT

NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.

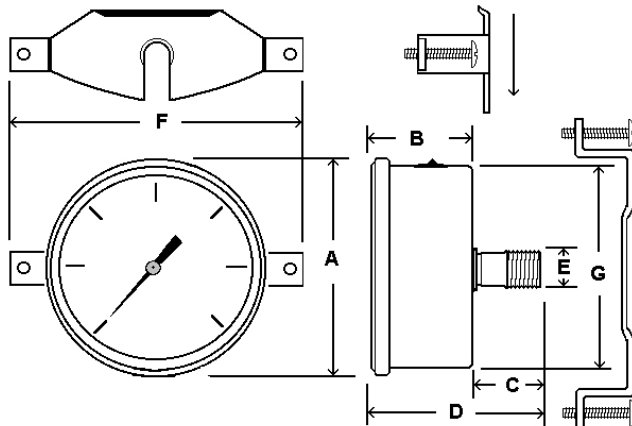
# 303LFW ALL STAINLESS U-CLAMP PANEL MOUNT

Heavy duty, all stainless steel gauge with welded case-to-stem connection  
 Stainless steel case and bezel, 316 stainless steel internals  
 Glycerine filled for added durability in applications where vibration or pulsation is present

## SPECIFICATIONS

<b>Dial</b>	1 1/2" (40 mm), 2" (50 mm), 2 1/2" (63 mm), 4" (100 mm) - See 313D page 41
<b>Case</b>	Stainless steel, glycerine filled (available dry) Welded case-to-stem connection
<b>Wetted Parts</b>	316 stainless steel
<b>Bezel</b>	Stainless steel, fixed
<b>Lens</b>	Polycarbonate
<b>Pointer</b>	Black aluminum
<b>Connection</b>	Center back mount with u-clamp 1 1/2" dial = 1/8" NPT 2" dial = 1/8" or 1/4" NPT 2 1/2" dial = 1/4" NPT
<b>Scale</b>	Standard: psi/BAR (x 100 = kPa)
<b>Accuracy</b>	3-2-3% of span 1 1/2" & 2" ASME B40.1 Grade B 2-1-2% of span 2 1/2" ASME B40.1 Grade A
<b>Ambient Temp</b>	Glycerine Filled = 30° F to 160° F Dry = -30° F to 180° F
<b>Process Temp</b>	

Design meets or exceeds ASME B40.100 pressure gauge standard.



Dial	Unit	A	B	C	D	E	F	G
1 1/2"	In.	1.83"	1.01"	0.89"	1.90"	1/8"	2.75"	1.61"
	mm	46	26	23	48	NPT		
2"	In.	2.25"	1.17"	1.00"	2.17"	1/8" or	3.13"	2.03"
	mm	57	30	25	55	1/4"		
2 1/2"	In.	2.71"	1.40"	1.31"	2.71"	1/4"	3.84"	2.49"
	mm	69	36	33	69	NPT		

NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.



3

## AVAILABLE OPTIONS\*

- Certificate of Accuracy, NIST traceable
- Custom Dial
- Liquid Fill Options, see page 173
- Anti-Vibration Movement, see page 107
- Dry, Fillable Case
- Glass Lens
- Cleaned for Oxygen Service (dry only)
- Special Connection Size
- Single Scale
- Max/Min Pointer, see page 120

\*Lead times/minimums may apply

## APPROXIMATE SHIPPING WEIGHTS/ BOX QUANTITIES

Dial Size	Est. Unit Weight	Box Qty
1 1/2"	0.30 lbs (0.12 kg)	100
2"	0.45 lbs (0.20 kg)	100
2 1/2"	0.70 lbs (0.32 kg)	50

# 304LFW ALL STAINLESS FRONT FLANGE PANEL MOUNT

Heavy duty, all stainless steel gauge with welded case-to-stem connection

Stainless steel case and bezel, 316 stainless steel internals

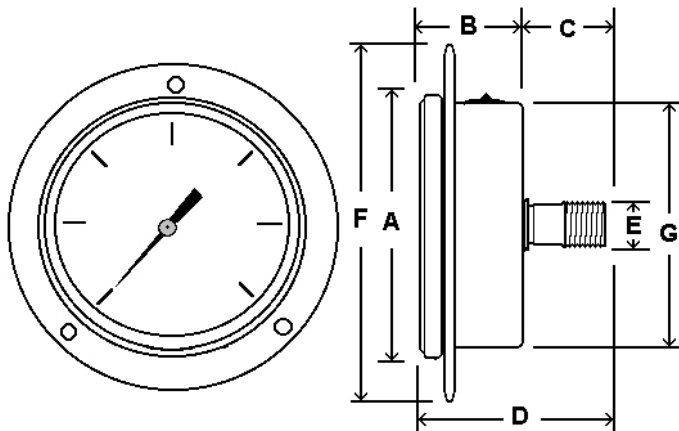
Glycerine filled for added durability in applications where vibration or pulsation is present

## SPECIFICATIONS

<b>Dial</b>	1 ½" (40 mm), 2" (50 mm), 2 ½" (63 mm), 4" (100 mm) - See 314D page 42 6" (150 mm) - See 6004 page 55
<b>Case</b>	Stainless steel, glycerine filled (available dry) Welded case-to-stem connection
<b>Wetted Parts</b>	316 stainless steel
<b>3 Bezel</b>	Stainless steel, fixed
<b>Lens</b>	Polycarbonate
<b>Pointer</b>	Black aluminum
<b>Connection</b>	Center back mount with front flange 1 ½" dial = ⅛" NPT 2" dial = ⅛" or ¼" NPT 2 ½" dial = ¼" NPT
<b>Scale</b>	Standard: psi/BAR (x 100 = kPa)
<b>Accuracy</b>	3-2-3% of span 1 ½" & 2" ASME B40.1 Grade B 2-1-2% of span 2 ½" ASME B40.1 Grade A
<b>Ambient Temp</b>	Glycerine Filled = 30° F to 160° F Dry = -30° F to 180° F



Design meets or exceeds ASME B40.100 pressure gauge standard.



Dial	Unit	A	B	C	D	E	F	G
1 ½"	In.	1.83"	1.01"	0.89"	1.90"	⅛"	2.46"	1.61"
	mm	46	26	23	48	NPT	63	41
2"	In.	2.25"	1.17"	1.00"	2.17"	⅛" or	2.81"	2.03"
	mm	57	30	25	55	¼"	71	52
2 ½"	In.	2.71"	1.40"	1.31"	2.71"	¼"	3.46"	2.49"
	mm	69	36	33	69	NPT	88	63

For complete flange dimensions, see page 123.

NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.

## AVAILABLE OPTIONS\*

- Certificate of Accuracy, NIST traceable
- Custom Dial
- Liquid Fill Options, see page 176
- Anti-Vibration Movement, see p. 107
- Dry, Fillable Case
- Glass Lens
- Cleaned for Oxygen Service (dry only)
- Special Connection Size
- Single Scale
- Max/Min Pointer, see p. 118

\*Lead times/minimums may apply

## APPROXIMATE SHIPPING WEIGHTS/ BOX QUANTITIES

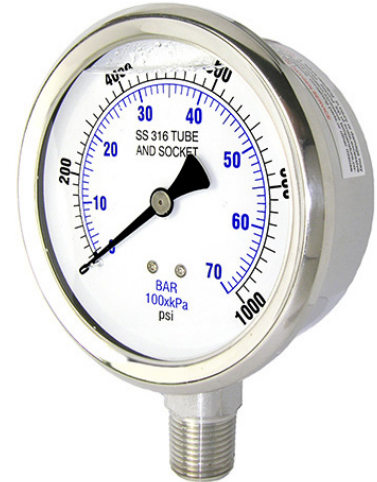
Dial Size	Est. Unit Weight	Box Qty
1 ½"	0.25 lbs (0.10 kg)	upon request
2"	0.40 lbs (0.18 kg)	upon request
2 ½"	0.65 lbs (0.30 kg)	upon request

# 301L 4" ALL STAINLESS LOWER MOUNT

Heavy duty, all stainless steel gauge  
Stainless steel case and bezel, 316 stainless steel internals  
Glycerine filled for added durability in applications where vibration or pulsation is present

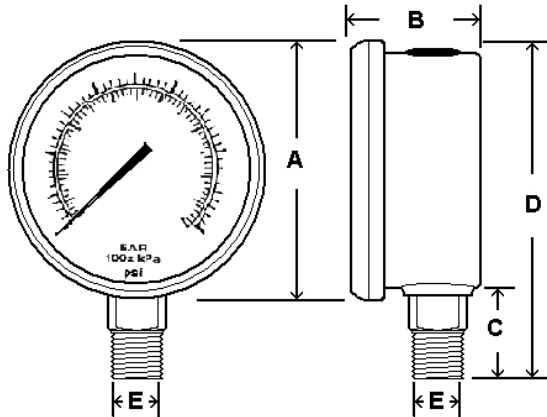
## SPECIFICATIONS

<b>Dial</b>	4" (100 mm)
<b>Case</b>	Stainless steel, glycerine filled (available dry)
<b>Wetted Parts</b>	316 stainless steel
<b>Bezel</b>	Stainless steel, fixed
<b>Lens</b>	Polycarbonate
<b>Pointer</b>	Black aluminum
<b>Connection</b>	Lower mount
	4" dial = 1/4" or 1/2" NPT
<b>Scale</b>	Standard: psi/BAR (x 100 = kPa)
<b>Accuracy</b>	2-1-2% of span ASME B40.1 Grade A
<b>Ambient Temp</b>	Glycerine Filled = 30° F to 160° F Dry = -30° F to 180° F



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Design meets or exceeds ASME B40.100 pressure gauge standard.



Dial	Unit	A	B	C	D	E
4"	In.	4.30"	1.74"	1.19"	5.26"	1/4" or 1/2" NPT
	mm	109	44	30	134	

NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.

## AVAILABLE OPTIONS\*

- Certificate of Accuracy, NIST traceable
- Custom Dial
- Liquid Fill Options, see page 173
- Anti-Vibration Movement, see page 107
- Dry, Fillable Case
- Glass Lens
- Cleaned for Oxygen Service (dry only)
- Special Connection Size
- Protective Rubber Cover, see page 119
- Single Scale
- Max/Min Pointer, see page 120

\*Lead times/minimums may apply

## APPROXIMATE SHIPPING WEIGHTS/ BOX QUANTITIES

Dial Size	Est. Unit Weight	Box Qty
4"	1.55 lbs (0.70 kg)	30

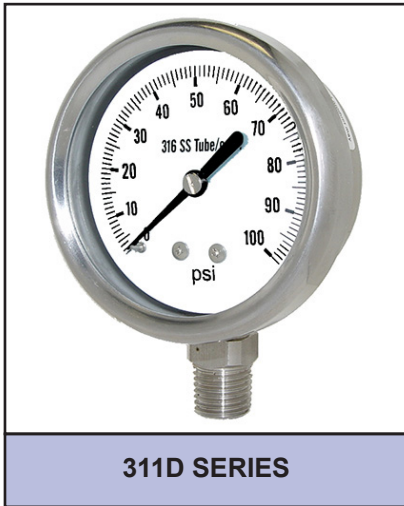
## STANDARD DIAL CONFIGURATIONS FOR 300 SERIES - 4" DIALS

Dial Range	Figure Intervals	Graduation Intervals	Dial Range	Figure Intervals	Graduation Intervals	Dial Range	Figure Intervals	Graduation Intervals
30/0"hg Vac	5" hg	0.5" hg	0/30 psi	5 psi	0.5 psi	0/1000 psi	200 psi	20 psi
30/0/15 psi	10" hg/5 psi	1" hg/0.5 psi	0/60 psi	10 psi	0.5 psi	0/1500 psi	200 psi	20 psi
30/0/30 psi	10" hg/5psi	1" hg/0.5 psi	0/100 psi	20 psi	2 psi	0/2000 psi	400 psi	40 psi
30/0/60 psi	30" hg/10psi	2" hg/1 psi	0/160 psi	20 psi	2 psi	0/3000 psi	500 psi	50 psi
30/0/100 psi	30" hg/20psi	5" hg/2 psi	0/200 psi	40 psi	5 psi	0/5000 psi	1000 psi	100 psi
30/0/150 psi	30" hg/30psi	5" hg/2 psi	0/300 psi	50 psi	5 psi	0/10,000 psi	2000 psi	200 psi
30/0/300 psi	30" hg/50psi	10" hg/5psi	0/400 psi	50 psi	5 psi	0/15,000 psi	2000 psi	200 psi
0/15 psi	2 psi	0.1 psi	0/600 psi	100 psi	10 psi			

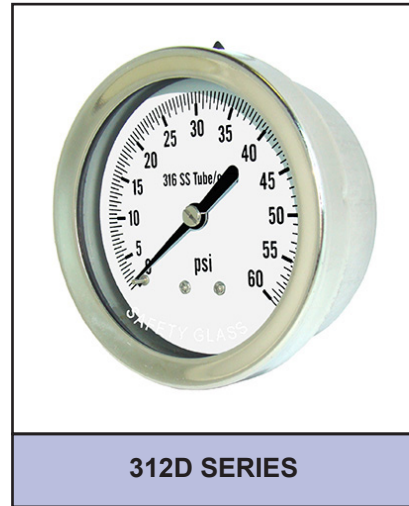
# 310 SERIES ALL STAINLESS

Heavy duty, all stainless steel gauge with removable bezel, adjustable pointer  
1% accuracy, welded case-to-stem connection, dry yet fillable

3



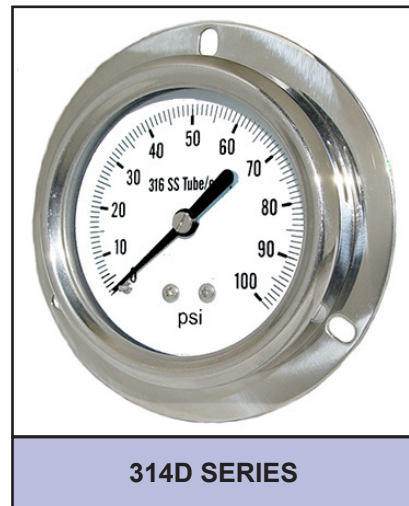
311D SERIES



312D SERIES



313D SERIES



314D SERIES

## STANDARD DIAL CONFIGURATIONS FOR 310 SERIES

Dial Range	Figure Intervals	Graduation Intervals	Dial Range	Figure Intervals	Graduation Intervals	Dial Range	Figure Intervals	Graduation Intervals
30/0"hg Vac	5" hg	0.5" hg	0/60 psi	5 psi	0.5 psi	0/1000 psi	100 psi	10 psi
30/0/15 psi	10" hg/5 psi	1" hg/0.5 psi	0/100 psi	10 psi	1 psi	0/1500 psi	200 psi	10 psi
30/0/30 psi	10" hg/5 psi	1" hg/0.5 psi	0/160 psi	20 psi	2 psi	0/2000 psi	200 psi	20 psi
30/0/60 psi	10" hg/10psi	2" hg/1 psi	0/200 psi	20 psi	2 psi	0/3000 psi	500 psi	20 psi
30/0/100 psi	30" hg/10psi	2" hg/1 psi	0/300 psi	30 psi	2 psi	0/5000 psi	500 psi	50 psi
30/0/150 psi	30" hg/20psi	10" hg/2 psi	0/400 psi	50 psi	5 psi	0/6000 psi	500 psi	50 psi
30/0/300 psi	30" hg/50psi	10" hg/2 psi	0/600 psi	50 psi	5 psi	0/10,000 psi	1000 psi	100 psi
0/15 psi	2 psi	0.1 psi	0/800 psi	100 psi	10 psi	0/15,000 psi	3000 psi	100 psi
0/30 psi	3 psi	0.2 psi						

NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.

# 311D ALL STAINLESS STEEL LOWER MOUNT

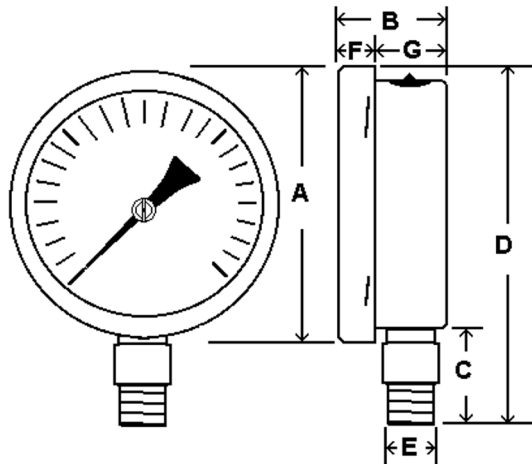


Heavy duty, all stainless steel gauge with removable bezel, adjustable pointer  
1% accuracy, welded case-to-stem connection, dry yet fillable

## SPECIFICATIONS

<b>Dial</b>	2 ½" (63 mm), 4" (100 mm) - See 4001 page 50 6" (150 mm) - See 6001 page 53 4 ½", 8" and 10" available special order
<b>Case</b>	Stainless steel, dry yet fillable Welded case-to-stem connection
<b>Wetted Parts</b>	316 stainless steel
<b>Bezel</b>	Removable, stainless steel
<b>Lens</b>	Laminated safety glass
<b>Pointer</b>	Adjustable, black aluminum
<b>Connection</b>	Lower mount 2 ½" dial = ¼" NPT
<b>Scale</b>	Standard: single scale psi
<b>Accuracy</b>	1% of span ASME B40.1 Grade 1A
<b>Ambient Temp</b>	Dry = -30° F to 180° F Glycerine Filled = 30° F to 160° F

Design meets or exceeds ASME B40.100 pressure gauge standard.



Dial	Unit	A	B	C	D	E	F	G
2 ½"	In.	2.75"	1.30"	0.91"	3.50"	¼"	0.51"	0.79"
	mm	70	33	23	89	NPT	13	20



3

## AVAILABLE OPTIONS\*

- Certificate of Accuracy, NIST traceable
- Custom Dial
- Liquid Fill Options, see page 173
- Anti-Vibration Movement, see page 107
- Cleaned for Oxygen Service (dry only)
- Special Connection Size
- Protective Rubber Cover, see page 119
- Plastic Lens
- Dual Scale
- Max/Min Pointer, see page 120

\*Lead times/minimums may apply

## APPROXIMATE SHIPPING WEIGHTS/ BOX QUANTITIES

Dial Size	Est. Unit Weight	Box Qty
2 ½"	0.35 lbs (0.16 kg)	50

NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.

# 312D ALL STAINLESS STEEL LOWER BACK MOUNT

Heavy duty, all stainless steel gauge with removable bezel, adjustable pointer  
1% accuracy, welded case-to-stem connection, dry yet fillable

## SPECIFICATIONS

<b>Dial</b>	2 ½" (63 mm), 4" (100 mm) 6" (150 mm) - See 6002 page 54
<b>Case</b>	Stainless steel, dry yet fillable Welded case-to-stem connection
<b>Wetted Parts</b>	316 stainless steel
<b>Bezel</b>	Removable, stainless steel
<b>Lens</b>	Laminated safety glass
<b>Pointer</b>	Adjustable, black aluminum
<b>Connection</b>	Lower back mount 2 ½" dial = ¼" NPT 4" dial = ¼" or ½" NPT
<b>Scale</b>	Standard: single scale psi
<b>Accuracy</b>	1% of span ASME B40.1 Grade 1A
<b>Ambient Temp</b>	Dry = -30° F to 180° F Glycerine Filled = 30° F to 160° F

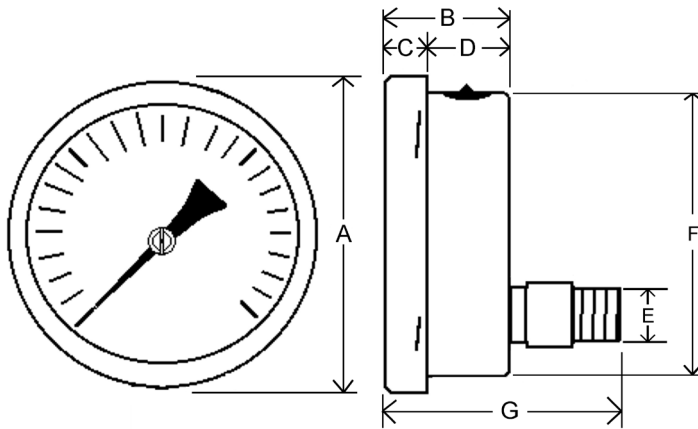


## AVAILABLE OPTIONS\*

- Certificate of Accuracy, NIST traceable
- Custom Dial
- Liquid Fill Options, see page 173
- Anti-Vibration Movement, see page 107
- Cleaned for Oxygen Service (dry only)
- Special Connection Size
- Protective Rubber Cover, see page 119
- Plastic Lens
- Dual Scale
- Max/Min Pointer, see page 120

\*Lead times/minimums may apply

Design meets or exceeds ASME B40.100 pressure gauge standard.



Dial	Unit	A	B	C	D	E	F	G
2 ½"	In.	2.71"	1.26"	0.41"	0.85"	¼" NPT	2.47"	2.24"
	mm	69	32	10	22		63	57
4"	In.	4.00"	1.93"	0.71"	1.22"	¼" or ½" NPT	3.87"	3.39"
	mm	100	49	18	31		98	86

## APPROXIMATE SHIPPING WEIGHTS/ BOX QUANTITIES

Dial Size	Est. Unit Weight	Box Qty
2 ½"	0.35 lbs (0.16 kg)	50
4"	1.10 lbs (0.50 kg)	8

NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.



# 313D ALL STAINLESS CLAMP-RING PANEL MOUNT

Heavy duty, all stainless steel gauge with removable bezel, adjustable pointer  
1% accuracy, welded case-to-stem connection, dry yet fillable

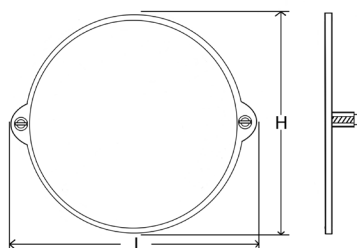
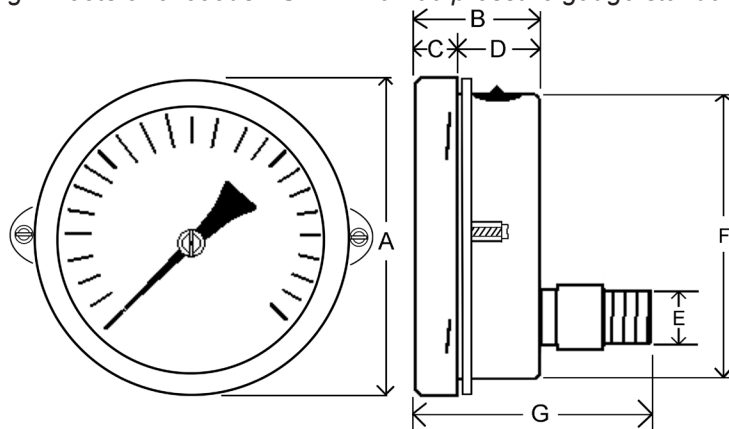
## SPECIFICATIONS

<b>Dial</b>	2 1/2" (63 mm)
<b>Case</b>	Stainless steel, dry yet fillable Welded case-to-stem connection
<b>Wetted Parts</b>	316 stainless steel
<b>Bezel</b>	Removable, stainless steel
<b>Lens</b>	Laminated safety glass
<b>Pointer</b>	Adjustable, black aluminum
<b>Connection</b>	Lower back mount with clamp-ring 2 1/2" dial = 1/4" NPT
<b>Scale</b>	Standard: single scale psi
<b>Accuracy</b>	1% of span ASME B40.1 Grade 1A
<b>Ambient Temp</b>	Dry = -30° F to 180° F Glycerine Filled = 30° F to 160° F



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Design meets or exceeds ASME B40.100 pressure gauge standard.



2.5" Clamp-Ring

Dial	Unit	A	B	C	D	E	F	G	H	I
2 1/2"	In.	2.71"	1.26"	0.41"	0.85"	1/4"	2.47"	2.24"	2.65"	3.23"
	mm	69	32	10	22	NPT	63	57	67	82

## AVAILABLE OPTIONS\*

- Certificate of Accuracy, NIST traceable
- Custom Dial
- Liquid Fill Options, see page 173
- Anti-Vibration Movement, see page 107
- Cleaned for Oxygen Service (dry only)
- Special Connection Size
- Plastic Lens
- Dual Scale
- Max/Min Pointer, see page 120

\*Lead times/minimums may apply

## APPROXIMATE SHIPPING WEIGHTS/ BOX QUANTITIES

Dial Size	Est. Unit Weight	Box Qty
2 1/2"	0.60 lbs (0.26 kg)	50

NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.

# 314D ALL STAINLESS STEEL FRONT FLANGE PANEL MOUNT

Heavy duty, all stainless steel gauge with removable bezel, adjustable pointer  
1% accuracy, welded case-to-stem connection, dry yet fillable

## SPECIFICATIONS

<b>Dial</b>	2 1/2" (63 mm), 4" (100 mm), 6" (150 mm) - See 6004 page 55
<b>Case</b>	Stainless steel, dry yet fillable Welded case-to-stem connection
<b>Wetted Parts</b>	316 stainless steel
<b>Bezel</b>	Removable, stainless steel
<b>Lens</b>	Laminated safety glass
<b>Pointer</b>	Adjustable, black aluminum
<b>Connection</b>	Lower back mount with front flange 2 1/2" dial = 1/4" NPT 4" dial = 1/4" or 1/2" NPT
<b>Scale</b>	Standard: single scale psi
<b>Accuracy</b>	1% of span ASME B40.1 Grade 1A
<b>Ambient Temp</b>	Dry = -30° F to 180° F Glycerine Filled = 30° F to 160° F

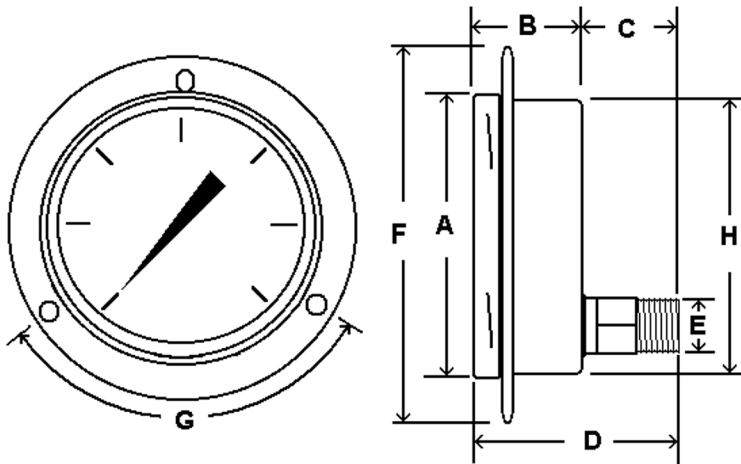


## AVAILABLE OPTIONS\*

- Certificate of Accuracy, NIST traceable
- Custom Dial
- Liquid Fill Options, see page 173
- Anti-Vibration Movement, see page 107
- Cleaned for Oxygen Service (dry only)
- Special Connection Size
- Plastic Lens
- Dual Scale
- Max/Min Pointer, see page 120

\*Lead times/minimums may apply

Design meets or exceeds ASME B40.100 pressure gauge standard.



## APPROXIMATE SHIPPING WEIGHTS/ BOX QUANTITIES

Dial Size	Est. Unit Weight	Box Qty
2 1/2"	0.60 lbs (0.26 kg)	50
4"	1.20 lbs (0.54 kg)	8

Dial	Unit	A	B	C	D	E	F	H
2 1/2"	In.	2.71"	1.23"	1.00"	2.23"	1/4"	3.45"	2.45"
	mm	69	31	25	57	NPT	88	62
4"	In.	4.03"	1.97"	1.48"	3.45"	1/4" or	5.22"	3.86"
	mm	102	50	38	88	1/2"	133	98

### G Dimensions (Screw Holes)

Dial	Arc	Unit	Distance from ctr	Size (oblong)
2 1/2"	120°	In.	1.58"	0.18" x 0.25"
		mm	40	4.5 x 6.5
4"	120°	In.	2.25"	0.18" (round)
		mm	57.3	4.5 (round)

For complete flange dimensions, see page 121.

NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.

# S301L HEAVY DUTY 4"

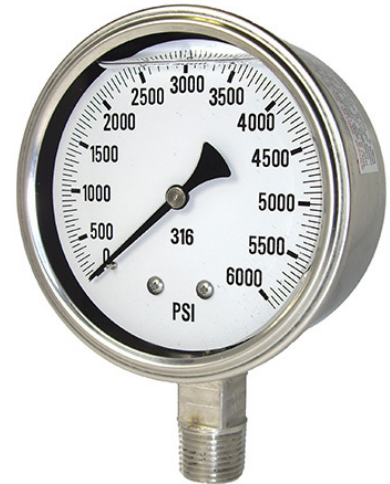
## ALL STAINLESS LOWER MOUNT

Heavy duty, all stainless steel gauge with welded case-to-stem connection  
 Stainless steel case and bezel, 316 stainless steel internals  
 Glycerine filled for added durability in applications where vibration or pulsation is present

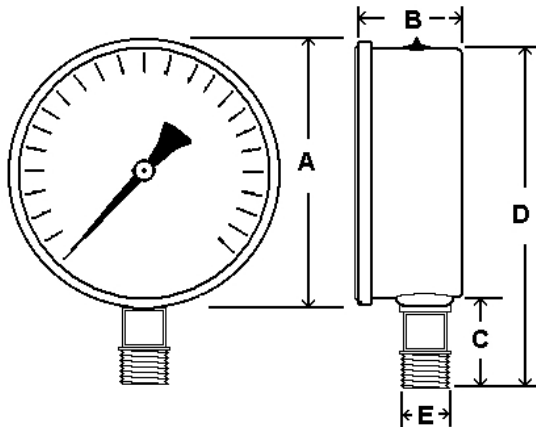
### SPECIFICATIONS

<b>Dial</b>	4" (100 mm)
<b>Case</b>	Stainless steel, glycerine filled
<b>Wetted Parts</b>	316 stainless steel
<b>Bezel</b>	Stainless steel, fixed
<b>Lens</b>	Polycarbonate
<b>Pointer</b>	Black aluminum
<b>Connection</b>	Lower mount
	4" dial = 1/4" or 1/2" NPT
<b>Scale</b>	Standard: single scale psi
<b>Accuracy</b>	1% of span ASME B40.1 Grade 1A
<b>Ambient Temp</b>	Glycerine Filled = 30° F to 160° F
	Dry = -30° F to 180° F

*Design meets or exceeds ASME B40.100 pressure gauge standard.*



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Dial	Unit	A	B	C	D	E
4"	In.	4.07"	1.94"	1.46"	5.32"	1/4" or
	mm	103	49	37	135	1/2" NPT

### STANDARD DIAL CONFIGURATIONS

Dial Range	Figure Intervals	Graduation Intervals	Dial Range	Figure Intervals	Graduation Intervals
30/0"hg Vac	3" hg	0.2" hg	0/600 psi	50 psi	5 psi
0/15 psi	1 psi	0.1 psi	0/1000 psi	100 psi	10 psi
0/30 psi	3 psi	0.2 psi	0/1500 psi	200 psi	10 psi
0/60 psi	5 psi	0.5 psi	0/2000 psi	200 psi	20 psi
0/100 psi	10 psi	1 psi	0/3000 psi	500 psi	20 psi
0/160 psi	20 psi	2 psi	0/5000 psi	500 psi	50 psi
0/200 psi	20 psi	2 psi	0/6000 psi	500 psi	50 psi
0/300 psi	30 psi	2 psi	0/10,000 psi	1000 psi	100 psi
0/400 psi	50 psi	5 psi	0/15,000 psi	3,000 psi	100 psi

### AVAILABLE OPTIONS\*

- Certificate of Accuracy, NIST traceable
- Custom Dial
- Liquid Fill Options, see page 174
- Anti-Vibration Movement, see page 107
- Cleaned for Oxygen Service (dry only)
- Special Connection Size
- Protective Rubber Cover, see page 119
- Max/Min Pointer, see page 120

\*Lead times/minimums may apply

### APPROXIMATE SHIPPING WEIGHTS/ BOX QUANTITIES

Dial Size	Est. Unit Weight	Box Qty
4"	1.55 lbs (0.70 kg)	20

NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.

# SEC-300LFW SERIES ALL STAINLESS STEEL

All stainless steel gauge with welded case-to-stem connection

Stainless steel case and bezel, 316 stainless steel internals

Glycerine filled for added durability in applications where vibration or pulsation is present

3



SEC-301LFW SERIES



SEC-302LFW SERIES



SEC-303LFW SERIES



SEC-304LFW SERIES

## STANDARD DIAL CONFIGURATIONS FOR SEC-300LFW SERIES

Dial Range	Figure Intervals	Graduation Intervals	Dial Range	Figure Intervals	Graduation Intervals	Dial Range	Figure Intervals	Graduation Intervals
30/0"hg Vac	5" hg	0.5" hg	0/100 psi	20 psi	2 psi	0/1000 psi	200 psi	10 psi
30/0/30 psi	10" hg/10psi	1" hg/1 psi	0/160 psi	20 psi	2 psi	0/2000 psi	400 psi	50 psi
30/0/150 psi	10" hg/30psi	1" hg/2 psi	0/200 psi	40 psi	5 psi	0/3000 psi	500 psi	50 psi
0/15 psi	3 psi	0.2 psi	0/300 psi	50 psi	5 psi	0/5000 psi	1000 psi	100 psi
0/30 psi	5 psi	0.5 psi	0/400 psi	100 psi	10 psi	0/10,000 psi	2000 psi	200 psi
0/60 psi	10 psi	1 psi	0/600 psi	100 psi	10 psi			

NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.

# SEC-301LFW ALL STAINLESS LOWER MOUNT



All stainless steel gauge with welded case-to-stem connection  
 Stainless steel case and bezel, 316 stainless steel internals  
 Glycerine filled for added durability in applications where vibration or pulsation is present

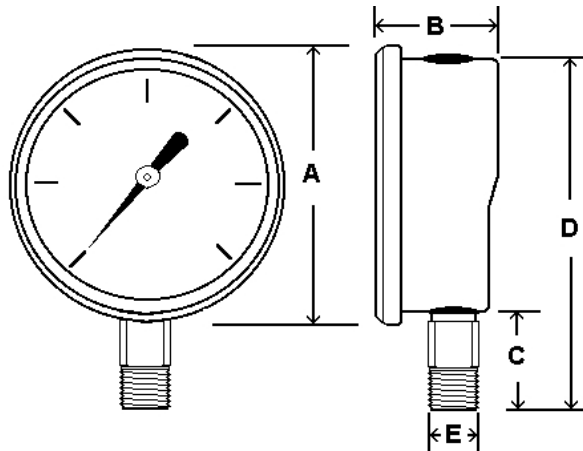
## SPECIFICATIONS

<b>Dial</b>	2 1/2" (63 mm)
<b>Case</b>	Stainless steel, glycerine filled Welded case-to-stem connection
<b>Wetted Parts</b>	316 stainless steel
<b>Bezel</b>	Stainless steel, fixed
<b>Lens</b>	Polycarbonate
<b>Pointer</b>	Black aluminum
<b>Connection</b>	Lower mount 2 1/2" dial = 1/4" NPT
<b>Scale</b>	Standard: psi/BAR (x 100 = kPa)
<b>Accuracy</b>	3-2-3% of span ASME B40.1 Grade B
<b>Ambient Temp</b>	Glycerine Filled = 30° F to 160° F Dry = -30° F to 180° F

Design meets or exceeds ASME B40.100 pressure gauge standard.



3



Dial	Unit	A	B	C	D	E
2 1/2"	In.	2.80"	1.37"	0.93"	3.40"	1/4" NPT
	mm	71	35	24	86	

## AVAILABLE OPTIONS\*

- Certificate of Accuracy, NIST traceable
- Custom Dial
- Liquid Fill Options, see page 173
- Anti-Vibration Movement, see page 107
- Dry, Fillable Case
- Glass Lens
- Special Connection Size
- Protective Rubber Cover, see page 119
- Max/Min Pointer, see page 120

\*Lead times/minimums may apply

## APPROXIMATE SHIPPING WEIGHTS/ BOX QUANTITIES

Dial Size	Est. Unit Weight	Box Qty
2 1/2"	0.50 lbs (0.22 kg)	50

NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.

# SEC-302LFW ALL STAINLESS CENTER BACK MOUNT

All stainless steel gauge with welded case-to-stem connection

Stainless steel case and bezel, 316 stainless steel internals

Glycerine filled for added durability in applications where vibration or pulsation is present

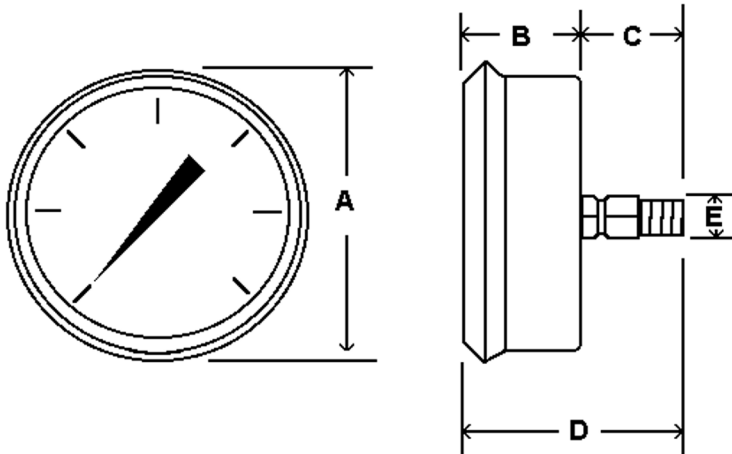
## SPECIFICATIONS

<b>Dial</b>	2 ½" (63 mm)
<b>Case</b>	Stainless steel, glycerine filled Welded case-to-stem connection
<b>Wetted Parts</b>	316 stainless steel
<b>Bezel</b>	Stainless steel, fixed
<b>Lens</b>	Polycarbonate
<b>Pointer</b>	Black aluminum
<b>Connection</b>	Center back mount 2 ½" dial = ¼" NPT
<b>Scale</b>	Standard: psi/BAR (x 100 = kPa)
<b>Accuracy</b>	3-2-3% of span ASME B40.1 Grade B
<b>Ambient Temp</b>	Glycerine Filled = 30° F to 160° F Dry = -30° F to 180° F

*Design meets or exceeds ASME B40.100 pressure gauge standard.*



3



Dial	Unit	A	B	C	D	E
2 ½"	In.	2.67"	1.17"	1.08"	2.19"	¼"
	mm	68	30	28	56	NPT

## AVAILABLE OPTIONS\*

- Certificate of Accuracy, NIST traceable
- Custom Dial
- Liquid Fill Options, see page 173
- Anti-Vibration Movement, see page 107
- Dry, Fillable Case
- Glass Lens
- Special Connection Size
- Protective Rubber Cover, see page 119
- Max/Min Pointer, see page 120

\*Lead times/minimums may apply

## APPROXIMATE SHIPPING WEIGHTS/ BOX QUANTITIES

Dial Size	Est. Unit Weight	Box Qty
2 ½"	0.45 lbs (0.22 kg)	50

NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.

# SEC-303LFW ALL STAINLESS U-CLAMP PANEL MOUNT



All stainless steel gauge with welded case-to-stem connection  
 Stainless steel case and bezel, 316 stainless steel internals  
 Glycerine filled for added durability in applications where vibration or pulsation is present

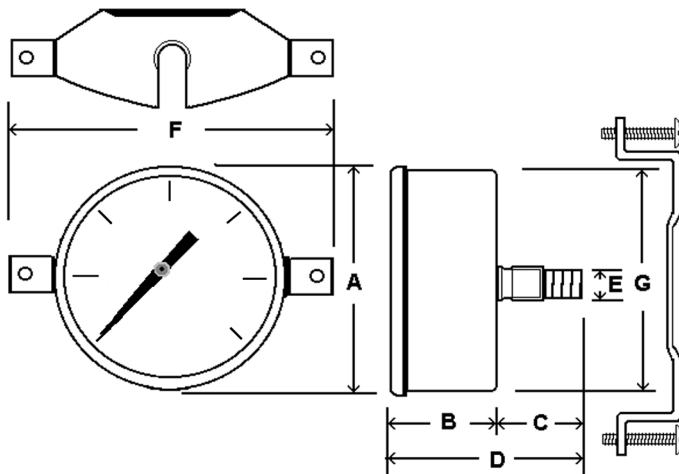
## SPECIFICATIONS

<b>Dial</b>	2 ½" (63 mm)
<b>Case</b>	Stainless steel, glycerine filled Welded case-to-stem connection
<b>Wetted Parts</b>	316 stainless steel
<b>Bezel</b>	Stainless steel, fixed
<b>Lens</b>	Polycarbonate
<b>Pointer</b>	Black aluminum
<b>Connection</b>	Center back mount with u-clamp 2 ½" dial = ¼" NPT
<b>Scale</b>	Standard: psi/BAR (x 100 = kPa)
<b>Accuracy</b>	3-2-3% of span ASME B40.1 Grade B
<b>Ambient Temp</b>	Glycerine Filled = 30° F to 160° F Dry = -30° F to 180° F

Design meets or exceeds ASME B40.100 pressure gauge standard.



3



## AVAILABLE OPTIONS\*

- Certificate of Accuracy, NIST traceable
- Custom Dial
- Liquid Fill Options, see page 173
- Anti-Vibration Movement, see page 107
- Dry, Fillable Case
- Glass Lens
- Special Connection Size
- Max/Min Pointer, see page 120

\*Lead times/minimums may apply

## APPROXIMATE SHIPPING WEIGHTS/ BOX QUANTITIES

Dial	Unit	A	B	C	D	E	F	G
2 ½"	In.	2.67"	1.17"	1.08"	2.19"	¼"	3.84"	2.45"
	mm	68	30	28	56	NPT	98	62

Dial Size	Est. Unit Weight	Box Qty
2 ½"	0.55 lbs (0.26 kg)	50

NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.

# SEC-304LFW ALL STAINLESS FRONT FLANGE PANEL MOUNT

All stainless steel gauge with welded case-to-stem connection

Stainless steel case and bezel, 316 stainless steel internals

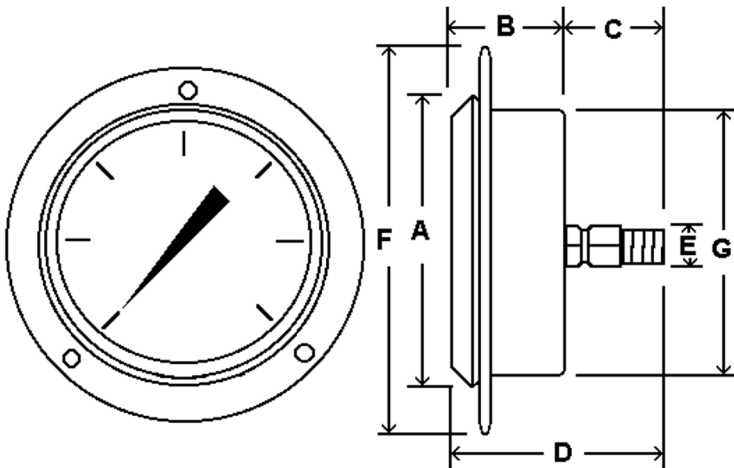
Glycerine filled for added durability in applications where vibration or pulsation is present

## SPECIFICATIONS

<b>Dial</b>	2 ½" (63 mm)
<b>Case</b>	Stainless steel, glycerine filled Welded case-to-stem connection
<b>Wetted Parts</b>	316 stainless steel
<b>Bezel</b>	Stainless steel, fixed
<b>Lens</b>	Polycarbonate
<b>Pointer</b>	Black aluminum
<b>Connection</b>	Center back mount with front flange 2 ½" dial = ¼" NPT
<b>Scale</b>	Standard: psi/BAR (x 100 = kPa)
<b>Accuracy</b>	3-2-3% of span ASME B40.1 Grade B
<b>Ambient Temp</b>	Glycerine Filled = 30° F to 160° F Dry = -30° F to 180° F



Design meets or exceeds ASME B40.100 pressure gauge standard.



Dial	Unit	A	B	C	D	E	F	G
2 ½"	In.	2.67"	1.17"	1.08"	2.19"	¼"	3.46"	2.45"
	mm	68	30	28	56	NPT	88	62

For complete flange dimensions, see page 121.

## AVAILABLE OPTIONS\*

- Certificate of Accuracy, NIST traceable
- Custom Dial
- Liquid Fill Options, see page 173
- Anti-Vibration Movement, see page 107
- Dry, Fillable Case
- Glass Lens
- Special Connection Size
- Max/Min Pointer, see page 120

\*Lead times/minimums may apply

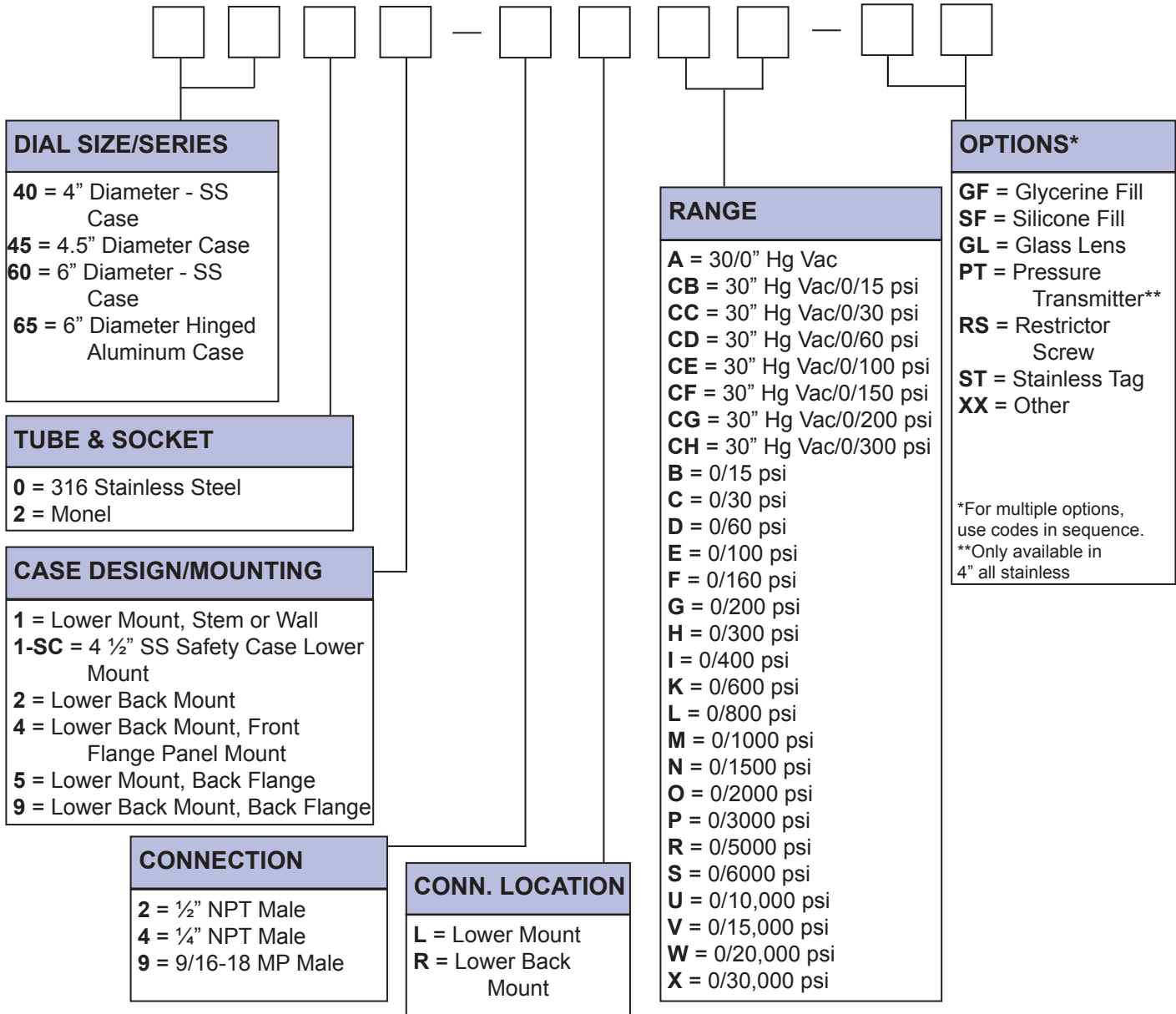
## APPROXIMATE SHIPPING WEIGHTS/ BOX QUANTITIES

Dial Size	Est. Unit Weight	Box Qty
2 ½"	0.50 lbs (0.24 kg)	50

NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.



# HEAVY DUTY GAUGE PART NUMBERING SYSTEM



4

**EXAMPLE: "4501-4LE-GF"**

- 45 = 4 1/2" Diameter Dial Size
- 0 = 316 Stainless Steel Tube & Socket
- 1 = Lower Mount
- 4 = 1/4" NPT male
- L = Lower Mount
- E = 0/100 psi
- GF = Glycerine Fill

NOTE: Not all part numbers or options are available from stock. Consult ESP for availability.  
Engineered Specialty Products, Inc.

# 4001 4" HEAVY DUTY ALL STAINLESS STEEL

Heavy duty, all stainless steel gauge with removable bezel, adjustable pointer  
1% accuracy, welded case-to-stem connection, dry yet fillable

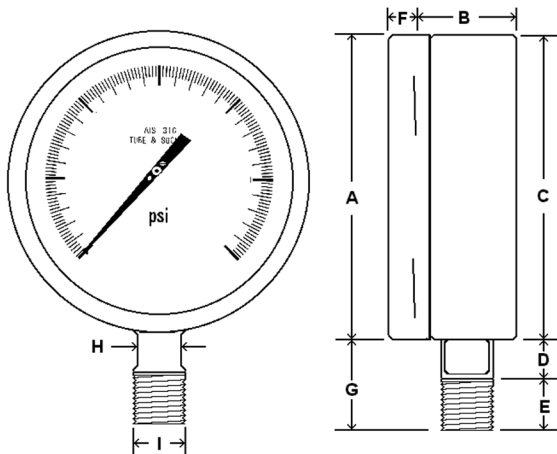
## SPECIFICATIONS

<b>Dial</b>	4" (100 mm)
<b>Case</b>	Stainless steel, dry yet fillable Welded case-to-stem connection
<b>Wetted Parts</b>	316 stainless steel
<b>Movement</b>	With overload/underload stops
<b>Bezel</b>	Removable, stainless steel
<b>Lens</b>	Laminated safety glass
<b>Pointer</b>	Adjustable, black aluminum
<b>Connection</b>	Lower mount 1/4" or 1/2" NPT
<b>Scale</b>	Standard: single scale psi
<b>Accuracy</b>	1% of span ASME B40.1 Grade 1A
<b>Ambient Temp</b>	Dry = -30° F to 180° F Glycerine Filled = 30° F to 160° F



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Design meets or exceeds ASME B40.100 pressure gauge standard.



## AVAILABLE OPTIONS\*

- Certificate of Accuracy, NIST traceable
  - Custom Dial
  - Liquid Fill Options, see page 173
  - High Pressure Connection - 9/16" HPM  
- See 4001-9/16 page 51
  - Special Connection Size
  - Knife-edge pointer
  - Protective Rubber Cover, see page 119
  - Max/Min Pointer, see page 120
  - 0.5% Accuracy Available
- \*Lead times/minimums may apply

## APPROXIMATE SHIPPING WEIGHTS/ BOX QUANTITIES

Dial Size	Est. Unit Wt.	Box Qty
4"	1 lb/0.48 kg	15

Dial	Unit	A	B	C	D	E	F	G	H	I (=NPT)
4"	In.	4.02"	1.93"	3.87"	0.70"	0.74"	0.66"	1.38"	0.68"	1/4" or 1/2"
	mm	102	49	99	18	19	17	35	17	

## STANDARD DIAL CONFIGURATIONS FOR 4001 SERIES

Dial Range	Figure Intervals	Graduation Intervals	Dial Range	Figure Intervals	Graduation Intervals	Dial Range	Figure Intervals	Graduation Intervals
30/0"hg Vac	3" hg	0.2" hg	0/60 psi	5 psi	0.5 psi	0/2000 psi	200 psi	20 psi
30/0/15 psi	5" hg/3 psi	0.5"hg/.2 psi	0/100 psi	10 psi	1 psi	0/3000 psi	500 psi	20 psi
30/0/30 psi	10" hg/5psi	1" hg/.5 psi	0/160 psi	20 psi	2 psi	0/5000 psi	500 psi	50 psi
30/0/60 psi	10" hg/5psi	1" hg/.5 psi	0/200 psi	20 psi	2 psi	0/6000 psi	500 psi	50 psi
30/0/100 psi	30" hg/10psi	2" hg/1 psi	0/300 psi	30 psi	2 psi	0/10,000 psi	1000 psi	100 psi
30/0/150 psi	30" hg/20psi	5" hg/2 psi	0/400 psi	50 psi	5 psi	0/15,000 psi	3000 psi	100 psi
30/0/300 psi	30" hg/50psi	5" hg/2 psi	0/600 psi	50 psi	5 psi	0/20,000 psi	2000 psi	200 psi
0/15 psi	1 psi	0.1 psi	0/1000 psi	100 psi	10 psi			
0/30 psi	3 psi	0.2 psi	0/1500 psi	200 psi	10 psi			

NOTE: Because of continuing improvements, specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.

# 4001 9/16" HIGH PRESSURE CONNECTION

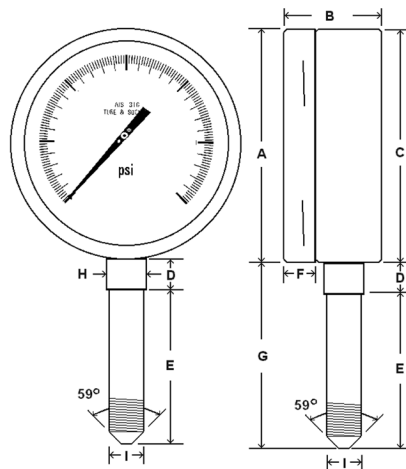


Heavy duty, all stainless steel gauge with removable bezel, adjustable pointer  
 1% accuracy, welded case-to-stem connection, dry yet fillable  
 9/16" HPM connection, Ranges 10,000 psi, 15,000 psi, 20,000 psi, 30,000 psi

## SPECIFICATIONS

<b>Dial</b>	4" (100 mm)
<b>Case</b>	Stainless steel, dry yet fillable Welded case-to-stem connection
<b>Wetted Parts</b>	316 stainless steel
<b>Movement</b>	With overload/underload stops
<b>Bezel</b>	Removable, stainless steel,
<b>Lens</b>	Laminated safety glass
<b>Pointer</b>	Adjustable, black aluminum
<b>Connection</b>	Lower mount 9/16-18" High Pressure Male
<b>Scale</b>	Standard: single scale psi
<b>Accuracy</b>	1% of span ASME B40.1 Grade 1A
<b>Ambient Temp</b>	Dry = -30° F to 180° F Glycerine Filled = 30° F to 160° F

*Design meets or exceeds ASME B40.100 pressure gauge standard.*



Dial	Unit	A	B	C	D	E	F	G	H	Thread
4"	In.	4.00"	1.97"	3.87"	0.81"	2.45"	0.66"	3.26"	0.68"	9/16-18
	mm	100	50	99	21	62	17	83	17	MP Male

## AVAILABLE OPTIONS\*

- Certificate of Accuracy, NIST traceable
- Custom Dial
- Liquid Fill Options, see page 173
- Cleaned for Oxygen Service (dry only)
- Knife-edge pointer
- Protective Rubber Cover, see page 119
- With Gland/Collar
- Max/Min Pointer, see page 120
- 0.5% Accuracy Available

\*Lead times/minimums may apply

## APPROXIMATE SHIPPING WEIGHTS/BOX QUANTITIES

Dial Size	Est. Unit Wt.	Box Qty
4"	1.20 lbs (0.54 kg)	15

## STANDARD DIAL CONFIGURATIONS FOR 4001 9/16" SERIES

Part Number	Dial Range	Figure Intervals	Graduation Intervals
4001-9LU	0/10,000 psi	1,000 psi	100 psi
4001-9LV	0/15,000 psi	3,000 psi	100 psi
4001-9LW	0/20,000 psi	2,000 psi	200 psi
4001-9LX	0/30,000 psi	6,000 psi	200 psi



**COLLAR**



**GLAND**

Part Number	Description
60-2H9	Collar
60-2HM9	Gland

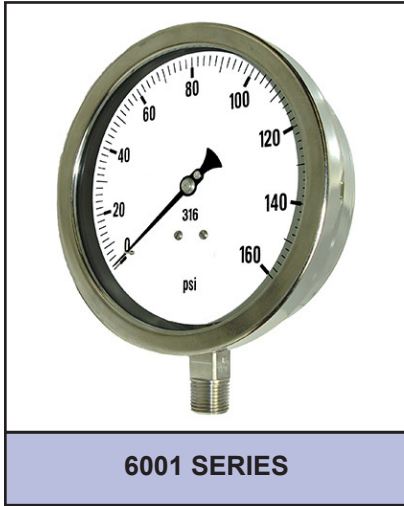
**SOLD SEPARATELY**

NOTE: Because of continuing improvements, specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.

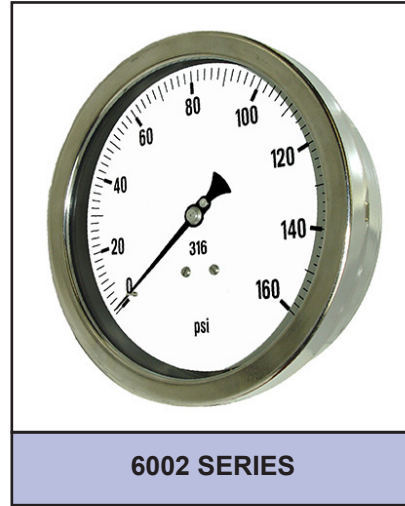
# 6000 SERIES 6" HEAVY DUTY ALL STAINLESS STEEL

Heavy duty, all stainless steel gauge with removable bezel, adjustable pointer  
1% accuracy, welded case-to-stem connection, dry yet fillable

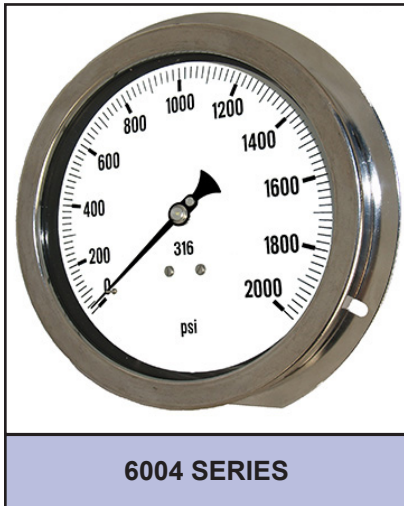
4



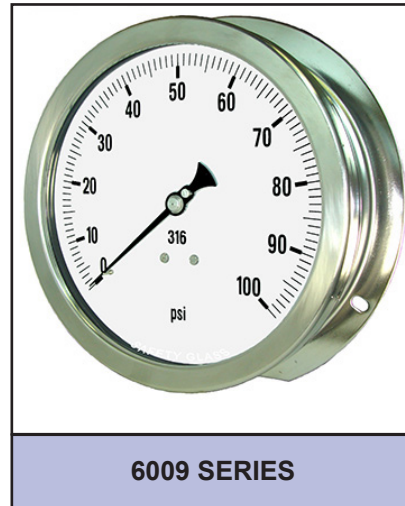
6001 SERIES



6002 SERIES



6004 SERIES



6009 SERIES

## STANDARD DIAL CONFIGURATIONS FOR 6000 SERIES

Dial Range	Figure Intervals	Graduation Intervals	Dial Range	Figure Intervals	Graduation Intervals	Dial Range	Figure Intervals	Graduation Intervals
30/0"hg Vac	3" hg	0.2" hg	0/60 psi	5 psi	0.5 psi	0/1500 psi	200 psi	10 psi
30/0/30 psi	10" hg/5 psi	1" hg/.5 psi	0/100 psi	10 psi	1 psi	0/2000 psi	200 psi	20 psi
30/0/60 psi	10" hg/5 psi	1" hg/.5 psi	0/160 psi	20 psi	2 psi	0/3000 psi	500 psi	20 psi
30/0/100 psi	30" hg/10psi	2" hg/1 psi	0/200 psi	20 psi	2 psi	0/5000 psi	500 psi	50 psi
30/0/150 psi	30" hg/20psi	5" hg/2 psi	0/300 psi	30 psi	2 psi	0/6000 psi	500 psi	50 psi
30/0/300 psi	30" hg/50psi	5" hg/2 psi	0/400 psi	50 psi	5 psi	0/10,000 psi	1000 psi	100 psi
0/15 psi	1 psi	0.1 psi	0/600 psi	50 psi	5 psi	0/15,000 psi	3000 psi	100 psi
0/30 psi	3 psi	0.2 psi	0/1000 psi	100 psi	10 psi			

NOTE: Because of continuing improvements, increments are subject to change.  
Stock ranges vary by dial size and configuration. Consult ESP for availability.

# 6001 6" ALL STAINLESS LOWER MOUNT

Heavy duty, all stainless steel gauge with removable bezel, adjustable pointer  
1% accuracy, welded case-to-stem connection, dry yet fillable

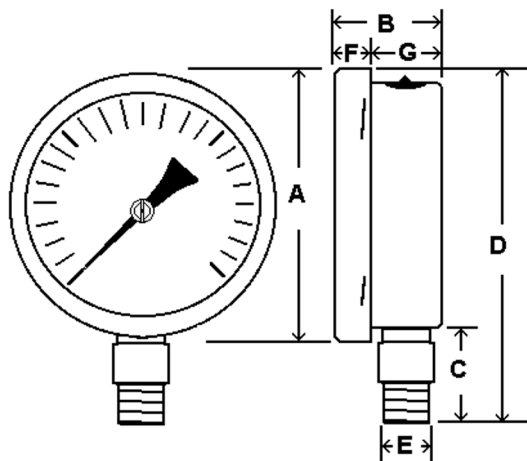
## SPECIFICATIONS

<b>Dial</b>	6" (150 mm)
<b>Case</b>	Stainless steel, dry yet fillable Welded case-to-stem connection
<b>Wetted Parts</b>	316 stainless steel
<b>Movement</b>	With overload/underload stops
<b>Bezel</b>	Removable, stainless steel
<b>Lens</b>	Laminated safety glass
<b>Pointer</b>	Micro adjustable, black aluminum
<b>Connection</b>	Lower mount ¼" or ½" NPT
<b>Scale</b>	Standard: single scale psi
<b>Accuracy</b>	1% of span ASME B40.1 Grade 1A
<b>Ambient Temp</b>	Dry = -30° F to 180° F Glycerine Filled = 30° F to 160° F

*Design meets or exceeds ASME B40.100 pressure gauge standard.*



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## AVAILABLE OPTIONS\*

- Certificate of Accuracy, NIST traceable
- Custom Dial
- Liquid Fill Options, see page 173
- Special Connection Size
- Cleaned for Oxygen Service (dry only)
- Polycarbonate Lens

\*Lead times/minimums may apply

## APPROXIMATE SHIPPING WEIGHTS/ BOX QUANTITIES

Dial	Unit	A	B	C	D	E	F	G
6"	In.	6.75"	2.05"	1.50"	8.41"	¼" or ½" NPT	0.73"	1.27"
	mm	172	52	38	214		18	32

Dial Size	Est. Unit Wt.	Box Qty
6"	2.15 lbs (0.98 kg)	10

NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.

# 6002 6" ALL STAINLESS LOWER BACK MOUNT

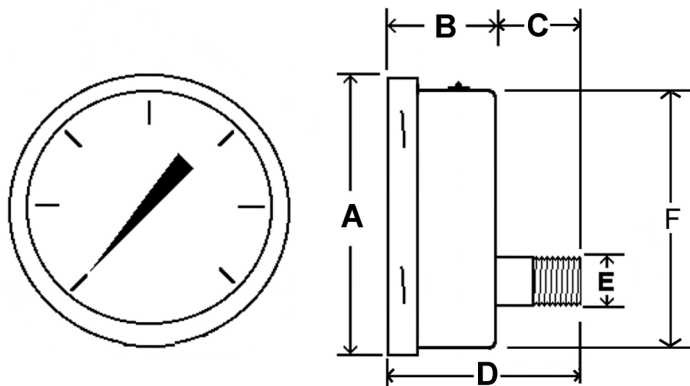
Heavy duty, all stainless steel gauge with removable bezel, adjustable pointer  
1% accuracy, welded case-to-stem connection, dry yet fillable

## SPECIFICATIONS

<b>Dial</b>	6" (150 mm)
<b>Case</b>	Stainless steel, dry yet fillable Welded case-to-stem connection
<b>Wetted Parts</b>	316 stainless steel
<b>Movement</b>	With overload/underload stops
<b>Bezel</b>	Removable, stainless steel
<b>Lens</b>	Laminated safety glass
<b>Pointer</b>	Micro adjustable, black aluminum
<b>Connection</b>	Lower back mount 1/4" NPT
<b>Scale</b>	Standard: single scale psi
<b>Accuracy</b>	1% of span ASME B40.1 Grade 1A
<b>Ambient Temp</b>	Dry = -30° F to 180° F Glycerine Filled = 30° F to 160° F

4

*Design meets or exceeds ASME B40.100 pressure gauge standard.*



Dial	Unit	A	B	C	D	E	F
6"	In.	6.76"	2.02"	1.35"	3.37"	1/4" or 1/2"	6.24"
	mm	172	52	34	86		158

## AVAILABLE OPTIONS\*

- Certificate of Accuracy, NIST traceable
- Custom Dial
- Liquid Fill Options, see page 173
- Special Connection Size
- Cleaned for Oxygen Service (dry only)
- Polycarbonate Lens
- 1/2" NPT or Custom Connections

\*Lead times/minimums may apply

## APPROXIMATE SHIPPING WEIGHTS/ BOX QUANTITIES

Dial Size	Est. Unit Wt.	Box Qty
6"	2.20 lbs (1.00 kg)	upon request

NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.

# 6004 6" ALL STAINLESS FRONT FLANGE PANEL MOUNT

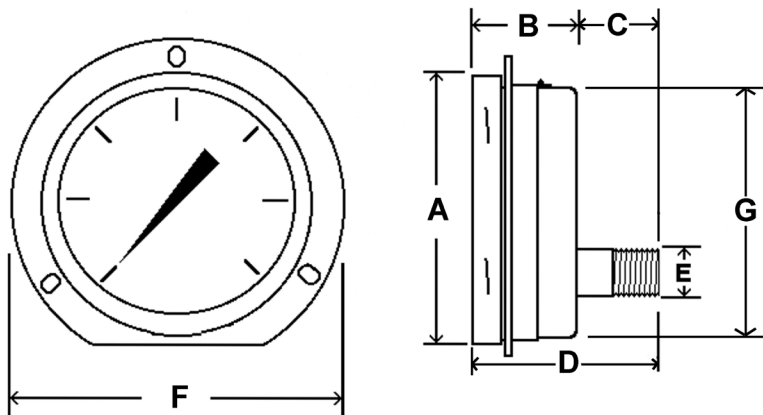
Heavy duty, all stainless steel gauge with removable bezel, adjustable pointer  
1% accuracy, welded case-to-stem connection, dry yet fillable

## SPECIFICATIONS

<b>Dial</b>	6" (150 mm)
<b>Case</b>	Stainless steel, dry yet fillable Welded case-to-stem connection
<b>Wetted Parts</b>	316 stainless steel
<b>Movement</b>	With overload/underload stops
<b>Bezel</b>	Removable, stainless steel
<b>Lens</b>	Laminated safety glass
<b>Pointer</b>	Micro adjustable, black aluminum
<b>Connection</b>	Lower back mount with front flange 1/4" NPT
<b>Scale</b>	Standard: single scale psi
<b>Accuracy</b>	1% of span ASME B40.1 Grade 1A
<b>Ambient Temp</b>	Dry = -30° F to 180° F Glycerine Filled = 30° F to 160° F



Design meets or exceeds ASME B40.100 pressure gauge standard.



Dial	Unit	A	B	C	D	E	F	G
6"	In.	6.76"	2.02"	1.35"	3.37"	1/4" or 1/2"	7.65"	6.24"
	mm	172	52	34	86	NPT	194	158

For complete flange dimensions, see page 121.

## AVAILABLE OPTIONS\*

- Certificate of Accuracy, NIST traceable
- Custom Dial
- Liquid Fill Options, see page 173
- Special Connection Size
- Cleaned for Oxygen Service (dry only)
- Polycarbonate Lens
- 1/2" NPT or Custom Connections

\*Lead times/minimums may apply

## APPROXIMATE SHIPPING WEIGHTS/ BOX QUANTITIES

Dial Size	Est. Unit Wt.	Box Qty
6"	2.30 lbs (1.06 kg)	5

NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.

# 6009 6" ALL STAINLESS BACK FLANGE

Heavy duty, all stainless steel gauge with removable bezel, adjustable pointer  
1% accuracy, welded case-to-stem connection, dry yet fillable

## SPECIFICATIONS

<b>Dial</b>	6" (150 mm)
<b>Case</b>	Stainless steel, dry yet fillable Welded case-to-stem connection
<b>Wetted Parts</b>	316 stainless steel
<b>Movement</b>	With overload/underload stops
<b>Bezel</b>	Removable, stainless steel
<b>Lens</b>	Laminated safety glass
<b>Pointer</b>	Micro adjustable, black aluminum
<b>Connection</b>	Lower back mount with back flange 1/4" NPT standard 1/2" NPT available (limited ranges)
<b>Scale</b>	Standard: single scale psi
<b>Accuracy</b>	1% of span ASME B40.1 Grade 1A
<b>Ambient Temp</b>	Dry = -30° F to 180° F Glycerine Filled = 30° F to 160° F

4

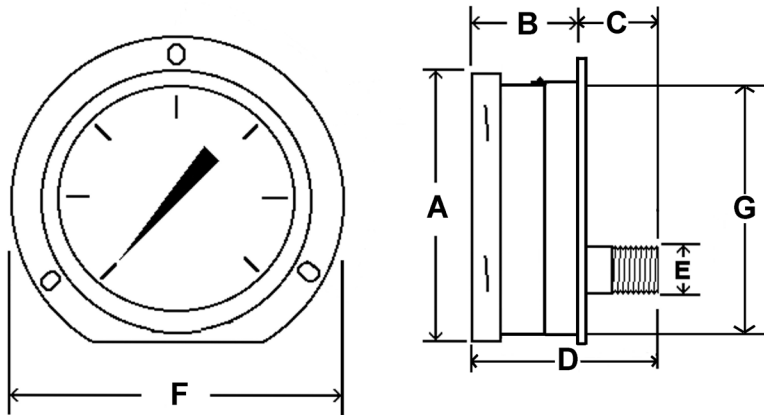
*Design meets or exceeds ASME B40.100 pressure gauge standard.*



## AVAILABLE OPTIONS\*

- Certificate of Accuracy, NIST traceable
- Custom Dial
- Liquid Fill Options, see page 173
- Special Connection Size
- Cleaned for Oxygen Service (dry only)
- Polycarbonate Lens

\*Lead times/minimums may apply



## APPROXIMATE SHIPPING WEIGHTS/ BOX QUANTITIES

Dial	Unit	A	B	C	D	E	F	G
6"	In.	6.76"	2.02"	1.50"	3.54"	1/4" or 1/2"	7.63"	6.24"
	mm	172	52	38	90	NPT	194	158

Dial Size	Est. Unit Wt.	Box Qty
6"	4.65 lbs (2.10 kg)	upon request

For complete flange dimensions, see page 121.

NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.



# 4500 SERIES PROCESS GAUGE

Solid front/blow-out back safety case, liquid fillable, 316 stainless steel internals



4

## STANDARD DIAL CONFIGURATIONS FOR 4502/4504/6504/4501-SC

Dial Range	Figure Intervals	Graduation Intervals	Dial Range	Figure Intervals	Graduation Intervals	Dial Range	Figure Intervals	Graduation Intervals
30/0"hg Vac	5" hg	0.2" hg	0/60 psi	10 psi	0.5 psi	0/1500 psi	250 psi	10 psi
30/0/30 psi	10" hg/5psi	1" hg/.5 psi	0/100 psi	10 psi	1 psi	0/2000 psi	200 psi	20 psi
30/0/60 psi	10" hg/10psi	2" hg/1 psi	0/160 psi	20 psi	1 psi	0/3000 psi	500 psi	20 psi
30/0/100 psi	10" hg/10psi	2" hg/1 psi	0/200 psi	20 psi	2 psi	0/5000 psi	500 psi	50 psi
30/0/150 psi	30" hg/30psi	2" hg/2 psi	0/300 psi	50 psi	2 psi	0/6000 psi	500 psi	50 psi
30/0/300 psi	30" hg/50psi	5" hg/5 psi	0/400 psi	50 psi	5 psi	0/10,000 psi	1000 psi	100 psi
0/15 psi	3 psi	0.2 psi	0/600 psi	100 psi	5 psi	0/15,000 psi	2500 psi	100 psi
0/30 psi	5 psi	0.2 psi	0/1000 psi	100 psi	10 psi			

NOTE: Because of continuing improvements, increments and specifications are subject to change. Stock ranges vary by dial size and configuration. Consult ESP for availability.

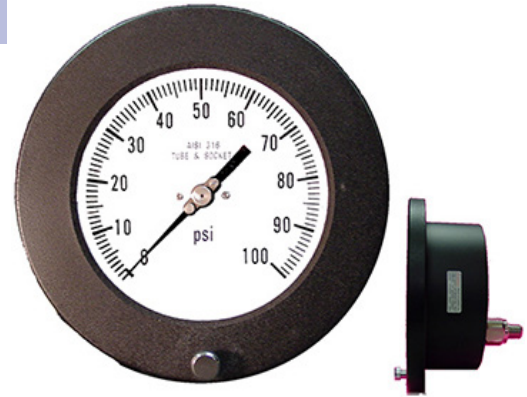
# 4504, 6504 PROCESS GAUGE PANEL MOUNT

Hinged ring panel mount for easy adjustment  
Solid front safety case design

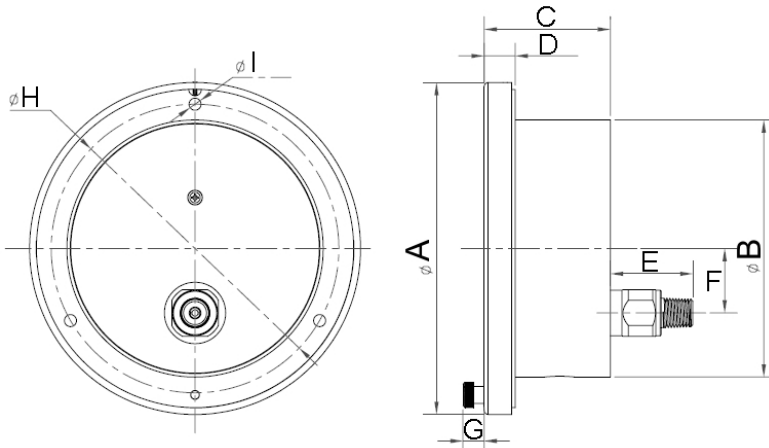
## SPECIFICATIONS

<b>Dial</b>	4 ½" (114 mm), 6" (150 mm)
<b>Case</b>	Aluminum case with hinged front flange Solid front/blow out back
<b>Wetted Parts</b>	316 stainless steel
<b>Movement</b>	With overload/underload stops
<b>Bezel</b>	Removable, black enamel aluminum
<b>Lens</b>	Plastic lens for 4 ½" Glass lens for 6"
<b>Pointer</b>	Micro adjustable, black aluminum
<b>Connection</b>	Lower back mount ¼" or ½" NPT
<b>Scale</b>	Standard: single scale psi
<b>Accuracy</b>	0.5% of span ASME B40.1 Grade 2A
<b>Ambient Temp</b>	Dry = -30° F to 180° F

*Design meets or exceeds ASME B40.100 pressure gauge standard.*



4



## AVAILABLE OPTIONS\*

- Certificate of Accuracy, NIST traceable
- Custom Dial
- 3/15 Receiver Gauge
- Special Connection Size
- Cleaned for Oxygen Service (dry only)
- Knife-edge Pointer
- Max/Min Pointer, see page 120

\*Lead times/minimums may apply

## APPROXIMATE SHIPPING WEIGHTS/ BOX QUANTITIES

Dial	Unit	A	B	C	D	E	F	G	H	I
4 ½"	In.	6.16"	4.77"	2.35"	0.58"	1.70"	1.20"	0.39"	5.35"	0.22"
	mm	156.5	121.2	59.7	14.7	43.2	30.4	10	136	5.7
6"	In.	7.56"	4.76"	2.62"	0.63"	1.40"	1.20"	0.33"	7.01"	0.19"
	mm	192	121	66.5	16	35.6	30.4	8.5	178	4.7

Dial Size	Est. Unit Wt.	Box Qty
4 ½"	2.36 lbs/ (1.07 kg)	18
6"	3.10 lbs/ (1.40 kg)	upon request

NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.

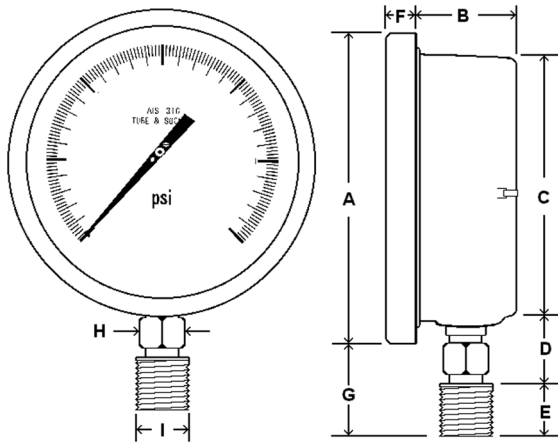
# 4501-SC ALL STAINLESS PROCESS GAUGE

Solid front stainless steel safety case, liquid fillable  
316 stainless steel internals

## SPECIFICATIONS

<b>Dial</b>	4 1/2" (114 mm)
<b>Case</b>	Stainless steel case with solid front & blow out back; Dry, liquid fillable Welded case-to-stem connection
<b>Wetted Parts</b>	316 stainless steel
<b>Movement</b>	With overload/underload stops
<b>Bezel</b>	Removable, stainless steel
<b>Lens</b>	Laminated Safety Glass
<b>Pointer</b>	Micro adjustable, black aluminum
<b>Connection</b>	Lower mount 1/4" or 1/2" NPT
<b>Scale</b>	Standard: single scale psi
<b>Accuracy</b>	0.5% of span ASME B40.1 Grade 2A
<b>Ambient Temp</b>	Dry = -30° F to 180° F Glycerine Filled = 30° F to 160° F

*Design meets or exceeds ASME B40.100 pressure gauge standard.*



Dial	Unit	A	B	C	D	F	G	H	I
4 1/2"	In.	4.90"	1.57"	4.50"	1.10"	0.57"	1.50"	0.86"	1/4" or 1/2" NPT
	mm	124	40	114	28	14	38	22	



4

## AVAILABLE OPTIONS\*

- Certificate of Accuracy, NIST traceable
- Custom Dial
- Liquid Fill Options, see page 173
- Special Connection Size
- Laminated Safety Glass Lens
- Cleaned for Oxygen Service (dry only)
- Knife-edge Pointer
- Max/Min Pointer, see page 120
- 2 1/2" Dial Option

\*Lead times/minimums may apply

## APPROXIMATE SHIPPING WEIGHTS/ BOX QUANTITIES

Dial Size	Est. Unit Wt.	Box Qty
4 1/2"	1.84 lbs/ (0.83 kg)	27

NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.

Engineered Specialty Products, Inc.

# 4001-PT GAUGE WITH TRANSMITTER

Heavy duty, all stainless steel gauge with welded case-to-stem connection  
 Solid front safety case with 4-20mA output for PLC/PID and data loggers  
 CE Approved pressure transmitter

## SPECIFICATIONS

### PRESSURE GAUGE

Dial	4" (100 mm)
Case	Stainless steel Welded case-to-stem connection
Wetted Parts	316L stainless steel
Bezel	Removable, stainless steel
Lens	Laminated safety glass
Pointer	Adjustable, black aluminum
Connection	Lower mount 1/4" or 1/2" NPT
Scale	Standard: single scale psi
Accuracy	Gauge: 1% of span ASME B40.1 Grade 1A
Ambient Temp	-10° F to 150° F



4

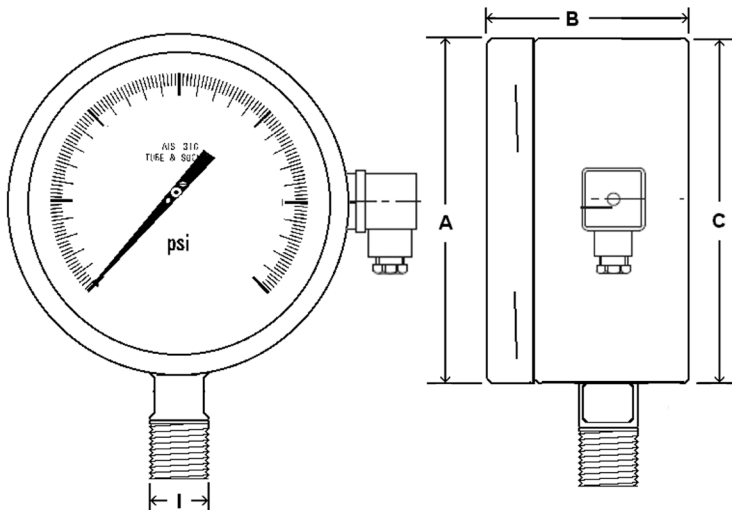
### PRESSURE TRANSMITTER

System	2 Wire
Supply	24 VDC
Output	4-20 mA
Accuracy	0.5% of FS
Electric Wiring	DIN Connector
Response Time	50 mSec (Typical)
Sensing Element	AISI 316L

### AVAILABLE OPTIONS\*

- Certificate of Accuracy, NIST traceable
- Custom Dial
- Special Connection Size
- Knife-edge pointer
- Max/Min Pointer, see page 120
- Electrical Contact Version

Design meets or exceeds ASME B40.100 pressure gauge standard.



Dial	Unit	A	B	C	I (=NPT)
4"	In.	4.37"	3.51"	3.94"	1/4" or 1/2"
	mm	111	89	100	

Drawings are not to scale.

\*Lead times/minimums may apply

### APPROXIMATE SHIPPING WEIGHTS/ BOX QUANTITIES

Dial Size	Est. Unit Wt.	Box Qty
4"	2.53 lb/1.15 kg	upon request

NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.

# 601L FORGED BRASS LIQUID FILLED LOWER MOUNT

Heavy duty forged brass case and socket

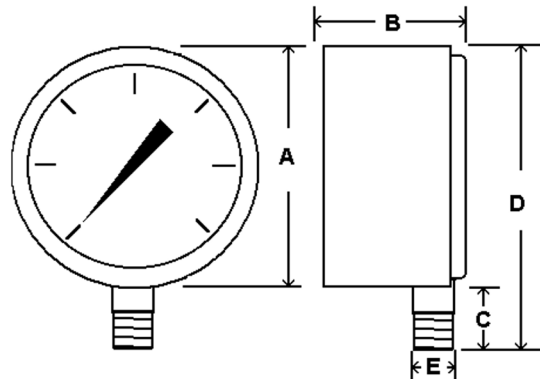
Glycerine filled for added durability in applications where vibration or pulsation is present

## SPECIFICATIONS

<b>Dial</b>	2 1/2" (63 mm)
<b>Case</b>	Forged brass case & connection Glycerine filled
<b>Wetted Parts</b>	Copper alloy
<b>Bezel</b>	Fixed
<b>Lens</b>	Polycarbonate
<b>Pointer</b>	Black aluminum
<b>Connection</b>	Lower mount 1/4" NPT
<b>Scale</b>	Standard: single scale psi
<b>Accuracy</b>	2-1-2% of span ASME B40.1 Grade A
<b>Ambient Temp</b>	Glycerine Filled = 30° F to 160° F Dry = -30° F to 180° F



Design meets or exceeds ASME B40.100 pressure gauge standard.



Dial	Unit	A	B	C	D	E
2 1/2"	In.	2.58"	1.49"	0.96"	3.32"	1/4" NPT
	mm	66	38	24	84	

## STANDARD DIAL CONFIGURATIONS

Dial Range	Figure Intervals	Graduation Intervals	Dial Range	Figure Intervals	Graduation Intervals
30/0"hg Vac	5" hg	0.5" hg	0/300 psi	50 psi	5 psi
30/0/30 psi	10" hg/5psi	1" hg/0.5 psi	0/400 psi	50 psi	5 psi
30/0/100 psi	30" hg/10psi	2" hg/1 psi	0/600 psi	50 psi	5 psi
30/0/150 psi	30" hg/20psi	2" hg/2 psi	0/1000 psi	100 psi	10 psi
30/0/300 psi	30" hg/50psi	10" hg/5 psi	0/1500 psi	200 psi	10 psi
0/15 psi	2 psi	0.1 psi	0/2000 psi	200 psi	20 psi
0/30 psi	5 psi	0.5 psi	0/3000 psi	500 psi	50 psi
0/60 psi	10 psi	1 psi	0/5000 psi	500 psi	50 psi
0/100 psi	10 psi	1 psi	0/7500 psi	1000 psi	100 psi
0/160 psi	20 psi	2 psi	0/10,000 psi	1000 psi	100 psi
0/200 psi	20 psi	2 psi			

## AVAILABLE OPTIONS\*

- Certificate of Accuracy, NIST traceable
- Custom Dial
- Liquid Fill Options, see page 173
- Special Connection Size
- Dry, fillable case
- Protective Rubber Cover, see page 119
- Max/Min Pointer, see page 120

\*Lead times/minimums may apply

## APPROXIMATE SHIPPING WEIGHTS/ BOX QUANTITIES

Dial Size	Est. Unit Weight	Box Qty
2 1/2"	0.75 lbs (0.34 kg)	50

NOTE: Because of continuing improvements, specifications are subject to change. Stock ranges vary by dial size and configuration. Consult ESP for availability.

# 701L POLY CASE LIQUID FILLED LOWER MOUNT

Plastic case/glycerine filled for durability in applications where vibration/pulsation is present  
Suitable for air, water, oil, gas or any other media not corrosive to copper alloy

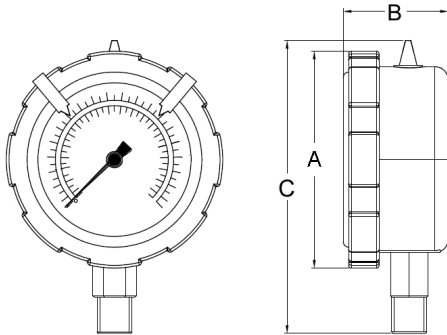
## SPECIFICATIONS

<b>Dial</b>	2 1/2" (63 mm)
<b>Case</b>	Polypropylene, glycerine filled
<b>Wetted Parts</b>	Copper alloy
<b>Bezel</b>	Removable, polypropylene with adjustable Reference clips
<b>Lens</b>	Polycarbonate
<b>Pointer</b>	Adjustable, black aluminum
<b>Connection</b>	Lower mount 1/4" NPT
<b>Scale</b>	Standard: psi/BAR (100 x kPa)
<b>Accuracy</b>	2-1-2% of span ASME B40.1 Grade A
<b>Ambient Temp</b>	Glycerine Filled = 30° F to 160° F Dry = -30° F to 180° F

*Design meets or exceeds ASME B40.100 pressure gauge standard.*



5



Dial	Unit	A	B	C	D
2 1/2"	In.	3.16"	1.65"	4.25"	1/4"
	mm	80.5	42	108	NPT

## AVAILABLE OPTIONS\*

- Certificate of Accuracy, NIST traceable
- Custom Dial
- Liquid Fill Options, see page 173
- Special Connection Size
- Alternate Lens Material
- Cleaned for Oxygen Service (dry only)
- Max/Min Pointer, see page 120

\*Lead times/minimums may apply

## STANDARD DIAL CONFIGURATIONS

Dial Range	Figure Intervals	Graduation Intervals	Dial Range	Figure Intervals	Graduation Intervals
30/0"hg Vac	5" hg	0.5" hg	0/160 psi	20 psi	2 psi
30/0/15 psi	10" hg/5 psi	1" hg/0.5 psi	0/200 psi	40 psi	5 psi
30/0/30 psi	10" hg/10psi	1" hg/1 psi	0/300 psi	50 psi	5 psi
30/0/60 psi	10" hg/10psi	2" hg/1 psi	0/400 psi	50 psi	5 psi
30/0/100 psi	30" hg/20 psi	5" hg/2 psi	0/600 psi	100 psi	10 psi
30/0/150 psi	30" hg/20 psi	5" hg/2 psi	0/1000 psi	200 psi	20 psi
30/0/300 psi	30" hg/50 psi	10" hg/5 psi	0/1500 psi	200 psi	20 psi
0/15 psi	2 psi	0.2 psi	0/2000 psi	400 psi	50 psi
0/30 psi	5 psi	0.5 psi	0/3000 psi	500 psi	50 psi
0/60 psi	10 psi	1 psi	0/4000 psi	500 psi	50 psi
0/100 psi	20 psi	2 psi	0/5000 psi	1000 psi	100 psi

## APPROXIMATE SHIPPING WEIGHTS/ BOX QUANTITIES

Dial Size	Est. Unit Wt.	Box Qty
2 1/2"	0.55 lb (0.26 kg)	upon request

For part numbering system, see page 4.

NOTE: Because of continuing improvements, specifications are subject to change.  
Stock ranges vary by dial size and configuration. Consult ESP for availability.

# CONTRACTOR SERIES

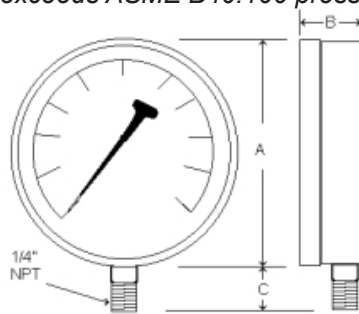
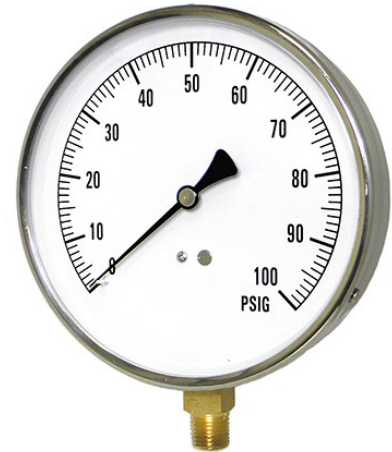


Large, easily readable gauge designed for commercial & industrial use  
 Suitable for air, water, oil, gas or any other media not corrosive to copper alloy

## SPECIFICATIONS

<b>Dial</b>	4 1/2" (114 mm)
<b>Case</b>	Stainless steel, dry non-fillable
<b>Wetted Parts</b>	Copper alloy
<b>Bezel</b>	Removable, stainless steel
<b>Lens</b>	Plastic
<b>Pointer</b>	Adjustable, black aluminum
	Adjustment screw on dial
<b>Connection</b>	Lower mount
	1/4" NPT
<b>Scale</b>	Standard: single scale psi
<b>Accuracy</b>	1% of span ASME B40.1 Grade 1A
<b>Ambient Temp</b>	-30° F to 180° F

Design meets or exceeds ASME B40.100 pressure gauge standard.

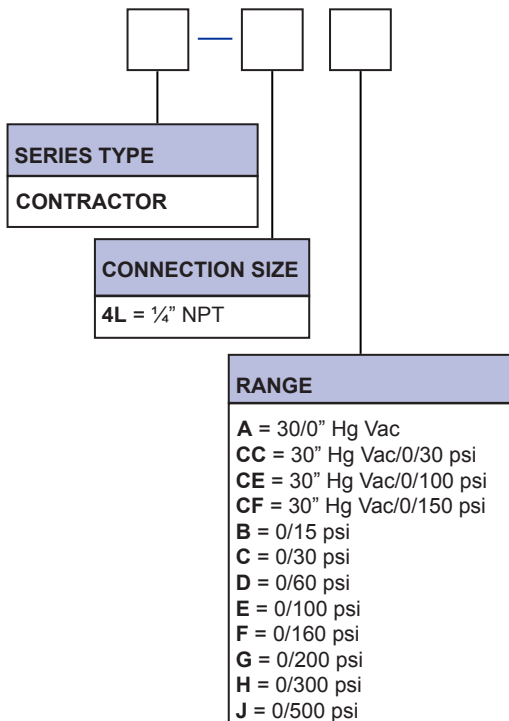


## AVAILABLE OPTIONS\*

- Certificate of Accuracy, NIST Traceable
- Custom Dial
- Special Connection Size
- Cleaned for Oxygen Service (dry only)
- Max/Min Pointer, see page 120

5

## PART NUMBERING SYSTEM



Dial	Unit	A	B	C
4 1/2"	In.	4.9"	1.17"	.97"
	mm	124	30	25

\*Lead times/minimums may apply

## APPROXIMATE SHIPPING WEIGHTS/ BOX QUANTITIES

Dial Size	Est. Unit Wt.	Box Qty
4 1/2"	0.75 lb/(0.36kg)	upon request

## STANDARD DIAL CONFIGURATIONS

Dial Range	Figure Intervals	Graduation Intervals	Dial Range	Figure Intervals	Graduation Intervals
30/0"hg Vac	5" hg	0.5" hg	0/60 psi	10 psi	1 psi
30/0/30 psi	10" hg/5psi	1" hg/1 psi	0/100 psi	10 psi	1 psi
30/0/100 psi	30" hg/10psi	2" hg/1 psi	0/160 psi	20 psi	2 psi
30/0/150 psi	30"hg/25 psi	5" hg/5 psi	0/200 psi	20 psi	2 psi
0/15 psi	2.5 psi	0.25 psi	0/300 psi	50 psi	5 psi
0/30 psi	5 psi	0.5 psi	0/500 psi	50 psi	5 psi

NOTE: Because of continuing improvements, increments and specifications are subject to change. Stock ranges vary by dial size and configuration. Consult ESP for availability.

# 115D SERIES INDUSTRIAL GAUGE

Heavy duty, easily readable gauge with back flange

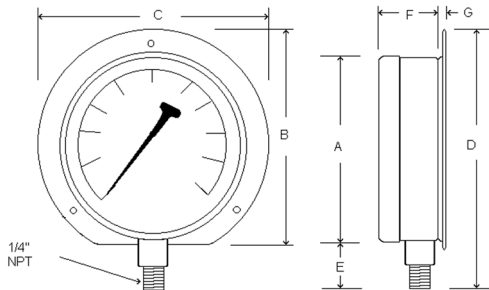
Suitable for air, water, oil, gas or any other media not corrosive to copper alloy

## SPECIFICATIONS

<b>Dial</b>	4 ½" (114 mm), 6" (150 mm), 8 ½" (216 mm)
<b>Case</b>	Epoxy coated black steel With back flange
<b>Wetted Parts</b>	Copper alloy
<b>Bezel</b>	Removable, chrome plated steel
<b>Lens</b>	Plastic for 4 ½" & 6" Glass for 8 ½"
<b>Pointer</b>	Adjustable, black aluminum
<b>Connection</b>	Lower mount ¼" NPT
<b>Scale</b>	Standard: single scale psi
<b>Accuracy</b>	1% of span ASME B40.1 Grade 1A
<b>Ambient Temp</b>	-30° F to 180° F



Design meets or exceeds ASME B40.100 pressure gauge standard.



Dial	Unit	A	B	C	D	E	F	G
4 ½"	In.	4.99"	5.41"	5.87"	6.79"	1.40"	1.86"	0.18"
	mm	125	138	149	172	36	47	4.5
6"	In.	5.95"	6.87"	7.42"	8.41"	1.61"	1.86"	0.24"
	mm	151	175	188	213	41	47	6
8 ½"	In.	8.56"	9.44"	10.3"	10.8"	1.27"	1.93"	0.14"
	mm	216	240	260	272	32	49	4

## AVAILABLE OPTIONS\*

- Certificate of Accuracy, NIST traceable
- Custom Dial
- Special Connection Size
- Dual Scale psi/BAR
- Glass Lens 4 ½", 6"

\*Lead times/minimums may apply

## APPROXIMATE SHIPPING WEIGHTS/ BOX QUANTITIES

Dial Size	Est. Unit Wt.	Box Qty
4 ½"	1.80 lb/(0.82 kg)	10
6"	2.60 lb/(1.18kg)	10
8 ½"	5.55 lb/(2.52kg)	upon request

Dial Size	Standard Part Numbers
4 ½"	115D-454(RANGE CODE)
6"	115D-604(RANGE CODE)
8 ½"	115D-854(RANGE CODE)

For range codes, see p. 4.

For complete flange dimensions, see p. 123.

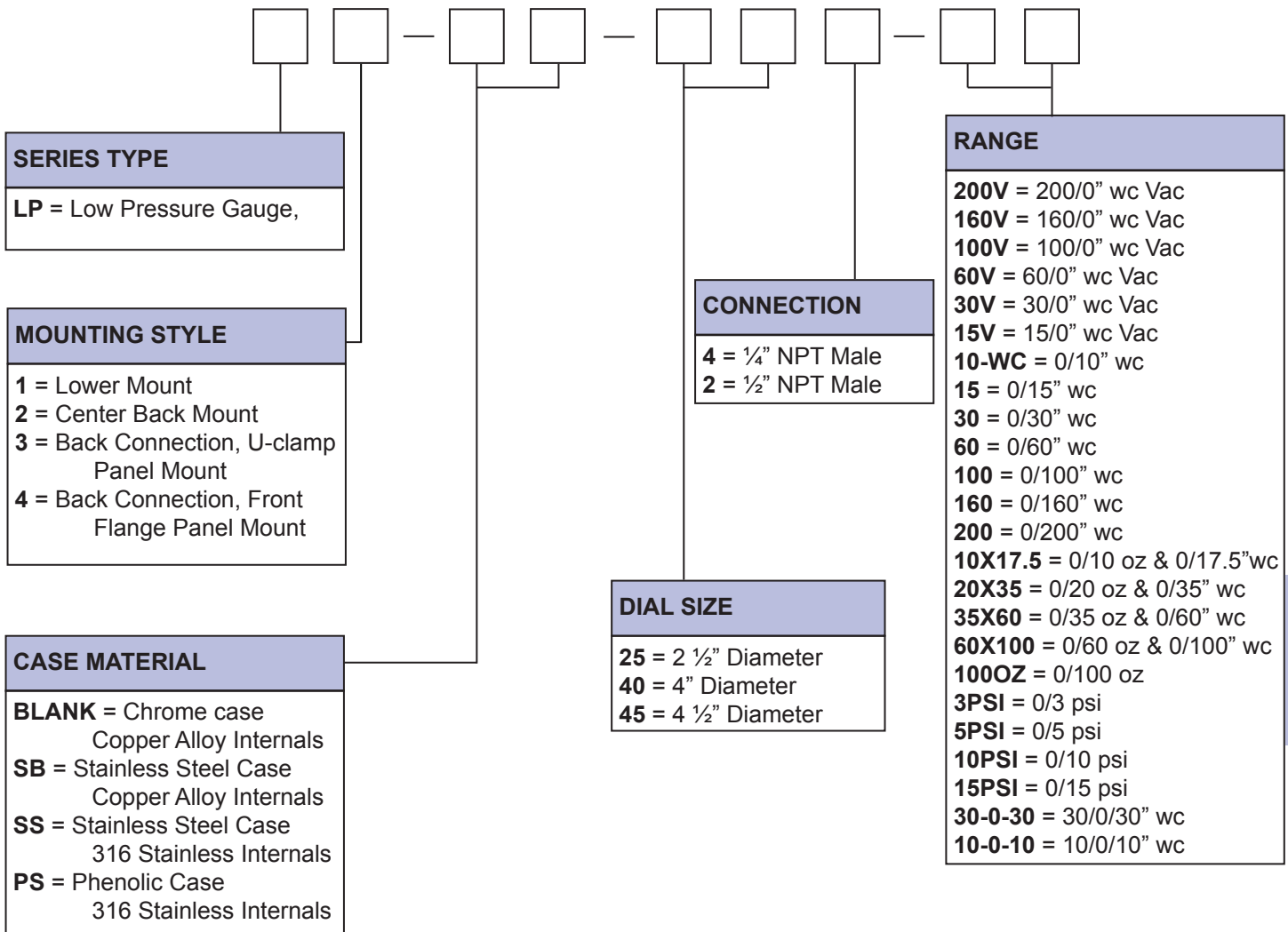
## STANDARD DIAL CONFIGURATIONS

Dial Range	Figure Intervals	Graduation Intervals	Dial Range	Figure Intervals	Graduation Intervals
30/0"hg Vac	5" hg	0.5" hg	0/60 psi	10 psi	1 psi
30/0/30 psi	10" hg/5psi	1" hg/1 psi	0/100 psi	20 psi	1 psi
30/0/60 psi	10" hg/10psi	1" hg/0.5 psi	0/160 psi	20 psi	2 psi
30/0/100 psi	30" hg/20psi	2" hg/1 psi	0/200 psi	20 psi	2 psi
30/0/150 psi	30" hg/20psi	5" hg/2 psi	0/300 psi	50 psi	5 psi
30/0/300 psi	30" hg/50psi	5" hg/5 psi	0/400 psi	40 psi	5 psi
0/15 psi	2 psi	0.2 psi	0/600 psi	100 psi	10 psi
0/30 psi	5 psi	0.5 psi	0/1000 psi	100 psi	10 psi

**NOTE:** Because of continuing improvements, increments and specifications are subject to change. Stock ranges vary by dial size and configuration. Consult ESP for availability.

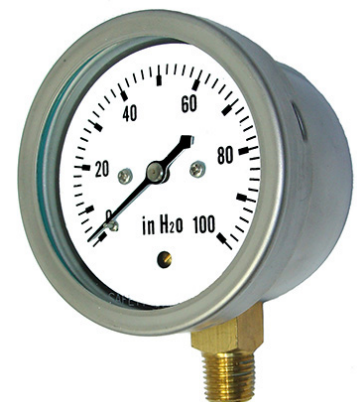


# LOW PRESSURE SERIES PART NUMBERING SYSTEM



5

EXAMPLE: "LP1-SB-254-100"
LP = Low Pressure Gauge 1 = Lower Mount
SB = Stainless Steel Case, Copper Alloy Internals
25 = 2 1/2" Diameter 4 = 1/4" NPT Male
100 = 0/100" wc



# LP SERIES LOW PRESSURE GAUGE

Capsule type pressure gauge for accurate measurement of low pressures  
Suitable for air, water, oil, gas or any other media not corrosive to copper alloy



LP1 SERIES



LP2 SERIES



LP3 SERIES



LP4 SERIES

5

## STANDARD DIAL CONFIGURATIONS FOR LP SERIES

Dial Range	Figure Intervals	Graduation Intervals	Dial Range	Figure Intervals	Graduation Intervals	Dial Range	Figure Intervals	Graduation Intervals
200/0"wc Vac	40" wc	4" wc	0/15" wc	3" wc	0.2" wc	0/100" wc	20" wc	2" wc
160/0"wc Vac	20" wc	5" wc	0/30" wc	5" wc	0.5" wc	0/160" wc	20" wc	5" wc
100/0"wc Vac	20" wc	2" wc	0/20 oz & 0/35" wc	5 oz/5" wc	0.5 oz/0.5" wc	0/200" wc	40" wc	4" wc
60/0"wc Vac	10" wc	1" wc	0/35 oz & 0/60" wc	5 oz/10" wc	1 oz/1" wc	0/3 psi	0.5 psi	0.05 psi
30/0"wc Vac	5" wc	0.5" wc	0/60" wc	10" wc	1" wc	0/5 psi	1 psi	0.1 psi
15/0"wc Vac	3" wc	0.2" wc	0/60 oz & 0/100" wc	10 oz/10" wc	1 oz/2" wc	0/10 psi	2 psi	0.2 psi
30/0/30" wc	10" wc	1" wc	0/100 oz	20 oz	2 oz	0/15 psi	3 psi	0.3 psi
5/0/15 wc	1" wc	0.25" wc						
0/10" wc	1" wc	0.1" wc						

NOTE: Because of continuing improvements, increments and specifications are subject to change. Stock ranges vary by dial size and configuration. Consult ESP for availability.

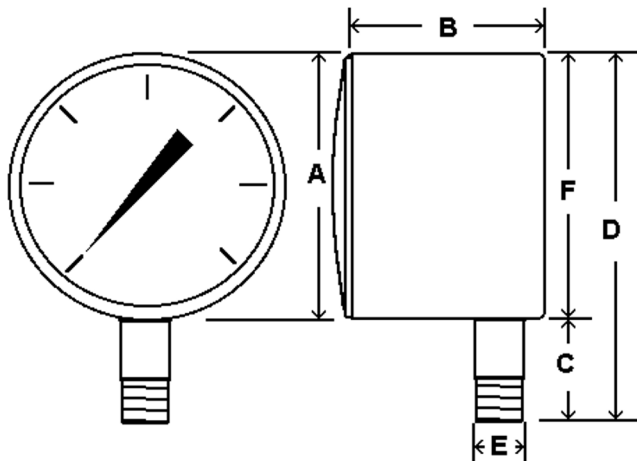
# LP1 LOW PRESSURE LOWER MOUNT

Capsule type pressure gauge for accurate measurement of low pressures  
Suitable for air, water, oil, gas or any other media not corrosive to copper alloy

## SPECIFICATIONS

<b>Dial</b>	2 ½" (63 mm)
<b>Case</b>	Chrome plated steel, dry non-fillable
<b>Wetted Parts</b>	Copper alloy
<b>Lens</b>	Plastic, removable twist lock
<b>Pointer</b>	Adjustable, black aluminum Adjustment screw at rear of case
<b>Connection</b>	Lower mount ¼" NPT
<b>Scale</b>	Standard: single scale inches of water column or psi
<b>Accuracy</b>	3-2-3% of span, ASME B40.1 Grade B
<b>Ambient Temp</b>	-30° F to 180° F

*Design meets or exceeds ASME B40.100 pressure gauge standard.*



Dial	Unit	A	B	C	D	E	F
2 ½"	In.	2.62"	1.85"	.85"	3.45"	¼"	2.6"
	mm	67	47	22	88	NPT	66

## AVAILABLE OPTIONS\*

- Certificate of Accuracy, NIST Traceable
- Custom Dial
- Special Connection Size
- Cleaned for Oxygen Service
- Protective Rubber Cover, see page 119
- Dual Scale

\*Lead times/minimums may apply

## APPROXIMATE SHIPPING WEIGHTS/ BOX QUANTITIES

Dial Size	Est. Unit Wt.	Box Qty
2 ½"	0.50 lbs (0.24 kg)	100

NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.

# LP2 LOW PRESSURE CENTER BACK MOUNT

Capsule type pressure gauge for accurate measurement of low pressures  
Suitable for air, water, oil, gas or any other media not corrosive to copper alloy

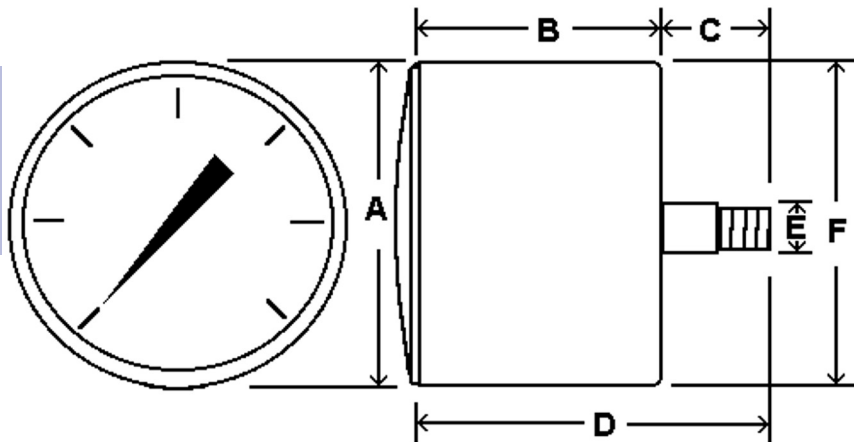
## SPECIFICATIONS

<b>Dial</b>	2 ½" (63 mm)
<b>Case</b>	Chrome plated steel, dry non-fillable
<b>Wetted Parts</b>	Copper alloy
<b>Lens</b>	Plastic, removable twist lock
<b>Pointer</b>	Adjustable, black aluminum Adjustment screw at rear of case
<b>Connection</b>	Center back mount ¼" NPT
<b>Scale</b>	Standard: single scale inches of water column or psi
<b>Accuracy</b>	3-2-3% of span ASME B40.1 Grade B
<b>Ambient Temp</b>	-30° F to 180° F

*Design meets or exceeds ASME B40.100 pressure gauge standard.*



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## AVAILABLE OPTIONS\*

- Certificate of Accuracy, NIST Traceable
- Custom Dial
- Special Connection Size
- Cleaned for Oxygen Service
- Protective Rubber Cover, see page 119
- Dual Scale

\*Lead times/minimums may apply

Dial	Unit	A	B	C	D	E	F
2 ½"	In.	2.60"	1.92"	0.84"	2.75"	¼"	2.60"
	mm	66	49	22	71	NPT	66

## APPROXIMATE SHIPPING WEIGHTS/ BOX QUANTITIES

Dial Size	Est. Unit Wt.	Box Qty
2 ½"	0.50 lbs (0.24 kg)	75

NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.

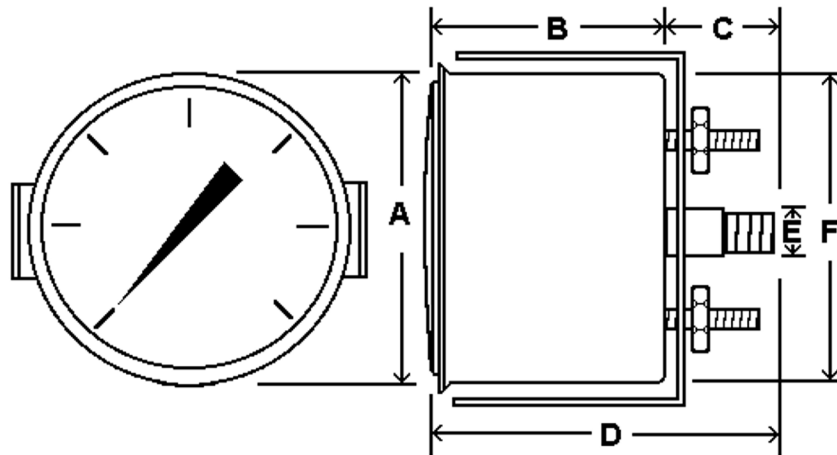
# LP3 LOW PRESSURE U-CLAMP PANEL MOUNT

Capsule type pressure gauge for accurate measurement of low pressures  
Suitable for air, water, oil, gas or any other media not corrosive to copper alloy

## SPECIFICATIONS

<b>Dial</b>	2 ½" (63 mm)
<b>Case</b>	Chrome plated steel, dry non-fillable
<b>Wetted Parts</b>	Copper alloy
<b>Lens</b>	Plastic, removable twist lock
<b>Pointer</b>	Adjustable, black aluminum Adjustment screw at rear of case
<b>Connection</b>	Center back mount with u-clamp ¼" NPT
<b>Scale</b>	Standard: single scale inches of water column or psi
<b>Accuracy</b>	3-2-3% of span ASME B40.1 Grade B
<b>Ambient Temp</b>	-30° F to 180° F

*Design meets or exceeds ASME B40.100 pressure gauge standard.*



Dial	Unit	A	B	C	D	E	F
2 ½"	In.	2.84"	1.61"	0.88"	3.45"	¼"	2.6"
	mm	72	41	22	88	NPT	66

## AVAILABLE OPTIONS\*

- Certificate of Accuracy, NIST Traceable
- Custom Dial
- Special Connection Size
- Cleaned for Oxygen Service
- Dual Scale

\*Lead times/minimums may apply

## APPROXIMATE SHIPPING WEIGHTS/ BOX QUANTITIES

Dial Size	Est. Unit Wt.	Box Qty
2 ½"	0.50 lbs (0.24 kg)	upon request

NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.

# LP4 LOW PRESSURE FRONT FLANGE PANEL MOUNT

Capsule type pressure gauge for accurate measurement of low pressures  
Suitable for air, water, oil, gas or any other media not corrosive to copper alloy

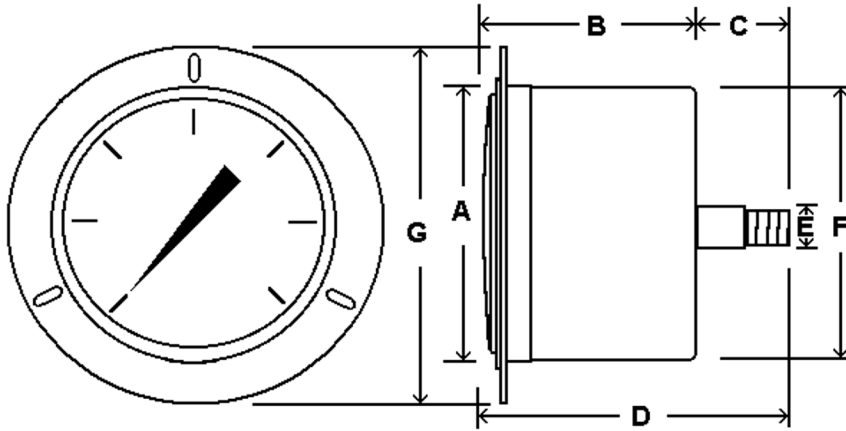
## SPECIFICATIONS

<b>Dial</b>	2 ½" (63 mm)
<b>Case</b>	Chrome plated steel, dry non-fillable
<b>Wetted Parts</b>	Copper alloy
<b>Lens</b>	Plastic, removable twist lock
<b>Pointer</b>	Adjustable, black aluminum Adjustment screw at rear of case
<b>Connection</b>	Center back mount with front flange ¼" NPT
<b>Scale</b>	Standard: single scale inches of water column or psi
<b>Accuracy</b>	3-2-3% of span ASME B40.1 Grade B
<b>Ambient Temp</b>	-30° F to 180° F

*Design meets or exceeds ASME B40.100 pressure gauge standard.*



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## AVAILABLE OPTIONS\*

- Certificate of Accuracy, NIST Traceable
- Custom Dial
- Special Connection Size
- Cleaned for Oxygen Service
- Dual Scale

\*Lead times/minimums may apply

Dial	Unit	A	B	C	D	E	F	G
2 ½"	In.	2.71"	1.81"	0.92"	2.72"	¼" NPT	2.60"	3.44"
	mm	69	46	23	70		66	87

## APPROXIMATE SHIPPING WEIGHTS/ BOX QUANTITIES

Dial Size	Est. Unit Wt.	Box Qty
2 ½"	0.55 lbs (0.26 kg)	upon request

NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.

# LOW PRESSURE TEST KIT

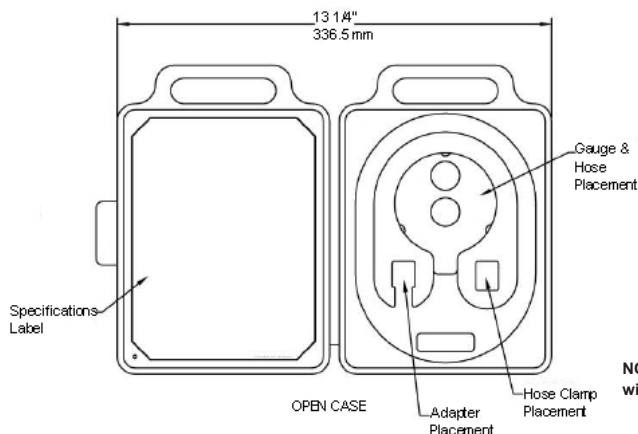
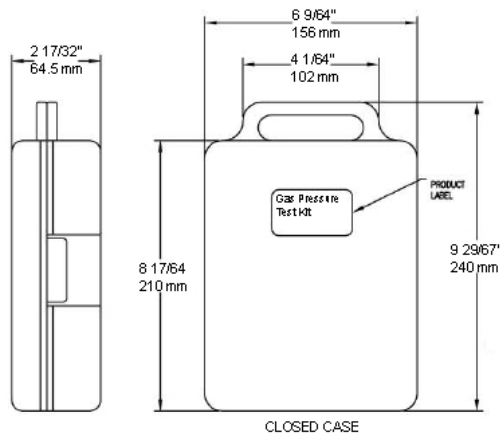
Low pressure test kit for accurate measurement of LP or natural gas  
Includes black ABS plastic molded case, hose and fitting for portable testing

## SPECIFICATIONS

<b>Part Number</b>	TEST KIT-LP
<b>Dial</b>	2 1/2" (63 mm)
<b>Case</b>	Black painted steel, dry non-fillable
<b>Wetted Parts</b>	Copper alloy
<b>Range</b>	0/20 oz X 0/35" wc*
<b>Lens</b>	Plastic, removable twist lock
<b>Pointer</b>	Adjustable, black aluminum Adjustment screw at rear of case
<b>Connection</b>	Gauge = Copper alloy hose barb Hose = Flexible rubber adapter fits multiple pipe sizes from 1/4" to 5/8" OD
<b>Scale</b>	Standard: dual scale inches of water column and oz/in <sup>2</sup>
<b>Accuracy</b>	2% of span ASME B40.1 Grade B
<b>Ambient Temp</b>	-30° F to 180° F
<b>Hose Tube</b>	3 feet (91 cm) rubber

*Design meets or exceeds ASME B40.100 pressure gauge standard.*

For gauge dimensions, see page 67.



## AVAILABLE OPTIONS\*

- Certificate of Accuracy, NIST Traceable
- Custom Dial
- Special Connection Size
- Cleaned for Oxygen Service
- Alternate Pressure/Vacuum Ranges

\*Lead times/minimums may apply

## APPROXIMATE SHIPPING WEIGHTS/ BOX QUANTITIES

Dial Size	Est. Unit Wt.	Box Qty
2 1/2"	1.50 lbs (0.68 kg)	upon request

NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.

# LP-SB/SS SERIES LOW PRESSURE GAUGE

Capsule type pressure gauge for accurate measurement of low pressures  
Stainless steel case gauges with copper alloy or 316 stainless internals



LP1-SB/SS SERIES



LP2-SB/SS SERIES



LP3-SB/SS SERIES



LP4-SB/SS SERIES

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## STANDARD DIAL CONFIGURATIONS FOR LP-SB/SS SERIES

Dial Range	Figure Intervals	Graduation Intervals
200/0"wc Vac	50" wc	5" wc
100/0"wc Vac	20" wc	2" wc
60/0"wc Vac	10" wc	1" wc
30/0"wc Vac	5" wc	0.5" wc
30/0/30" wc	10" wc	1" wc
15/0/15 wc	5" wc	0.5" wc
10/0/10 wc	5" wc	0.5" wc
0/10" wc	2" wc	0.2" wc

Dial Range	Figure Intervals	Graduation Intervals
0/15" wc	3" wc	0.2" wc
0/30" wc	5" wc	0.5" wc
0/10 oz & 0/17.5" wc	2.5 oz/2.5" wc	0.25 oz/0.5" wc
0/20 oz & 0/35" wc	5 oz/5" wc	0.5 oz/1" wc
0/35 oz & 0/60" wc	5 oz/10" wc	1 oz/2" wc
0/60" wc	10" wc	1" wc

Dial Range	Figure Intervals	Graduation Intervals
0/100" wc	20" wc	2" wc
0/160" wc	40" wc	5" wc
0/200" wc	50" wc	5" wc
0/3 psi	0.5 psi	0.05 psi
0/5 psi	1 psi	0.1 psi
0/10 psi	2 psi	0.2 psi

NOTE: Because of continuing improvements, increments and specifications are subject to change. Stock ranges vary by dial size and configuration. Consult ESP for availability.



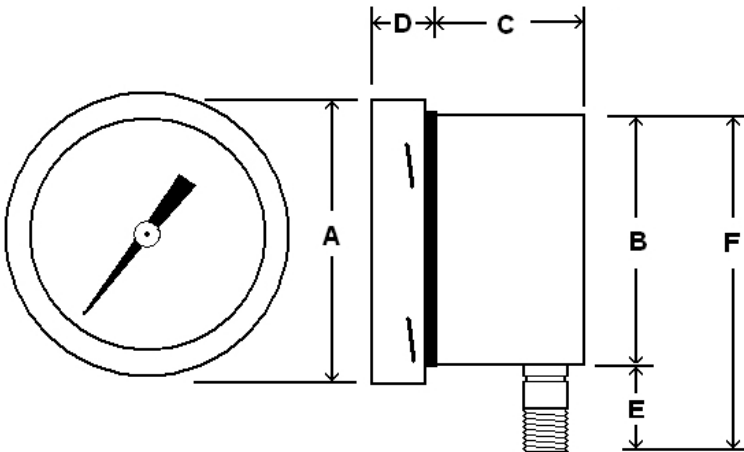
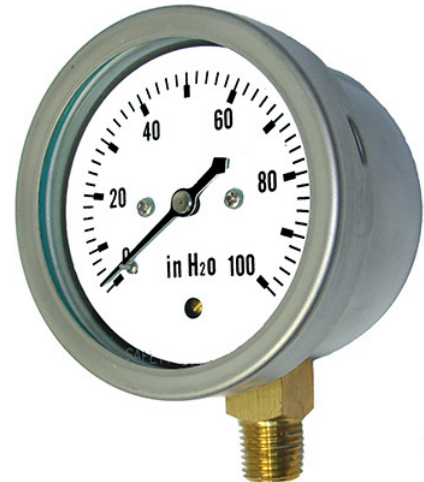
# LP1-SB LOW PRESSURE STAINLESS STEEL CASE

Capsule type pressure gauge for accurate measurement of low pressures  
Suitable for air, water, oil, gas or any other media not corrosive to copper alloy

## SPECIFICATIONS

<b>Dial</b>	2 ½" (63 mm), 4" (100 mm)
<b>Case</b>	Stainless steel, dry non-fillable
<b>Wetted Parts</b>	Copper alloy
<b>Bezel</b>	Removable, stainless steel
<b>Lens</b>	Heavy duty glass
<b>Pointer</b>	Adjustable, black aluminum Adjustment screw on dial face
<b>Connection</b>	Lower mount ¼" NPT for 2 ½" & 4"
<b>Scale</b>	Standard: single scale inches of water column
<b>Accuracy</b>	2-1-2% of span on 2 ½" & 4" ASME B40.1 Grade A
<b>Ambient Temp</b>	-30° F to 180° F

*Design meets or exceeds ASME B40.100 pressure gauge standard.*



## AVAILABLE OPTIONS\*

- Certificate of Accuracy, NIST Traceable
- Custom Dial
- Special Connection Size
- Other Lens Material
- Cleaned for Oxygen Service
- Protective Rubber Cover, see page 119

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\*Lead times/minimums may apply

## APPROXIMATE SHIPPING WEIGHTS/ BOX QUANTITIES

Dial	Unit	A	B	C	D	Conn.	E	F
2 ½"	In.	2.95"	2.55"	1.23"	0.58"	¼" NPT	1.00"	3.55"
	mm	75	65	31	15		25	90
4"	In.	4.38"	3.87"	1.27"	0.64"	¼" NPT	1.42"	5.30"
	mm	111	99	32.3	17		36	135

Dial Size	Est. Unit Wt.	Box Qty
2 ½"	0.55 lbs (0.26 kg)	50
4"	0.95 lbs (0.44 kg)	30

NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.



# LP2-SB LOW PRESSURE STAINLESS STEEL CASE

Capsule type pressure gauge for accurate measurement of low pressures  
Suitable for air, water, oil, gas or any other media not corrosive to Copper alloy

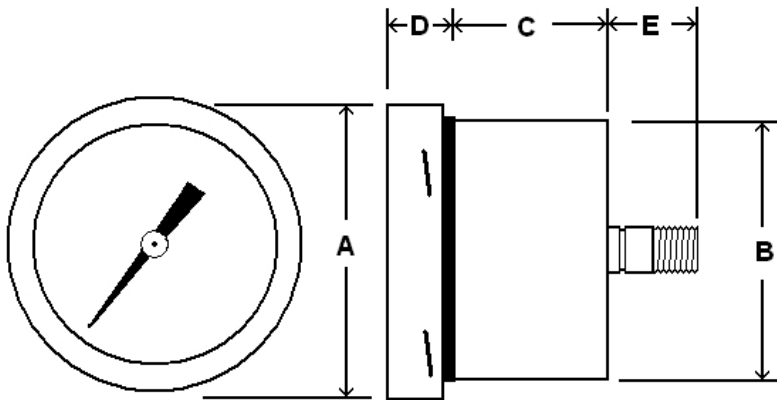
## SPECIFICATIONS

<b>Dial</b>	2 1/2" (63 mm)
<b>Case</b>	Stainless steel, dry non-fillable
<b>Wetted Parts</b>	Copper Alloy
<b>Bezel</b>	Removable, stainless steel
<b>Lens</b>	Heavy duty glass
<b>Pointer</b>	Adjustable, black aluminum Adjustment screw on dial face
<b>Connection</b>	Center back mount 1/4" NPTI
<b>Scale</b>	Standard: single scale inches of water column or psi
<b>Accuracy</b>	2-1-2% of span 2 1/2" ASME B40.1 Grade A
<b>Ambient Temp</b>	-30° F to 180° F

*Design meets or exceeds ASME B40.100 pressure gauge standard.*



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Dial	Unit	A	B	C	D	Conn.	E
2 1/2"	In.	2.95"	2.57"	1.23"	0.58"	1/4" NPT	1.05"
	mm	75	65	31	15		27

## AVAILABLE OPTIONS\*

- Certificate of Accuracy, NIST Traceable
- Custom Dial
- Special Connection Size
- Other Lens Material
- Cleaned for Oxygen Service
- Protective Rubber Cover, see page 119
- Dual Scale

\*Lead times/minimums may apply

## APPROXIMATE SHIPPING WEIGHTS/ BOX QUANTITIES

Dial Size	Est. Unit Wt.	Box Qty
2 1/2"	0.60 lbs (0.28 kg)	upon request

NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.

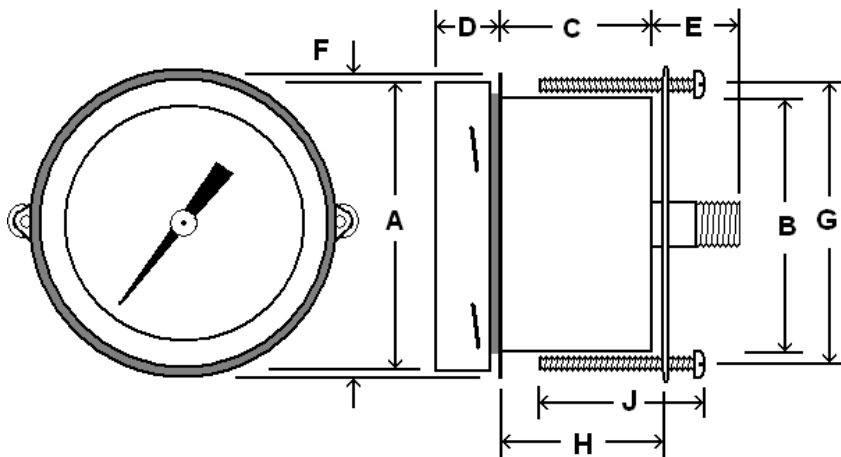
# LP3-SB LOW PRESSURE STAINLESS STEEL CASE

Capsule type pressure gauge for accurate measurement of low pressures  
Suitable for air, water, oil, gas or any other media not corrosive to Copper alloy

## SPECIFICATIONS

<b>Dial</b>	2 1/2" (63 mm)
<b>Case</b>	Stainless steel, dry non-fillable
<b>Wetted Parts</b>	Copper alloy
<b>Bezel</b>	Removable, stainless steel
<b>Lens</b>	Heavy duty glass
<b>Pointer</b>	Adjustable, black aluminum Adjustment screw on dial face
<b>Connection</b>	Center back mount with u-clamp 1/4" NPT
<b>Scale</b>	Standard: single scale inches of water column or psi
<b>Accuracy</b>	2-1-2% of span on 2 1/2" ASME B40.1 Grade A
<b>Ambient Temp</b>	-30° F to 180° F

*Design meets or exceeds ASME B40.100 pressure gauge standard.*



Dial	Unit	A	B	C	D	Conn.	E
2 1/2"	In.	2.95"	2.56"	1.33"	0.55"	1/4" NPT	1.10"
	mm	75	65	34	14		28

Dial	Unit	F	G	H	J
2 1/2"	In.	3.22"	2.83"	1.46"	1.46"
	mm	82	72	37	37

## AVAILABLE OPTIONS\*

- Certificate of Accuracy, NIST Traceable
- Custom Dial
- Special Connection Size
- Other Lens Material
- Cleaned for Oxygen Service
- Dual Scale

\*Lead times/minimums may apply

## APPROXIMATE SHIPPING WEIGHTS/ BOX QUANTITIES

Dial Size	Est. Unit Wt.	Box Qty
2 1/2"	0.65 lbs (0.30 kg)	upon request

NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.

# LP4-SB LOW PRESSURE STAINLESS STEEL CASE

Capsule type pressure gauge for accurate measurement of low pressures  
Suitable for air, water, oil, gas or any other media not corrosive to Copper alloy

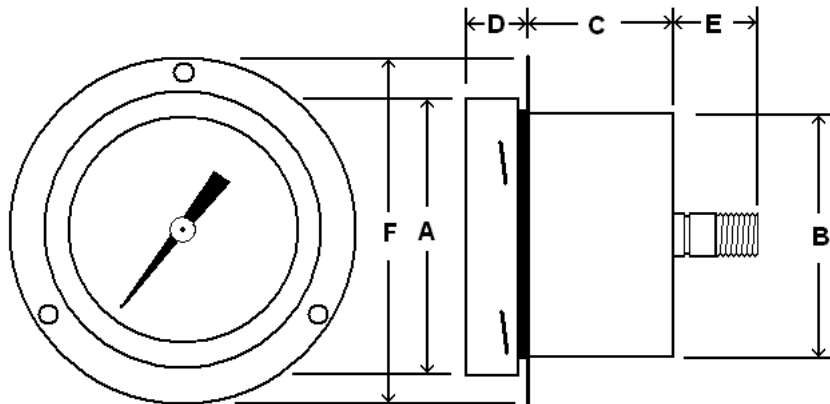
## SPECIFICATIONS

<b>Dial</b>	2 1/2" (63 mm)
<b>Case</b>	Stainless steel, dry non-fillable
<b>Wetted Parts</b>	Copper Alloy
<b>Bezel</b>	Removable, stainless steel
<b>Lens</b>	Heavy duty glass
<b>Pointer</b>	Adjustable, black aluminum Adjustment screw on dial face
<b>Connection</b>	Center back mount with front flange 1/4" NPT
<b>Scale</b>	Standard: single scale inches of water column or psi
<b>Accuracy</b>	2-1-2% of span 2 1/2" ASME B40.1 Grade A
<b>Ambient Temp</b>	-30° F to 180° F

*Design meets or exceeds ASME B40.100 pressure gauge standard.*



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## AVAILABLE OPTIONS\*

- Certificate of Accuracy, NIST Traceable
- Custom Dial
- Special Connection Size
- Other Lens Material
- Cleaned for Oxygen Service
- Dual Scale

\*Lead times/minimums may apply

## APPROXIMATE SHIPPING WEIGHTS/ BOX QUANTITIES

Dial	Unit	A	B	C	D	Conn.	E	F
2 1/2"	In.	2.95"	2.57"	1.23"	0.58"	1/4" NPT	1.05"	3.61"
	mm	75	65	31	15		27	92

Dial Size	Est. Unit Wt.	Box Qty
2 1/2"	0.65 lbs (0.30 kg)	upon request

NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.

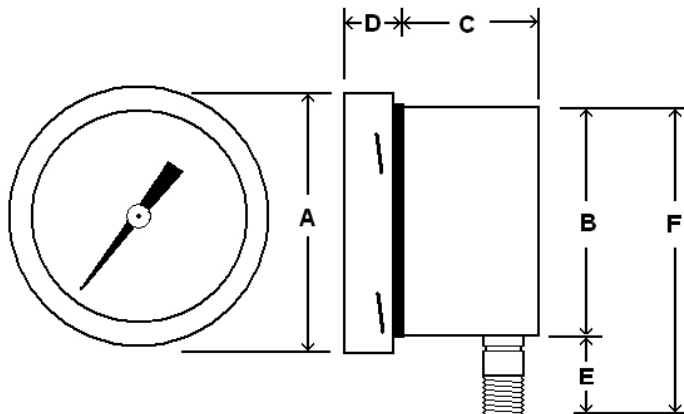
# LP1-SS LOW PRESSURE ALL STAINLESS

Capsule type pressure gauge for accurate measurement of low pressures  
Suitable for air, water, oil, gas or any other media not corrosive to stainless steel

## SPECIFICATIONS

<b>Dial</b>	2 ½" (63 mm), 4" (100 mm)
<b>Case</b>	Stainless steel, dry non-fillable
<b>Wetted Parts</b>	316 stainless steel
<b>Bezel</b>	Removable, stainless steel
<b>Lens</b>	Heavy duty glass
<b>Pointer</b>	Adjustable, black aluminum Adjustment screw on dial face
<b>Connection</b>	Lower mount ¼" NPT for 2 ½" & 4" dial ½" NPT for 4"
<b>Scale</b>	Standard: single scale inches of water column or psi
<b>Accuracy</b>	2-1-2% of span 2 ½" & 4" ASME B40.1 Grade A
<b>Ambient Temp</b>	-30° F to 180° F

*Design meets or exceeds ASME B40.100 pressure gauge standard.*



Dial	Unit	A	B	C	D	Conn.	E	F
2 ½"	In.	2.95"	2.55"	1.23"	0.58"	¼" NPT	1.00"	3.55"
	mm	75	65	31	15		25	90
4"	In.	4.38"	3.87"	1.27"	0.64"	¼" NPT	1.42"	5.30"
	mm	111	99	32.3	17		36	135

## AVAILABLE OPTIONS\*

- Certificate of Accuracy, NIST Traceable
- Custom Dial
- Special Connection Size
- Other Lens Material
- Cleaned for Oxygen Service
- Protective Rubber Cover, see page 77
- Dual Scale

\*Lead times/minimums may apply

## APPROXIMATE SHIPPING WEIGHTS/ BOX QUANTITIES

Dial Size	Est. Unit Wt.	Box Qty
2 ½"	0.55 lbs (0.26 kg)	50
4"	0.95 lbs (0.44 kg)	30

NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.

# LP2-SS LOW PRESSURE ALL STAINLESS

Capsule type pressure gauge for accurate measurement of low pressures  
Suitable for air, water, oil, gas or any other media not corrosive to stainless steel

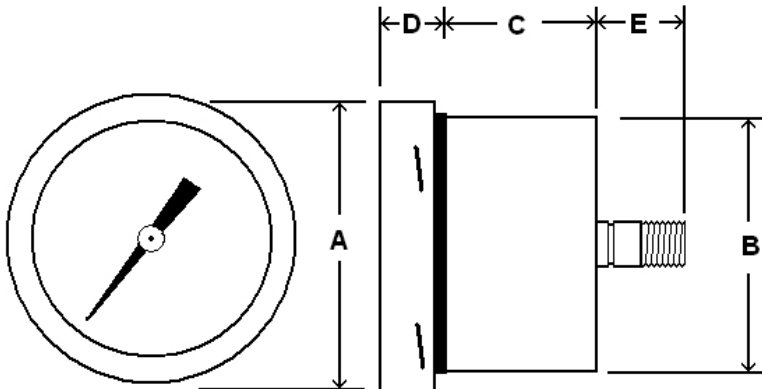
## SPECIFICATIONS

<b>Dial</b>	2 ½" (63 mm)
<b>Case</b>	Stainless steel, dry non-fillable
<b>Wetted Parts</b>	316 stainless steel
<b>Bezel</b>	Removable, stainless steel
<b>Lens</b>	Heavy duty glass
<b>Pointer</b>	Adjustable, black aluminum Adjustment screw on dial face
<b>Connection</b>	Center back mount ¼" NPT
<b>Scale</b>	Standard: single scale inches of water column or psi
<b>Accuracy</b>	2-1-2% of span 2 ½" ASME B40.1 Grade A
<b>Ambient Temp</b>	-30° F to 180° F

*Design meets or exceeds ASME B40.100 pressure gauge standard.*



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Dial	Unit	A	B	C	D	Conn.	E
2 ½"	In.	2.95"	2.57"	1.23"	0.58"	¼" NPT	1.05"
	mm	75	65	31	15		27

## AVAILABLE OPTIONS\*

- Certificate of Accuracy, NIST Traceable
- Custom Dial
- Special Connection Size
- Other Lens Material
- Cleaned for Oxygen Service
- Protective Rubber Cover, see page 119
- Dual Scale

\*Lead times/minimums may apply

## APPROXIMATE SHIPPING WEIGHTS/ BOX QUANTITIES

Dial Size	Est. Unit Wt.	Box Qty
2 ½"	0.60 lbs (0.28 kg)	upon request

NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.

# LP3-SS LOW PRESSURE ALL STAINLESS

Capsule type pressure gauge for accurate measurement of low pressures  
Suitable for air, water, oil, gas or any other media not corrosive to stainless steel

## SPECIFICATIONS

<b>Dial</b>	2 1/2" (63 mm)
<b>Case</b>	Stainless steel, dry non-fillable
<b>Wetted Parts</b>	316 stainless steel
<b>Bezel</b>	Removable, stainless steel
<b>Lens</b>	Heavy duty glass
<b>Pointer</b>	Adjustable, black aluminum Adjustment screw on dial face
<b>Connection</b>	Center back mount with u-clamp 1/4" NPT
<b>Scale</b>	Standard: single scale inches of water column or psi
<b>Accuracy</b>	2-1-2% of span on 2 1/2" ASME B40.1 Grade A
<b>Ambient Temp</b>	-30° F to 180° F

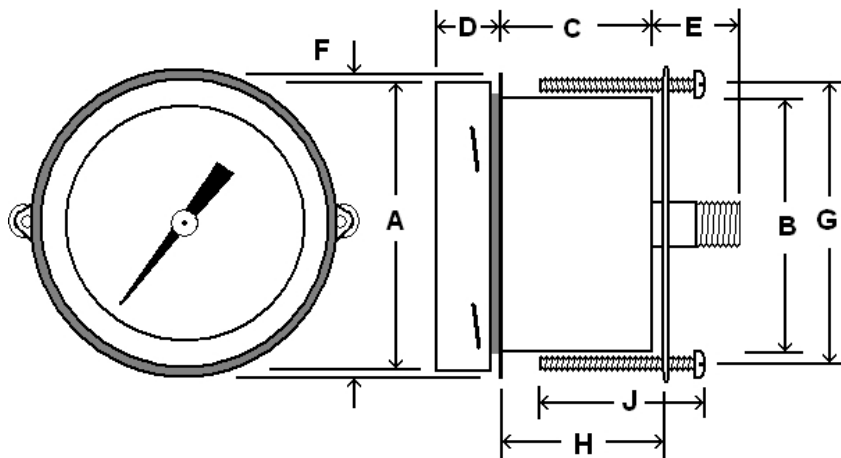
*Design meets or exceeds ASME B40.100 pressure gauge standard.*



## AVAILABLE OPTIONS\*

- Certificate of Accuracy, NIST Traceable
- Custom Dial
- Special Connection Size
- Other Lens Material
- Cleaned for Oxygen Service
- Dual Scale

\*Lead times/minimums may apply



Dial	Unit	A	B	C	D	Conn.	E
2 1/2"	In.	2.95"	2.56"	1.33"	0.55"	1/4" NPT	1.10"
	mm	75	65	34	14		28

Dial	Unit	F	G	H	J
2 1/2"	In.	3.22"	2.83"	1.46"	1.46"
	mm	82	72	37	37

## APPROXIMATE SHIPPING WEIGHTS/ BOX QUANTITIES

Dial Size	Est. Unit Wt.	Box Qty
2 1/2"	0.65 lbs (0.30 kg)	upon request

NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.

# LP4-SS LOW PRESSURE STAINLESS STEEL CASE

Capsule type pressure gauge for accurate measurement of low pressures  
Suitable for air, water, oil, gas or any other media not corrosive to stainless steel

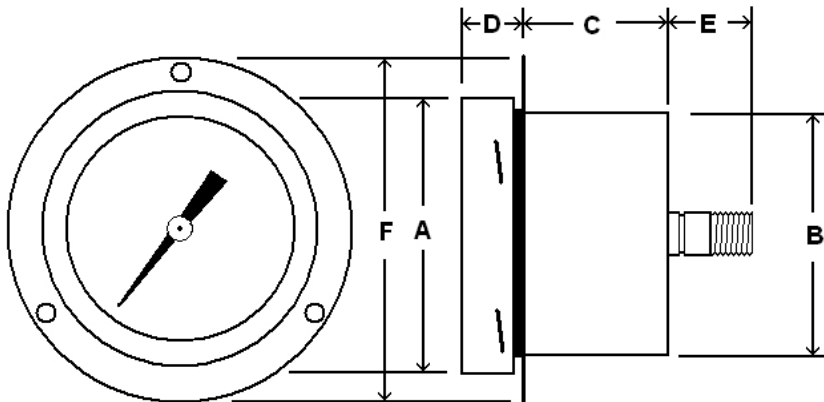
## SPECIFICATIONS

<b>Dial</b>	2 1/2" (63 mm)
<b>Case</b>	Stainless steel, dry non-fillable
<b>Wetted Parts</b>	316 stainless steel
<b>Bezel</b>	Removable, stainless steel
<b>Lens</b>	Heavy duty glass
<b>Pointer</b>	Adjustable, black aluminum Adjustment screw on dial face
<b>Connection</b>	Center back mount with front flange 1/4" NPT
<b>Scale</b>	Standard: single scale inches of water column or psi
<b>Accuracy</b>	2-1-2% of span 2 1/2" ASME B40.1 Grade A
<b>Ambient Temp</b>	-30° F to 180° F

*Design meets or exceeds ASME B40.100 pressure gauge standard.*



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## AVAILABLE OPTIONS\*

- Certificate of Accuracy, NIST Traceable
- Custom Dial
- Special Connection Size
- Other Lens Material
- Cleaned for Oxygen Service
- Dual Scale

\*Lead times/minimums may apply

## APPROXIMATE SHIPPING WEIGHTS/ BOX QUANTITIES

Dial	Unit	A	B	C	D	Conn.	E	F
2 1/2"	In.	2.95"	2.57"	1.23"	0.58"	1/4" NPT	1.05"	3.61"
	mm	75	65	31	15		27	92

Dial Size	Est. Unit Wt.	Box Qty
2 1/2"	0.65 lbs (0.30 kg)	upon request

NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.



# LP1-PS LOW PRESSURE PHENOLIC CASE

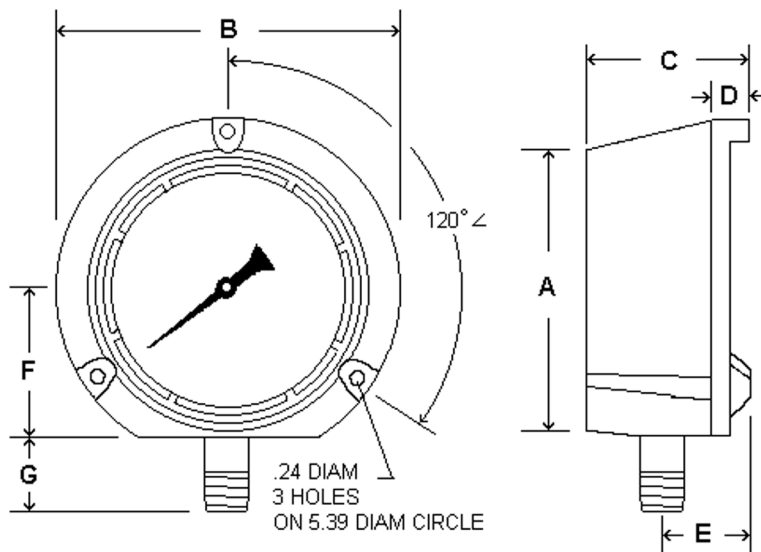
Capsule type pressure gauge for accurate measurement of low pressures  
 Suitable for air, water, oil, gas or any other media not corrosive to stainless steel

## SPECIFICATIONS

<b>Dial</b>	4 1/2" (115 mm)
<b>Case</b>	Phenolic, dry non-fillable
<b>Wetted Parts</b>	316 stainless steel
<b>Bezel</b>	Phenolic
<b>Lens</b>	Tempered glass
<b>Pointer</b>	Adjustable, black aluminum Adjustment screw on dial face
<b>Connection</b>	Lower mount 1/2" or 1/4" NPT
<b>Scale</b>	Standard: single scale inches of water column or psi
<b>Accuracy</b>	2-1-2% of span ASME B40.1 Grade A
<b>Ambient Temp</b>	-30° F to 180° F



Design meets or exceeds ASME B40.100 pressure gauge standard.



Dial	Unit	A	B	C	D	E	F	G	NPT
4 1/2"	In.	5.10"	5.83"	3.23"	1.07"	1.65"	2.60"	1.41"	1/4" or 1/2"
	mm	130	148	82	27	42	66	36	

## AVAILABLE OPTIONS\*

- Certificate of Accuracy, NIST Traceable
- Custom Dial
- Special Connection Size
- Other Lens Material
- Cleaned for Oxygen Service
- Dual Scale

\*Lead times/minimums may apply

## APPROXIMATE SHIPPING WEIGHTS/ BOX QUANTITIES

Dial Size	Est. Unit Wt.	Box Qty
4 1/2"	2.10 lbs (0.96 kg)	upon request

## STANDARD DIAL CONFIGURATIONS FOR LP1-PS SERIES

Dial Range	Figure Intervals	Graduation Intervals	Dial Range	Figure Intervals	Graduation Intervals	Dial Range	Figure Intervals	Graduation Intervals
200/0"wc Vac	20" wc	2" wc	0/15" wc	3" wc	0.2" wc	0/100" wc	20" wc	2" wc
100/0"wc Vac	10" wc	1" wc	0/30" wc	5" wc	0.5" wc	0/200" wc	20" wc	2" wc
30/0"wc Vac	5" wc	0.5" wc	0/60" wc	10" wc	0.5" wc			

Because of continuing improvements, increments and specifications are subject to change without notice. Consult ESP for availability.

General purpose digital pressure gauge, backlit LED display for clear, concise readings

## SPECIFICATIONS

<b>Dial</b>	3" (76 mm)
<b>Case</b>	Black aluminum
<b>Display</b>	4 digits standard
<b>Wetted Parts</b>	304L & 316L stainless steel
<b>Ranges</b>	Standard ranges from 30" hg vac to 5,000 psi
<b>Connection</b>	Lower mount 1/4" NPT for 3"
<b>Measurement Units</b>	psi, BAR, MPA
<b>Accuracy</b>	0.25% of span on 3" ASME B40.1 Grade 3A
<b>Ambient Temp</b>	14° F to 140° F
<b>Safety Rating</b>	NEMA 4X (IP66)
<b>Power Supply</b>	9 volt battery
<b>Functions</b>	Zero reset Backlight Peak/Hold



## AVAILABLE OPTIONS\*

- Certificate of Accuracy, NIST Traceable
- Protective Rubber Cover, see page 119
- Special Connection Size

\*Lead times/minimums may apply

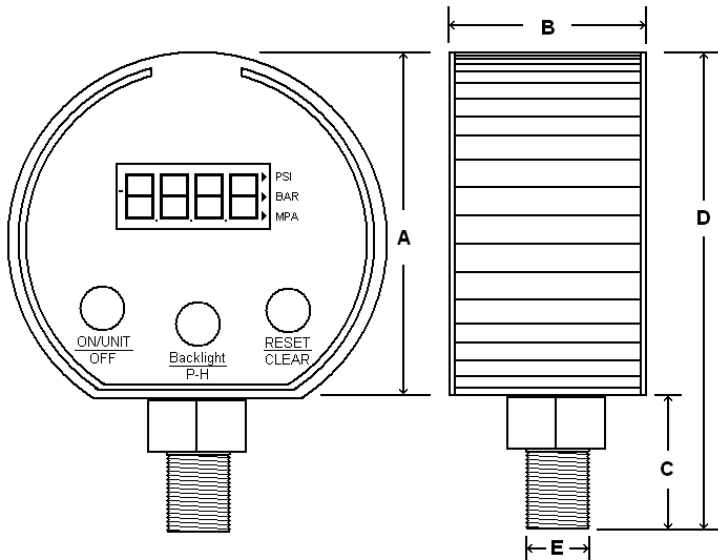
## APPROXIMATE SHIPPING WEIGHTS/ BOX QUANTITIES

Dial Size	Est. Unit Weight	Box Qty
3"	1.10 lbs (0.50 kg)	upon request

NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.

Design meets or exceeds ASME B40.100 pressure gauge standard.

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Dial	Unit	A	B	C	D	E
3"	In.	3.35"	2.03"	0.92"	4.21"	1/4"
	mm	85	52	23	107	NPT

Dial Size	Standard Part Numbers
3"	DPG-254L(RANGE CODE)

Stock Ranges			
A = 30/0" Hg Vac	B = 0/15 psi	CH = -15/0/300 psi	C = 0/30 psi
E = 0/100 psi	G = 0/200 psi	H = 0/300 psi	J = 0/500 psi
L = 0/800 psi	M = 0/1000 psi	N = 0/1500 psi	O = 0/2000 psi
P = 0/3000 psi	R = 0/5000 psi		

# BULK-HD SERIES

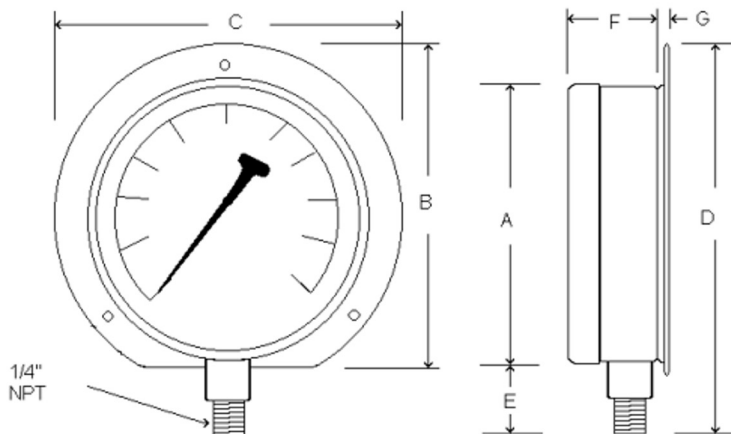


**Heavy duty 4 1/2" gauge designed for the dry bulk tanker market  
With anti-vibration movement for enhanced repeatability and durability**

## SPECIFICATIONS

<b>Dial</b>	4 1/2" (113 mm)
<b>Case</b>	Black steel, epoxy coated with Removable back flange Dry, non-fillable
<b>Wetted Parts</b>	Copper alloy
<b>Movement</b>	Heavy duty stainless steel Anti-vibration
<b>Ranges</b>	Standard: 0/30 psi, 30" Hg Vac/0/30 psi
<b>Lens</b>	Plastic
<b>Pointer</b>	Adjustable, black aluminum
<b>Connection</b>	Lower mount 1/4" NPT
<b>Scale</b>	Standard: single scale psi
<b>Accuracy</b>	1% of span, ASME B40.1 Grade 1A
<b>Ambient Temp</b>	-40° F to 140° F

*Design meets or exceeds ASME B40.100 pressure gauge standard.*



Dial	Unit	A	B	C	D	E	F	G
4 1/2"	In.	4.95"	5.43"	5.90"	6.34"	0.98"	1.34"	0.20"
	mm	126	138	150	161	25	34	5

## STANDARD DIAL CONFIGURATIONS

Part Number	Dial Range	Figure Intervals	Graduation Intervals
BULK-HD-454L-CC	30/0/30 psi	10" hg/10psi	1" hg/1 psi
BULK-HD-454L-C	0/30 psi	5 psi	0.5 psi



## AVAILABLE OPTIONS\*

- Certificate of Accuracy, NIST Traceable
- Custom Dial
- Special Connection Size
- Other Lens Material

\*Lead times/minimums may apply

## APPROXIMATE SHIPPING WEIGHTS/ BOX QUANTITIES

Dial Size	Est. Unit Wt.	Box Qty
4 1/2"	1.10 lbs (0.50 kg)	upon request

NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.

# S215L BACK FLANGE

Glycerine filled for added durability in applications where vibration or pulsation is present  
 Stainless steel case and bezel, copper alloy internals  
 Heavy duty gauge designed for the dry bulk tanker market

## SPECIFICATIONS

<b>Dial</b>	4" (100 mm)
<b>Case</b>	Stainless steel with removable back flange Glycerine filled
<b>Wetted Parts</b>	Copper alloy
<b>Ranges</b>	Standard: 0/30 psi
<b>Bezel</b>	Stainless steel, fixed
<b>Lens</b>	Plastic
<b>Pointer</b>	Black aluminum
<b>Connection</b>	Lower mount 1/4" NPT
<b>Scale</b>	Standard: single scale psi
<b>Accuracy</b>	1% of span, ASME B40.1 Grade 1A
<b>Ambient Temp</b>	Glycerine Filled = 30° F to 160° F Dry = -30° F to 180° F



Design meets or exceeds ASME B40.100 pressure gauge standard.

## AVAILABLE OPTIONS\*

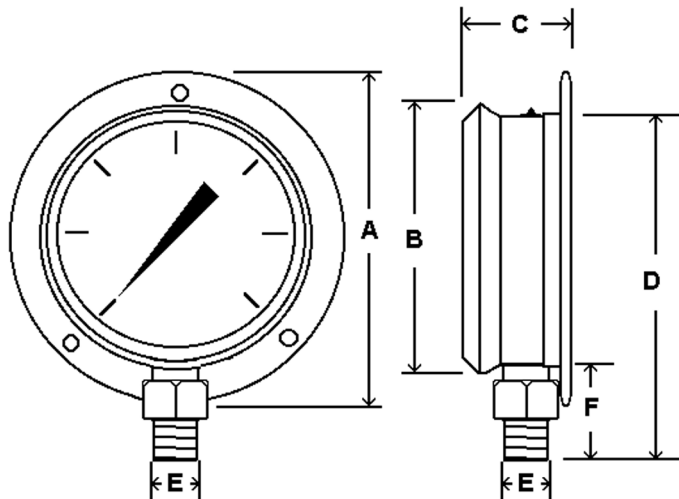
- Certificate of Accuracy, NIST Traceable
- Custom Dial
- Special Connection Size
- Other Lens Material
- Alternate Ranges

\*Lead times/minimums may apply

## APPROXIMATE SHIPPING WEIGHTS/ BOX QUANTITIES

Dial Size	Est. Unit Wt.	Box Qty
4"	1.65 lbs (0.74 kg)	30

5



Dial	Unit	A	B	C	D	E	F
4"	In.	5.13"	4.29"	1.77"	5.19"	1/4"	1.30"
	mm	130	109	45	132	NPT	38

## STANDARD DIAL CONFIGURATIONS

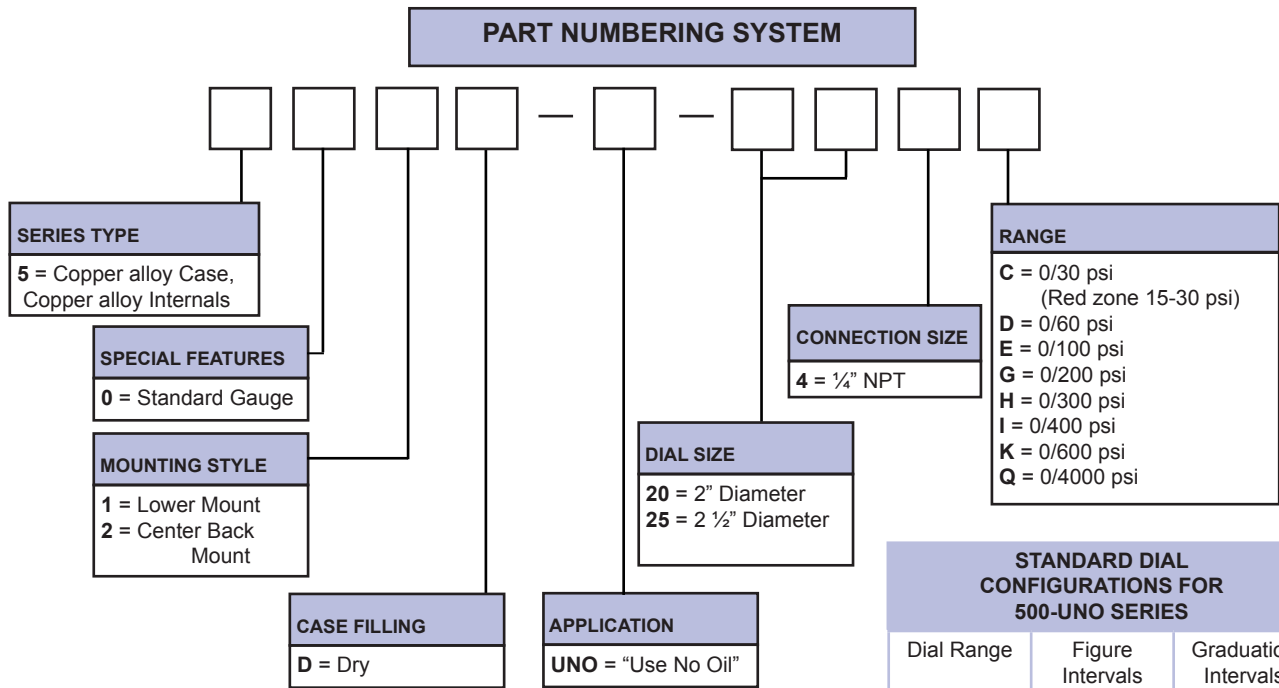
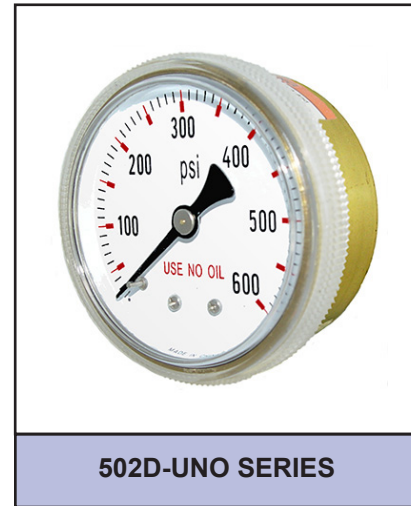
Part Number	Dial Range	Figure Intervals	Graduation Intervals
S215L-404C	0/30 psi	3 psi	0.2 psi

NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.

# 500-UNO SERIES



“Use No Oil” gauge designed for use on compressed gas regulators and tanks  
copper alloy case, twist off lens, copper alloy internals



**EXAMPLE APPLICATIONS**

Welding
Beverage
Cryogenic

**STANDARD DIAL CONFIGURATIONS FOR 500-UNO SERIES**

Dial Range	Figure Intervals	Graduation Intervals
0/30 psi	10 psi	1 psi
0/60 psi	10 psi	1 psi
0/100 psi	20 psi	2 psi
0/200 psi	40 psi	5 psi
0/300 psi	50 psi	5 psi
0/400 psi	50 psi	5 psi
0/600 psi	100 psi	20 psi
0/4000 psi	500 psi	100 psi

NOTE: Because of continuing improvements, increments and specifications are subject to change.

Stock ranges vary by dial size and configuration. Consult ESP for availability.

Engineered Specialty Products, Inc.

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“Use No Oil” gauge designed for use on compressed gas regulators and tanks  
copper alloy case, twist off lens, copper alloy internals

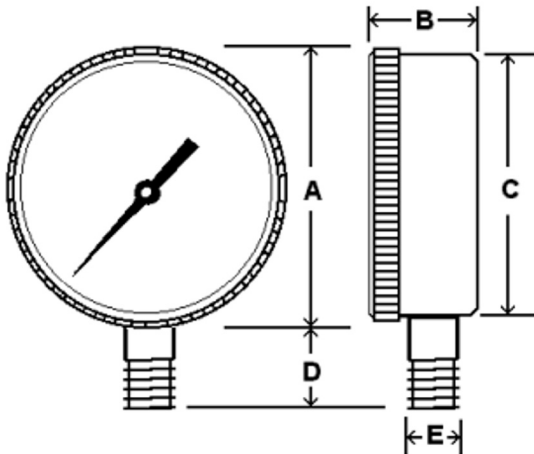
## SPECIFICATIONS

<b>Dial</b>	2" (50 mm), 2 ½" (63 mm)
<b>Case</b>	Highly polished copper alloy, dry non-fillable
<b>Wetted Parts</b>	Copper alloy
<b>Bezel</b>	Removable lens
<b>Lens</b>	Plastic, twist on
<b>Pointer</b>	Black aluminum
<b>Connection</b>	Lower mount ¼" NPT
<b>Scale</b>	Standard: single scale psi
<b>Accuracy</b>	3-2-3% of span, ASME B40.1 Grade B
<b>Ambient Temp</b>	-4° F to 140° F

*Design meets or exceeds ASME B40.100 pressure gauge standard.*



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Dial	Unit	A	B	C	D	E
2"	In.	2.31"	1.2"	2.07"	1.13"	¼" NPT
	mm	59	31	53	29	
2 ½"	In.	2.83"	1.13"	2.65"	1.13"	¼" NPT
	mm	72	29	68	29	

## AVAILABLE OPTIONS\*

- Custom Dial
- Special Connection Size
- Cleaned for Oxygen Service
- Ⓛ Listed (UL 252A or UL 404)
- Alternate Case Material
  - Painted Steel
  - Plastic
  - Stainless Steel

\*Lead times/minimums may apply

## APPROXIMATE SHIPPING WEIGHTS/ BOX QUANTITIES

Dial Size	Est. Unit Wt.	Box Qty
2"	0.30 lbs (0.12 kg)	upon request
2 ½"	0.35 lbs (0.16 kg)	upon request

NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.

# 502D-UNO SERIES

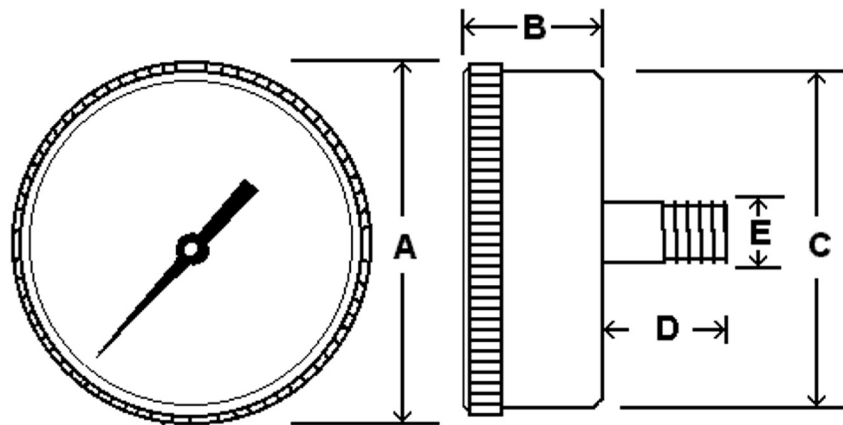


**“Use No Oil” gauge designed for use on compressed gas regulators and tanks  
copper alloy case, twist off lens, copper alloy internals**

## SPECIFICATIONS

<b>Dial</b>	2" (50 mm), 2 ½" (63 mm)
<b>Case</b>	Highly polished copper alloy, dry non-fillable
<b>Wetted Parts</b>	Copper alloy
<b>Bezel</b>	Removable lens
<b>Lens</b>	Plastic, twist on
<b>Pointer</b>	Black aluminum
<b>Connection</b>	Center back mount ¼" NPT
<b>Scale</b>	Standard: single scale psi
<b>Accuracy</b>	3-2-3% of span, ASME B40.1 Grade B
<b>Ambient Temp</b>	-4° F to 140° F

*Design meets or exceeds ASME B40.100 pressure gauge standard.*



## AVAILABLE OPTIONS\*

- Custom Dial
- Special Connection Size
- Cleaned for Oxygen Service
- UL Listed (UL 252A or UL 404)
- Alternate Case Material
  - Painted Steel
  - Plastic
  - Stainless Steel

\*Lead times/minimums may apply

Dial	Unit	A	B	C	D	E
2"	In.	2.31"	1.08"	2.10"	0.84"	¼"
	mm	59	27	53	21	NPT
2 ½"	In.	2.83"	1.13"	2.65"	1.13"	¼"
	mm	72	29	68	29	NPT

## APPROXIMATE SHIPPING WEIGHTS/ BOX QUANTITIES

Dial Size	Est. Unit Wt.	Box Qty
2"	0.30 lbs (0.12 kg)	upon request
2 ½"	0.35 lbs (0.16 kg)	upon request

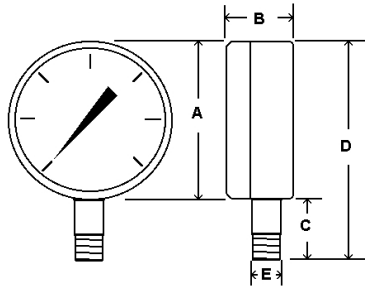
NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.

For measuring head pressure, water level/depth in tower, tank or well  
 Suitable for air, water, oil, gas or other media not corrosive to copper alloy

## SPECIFICATIONS

<b>Dial</b>	3 1/2" (89 mm), 4 1/2" (114 mm)
<b>Case</b>	Black steel, dry non-fillable
<b>Wetted Parts</b>	Copper alloy
<b>Ranges</b>	0/15 psi to 0/200 psi
<b>Bezel</b>	Chrome
<b>Lens</b>	Plastic
<b>Pointer</b>	Black aluminum, adjustable red set hand
<b>Connection</b>	Lower mount 1/4" NPT
<b>Scale</b>	Standard: psi/Feet of water column
<b>Accuracy</b>	3-2-3% of span ASME B40.1 Grade B
<b>Ambient Temp</b>	-50° F to 160° F

Design meets or exceeds ASME B40.100 pressure gauge standard.



## AVAILABLE OPTIONS\*

- Certificate of Accuracy, NIST Traceable
- Custom Dial
- Special Connection Size
- Other Ranges

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Dial	Unit	A	B	C	D	E	Ranges		
3 1/2"	In.	3.53"	1.14"	1.02"	4.55"	1/4" NPT	Range Code	psi	Ft. of Water Col.
	mm	90	29	26	116		B	0/15	0/34
4 1/2"	In.	4.89"	1.16"	1.16"	6.05"	1/4" NPT	C	0/30	0/70
	mm	124	29	29	154		D	0/60	0/140
							E	0/100	0/230
							F	0/160	0/370
							G	0/200	0/460

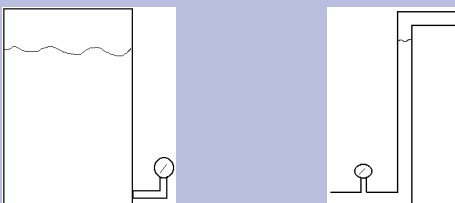
\*Lead times/minimums may apply

## APPROXIMATE SHIPPING WEIGHTS/BOX QUANTITIES

Dial Size	Est. Unit Wt.	Box Qty
3 1/2"	0.5 lbs/(0.24 kg)	upon request
4 1/2"	0.65 lbs/(0.3 kg)	upon request

### Note:

1. For tower or tank depth or head pressure, gauge should be mounted at the lowest possible point as pressure/depth reading is from gauge level up.



2. For well depth or tank depth where gauge is mounted above max fill line, gauge must be mounted on air line going into top of tank (or well) and straight down vertically to maximum depth to be measured.



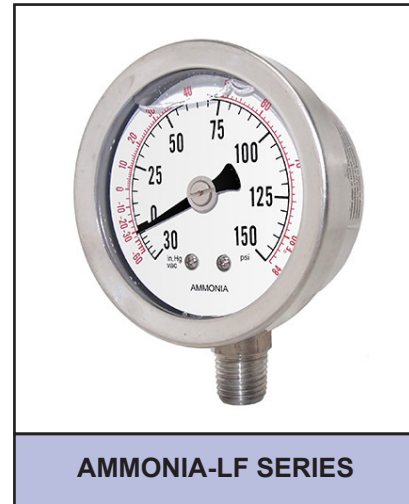
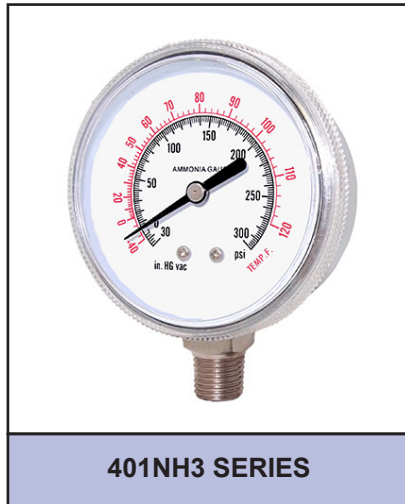
NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.



# AMMONIA REFRIGERATION GAUGES



For ammonia refrigeration applications, ESP ammonia gauges measure ammonia refrigerant pressure and corresponding temperature.



STANDARD DIAL CONFIGURATIONS FOR AMMONIA SERIES			
Part Number	Dial Range	Figure Intervals	Graduation Intervals
401NH3-254CF	30/0/150	30" hg/25 psi	5" hg/5 psi
401NH3-254CH	30/0/300	30" hg/50 psi	5" hg/5 psi
401NH3-404CF	30/0/150	30" hg/25 psi	5" hg/5 psi
401NH3-404CH	30/0/300	30" hg/50 psi	5" hg/5 psi
AMMONIA-LF-254CF	30/0/150	30" hg/20 psi	5" hg/2 psi
AMMONIA-LF-254CH	30/0/300	30" hg/50 psi	10" hg/5 psi
AMMONIA-LF-404CF	30/0/150	30" hg/25 psi	5" hg/5 psi
AMMONIA-LF-404CH	30/0/300	30" hg/50 psi	5" hg/5 psi

\*For Agricultural Ammonia gauges, see page 91.

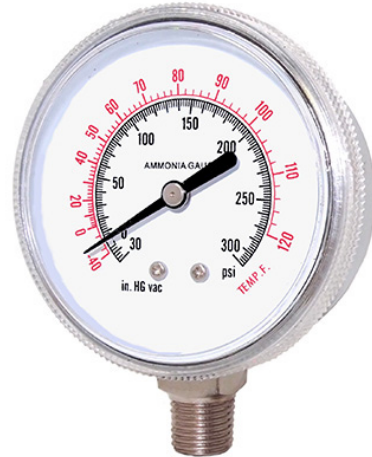
NOTE: Because of continuing improvements, increments and specifications are subject to change. Stock ranges vary by dial size and configuration. Consult ESP for availability.

# 401NH3 SERIES

**Dry non-fillable gauge for ammonia refrigeration applications**  
**Chrome plated steel case, stainless steel internals and steel socket**

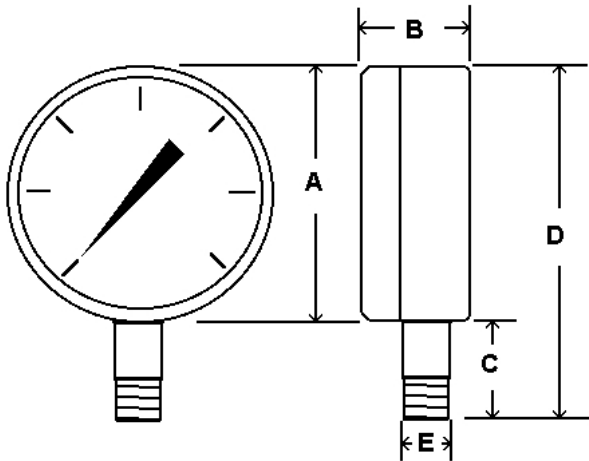
## SPECIFICATIONS

<b>Dial</b>	2 1/2" (63 mm), 4" (100 mm)
<b>Case</b>	Chrome plated steel case, dry non-fillable
<b>Wetted Parts</b>	Steel socket, stainless steel Bourdon tube
<b>Ranges</b>	30/0/150 psi/-40/0/80° F 30/0/300 psi/-40/0/120° F
<b>Bezel</b>	Removable lens
<b>Lens</b>	Plastic, twist-off
<b>Pointer</b>	2 1/2" - adjustable, black aluminum 4" - without adjustment, black aluminum
<b>Connection</b>	Lower mount 1/4" NPT
<b>Scale</b>	Standard: psi/° F temperature equivalent
<b>Accuracy</b>	3-2-3% of span ASME B40.1 Grade B
<b>Ambient Temp</b>	Dry = -40° F to 180° F



*Design meets or exceeds ASME B40.100 pressure gauge standard.*

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Dial	Unit	A	B	C	D	E
2 1/2"	In.	2.87"	1.14"	0.84"	2.65"	1/4"
	mm	73	29	21	67	NPT
4"	In.	4.21"	1.35"	1.03"	3.89"	1/4"
	mm	107	34	26	99	NPT

## AVAILABLE OPTIONS\*

- Custom Dial
- Special Connection Size
- Other Ranges

\*Lead times/minimums may apply

## APPROXIMATE SHIPPING WEIGHTS/ BOX QUANTITIES

Dial Size	Est. Unit Wt.	Box Qty
2 1/2"	0.3 lbs (0.14 kg)	50
4"	0.55 lbs (0.24 kg)	50

NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.

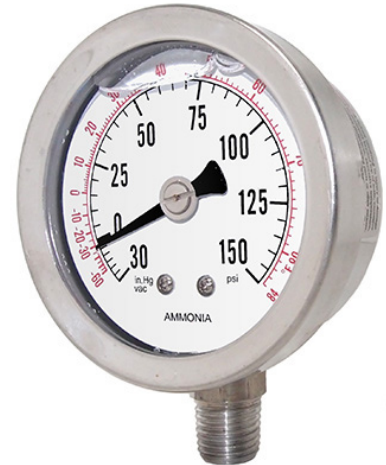
# AMMONIA-LF SERIES



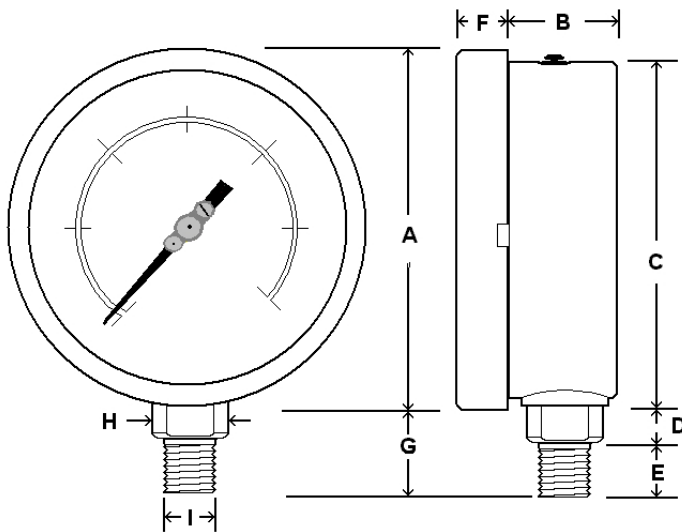
**Glycerine filled gauge for ammonia refrigeration applications**  
**Stainless steel case, 316 stainless steel internals**

## SPECIFICATIONS

<b>Dial</b>	2 ½" (63 mm), 4" (100 mm)
<b>Case</b>	Stainless steel, glycerine filled
<b>Wetted Parts</b>	316 stainless steel
<b>Ranges</b>	30/0/150 psi/-40/0/80° F 30/0/300 psi/-40/0/120° F
<b>Bezel</b>	Removable, stainless steel
<b>Lens</b>	Polycarbonate
<b>Pointer</b>	Adjustable, black aluminum
<b>Connection</b>	Lower mount ¼" NPT
<b>Scale</b>	Standard: psi/° F temperature equivalent
<b>Accuracy</b>	2-1-2% of span ASME B40.1 Grade A
<b>Ambient Temp</b>	Glycerine Filled = 30° F to 160° F Dry = -40° F to 180° F



*Design meets or exceeds ASME B40.100 pressure gauge standard.*



## AVAILABLE OPTIONS\*

- Custom Dial
- Liquid Fill Options, see page 173
- Glow Dials
- Special Connection Size
- Other Ranges

\*Lead times/minimums may apply

## APPROXIMATE SHIPPING WEIGHTS/ BOX QUANTITIES

Dial Size	Est. Unit Wt.	Box Qty
2 ½"	0.50 lbs (0.22 kg)	100
4"	1.75 lbs (0.80 kg)	30

Dial	Unit	A	B	C	D	E	F	G	H	I
2 ½"	In.	2.72"	0.76"	2.50"	0.24"	0.49"	0.44"	0.70"	0.55"	¼" NPT
	mm	69	19.5	64	6.2	12.4	11.3	18	14	
4"	In.	4.32"	1.30"	4.06"	0.52"	0.58"	0.57"	1.08"	0.84"	¼" NPT
	mm	110	33	103	13.3	15	14.6	27.5	21.5	

NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.

# AMMONIA-604 LOWER BACK MOUNT

Heavy duty 6" dry yet fillable gauge for ammonia refrigeration applications  
Stainless steel case, 316 stainless steel internals

## SPECIFICATIONS

<b>Dial</b>	6" (152 mm)
<b>Case</b>	Stainless steel, dry yet fillable, With back flange
<b>Wetted Parts</b>	316 stainless steel
<b>Ranges</b>	30/0/150 psi/-100/0/86° F 30/0/300 psi/-100/0/125° F
<b>Bezel</b>	Removable, stainless steel
<b>Lens</b>	Tempered glass
<b>Pointer</b>	Adjustable, black aluminum
<b>Connection</b>	Lower back mount 1/4" NPT
<b>Scale</b>	Standard: psi/° F temperature equivalent
<b>Accuracy</b>	0.5% of span ASME B40.1 Grade 2A
<b>Ambient Temp</b>	Dry = -30° F to 180° F Glycerine Filled = 30° F to 160° F



## AVAILABLE OPTIONS\*

- Certificate of Accuracy, NIST traceable
- Custom Dial
- Special Connection Size
- Cleaned for Oxygen Service
- Plastic Lens

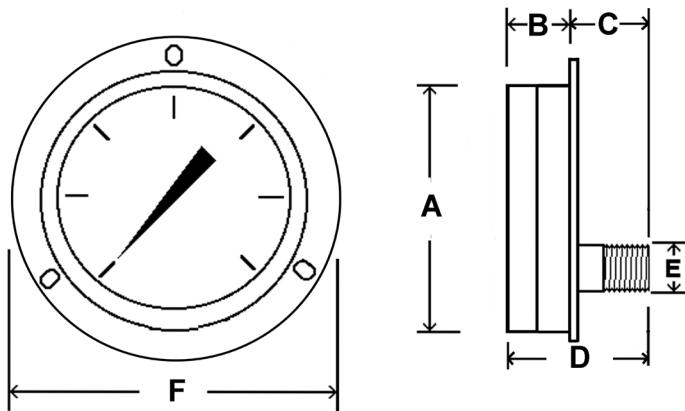
\*Lead times/minimums may apply

## APPROXIMATE SHIPPING WEIGHTS/ BOX QUANTITIES

Dial Size	Est. Unit Wt.	Box Qty
6"	2.45 lbs (1.12 kg)	upon request

5

Design meets or exceeds ASME B40.100 pressure gauge standard.



Dial	Unit	A	B	C	D	E	F
6"	In.	6.75"	2.00"	1.53"	3.53"	1/4"	7.65"
	mm	171	50	38	88	NPT	194

NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.

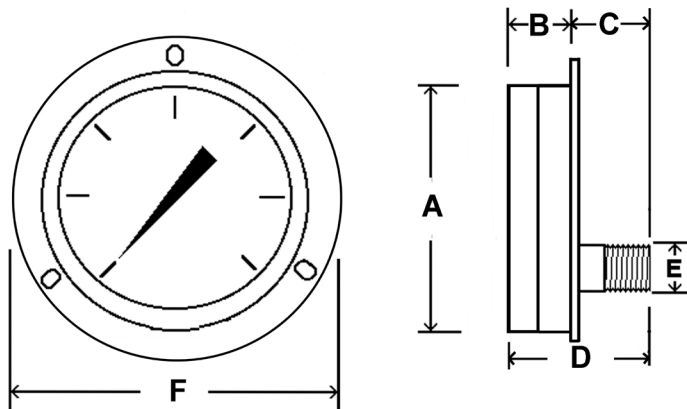
# AMMONIA-804

## LOWER BACK MOUNT

Heavy duty all stainless gauge  
 Removable bezel, adjustable pointer  
 Suitable for applications not corrosive to stainless steel

### SPECIFICATIONS

Dial	8" (203 mm)
Case	Stainless steel, dry non-fillable, rear flange
Wetted Parts	316 stainless steel
Ranges	30/0/150 psi/-100/0/84° F 30/0/300 psi/-100/0/125° F
Bezel	Removable, black aluminum
Lens	Tempered glass
Pointer	Adjustable, black aluminum
Connection	Lower back mount 1/4" NPT
Scale	Standard: psi/° F temperature equivalent
Accuracy	1% of span ASME B40.1 Grade 1A
Ambient Temp	-30° F to 180° F



Dial	Unit	A	B	C	D	E	F
8"	In.	7.93"	1.59"	1.41"	3.00"	1/4"	9.13"
	mm	201	40	36	76	NPT	232

### AVAILABLE OPTIONS\*

- Certificate of Accuracy, NIST traceable
- Custom Dial
- Special Connection Size
- Cleaned for Oxygen Service
- Plastic Lens

\*Lead times/minimums may apply

### APPROXIMATE SHIPPING WEIGHTS/ BOX QUANTITIES

Dial Size	Est. Unit Wt.	Box Qty
8"	3.95 lbs (1.80 kg)	upon request

NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.

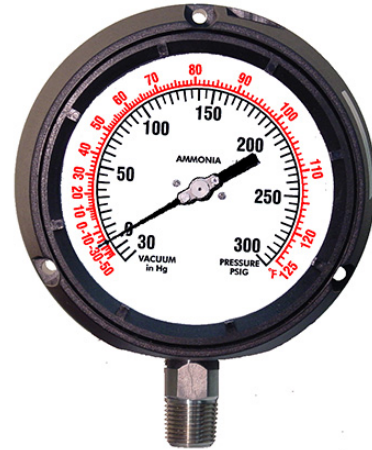
# ADDITIONAL AMMONIA GAUGES

## Ammonia refrigerant gauges

### AMMONIA PROCESS GAUGE SPECIFICATIONS

<b>Dial</b>	4 1/2" (114 mm), 6" (160 mm)
<b>Case</b>	Phenolic - Solid front blow out back on 4 1/2"
	Aluminum with hinged front flange on 4 1/2" & 6"
<b>Wetted Parts</b>	316 stainless steel
<b>Ranges</b>	30/0/150 psi/-40/0/80° F 30/0/300 psi/-40/0/120° F
<b>Bezel</b>	Removable
<b>Lens</b>	Polycarbonate
<b>Pointer</b>	Adjustable, black aluminum
<b>Connection</b>	Lower mount or lower back mount 1/4" or 1/2" NPT for 4 1/2" & 6"
<b>Scale</b>	Standard: psi/° F temperature equivalent
<b>Accuracy</b>	0.5% of span on 4 1/2" & 6" ASME B40.1 Grade 2A
<b>Ambient Temp</b>	Glycerine Filled = 30° F to 160° F Dry = -30° F to 180° F

*Design meets or exceeds ASME B40.100 pressure gauge standard.*



4501 4502 4504 6504  
page <OV> - page 58

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### AMMONIA PANEL MOUNT SPECIFICATIONS

<b>Dial</b>	2 1/2" (63 mm), 4" (100 mm), 6" (160 mm)
<b>Case</b>	Stainless steel
<b>Wetted Parts</b>	316 stainless steel
<b>Ranges</b>	30/0/150 psi/-40/0/80° F 30/0/300 psi/-40/0/120° F
<b>Bezel</b>	Stainless steel, removable
<b>Lens</b>	Laminated safety glass
<b>Pointer</b>	Adjustable, black aluminum
<b>Connection</b>	Lower back mount with front flange 1/4" NPT for 2 1/2" 1/4" or 1/2" NPT for 4" & 6"
<b>Scale</b>	Standard: psi/° F temperature equivalent
<b>Accuracy</b>	1% of span ASME B40.1 Grade 1A
<b>Ambient Temp</b>	Glycerine Filled = 30° F to 160° F Dry = -30° F to 180° F

*Design meets or exceeds ASME B40.100 pressure gauge standard.*



314D-254/404/6004  
page 42 & page 55

NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.

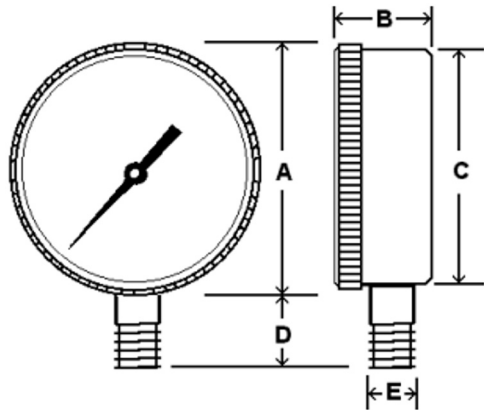
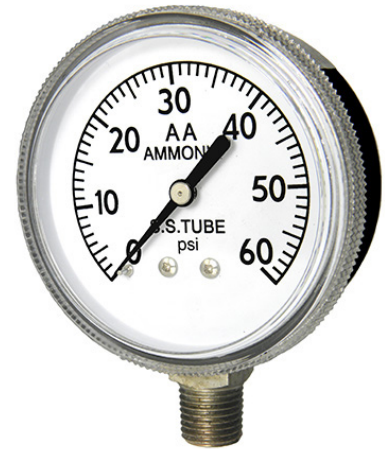
# 401A SERIES AGRICULTURAL AMMONIA GAUGE

Dry, non-fillable gauge for agricultural ammonia applications  
 Black painted steel case, stainless steel internals and steel socket

## SPECIFICATIONS

<b>Dial</b>	2 1/2" (63 mm), 4" (100 mm)
<b>Case</b>	Black painted steel, dry non-fillable
<b>Wetted Parts</b>	Stainless steel bourdon tube Steel connection
<b>Ranges</b>	0/60 psi, 0/160 psi, 0/400 psi
<b>Bezel</b>	Removable lens
<b>Lens</b>	Plastic, twist-off
<b>Pointer</b>	Black aluminum
<b>Connection</b>	Lower mount 1/4" NPT
<b>Scale</b>	Standard: single scale psi
<b>Accuracy</b>	3-2-3% of span, ASME B40.1 Grade B
<b>Ambient Temp</b>	-40° F to 180° F

Design meets or exceeds ASME B40.100 pressure gauge standard.



Dial	Unit	A	B	C	D	E
2 1/2"	In.	2.84"	1.18"	2.65"	0.67"	1/4" NPT
	mm	72	30	67	17	
4"	In.	4.05"	1.40"	3.87"	0.89"	1/4" NPT
	mm	103	36	98	23	

## STANDARD DIAL CONFIGURATIONS FOR AGRICULTURAL AMMONIA SERIES

Part Number	Dial Size	Dial Range	Figure Intervals	Graduation Intervals
401A-254D	2 1/2"	0/60 psi	10 psi	1 psi
401A-254F	2 1/2"	0/160 psi	40 psi	5 psi
401A-254I	2 1/2"	0/400 psi	100 psi	10 psi
401A-404D	4"	0/60 psi	10 psi	2 psi
401A-404F	4"	0/160 psi	40 psi	5 psi
401A-404I	4"	0/400 psi	100 psi	10 psi

## AVAILABLE OPTIONS\*

- Custom Dial
- Special Connection Size
- Other Ranges

\*Lead times/minimums may apply

## APPROXIMATE SHIPPING WEIGHTS/ BOX QUANTITIES

Dial Size	Est. Unit Wt.	Box Qty
2 1/2"	0.25 lbs (0.12 kg)	50
4"	0.65 lbs (0.30 kg)	upon request

NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.

# RECTANGLE (EDGE) GAUGE

**Compact rectangle/edge gauge, plastic case, copper alloy wetted parts**  
**Suitable for air, water, oil, gas or other media not corrosive to copper alloy**

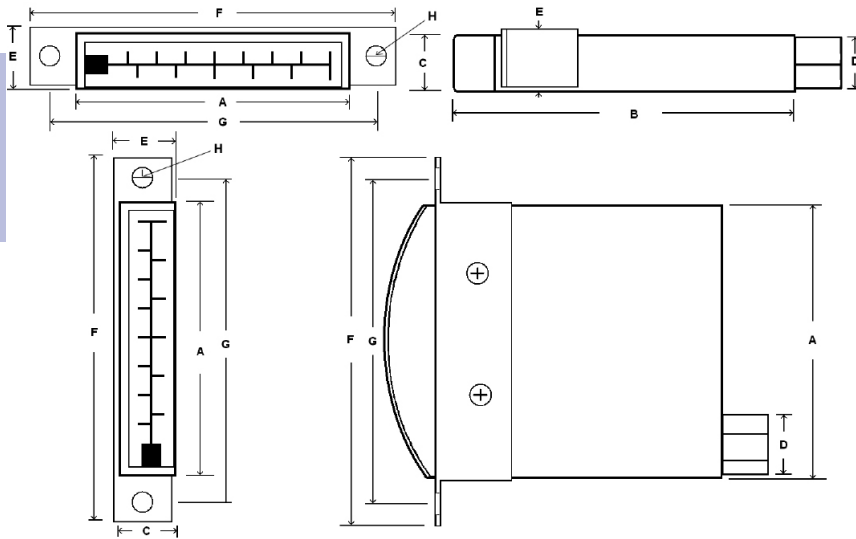
## SPECIFICATIONS

<b>Dial</b>	1 3/4" x 1/2" horizontal or vertical
<b>Case</b>	Plastic, with or without mounting bracket
<b>Wetted Parts</b>	Copper alloy
<b>Ranges</b>	0/60 psi, 0/100 psi, 0/120 psi
<b>Lens</b>	Plastic
<b>Pointer</b>	Red plastic
<b>Connection</b>	Back mount 10/32" female thread or 1/32" hose barb connection
<b>Scale</b>	Standard: psi/kg/cm <sup>2</sup>
<b>Accuracy</b>	5% of span on ASME B40.1 Grade D
<b>Ambient Temp</b>	Dry = -50° F to 160° F

*Design meets or exceeds ASME B40.100 pressure gauge standard.*



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Shown with optional panel mount front bracket  
Hole dimension of bracket is 4.2mm +/-0.01mm

Dial	Unit	A	B	C	D	E	F	G	H
1 3/4"	In.	1.76"	2.28"	0.51"	0.43"	0.55"	2.5"	2.16"	0.17"
	mm	45	58	13	11	14	63.6	55	4.2

## STANDARD CONFIGURATIONS

Part Number	Range	Connection	Bracket
RECT-60FB	0/60 psi	10/32 back	Front
RECT-60NB	0/60 psi	10/32 back	None
RECT-100FB	0/100 psi	10/32 back	Front
RECT-120FB	0/120 psi	10/32 back	Front

## AVAILABLE OPTIONS\*

- Single Scale psi
- Special Connection Size
- Other Ranges
- Other Mounting Options/Styles
  - Front Bracket
  - Rear Bracket
  - Panel Flange
  - Panel Clip

\*Lead times/minimums may apply

## APPROXIMATE SHIPPING WEIGHTS/ BOX QUANTITIES

Size	Est. Unit Wt.	Box Qty
1 3/4"	0.10 lbs (0.04 kg)	upon request

NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.



# GT SERIES GAS TEST GAUGE

Utility gas test gauge with horizontal, vertical or bell shaped housing  
For pressure tests of residential and commercial piping systems

## SPECIFICATIONS

<b>Dial</b>	2" (50 mm)
<b>Case</b>	Black painted steel, dry non-fillable
<b>Wetted Parts</b>	Copper alloy Bourdon tube & socket Steel block (Horizontal/vertical chrome plated steel)
<b>Ranges</b>	Standard ranges: 0/15 psi to 0/200 psi
<b>Bezel</b>	Plastic
<b>Lens</b>	Plastic, snap in
<b>Pointer</b>	Black aluminum
<b>Connection</b>	Lower mount 1/2", 3/4" or 1" FNPT
<b>Scale</b>	Standard: single scale psi
<b>Accuracy</b>	3-2-3% of span, ASME B40.1 Grade B
<b>Ambient Temp</b>	-40° F to 160° F
<b>Test Block</b>	Steel with valve for pressurization

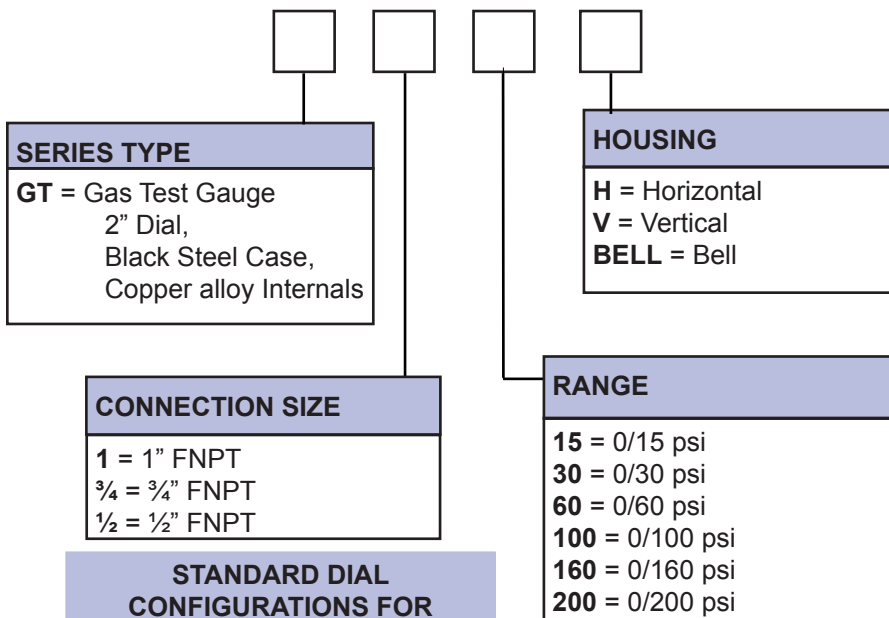
*Design meets or exceeds ASME B40.100 pressure gauge standard.*



## AVAILABLE OPTIONS\*

- Custom Dial
- Special Connection Size
- Other Ranges

## PART NUMBERING SYSTEM



## STANDARD DIAL CONFIGURATIONS FOR GAS TEST SERIES

Dial Range	Figure Intervals	Graduation Intervals
0/15 psi	1 psi	0.1 psi
0/30 psi	5 psi	0.25 psi
0/60 psi	10 psi	0.5 psi
0/100 psi	20 psi	1 psi
0/160 psi	20 psi	2 psi
0/200 psi	20 psi	5 psi

## APPROXIMATE SHIPPING WEIGHTS/ BOX QUANTITIES

### HORIZONTAL 2" DIAL SIZE

1/2" FNPT: 0.65 lbs (0.28 kg)/50 pcs  
3/4" FNPT: 0.65 lbs (0.30 kg)/50 pcs  
1" FNPT: 0.85 lbs (0.38 kg)/50 pcs

### VERTICAL 2" DIAL SIZE

1/2" FNPT: 0.70 lbs (0.32 kg)/50 pcs  
3/4" FNPT: 0.65 lbs (0.28 kg)/50 pcs  
1" FNPT: 0.85 lbs (0.38 kg)/50 pcs

### BELL 2" DIAL SIZE

1/2" FNPT: 0.40 lbs (0.20 kg)/50 pcs  
3/4" FNPT: 0.50 lbs (0.22 kg)/50 pcs  
1" FNPT: 0.60 lbs (0.26 kg)/50 pcs

NOTE: Not all part numbers or options are available from stock. Consult ESP for availability.

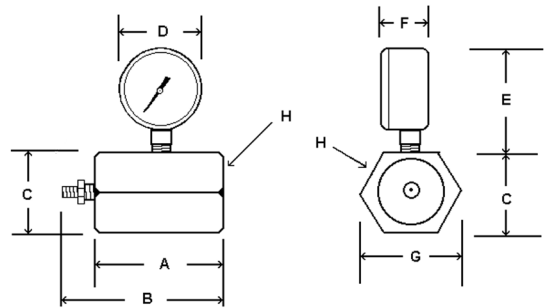
# GT SERIES GAS TEST GAUGE

Utility gas test gauge with horizontal, vertical or bell shaped housing  
For pressure tests of residential and commercial piping systems



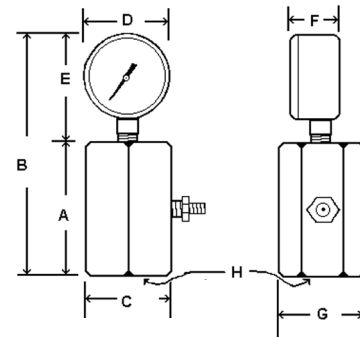
### HORIZONTAL DIMENSIONS

Unit	A	B	C	D	E	F	G	H
In.	1.81"	2.58"	1.02"	2.02"	2.56"	1.03"	1.18"	1/2" NPT
mm	46.0	65.5	26.0	51.4	65.0	26.3	30.0	
In.	1.97"	2.74"	1.10"	2.02"	2.56"	1.03"	1.27"	3/4" NPT
mm	50.0	69.5	28.0	51.4	65.0	26.3	32.3	
In.	1.97"	2.74"	1.42"	2.02"	2.56"	1.03"	1.64"	1" NPT
mm	50.0	69.5	36.0	51.4	65.0	26.3	41.6	



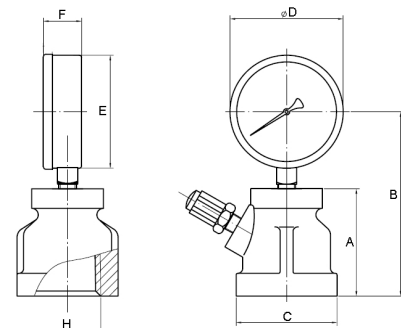
### VERTICAL DIMENSIONS

Unit	A	B	C	D	E	F	G	H
In.	1.81"	4.37"	1.02"	2.02"	2.56"	1.03"	1.18"	1/2" NPT
mm	46.0	111.0	26.0	51.4	65.0	26.3	30.0	
In.	1.97"	4.53"	1.10"	2.02"	2.56"	1.03"	1.27"	3/4" NPT
mm	50.0	115.0	28.0	51.4	65.0	26.3	32.3	
In.	1.97"	4.53"	1.42"	2.02"	2.56"	1.03"	1.64"	1" NPT
mm	50.0	115.0	36.0	51.4	65.0	26.3	41.6	



### BELL DIMENSIONS

Unit	A	B	C	D	E	F	H
In.	1.31"	2.77"	1.22"	2.02"	2.00"	1.03"	1/2" NPT
mm	33.5	70.4	31.0	51.4	50.8	26.3	
In.	1.50"	2.95"	1.50"	2.02"	2.00"	1.03"	3/4" NPT
mm	38.0	74.9	38.0	51.4	50.8	26.3	
In.	1.75"	3.20"	1.81"	2.02"	2.00"	1.03"	1" NPT
mm	44.5	81.4	46.0	51.4	50.8	26.3	



NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.

# HOSE SERIES HOSE TEST GAUGE

Utility water test gauge with or without maximum indicating pointer  
For pressure tests of residential and commercial water lines

## SPECIFICATIONS

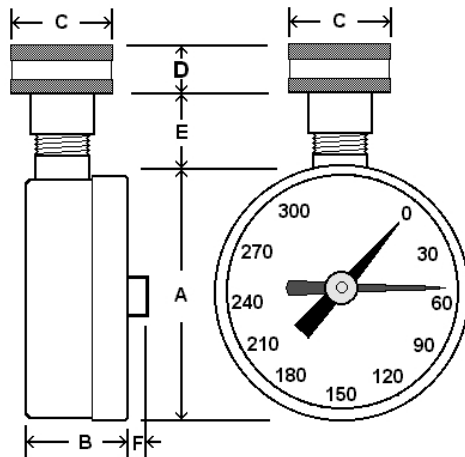
<b>Dial</b>	2 1/2" (63 mm)
<b>Case</b>	Black plastic, dry non-fillable
<b>Wetted Parts</b>	Copper alloy
<b>Ranges</b>	0/300 psi
<b>Bezel</b>	Black steel, fixed
<b>Lens</b>	Plastic
<b>Pointer</b>	Black aluminum
<b>Connection</b>	Top mount 3/4" female Copper alloy swivel connection
<b>Scale</b>	Standard: single scale psi
<b>Accuracy</b>	3-2-3% of span, ASME B40.1 Grade B
<b>Ambient Temp</b>	Dry = -40° F to 160° F

*Design meets or exceeds ASME B40.100 pressure gauge standard.*



HOSE

HOSE-MAX



P/N	Unit	A	B	C	D	E	F
HOSE	In.	2.52"	1.11"	1.18"	0.58"	0.81"	N/A
	mm	64	28	30	15	21	
HOSE-MAX	In.	2.52"	1.11"	1.18"	0.58"	0.81"	0.20"
	mm	64	28	30	15	21	5

## AVAILABLE OPTIONS\*

- Custom Dial
- Special Connection Size/Location
- Other Ranges

\*Lead times/minimums may apply

## APPROXIMATE SHIPPING WEIGHTS/ BOX QUANTITIES

Dial Size	Est. Unit Wt.	Box Qty
2 1/2"	0.35 lbs (0.16 kg)	50

NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.  
Engineered Specialty Products, Inc.

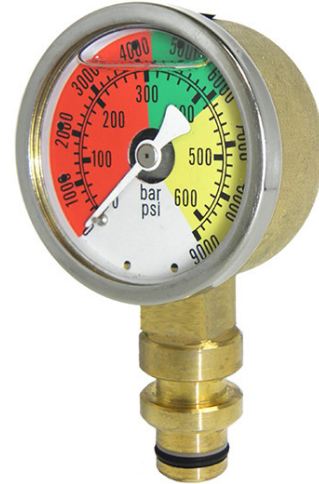
# 509L LONG WALL MINING GAUGE

One-piece forged Copper alloy gauge designed for long wall mining equipment  
0/9000 psi color zone dial and hydraulic quick connect

## SPECIFICATIONS

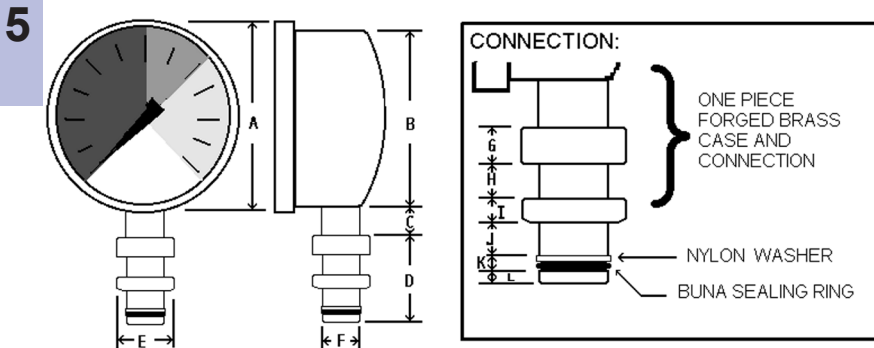
<b>Dial</b>	2" (50 mm), color zones Red: 0/4000 psi Green: 4000/6000 psi Yellow: 6000/9000 psi
<b>Case</b>	Forged Copper alloy, silicone filled
<b>Wetted Parts</b>	Copper alloy
<b>Ranges</b>	0/9000 psi / 0/600 BAR
<b>Bezel</b>	Stainless steel
<b>Lens</b>	Plastic
<b>Pointer</b>	White aluminum
<b>Connection</b>	Lower mount 3/8" "Steck-o" type mining industry standard Hydraulic quick connect with Buna N® o-ring & nylon washer, with M3 restrictor screw
<b>Scale</b>	Standard: psi/BAR
<b>Accuracy</b>	2-1-2% of span, ASME B40.1 Grade A
<b>Ambient Temp</b>	Silicone Filled = -30° F to 160° F

Design meets or exceeds ASME B40.100 pressure gauge standard.



## AVAILABLE OPTIONS\*

- Custom Dial
- Special Connection Size
- Other Ranges



\*Lead times/minimums may apply

Dial	Unit	A	B	C	D	E	F
2"	In.	2.10"	1.96"	0.44"	1.13"	0.79"	0.55"
	mm	53	50	11	29	20	14

Dial	Unit	G	H	I	J	K	L
2"	In.	0.30"	0.20"	0.19"	0.19"	0.13"	0.13"
	mm	8	5	5	5	3	3

## APPROXIMATE SHIPPING WEIGHTS/ BOX QUANTITIES

Dial Size	Est. Unit Wt.	Box Qty
2"	0.60 lbs (0.26 kg)	50

NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.

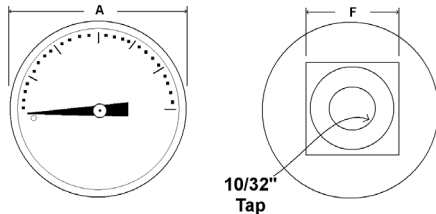
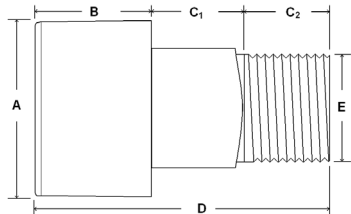
# 1" MINI BOURDON TUBE GAUGE

Miniature gauge for applications where space constraints are a concern  
 Suitable for air, water, oil, gas or other media not corrosive to Copper alloy

## SPECIFICATIONS

<b>Dial</b>	1" (25.4 mm)
<b>Case</b>	Black plastic, dry non-fillable
<b>Wetted Parts</b>	Copper alloy
<b>Ranges</b>	0/30, 0/60, 0/100, 0/160 psi
<b>Lens</b>	Plastic
<b>Pointer</b>	Black aluminum
<b>Connection</b>	Center back mount 1/8" NPT with 10/32" tap
<b>Scale</b>	Standard: single scale psi
<b>Accuracy</b>	3-2-3% of span, 1" ASME B40.1 Grade B
<b>Ambient Temp</b>	Dry = -30° F to 180° F

*Design meets or exceeds ASME B40.100 pressure gauge standard.*



Dial	Unit	A	B	C1	C2	D	E	F
1"	In.	0.98"	0.58"	0.34"	0.28"	1.21"	1/8"	0.47"
	mm	25	15	9	7	31	NPT	12

## STANDARD PART NUMBERS

Part Number	Range
102D-108C	0/30 psi
102D-108D	0/60 psi
102D-108E	0/100 psi
102D-108F	0/160 psi
102D-108G	0/200 psi
102D-108H	0/300 psi

## AVAILABLE OPTIONS\*

- Custom Dial
- Special Connection Size
- Other Ranges
- Built-in Snubber

\*Lead times/minimums may apply

## APPROXIMATE SHIPPING WEIGHTS/ BOX QUANTITIES

Dial Size	Est. Unit Wt.	Box Qty
1"	0.05 lbs (0.02 kg)	upon request

NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.  
 Engineered Specialty Products, Inc.

# 1" HEX GAUGE

Miniature gauge for applications where space constraints are a concern  
 Suitable for air, water, oil, gas or other media not corrosive to Copper alloy

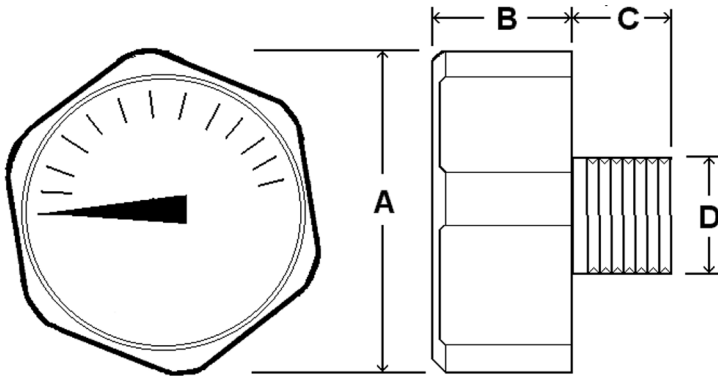
## SPECIFICATIONS

<b>Dial</b>	1" (25.4 mm)
<b>Case</b>	Nickel plated hex case, dry non-fillable
<b>Wetted Parts</b>	Copper alloy
<b>Ranges</b>	0/160 - 0/6000
<b>Bezel</b>	Fixed
<b>Lens</b>	Plastic
<b>Pointer</b>	Yellow
<b>Connection</b>	Center back mount 1/8" NPT
<b>Scale</b>	Standard: single scale psi
<b>Accuracy</b>	5% of span, ASME B40.1 Grade D
<b>Ambient Temp</b>	Dry = -50° F to 160° F

Design meets or exceeds ASME B40.100 pressure gauge standard.



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Dial	Unit	A	B	C	D
1"	In.	1.00"	0.40"	0.35"	1/8"
	mm	25	10	9	NPT

### STANDARD DIAL CONFIGURATIONS FOR HEX GAUGE SERIES

Part Number	Dial Range	Figure Intervals	Graduation Intervals
HEX-108RF	0/160 psi	40 psi	10 psi
HEX-108RH	0/300 psi	100 psi	20 psi
HEX-108RJ	0/500 psi	100 psi	20 psi
HEX-108RL	0/750 psi	200 psi	50 psi
HEX-108RM	0/1000 psi	200 psi	40 psi
HEX-108RN	0/1200 psi	400 psi	80 psi
HEX-108RQ	0/4000 psi	1000 psi	200 psi
HEX-108RR	0/5000 psi	1000 psi	200 psi
HEX-108RS	0/6000 psi	2000 psi	333 psi

## AVAILABLE OPTIONS\*

- Custom Dial
- Special Connection Size
- Other Ranges
- White Dial Custom Only, Non-Stock Option

\*Lead times/minimums may apply

## APPROXIMATE SHIPPING WEIGHTS/ BOX QUANTITIES

Dial Size	Est. Unit Wt.	Box Qty
1"	0.35 lbs (0.16 kg)	upon request

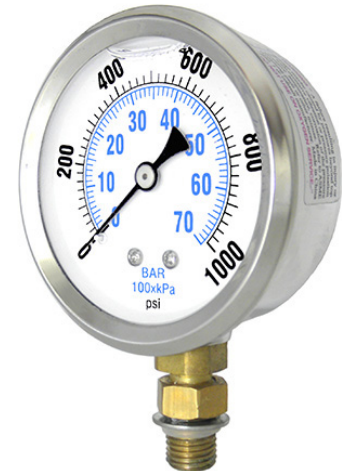
NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.

# SAE-201L LOWER MOUNT

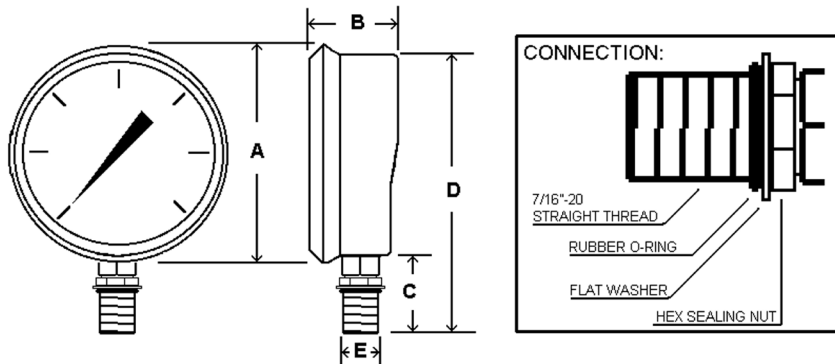
Glycerine filled gauge with SAE4 connection  
Suitable for air, water, oil, gas or other media not corrosive to Copper alloy

## SPECIFICATIONS

<b>Dial</b>	2 1/2" (63 mm)
<b>Case</b>	Stainless steel, glycerine filled
<b>Wetted Parts</b>	Copper alloy
<b>Ranges</b>	30" Hg Vac/0 - 0/10,000 psi
<b>Bezel</b>	Stainless steel, fixed
<b>Lens</b>	Plastic
<b>Pointer</b>	Black aluminum
<b>Connection</b>	Lower mount 7/16-20 SAE connection with silicon rubber o-ring, washer and lock nut
<b>Scale</b>	Standard: dual scale psi/BAR (x 100 = kPa)
<b>Accuracy</b>	2-1-2% of span, ASME B40.1 Grade A
<b>Ambient Temp</b>	Glycerine Filled = 30° F to 160° F Dry = -30° F to 180° F



Design meets or exceeds ASME B40.100 pressure gauge standard.



## AVAILABLE OPTIONS\*

- Certificate of Accuracy, NIST Traceable
- Custom Dial
- Special Connection Size
- Center Back Mount
- Other Ranges

5

\*Lead times/minimums may apply

Dial	Unit	A	B	C	D	E
2 1/2"	In.	2.80"	1.28"	1.07"	3.55"	7/16-20 SAE
	mm	71	33	27	90	

## SAE PART NUMBERS

Part Number	Dial Range	Part Number	Dial Range
201L-25XA-SAE4	30/0" Hg vac	201L-25XM-SAE4	0/1000 psi
201L-25XC-SAE4	0/30 psi	201L-25XN-SAE4	0/1500 psi
201L-25XD-SAE4	0/60 psi	201L-25XO-SAE4	0/2000 psi
201L-25XE-SAE4	0/100 psi	201L-25XP-SAE4	0/3000 psi
201L-25XF-SAE4	0/160 psi	201L-25XQ-SAE4	0/4000 psi
201L-25XG-SAE4	0/200 psi	201L-25XR-SAE4	0/5000 psi
201L-25XI-SAE4	0/400 psi	201L-25XS-SAE4	0/6000 psi
201L-25XJ-SAE4	0/500 psi	201L-25XU-SAE4	0/10,000 psi
201L-25XK-SAE4	0/600 psi		

## APPROXIMATE SHIPPING WEIGHTS/ BOX QUANTITIES

Dial Size	Est. Unit Wt.	Box Qty
2 1/2"	0.45 lbs (0.22 kg)	upon request

NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.

# SPIRAL TUBE GAUGE

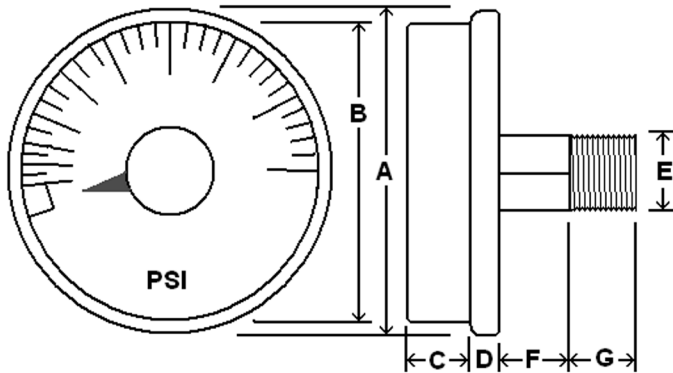
Direct drive gauge for applications requiring enhanced durability and repeatability  
 Suitable for air, water, oil, gas or other media not corrosive to Copper alloy

## SPECIFICATIONS

<b>Dial</b>	1 ¼" (36 mm), 1 ½" (42 mm)
<b>Case</b>	Stainless steel, dry non-fillable
<b>Wetted Parts</b>	Copper alloy
<b>Ranges</b>	0/160, 0/300, 0/500, 0/1000, 0/3000 psi
<b>Lens</b>	Plastic
<b>Pointer</b>	Aluminum
<b>Connection</b>	Center back mount 1/8" NPT
<b>Scale</b>	Standard: single scale psi
<b>Accuracy</b>	5% of span, ASME B40.1 Grade D
<b>Ambient Temp</b>	30° F to 160° F



Design meets or exceeds ASME B40.100 pressure gauge standard.



Dial	Unit	A	B	C	D	E	F	G
1 ¼"	In.	1.40"	1.20"	0.16"	0.25"	1/8"	0.28"	0.32"
	mm	36	31	4	7	NPT	7	8
1 ½"	In.	1.65"	1.46"	0.23"	0.23"	1/8"	0.23"	0.33"
	mm	42	37	6	6	NPT	6	8.5

Contact ESP for configurations and ordering information

## AVAILABLE OPTIONS\*

- Custom Dial
- Special Connection Size
- Other Ranges
- Use No Oil

## APPROXIMATE SHIPPING WEIGHTS/ BOX QUANTITIES

Dial Size	Est. Unit Wt.	Box Qty
1 ¼"	0.05 lbs (0.02 kg)	upon request
1 ½"	0.05 lbs (0.02 kg)	upon request

NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.



# SPRINKLER GAUGE

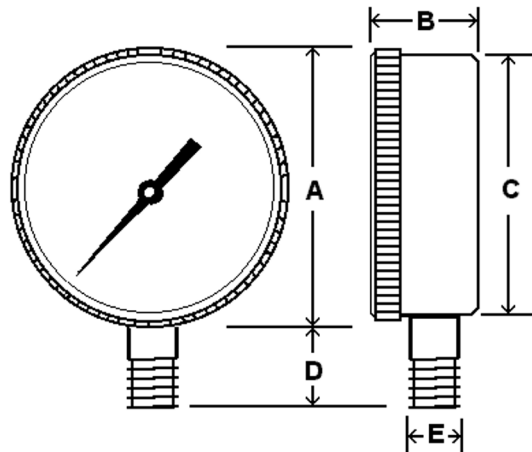


UL listed gauge designed for use on fire protection/sprinkler systems  
Suitable for air, water, oil, gas or other media not corrosive to Copper alloy

## SPECIFICATIONS

<b>Dial</b>	3 1/2" (88.9 mm), UL listed/FM Approved
<b>Case</b>	Plastic, dry non-fillable
<b>Wetted Parts</b>	Copper alloy
<b>Ranges</b>	0/300 psi Water; 0/80-250 psi Air Retard
<b>Bezel</b>	Removable lens
<b>Lens</b>	Plastic, twist-off
<b>Pointer</b>	Black aluminum
<b>Connection</b>	Lower mount 1/4" NPT
<b>Scale</b>	Standard: single scale psi
<b>Accuracy</b>	3-2-3% of span, ASME B40.1 Grade B
<b>Ambient Temp</b>	Dry = -50° F to 160° F

Design meets or exceeds ASME B40.100 pressure gauge standard.



Dial	Unit	A	B	C	D	E
3 1/2"	In.	3.85"	1.19"	3.71"	1.08"	1/4" NPT
	mm	97.8	30.2	94	28	

## SPRINKLER PART NUMBERS

Part Number	Dial Range	Figure Intervals	Graduation Intervals
SPRINKLER-AIR	0/80/250	100 psi	10 psi
SPRINKLER-WATER	0/300 psi	25 psi	5 psi

## AVAILABLE OPTIONS\*

- Custom Dial
- Special Connection Size
- Other Ranges
- Repairable

\*Lead times/minimums may apply

## APPROXIMATE SHIPPING WEIGHTS/ BOX QUANTITIES

Dial Size	Est. Unit Wt.	Box Qty
3 1/2"	0.45 lbs (0.22 kg)	50

NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.

Engineered Specialty Products, Inc.

# 40MM POSITIONER GAUGE

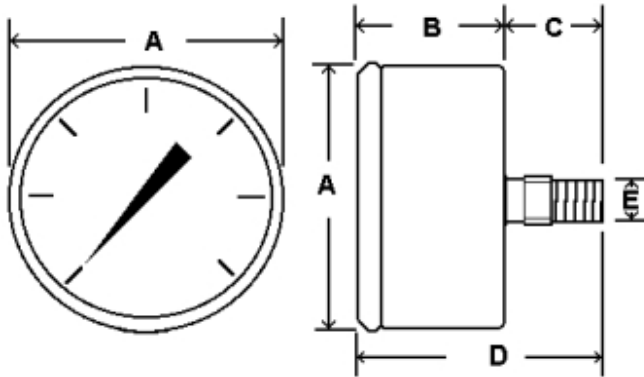
**Bourdon tube gauge for applications requiring installation of multiple units**  
**Suitable for applications where space constraints are a concern**

## SPECIFICATIONS

<b>Dial</b>	40 mm
<b>Case</b>	Stainless steel, dry yet fillable
<b>Wetted Parts</b>	316 Stainless steel
<b>Ranges</b>	0/30, 0/60, 0/100, 0/160 psi
<b>Lens</b>	Plastic
<b>Pointer</b>	Black aluminum
<b>Connection</b>	Center back mount 1/8" NPT
<b>Scale</b>	Standard: psi/BAR (x 100 = kPa)
<b>Accuracy</b>	3-2-3% of span, ASME B40.1 Grade B
<b>Ambient Temp</b>	Dry = -30° F to 180° F Glycerine Filled = 30° F to 160° F



*Design meets or exceeds ASME B40.100 pressure gauge standard.*



Dial	Unit	A	B	C	D	E
40 mm	In.	1.61"	1.02"	0.84"	1.76"	1/8"
	mm	41	26	21	45	NPT

## AVAILABLE OPTIONS\*

- Custom Dial
- Special Connection Size
- Special Accuracy
- Other Ranges
- Copper alloy Internals

\*Lead times/minimums may apply

## APPROXIMATE SHIPPING WEIGHTS/BOX QUANTITIES

Dial Size	Est. Unit Wt.	Box Qty
40 mm	0.20 lbs (0.08 kg)	50

## 40MM PART NUMBERS

Part Number	Dial Range	Figure Intervals	Graduation Intervals
40MM-SS-C	0/30 psi	5 psi	0.5 psi
40MM-SS-D	0/60 psi	10 psi	1 psi
40MM-SS-E	0/100 psi	20 psi	2 psi
40MM-SS-F	0/160 psi	20 psi	2 psi

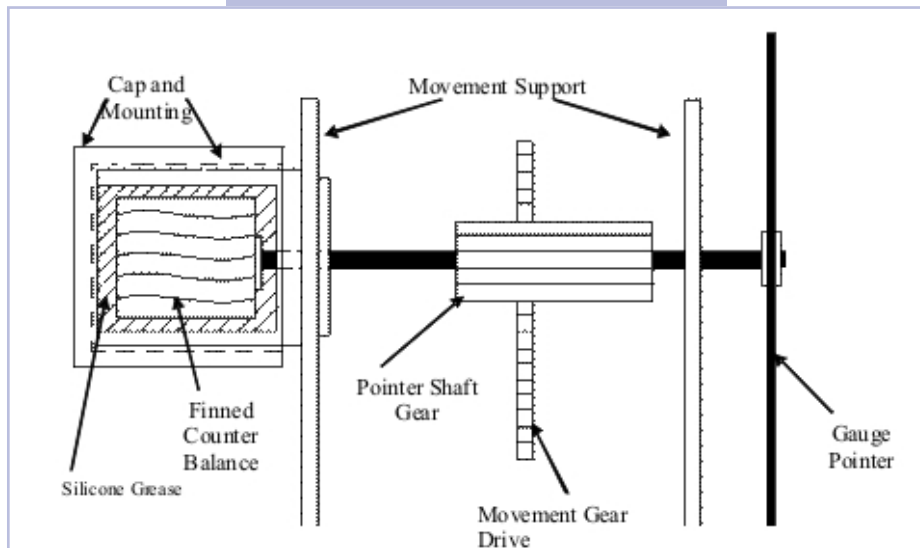
NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.

# ANTI-VIBRATION MOVEMENT



Creates liquid filled performance in a dry gauge  
 Suitable for rugged applications requiring dry gauges

## ANTI-VIBRATION MOVEMENT



A silicone dampened counter weight is attached to the movement, which creates a dampening effect similar to liquid filling, but without the cost and potential problems associated with liquid filling (i.e. browning and leakage).

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ANTI-VIBRATION ADVANTAGES	AVAILABLE OPTIONS*
<ol style="list-style-type: none"> <li><b>1. High Temp/Low Temp Applications</b>                      Eliminates risk of liquid filling browning, baking or boiling                      Removes concern of liquid filling freezing</li> <li><b>2. Clean Environment Applications</b>                      Prevents liquid filling from leaking</li> <li><b>3. Low Cost Applications</b>                      Less expensive gauge can be used (i.e. steel case vs. stainless steel case)</li> </ol>	<ul style="list-style-type: none"> <li>• Various Sizes and Configurations</li> <li>• Custom Dials</li> <li>• Special Connection Sizes</li> <li>• Various Ranges</li> <li>• Repairable</li> </ul> <p>*Lead times/minimums may apply</p>

# 1" REGULATOR GAUGE

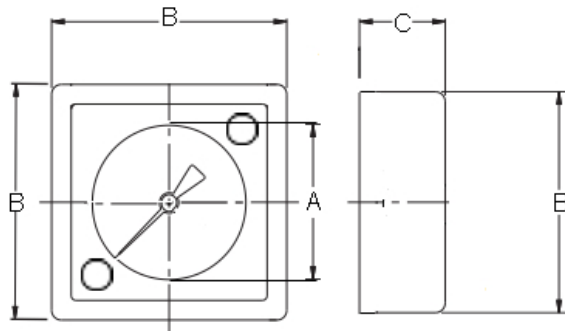
**Black ABS case, copper alloy internals**

## SPECIFICATIONS

<b>Dial</b>	1" (25.4 mm)
<b>Case</b>	Black ABS case, dry non-fillable
<b>Wetted Parts</b>	Copper alloy
<b>Lens</b>	Plastic
<b>Pointer</b>	Black aluminum
<b>Connection</b>	Center back mount, o-ring connection
<b>Scale</b>	Standard: single scale psi
<b>Accuracy</b>	3-2-3% of span ASME B40.1 Grade B
<b>Ambient Temp</b>	-50° F to 160° F



*Design meets or exceeds ASME B40.100 pressure gauge standard.*



Dial	Unit	A	B	C
1"	In.	0.84"	1.07"	0.62"
	mm	21	27	16

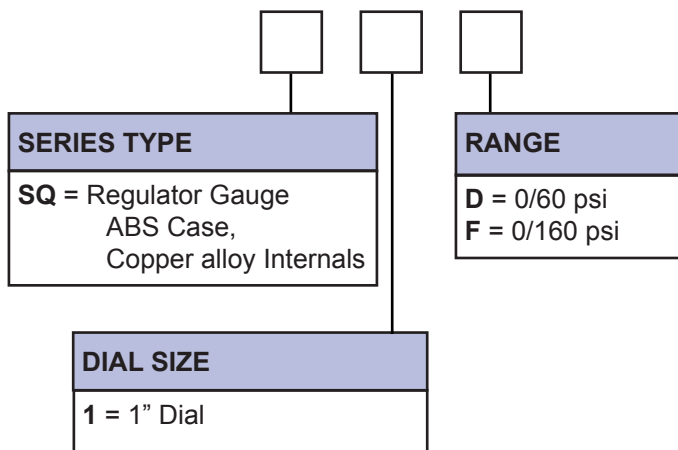
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## AVAILABLE OPTIONS\*

- Custom Dial
- Alternate Ranges
- Alternate Scales
- Custom Housing
  - Color
  - Dimensions
  - Mounting Style

\*Lead times/minimums may apply

## PART NUMBERING SYSTEM



## APPROXIMATE SHIPPING WEIGHTS/ BOX QUANTITIES

Dial Size	Est. Unit Wt.	Box Qty
1"	0.04 lbs (0.02 kg)	upon request

Because of continuing improvements, specifications are subject to change without notice.  
NOTE: Not all part numbers or options are available from stock. Consult ESP for availability.

# FILTER GAUGE

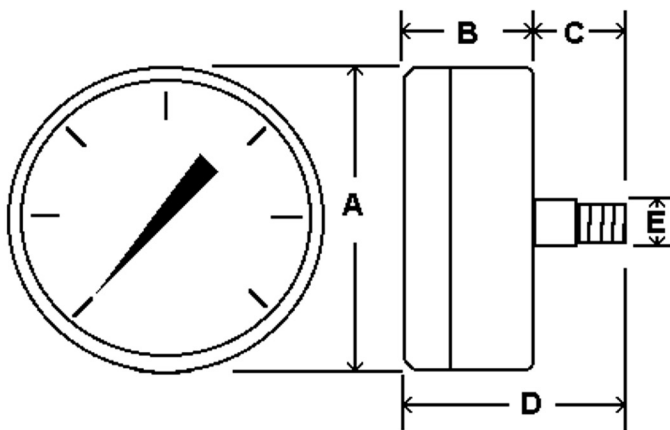


Utility gauge with color zones for optimal filter performance  
Black steel case and bezel, copper alloy internals

## SPECIFICATIONS

<b>Dial</b>	1 1/2" (40 mm), 2" (50 mm)
<b>Case</b>	Black steel, dry non-fillable
<b>Wetted Parts</b>	Copper alloy
<b>Ranges</b>	30/0" hg Vacuum, 0/60 psi
<b>Bezel</b>	Black painted steel, fixed
<b>Lens</b>	Glass
<b>Pointer</b>	Black aluminum
<b>Connection</b>	Center back mount 1 1/2" dial = 1/8" NPT 2" dial = 1/8" NPT
<b>Scale</b>	Standard: psi/BAR (x 100 = kPa)
<b>Accuracy</b>	3-2-3% of span, ASME B40.1 Grade B
<b>Ambient Temp</b>	-50° F to 160° F

Design meets or exceeds ASME B40.100 pressure gauge standard.



Dial	Unit	A	B	C	D	E
1 1/2"	In.	1.64"	0.93"	0.63"	1.56"	1/8" NPT
	mm	42	24	16	39	
2"	In.	2.07"	1.03"	0.83"	1.86"	1/8" NPT
	mm	53	26	21	47	

## STANDARD PART NUMBERS

Part Number	Range	Color Zones		
		Green	Yellow	Red
FILTER-158D-CZ1	0/60 psi	0-20	20-25	25-60
FILTER-208A-CZ1	30/0" hg vac	0-9	9-11	11-30
FILTER-208A-CZ2	30/0" hg vac	0-4	4-6	6-30
FILTER-208D-CZ1	0/60 psi	0-20	20-25	25-60

NOTE: Because of continuing improvements, increments/specifications are subject to change without notice. Stock ranges vary by dial size and configuration. Consult ESP for availability.

Engineered Specialty Products, Inc.

## AVAILABLE OPTIONS\*

- Certificate of Accuracy, NIST traceable
- Custom Dial
- Custom Range
- Anti-Vibration Movement, see page 107
- Cleaned for Oxygen Service
- Special Connection Size
- Protective Rubber Cover, see page 119
- Plastic Lens
- Max/Min Pointer, see page 120

\*Lead times/minimums may apply

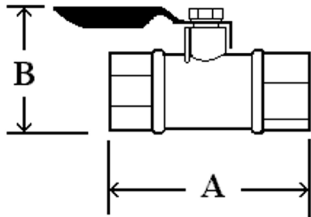
## APPROXIMATE SHIPPING WEIGHTS/BOX QUANTITIES

Dial Size	Est. Unit Weight	Box Qty
1 1/2"	0.15 lbs (0.06 kg)	100
2"	0.25 lbs (0.10 kg)	100

## MINI BALL VALVES

### A14

- Ball valve type gauge cock
- 1/4" FNPT X 1/4" FNPT
- Brass body rating: 700 psi at 250° F
- Est. Unit Wt.: 0.10 lbs/0.06 kg

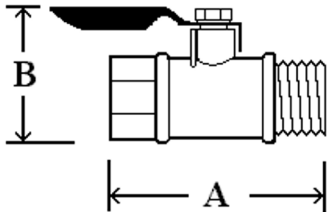


Unit	A	B
In.	1.60"	1.30"
mm	40	33



### A15

- Ball valve type gauge cock
- 1/4" MNPT X 1/4" FNPT
- Brass body rating: 700 psi at 250° F
- Est. Unit Wt.: 0.10 lbs/0.06 kg



Unit	A	B
In.	1.60"	1.35"
mm	40	34



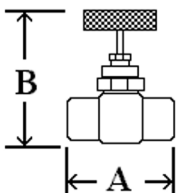
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## BRASS NEEDLE VALVES

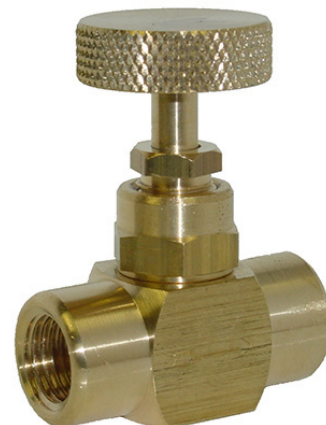
### NV-B-1/4

- Needle valve
- 1/4" FNPT X 1/4" FNPT (NV-B-1/4-FXF)
- 1/4" MNPT X 1/4" FNPT (NV-B-1/4-MXF)
- 1/4" MNPT X 1/4" MNPT (NV-B-1/4-MXM)
- Brass body rating: 600 psi @ 300 °F
- Est. Unit Wt.: 0.25 lbs/0.10 kg

Configuration	Box Qty
FXF	80
MXF	200
MXM	20



Unit	A	B
In.	1.62"	1.94"
mm	41	49



# GAUGE VALVES



## GAUGE COCKS

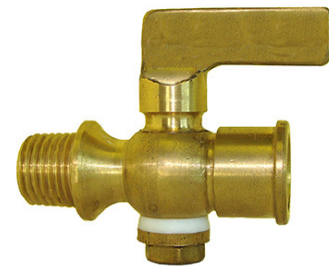
### T-HANDLE COCK - A10

**Material** Polished brass  
**Pressure Rating** Up to 125 psi hydraulic  
**Connection Size** ¼" FNPT X ¼" FNPT  
**Est. Unit Wt.** 0.15 lbs/0.06 kg



### LEVER HANDLE - A11

**Material** Polished Brass  
**Pressure Rating** Up to 200 psi hydraulic  
**Connection Size** ¼" MNPT X ¼" FNPT  
**Est. Unit Wt.** 0.15 lbs/0.06 kg



### LEVER HANDLE - A12

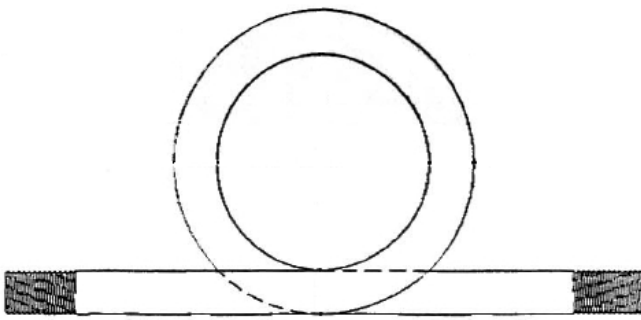
**Material** Polished Brass  
**Pressure Rating** Up to 200 psi hydraulic  
**Connection Size** ¼" FNPT X ¼" FNPT  
**Est. Unit Wt.** 0.15 lbs/0.06 kg



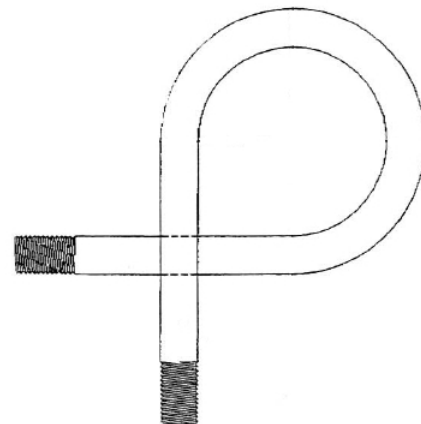
## SPECIFICATIONS

**Purpose** Syphons protect instruments from effects of hot pressure media commonly used in steam applications

**Materials** Brass  
Steel schedule 40  
Steel schedule 80  
316 Stainless steel schedule 80



**STRAIGHT (180°)**



**ANGLE (90°)**

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Part Number	Description	Maximum Working Pressure	Max Temp	Est. Unit Wt. lbs	Est. Unit Wt. kg
A03B	Straight 1/4" NPT Brass syphon	250 psi	400° F	0.45	0.20
A031	Straight 1/4" NPT iron syphon, schedule 40 iron	500 psi	400° F	0.50	0.24
CPS4	Straight 1/4" NPT steel syphon, schedule 80 iron	1000 psi	850° F	0.55	0.24
CPS4-ANGLE	Angle 1/4" NPT steel syphon, schedule 80 iron	1000 psi	850° F	0.45	0.20
CPS2	Straight 1/2" NPT steel syphon, schedule 80 iron	1000 psi	850° F	1.70	0.76
CPSS4	Straight 1/4" NPT stainless steel syphon, 316 ss sched 80	2000 psi	1000° F	0.50	0.22
CPSS2	Straight 1/2" NPT stainless steel syphon, 316 ss sched 80	2000 psi	1000° F	1.75	0.79

**NOTE: Other configurations available upon request.**

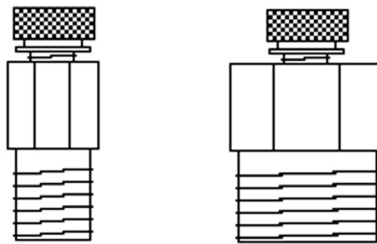
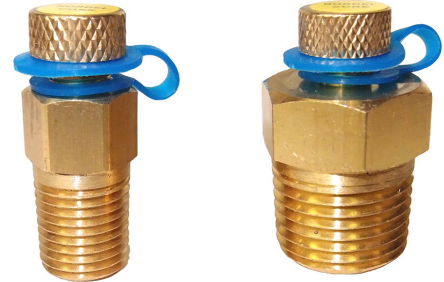


# TEST PORT PLUG

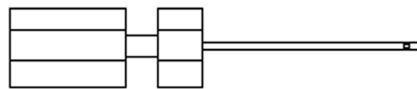
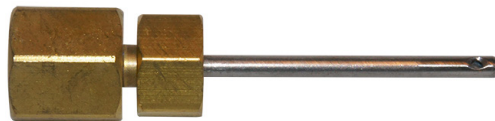


## SPECIFICATIONS

<b>Purpose</b>	Pressure & Temperature Test Port Plugs For permanent installation into piping systems
<b>Connection</b>	1/8", 1/4", 1/2" NPT
<b>Materials</b>	Brass body Nordel core
<b>Pressure Rating</b>	1000 psi at 200° F
<b>Est. Unit Weight</b>	0.15 lbs/0.08 kg



Part Number	Nominal Size	Overall Length	Material	Temperature/ Pressure	Body Hex	Cap Hex	Core Material
PLUG-1/8	1/8" NPT	1 1/4"	Brass	350° F/1000 psi	13/16"	9/16"	Nordel
PT25NOR	1/4" NPT	1 1/2"	Brass	350° F/1000 psi	1 1/16"	1 1/2"	Nordel
PT50NOR	1/2" NPT	1 1/2"	Brass	350° F/1000 psi	1 1/16"	1 1/2"	Nordel



### Adapters for Test Port Plugs

<b>ADAPTER-PP-1/8</b>	1/8" NPT Gauge adapter 2 3/4" Overall Length x 1 3/4" x 0.125" probe
<b>ADAPTER-PP-1/4</b>	1/4" NPT Gauge adapter 2 3/4" Overall Length x 1 3/4" x 0.63" probe



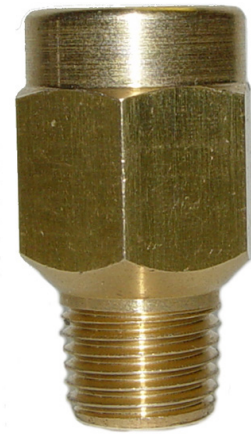
### Pressure & Temperature Test Plug Accessories

<b>PLUG-EXT-1/4</b>	1 3/4" Extension for Test Port Plug (1/4" NPT)
<b>PLUG-EXT-1/2</b>	2" Extension for Test Port Plug (1/2" NPT)

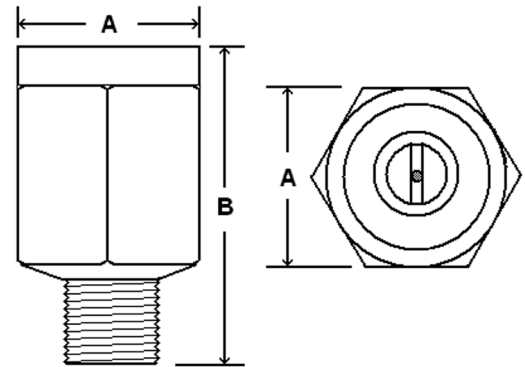
# FILTER TYPE PRESSURE SNUBBER

## SPECIFICATIONS

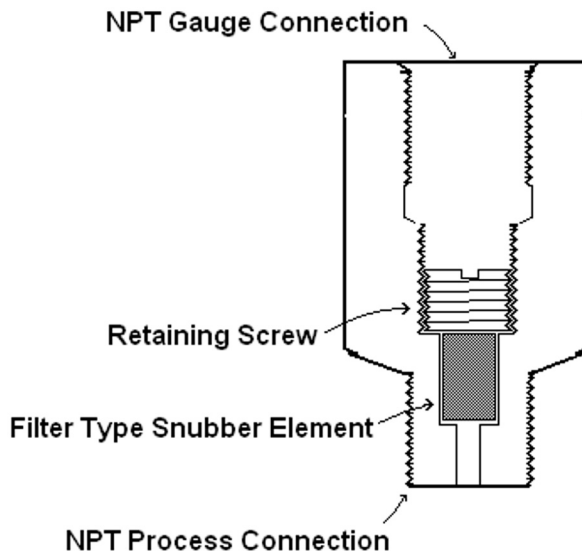
<b>Purpose</b>	Dampens pressure pulsation and slows the effects of surges or sudden pressure spikes Can be disassembled for cleaning
<b>Media</b>	Water, air, oil, gas
<b>Connection</b>	1/8", 1/4" or 1/2" NPT
<b>Materials</b>	Stainless steel, Brass
<b>Design Type</b>	Porous element



Part Number	Description	Units	A	B	Pressure Rating
BW42-1/8	1/8" NPT MxF Brass	Inches	0.74"	1.35"	3,000 psi
		mm	18.9	35	
BW42	1/4" NPT MxF Brass	Inches	0.75"	1.70"	3,000 psi
		mm	19	43.1	
BW41-1/2	1/2" NPT MxF Brass	Inches	1.25"	2.25"	10,000 psi
		mm	31.7	57.1	
SW42	1/4" NPT MxF Stainless Steel	Inches	0.75"	1.70"	5,000 psi
		mm	19	43.1	
A05E	1/2" NPT MxF Stainless Steel	Inches	1.25"	2.25"	10,000 psi
		mm	31.7	57.1	



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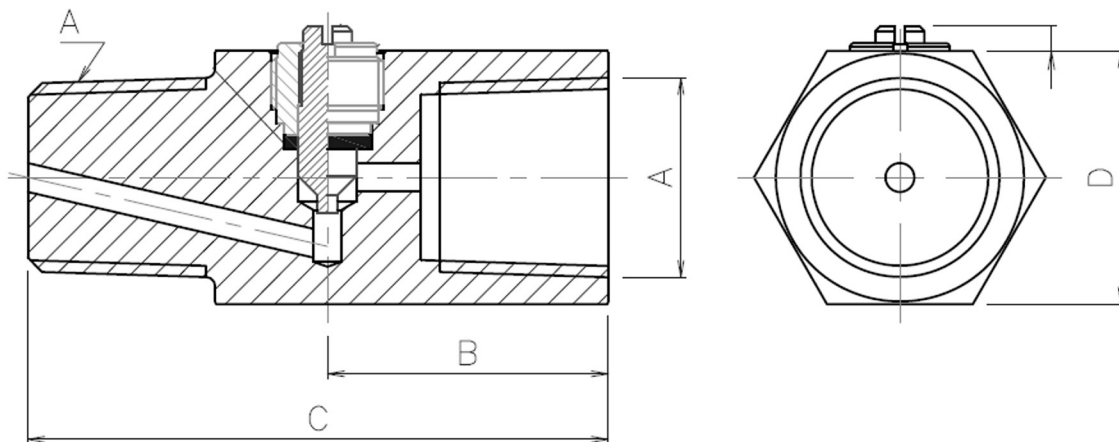
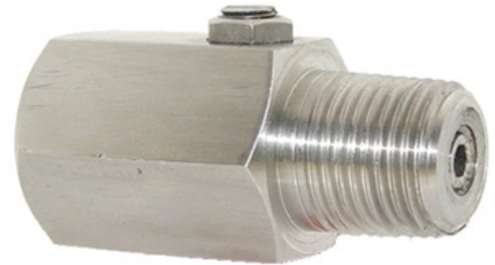


Part Number	Est. Unit Wt. lbs	Est. Unit Wt. kg	Box Qty.
BW42-1/8	0.10	0.04	upon request
BW42	0.10	0.04	500
BW41-1/2	0.25	0.12	upon request
SW42	0.10	0.04	500
A05E	0.25	0.12	upon request

# ADJUSTABLE PRESSURE SNUBBER

## SPECIFICATIONS

<b>Purpose</b>	Adjustable pressure pulsation dampener Additionally, flow control can be regulated via Adjustment knob Can isolate gauge for service or replacement
<b>Connection</b>	1/4" or 1/2" NPT
<b>Materials</b>	316 Stainless steel
<b>Pressure Rating</b>	6000 psi maximum
<b>Est. Unit Wt.</b>	0.50 lbs/0.22 kg



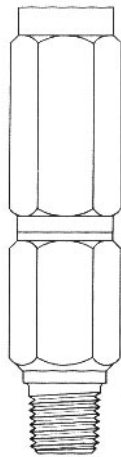
Part Number	Units	A	B	C	D	Maximum Pressure	Box Quantity
APS-316-4	Inches	1/4" NPT	1.00"	2.05"	1.06"	6000 psi	upon request
	mm		25	52	27		
APS-316-2	Inches	1/2" NPT	1.18"	2.44"	1.06"	6000 psi	32
	mm		30	62	27		

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# PISTON TYPE SNUBBER

## SPECIFICATIONS

<b>Purpose</b>	Self cleaning piston type snubber dampens pressure pulsation and slows the effects of surges or sudden pressure spikes
<b>Media</b>	Water, air, oil, gas
<b>Connection</b>	1/4", 3/8" or 1/2" NPT
<b>Materials</b>	Brass, Stainless steel
<b>Pressure Rating</b>	Brass = 3000 psi Stainless steel = 10,000 psi



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Part Number*	Inlet	Outlet	Body Material	Maximum psi	Ln.	Hex
PPS-B-1/4	1/4" NPT	1/4" NPT	Brass	3000	3.46"	0.75"
PPS-S-1/4	1/4" NPT	1/4" NPT	303 Stainless	5000	3.46"	0.75"
PPS-SS-1/4	1/4" NPT	1/4" NPT	316 Stainless	5000	3.46"	0.75"
PPS-B-3/8	3/8" NPT	3/8" NPT	Brass	5000	3.61"	1.125"
PPS-B-1/2	1/2" NPT	1/2" NPT	Brass	5000	3.61"	1.125"
PPS-S-1/2	1/2" NPT	1/2" NPT	303 Stainless	10000	3.61"	1.125"
PPS-SS-1/2	1/2" NPT	1/2" NPT	316 Stainless	10000	3.61"	1.125"

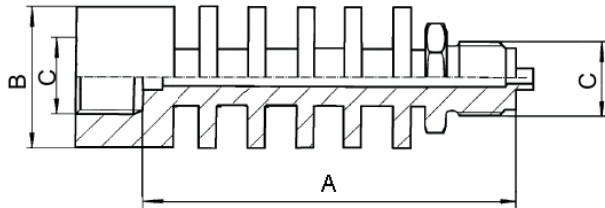
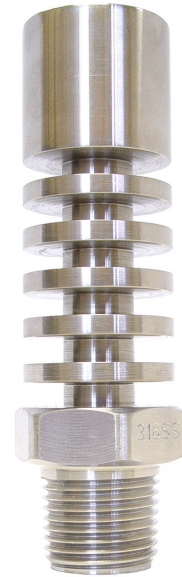
\*Available in British Taper Pipe Threads. Add "BSP" to part number when ordering.  
Lead times/minimums may apply.

# COOLING TOWER



## SPECIFICATIONS

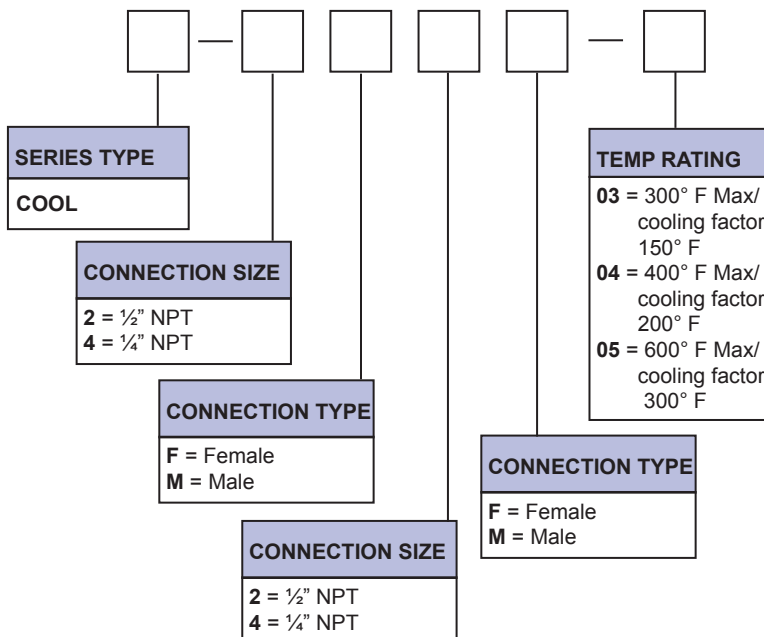
<b>Purpose</b>	Designed to protect instruments in high temperature applications Can reduce media temps by up to 150° F, 200° F or 300° F
<b>Connection</b>	1/4" or 1/2" NPT
<b>Materials</b>	Stainless steel - 316SS
<b>Temperature Rating</b>	Maximum 300° F/150° C - Cooling factor 150° F/65° C Maximum 400° F/200° C - Cooling factor 200° F/93° C Maximum 600° F/315° C - Cooling factor 300° F/150° C
<b>Pressure Rating</b>	8,000 PSI for male X male towers 6,600 PSI for the male X female towers



Cooling Factor	Units	A	B	C
150° F	In	2.25"	1.06"	1/4" or 1/2" NPT
	mm	57	27	
200° F	In	3.80"	1.07"	1/4" or 1/2" NPT
	mm	97	27	
300° F	In	4.22"	1.58"	1/4" or 1/2" NPT
	mm	107	40	

Cooling Factor	Est. Unit Wt. lbs	Est. Unit Wt. kg
150° F	0.55	0.24
200° F	0.65	0.28
300° F	1.20	0.54

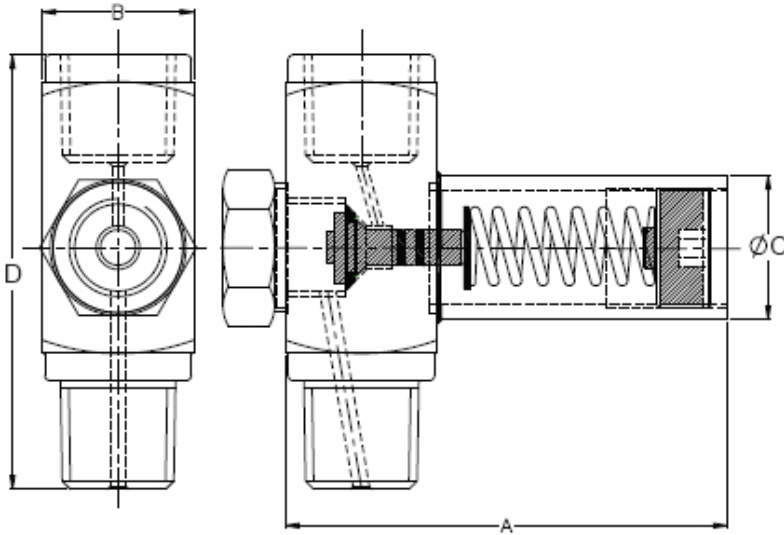
## PART NUMBERING SYSTEM



NOTE: Not all part numbers or options are available from stock. Consult ESP for availability.  
Engineered Specialty Products, Inc.

## SPECIFICATIONS

<b>Purpose</b>	Prevent damage to instruments due to sudden pressure surges
<b>Media</b>	Water, air, oil, gas
<b>Connection</b>	1/4" or 1/2" NPT
<b>Materials</b>	316 Stainless steel
<b>Pressure Rating</b>	6000 psi maximum
<b>Est. Unit Weight</b>	1.30 lbs/0.58 kg



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Units	A	B	C	D
Inches	3.50"	1.10"	1.04"	3.14"
mm	89	28	26.5	80

Part Number	Inlet	Outlet
PLV-2M-2F-(Range)	1/2" male	1/2" female
PLV-4M-4F-(Range)	1/4" male	1/4" female

Range Code	Adjustment Span	
1	60 to 87 psi	4 to 6 BAR
2	102 to 232 psi	7 to 16 BAR
3	145 to 580 psi	10 to 40 BAR
4	435 to 1160 psi	30 to 80 BAR
5	870 to 2320 psi	60 to 160 BAR
6	1450 to 5802 psi	100 to 400 BAR

### AVAILABLE OPTIONS\*

- Special Connection Size
  - BSP
  - Metric
  - Flaired
  - UNF
- Custom Configuration
  - Female x Female
  - Male x Male
- Cleaned for Oxygen Service
- Exotic Materials Include
  - Monel
  - Hastelloy C
- Material Test Certificates
- NACE Conformity

\*Lead times/minimums may apply

# RUBBER GAUGE COVER



## SPECIFICATIONS

- Purpose** Designed to protect gauges in rugged environments  
Many standard configurations in stock  
Custom configurations/colors available
- Materials** Rubber Compound
- Size** 1 1/2", 2", 2 1/2", 4
- Connection** Lower or Back Mount



## SPECIFICATIONS

<b>Purpose</b>	Indicate maximum or minimum pressure achieved in a pressurized system over a given period
<b>Lens Material</b>	Plastic or Glass
<b>Dial Size</b>	2 1/2", 4" or 4 1/2"
<b>Connection</b>	Lower or Back Mount
<b>Mounting</b>	Direct or Panel
<b>Case Styles</b>	Dry or Liquid Filled

The max pointer is a red auxillary pointer with an arm that is pushed by the primary gauge pointer until the gauge pressure drops. The max pointer remains at peak pressure, indicating max pressure achieved.

Conversely, this unit can function similarly as a min pointer on vacuum or compound ranges.

Due to the added resistance of the max pointer, these cannot be used on low pressure gauges.

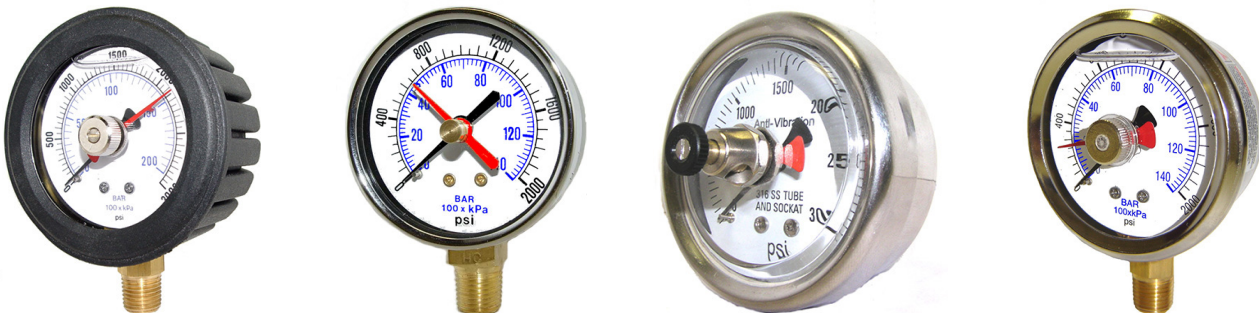


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STANDARD P/N*	DESCRIPTION
<b>MAX-25-DRY-GL</b>	Dry Non-Fillable 2 1/2" Max Pointer for 100 Series Utility Gauges - Glass Lens
<b>MAX-25-DRY-PL</b>	Dry Non-Fillable 2 1/2" Max Pointer for 100 Series Utility Gauges - Plastic Lens
<b>MAX-25-DRY-211311</b>	Dry Non-Fillable 2 1/2" Max Pointer for 210 or 310 Series Gauges - Plastic Lens
<b>MAX-MIN-25-311D</b>	Liquid Fillable 2 1/2" Max/Min Pointer for 310 Series with 2 Red Pointers - Plastic Lens
<b>MAX-POINTER-311D</b>	Liquid Fillable 2 1/2" Max Pointer for 310 Series - Plastic Lens
<b>MAX-POINTER-4001</b>	Liquid Fillable 4" Max Pointer for 4001 Series - Plastic Lens

\*Custom dial sizes & configurations available upon request.

## EXAMPLES OF GAUGES WITH MAX/MIN POINTERS

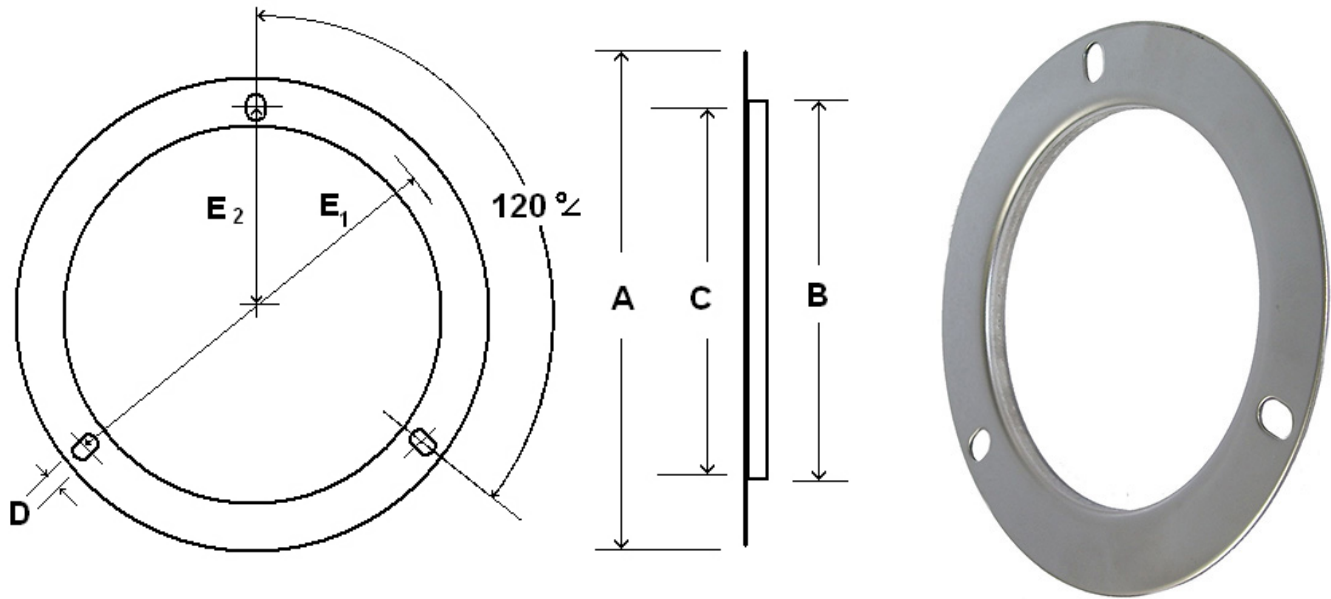




# FRONT AND BACK FLANGES



Stainless steel flanges designed for use with pressure gauges  
 Front flanges can be used with center back mount (CBM) or lower back mount (LBM) connections  
 Back flanges can be used with lower mount or back mount gauges



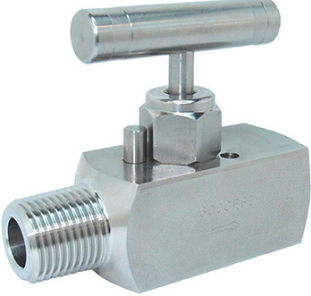

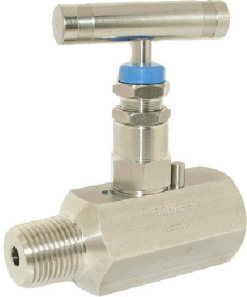
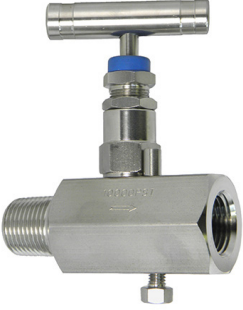
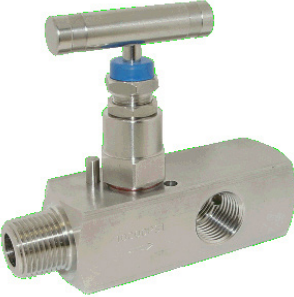



## DIMENSIONAL INFORMATION

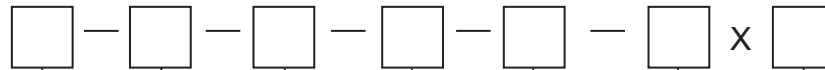
	PART NUMBER	GAUGE MODELS	DIMENSIONAL INFORMATION					
			A	B	C	D	E1	E2
			FLANGE OD	CASE RING OD	CASE RING ID	SCREW HOLE DIAMETER	ON DIAMETER CIRCLE	DISTANCE FROM DIAMETER
1	FLANGE-15-DRY	103D-158	2.22"/56.5 mm	1.66"/42 mm	1.60"/40.7 mm	0.117"/3 mm	1.91"/48 mm	0.96"/24 mm
2	FLANGE-15-LF	202L-158, 302L-158	2.46"/62.5 mm	1.72"/44 mm	1.62"/41 mm	0.125"/3 mm	1.93"/49 mm	0.97"/24.5 mm
3	FLANGE-15-NH	103D-158	2.22"/5.7 mm	1.66"/42 mm	1.60"/40.7 mm	NONE	N/A	N/A
4	FLANGE-20-DRY	102D-20X	2.81"/71.4 mm	2.08"/52.8 mm	2.02"/51.4 mm	0.11"/2.8 mm	2.34"/60 mm	1.17"/30 mm
5	FLANGE-20-LF	202L-20X, 302L-20X, 103D-20X	2.87"/73.1 mm	2.12"/53.9 mm	2.04"/51.9 mm	0.125"/3 mm	2.47"/ 62.8 mm	1.30"/33.0 mm
6	FLANGE-25	202L-254, 212D-254	3.50"/89 mm	2.58"/65 mm	2.49"/63 mm	0.17"/4 mm	3.05"/77 mm	1.52"/39 mm
7	FLANGE-61MM-OBLONG	S202L, 302DFW-254	3.48"/88 mm	2.44"/62 mm	2.38"/60.5 mm	0.17"/4.25 mm	3"/76 mm	1.5"/38 mm
8	FLANGE-62MM	103D-254, PRO-202L-254, 302DFW-254, SEC-302DFW-254	3.46"/88 mm	2.50"/63.6 mm	2.44"/62 mm	0.18"/4.6 mm	2.98"/75.7 mm	1.49"/37.9 mm
9	FLANGE-62MM-NH							
10	FLANGE-64MM-NH	103D-254, PRO-202L-254, 302DFW-254, SEC-302DFW-254	3.43"/87 mm	2.88"/66 mm	2.52"/64 mm	NONE	N/A	N/A
11	FLANGE-35	203D-354	5.17"/131 mm	3.56"/90 mm	3.45"/88 mm	0.21"/5.3 mm	4.57"/116 mm	2.28"/58 mm
12	FLANGE-4	202L-40X	5.14"/130 mm	4.02"/102 mm	3.90"/99 mm	0.22"/5.8 mm	4.49"/114 mm	2.25"/57 mm
13	FLANGE-60	6002, AMMONIA-604	7.63"/193.7 mm	6.35"/161.3 mm	6.25"/158.8 mm	0.188"/4.8 mm	7"/177.8 mm	3.5"/89 mm
14	BACK FLANGE-25	201L-254, 301LFW-254, 202L-254, 211D-254, 311D-254	3.42"/87 mm	2.58"/65 mm	2.46"/62 mm	0.17"/4.3 mm	2.99"/76 mm	1.50"/38 mm
15	BACK FLANGE-25-SEC	SEC-201L-254, SEC-202L-254, S201L-254	3.12"/79 mm	2.53"/64 mm	2.44"/62 mm	0.17"/4.3 mm	3.14"/80 mm	1.57"/40 mm
16	BACK FLANGE-4	201L, S201L-40X, 301L-40X	5.125"/130.2 mm	3.96"/100.6 mm	3.9"/99.1 mm	0.16"/4.1 mm	4.5"/114 mm	2.25"/57 mm
17	BACK FLANGE-40	4001, 314D-40X	5.25"/133.4 mm	3.98"/100.9 mm	3.88"/98.4 mm	0.188"/4.8 mm	4.56"/116 mm	2.28"/58 mm
18	BACK FLANGE-60	6001, 6002	7.63"/193.7 mm	6.35"/161.3 mm	6.25"/158.8 mm	0.188"/4.8 mm	7"/177.8 mm	3.5"/89 mm
19	FLANGE TO ACCOMPANY P/N 314D-254(X)		3.45"/87.7mm	2.51"/63.7mm	2.43"/61.7mm	0.19"/5mm	3.16"/80.3mm	1.58"/40.1mm
20	FLANGE TO ACCOMPANY P/N 314D-404X(X)		5.23"/132.9mm	3.95"/100.3mm	3.81"/96.9mm	0.18"/4.5mm	4.50"/114.3mm	2.25"/57.3mm
21	BACK FLANGE TO ACCOMPANY P/N 115D-454(X)		5.87"/149mm	N/A	N/A	0.27"/7mm	5.36"/136.4mm	2.68"/68.2mm
22	BACK FLANGE TO ACCOMPANY P/N 115D-604(X)		7.42"/188mm	N/A	N/A	0.27"/7mm	6.70"/170.6mm	3.35"/85.3mm
23	BACK FLANGE TO ACCOMPANY P/N 115D-854(X)		10.3"/260mm	N/A	N/A	0.23"/6mm	8.74"/222.2mm	4.37"/111.1mm

# NEEDLE VALVES

Instrumentation grade needle valves are designed for heavy duty process applications or other industrial applications that require high pressure carbon steel or stainless steel shut off valves. ESP stocks a wide variety of needle valve configurations.

			
<p><b>NVS "SUPER MINI"</b></p>	<p><b>NV-1/4</b></p>	<p><b>NV/NVL</b></p>	<p><b>NV-90 ANGLE</b></p>
			
<p><b>HV HEX BODY</b></p>	<p><b>BV BLOCK &amp; BLEED VALVE</b></p>	<p><b>GV MULTI-PORT</b></p>	<p><b>PANEL MOUNT</b></p>

# NEEDLE VALVE PART NUMBERING SYSTEM



**SERIES TYPE**

**NVS** = "Super Mini" with thumbwheel  
**NV-1/4"** = 1/4" Mini with T-handle  
**NVL** = Full Size 1/4" NPT  
**NV-1/2"** = Full Size 1/2" NPT  
**HV** = Hex Body Valve  
**GV** = Multi-Port Gauge Valve  
**BV** = Block & Bleed Valve

**BODY MATERIAL**

**CS** = Carbon Steel  
**SS** = 316 Stainless Steel

**CONNECTION SIZE**

1/4 = 1/4" NPT  
 3/8 = 3/8" NPT  
 1/2 = 1/2" NPT

**OUTLET CONNECTION**

**F** = Female  
**M** = Male

**INLET CONNECTION**

**F** = Female  
**M** = Male

**BODY PATTERN**

**180** = Straight  
**90** = Angle

**SEAT/PRESSURE RATING**

**GS** = Gas Service/6000 psi/  
Soft Seat  
**HS** = Hydraulic Service/10,000  
psi/Hard Seat

**EXAMPLE: "NVS-CS-1/4-GS-180-MXF"**

**NVS** = "Super Mini" with thumbwheel  
**CS** = Carbon Steel  
 1/4 = 1/4" NPT  
**GS** = Gas Service/6000 psi/Soft Seat  
**180** = Straight  
**M** = Male Inlet  
**X**  
**F** = Female Outlet



NOTE: Not all part numbers or options are available from stock. Consult ESP for availability.

# NVS "SUPER MINI" NEEDLE VALVE

**Strong and Durable, Super Compact Size Needle Valve**  
Pressures up to 6,000 psi

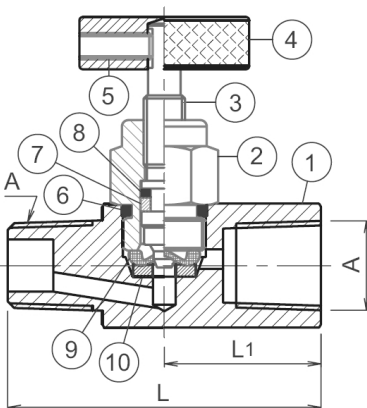
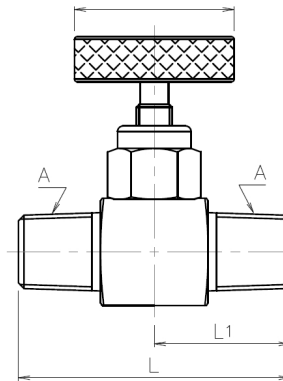
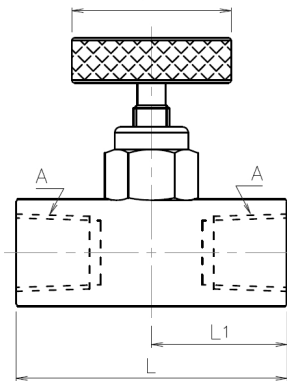
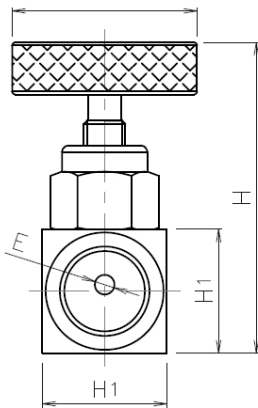
## SPECIFICATIONS

<b>Series Number</b>	"NVS"
<b>Material</b>	Carbon steel or 316 stainless steel See chart below for component materials
<b>Pressure Rating</b>	Soft seat - 6000 psi at 200° F
<b>Connection Size</b>	1/4" NPT, male x female, female x female male x male
<b>Handle</b>	Round "thumb wheel"
<b>Seat Material</b>	Soft Seat - POM
<b>Box Quantity</b>	80 pieces
<b>Est. Unit Weight</b>	0.30 lb/0.16 kg



Part Number	Unit	A	L	L1	H	H1	E	Thumb Wheel
NVS-CS-1/4GS-180-MXF NVS-SS-1/4GS-180-MXF	In.	1/4"	1.85"	0.93"	1.97"	0.75"	0.13"	1.02"
	mm	NPT	47	23.5	50	19	3.3	26
NVS-CS-1/4GS-180-FXF NVS-SS-1/4GS-180-FXF	In.	1/4"	1.85"	0.93"	1.97"	0.75"	0.13"	1.02"
	mm	NPT	47	23.5	50	19	3.3	26
NVS-CS-1/4-GS-180-MXM	In.	1/4"	1.85"	0.93"	1.97"	0.75"	0.13"	1.02"
	mm	NPT	47	23.5	50	19	3.3	26

All dimensions shown in the catalog are approximate and subject to change.



Number	Description	316 Valve	Carbon Steel Valve
1	Body	316 SS	C.S.
2	Bonnet	316 SS	C.S.
3	Stem	316 SS	304 SS
4	Handle	303 SS	C.S.
5	Fixing Screw	302 SS	C.S.
6	O-Ring	Viton®	Viton®
7	O-Ring	Viton®	Viton®
8	Back-up Ring	PTFE	PTFE
9	Washer	316 SS	316 SS
10	Soft Seat	POM	POM

## AVAILABLE OPTIONS\*

- High Temperature
- T-handle
- Hard Seat
- Angle Valve (90°)
- Tube End Connection
- Alternate Connection Sizes

\*Lead times/minimums may apply

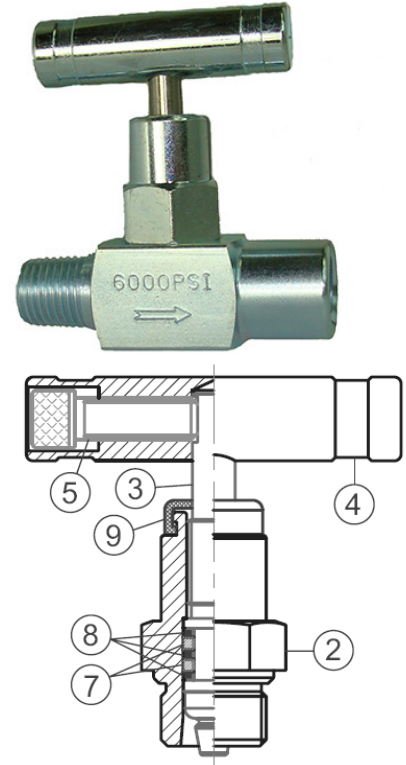
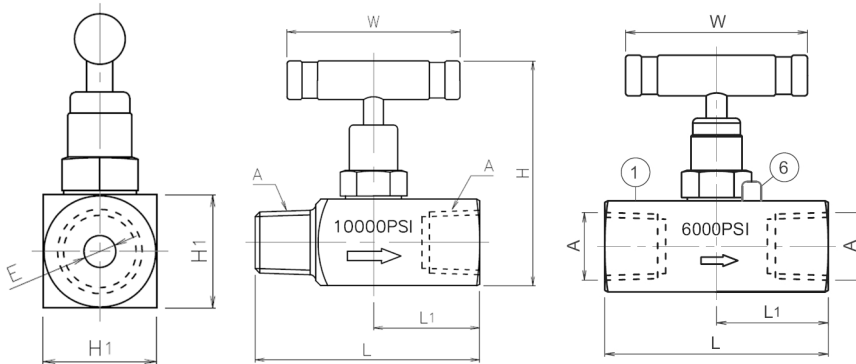
# NV-1/4 MINI NEEDLE VALVE



**Strong and Durable, Compact Size Needle Valve**  
**Pressures up to 6,000 psi soft seat, 10,000 psi hard seat**

## SPECIFICATIONS

<b>Series Number</b>	"NV"
<b>Material</b>	Carbon steel or 316 stainless steel See chart below for component materials
<b>Pressure Rating</b>	Soft seat - 6000 psi at 200° F Hard seat - 10,000 psi at 200° F
<b>Connection Size</b>	1/4" NPT, male x female, female x female male x male
<b>Handle</b>	Tee
<b>Seat Material</b>	Soft Seat - POM Hard Seat - Integrated
<b>Box Quantity</b>	60 pieces
<b>Est. Unit Weight</b>	0.40 lb/0.20 kg



Part Number	Unit	A	L	L1	H	H1	E	W
NV-SS-1/4-GS-180-MXF	In.	1/4" NPT	2.28"	1.14"	2.48"	0.75"	0.17"	1.81"
NV-SS-1/4-GS-180-FXF								
NV-SS-1/4-HS-180-MXF								
NV-SS-1/4-HS-180-FXF	mm		58	29	63	19	4.2	46
NV-CS-1/4-GS-180-MXF								
NV-CS-1/4-GS-180-MXM								
NV-CS-1/4-GS-180-FXF								
NV-CS-1/4-HS-180-MXF								
NV-CS-1/4-HS-180-FXF								

Number	Description	316 Valve	Carbon Steel Valve
1	Body	316 SS	C.S.
2	Bonnet	316 SS	C.S.
3	Stem	316 SS	304 SS
4	Handle	303 SS	C.S.
5	Fixing Screw	302 SS	C.S.
6	Lock Pin	303 SS	C.S.
7	O-Ring	Viton®	Viton®
8	Back-up Ring	PTFE	PTFE
9	Dust Cap	NBR	NBR

All dimensions shown in the catalog are approximate and subject to change.

## AVAILABLE OPTIONS\*

- High Temperature
- Thumb Wheel Handle
- Panel Mount
- Bleed Screw
- Tube End Connection
- Alternate Connection Sizes

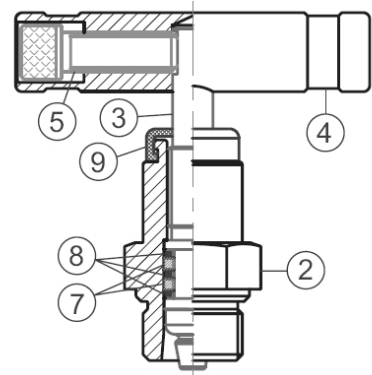
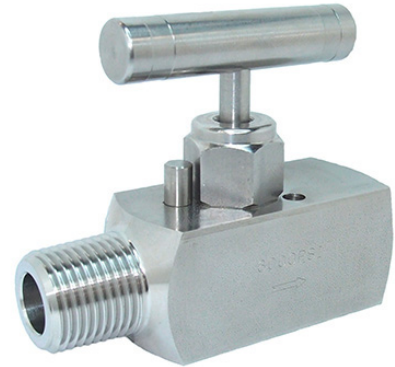
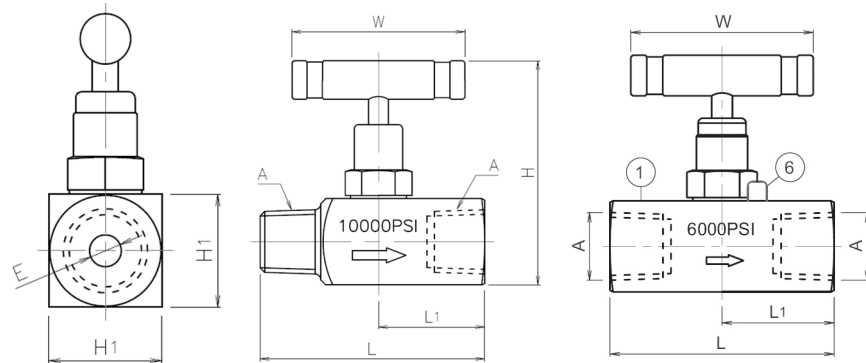
\*Lead times/minimums may apply

# NV/NVL FULL SIZE NEEDLE VALVE

**Strong and Durable, Full Size Needle Valve**  
**Pressures up to 6,000 psi soft seat, 10,000 psi hard seat**

## SPECIFICATIONS

<b>Series Number</b>	“NV” or “NVL” (1/4”)
<b>Material</b>	Carbon steel or 316 stainless steel See chart below for component materials
<b>Pressure Rating</b>	Soft seat - 6000 psi at 200° F Hard seat - 10,000 psi at 200° F
<b>Connection Size</b>	NV - 1/2” NPT, 3/8” NPT (316 SS only) NVL - 1/4” NPT For 3/4” or 1” sizes, see HV series page 128-129 male x female, female x female
<b>Handle</b>	Tee
<b>Seat Material</b>	Soft Seat - POM
<b>Box Quantity</b>	15 pieces
<b>Est. Unit Weight</b>	1.20 lb/0.54 kg



Number	Description	316 Valve	Carbon Steel Valve
1	Body	316 SS	C.S.
2	Bonnet	316 SS	C.S.
3	Stem	316 SS	304 SS
4	Handle	303 SS	C.S.
5	Fixing Screw	302 SS	C.S.
6	Lock Pin	303 SS	C.S.
7	O-Ring	Viton®	Viton®
8	Back-up Ring	PTFE	PTFE
9	Dust Cap	NBR	NBR

Soft Seat Part Number	Unit	A	L	L1	H	H1	E	W
NVL-SS-1/4-GS-180-MXF	In.	1/4",	3.23"	1.38"	3.03"	1.14"	0.18"	2.24"
NVL-CS-1/4-GS-180-MXF		3/8", 1/2"						
NV-SS-3/8-GS-180-MXF	mm	3/8", 1/2"	82	35	77	29	4.5	57
NV-SS-1/2-GS-180-MXF		NPT						
NV-CS-1/2-GS-180-MXF								
Hard Seat Part Number	Unit	A	L	L1	H	H1	E	W
NVL-SS-1/4-HS-180-MXF	In.	1/4",	3.23"	1.38"	3.03"	1.14"	0.24"	2.24"
NVL-CS-1/4-HS-180-MXF		3/8", 1/2"						
NV-SS-3/8-HS-180-MXF	mm	3/8", 1/2"	82	35	77	29	6	57
NV-CS-1/2-HS-180-MXF		NPT						
NV-SS-1/2-HS-180-MXF								
NV-SS-3/8-HS-180-FXF	In.	3/8", 1/2"	2.95"	1.48"	3.03"	1.14"	0.24"	2.24"
NV-CS-1/2-HS-180-FXF		3/8", 1/2"						
NV-SS-1/2-HS-180-FXF	mm	3/8", 1/2"	75	37.5	77	29	6	57
NV-SS-1/2-HS-180-FXF		NPT						

## AVAILABLE OPTIONS\*

- High Temperature
- Panel Mount
- Bleed Screw
- Tube End Connection
- Alternate Connection Sizes
- See HV for Additional Configurations, p. 124-125

All dimensions shown in the catalog are approximate and subject to change.

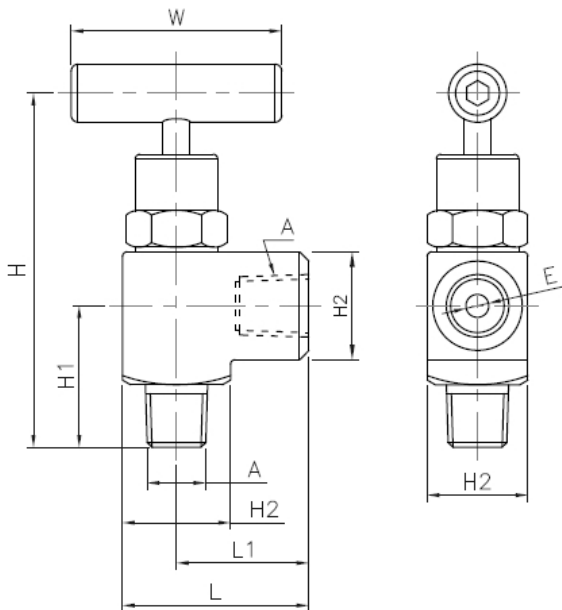
\*Lead times/minimums may apply

# NV-90 ANGLE NEEDLE VALVE

**Strong and Durable, Angle Needle Valve**  
**Pressures up to 6,000 psi soft seat, 10,000 psi hard seat**

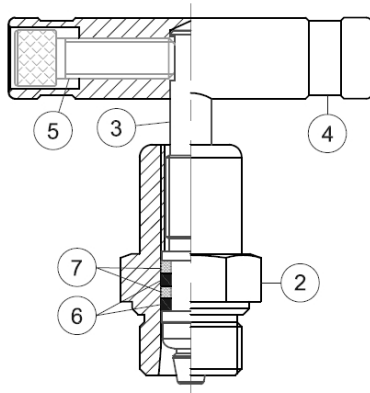
## SPECIFICATIONS

<b>Series Number</b>	"NV-90"
<b>Material</b>	Carbon steel or 316 stainless steel See chart below for component materials
<b>Pressure Rating</b>	Soft seat - 6000 psi at 200° F Hard seat - 10,000 psi at 200° F
<b>Connection Size</b>	¼" or ½" NPT male x female, female x female
<b>Handle</b>	Tee
<b>Seat Material</b>	Soft Seat - POM; Hard Seat - Integrated
<b>Box Quantity</b>	¼": 50 pieces ½": 15 pieces
<b>Est. Unit Weight</b>	¼": 0.55 lb/0.26 kg ½": 1.05 lb/0.46 kg



Part Number	Unit	A	L	L1	H	H1
NV-CS-1/4-GS-90-FXF	In.	¼" NPT	1.60"	1.10"	3.46"	1.26"
NV-CS-1/4-GS-90-MXF	mm		40.7	28	88	32
NV-SS-1/4-GS-90-MXF	mm					
NV-CS-1/4-HS-90-FXF	In.	¼" NPT	1.81"	1.54"	4.09"	1.54"
NV-CS-1/4-HS-90-MXF	mm		46	39	104	39
NV-SS-1/4-HS-90-MXF	mm					

Part Number (Cont'd)	Unit	A	H2	E	W
NV-CS-1/4-GS-90-FXF	In.	¼" NPT	0.87"	0.13"	1.81"
NV-CS-1/4-GS-90-MXF	mm		22	3.3	46
NV-SS-1/4-GS-90-MXF	mm				
NV-CS-1/4-HS-90-FXF	In.	½" NPT	0.79"	1.26"	2.24"
NV-CS-1/4-HS-90-MXF	mm		32	32	57
NV-SS-1/4-HS-90-MXF	mm				



Number	Description	316 Valve	Carbon Steel Valve
1	Body	316 SS	C.S.
2	Bonnet	316 SS	C.S.
3	Stem	316 SS	304 SS
4	Handle	303 SS	C.S.
5	Fixing Screw	302 SS	C.S.
6	O-Ring	Viton®	Viton®
7	Back-Up Ring	PTFE	PTFE

All dimensions shown in the catalog are approximate and subject to change.

### AVAILABLE OPTIONS\*

- High Temperature
- Panel Mount
- Bleed Screw
- Tube End Connection
- Alternate Connection Sizes

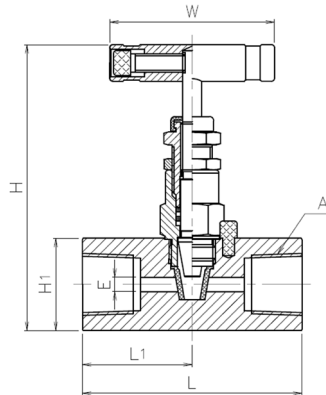
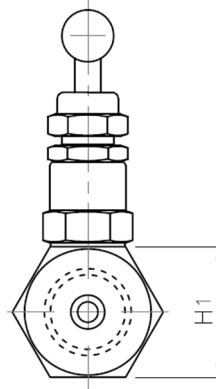
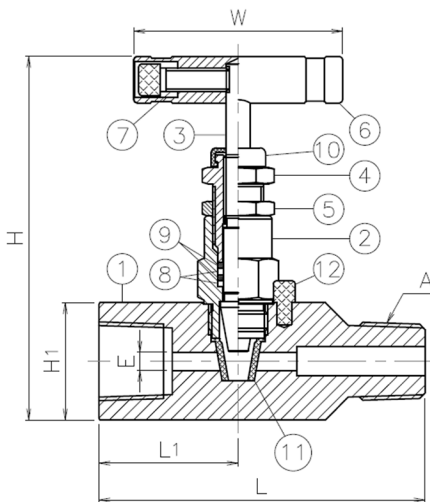
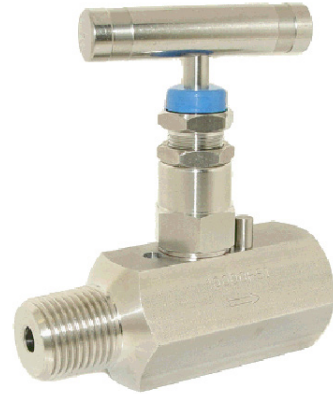
\*Lead times/minimums may apply

# HV HEX BODY - SOFT SEAT NEEDLE VALVE

Strong and durable, instrument grade hex body needle valve with soft seat  
Pressures up to 6,000 psi soft seat

## SPECIFICATIONS

<b>Series Number</b>	"HV"
<b>Material</b>	Carbon steel or 316 stainless steel body
<b>Pressure Rating</b>	Soft seat - 6000 psi at 200° F
<b>Connection Size</b>	1/4", 1/2", 3/4" or 1" NPT male x female, female x female
<b>Handle</b>	Tee
<b>Seat Material</b>	Soft Seat - POM
<b>Box Quantity</b>	Standard: 15 pieces; 1": 10 pieces
<b>Est. Unit Weight</b>	Standard: 1.25 lb/0.58 kg; 1": 1.75 lb/0.80 kg
<b>Working Temp.</b>	-65° F to 464° F



7

Number	Description	316SS Valve	Carbon Steel Valve
1	Body	S316	C.S.
2	Bonnet	S316	C.S.
3	Stem	S316	S304
4	Adjuster	S316	C.S.
5	Lock Nut	S316	C.S.
6	Handle	S303	C.S.
7	Fixing Screw	S302	C.S.
8	Stem Seal	PTFE	PTFE
9	Stem Seal	Viton®	Viton®
10	Dust Cap	NBR	NBR
11	Soft Seat	POM	POM
12	Locking Pin	S303	S303

Soft Seat Part Numbers		Unit	L	L1	H	H1	E	W
HV-(X)S-1/4-GS-180-MXF	1/4" NPT	In.	3.2"	1.4"	3.9"	1.3"	0.2"	2.2"
HV-(X)S-1/2-GS-180-MXF	1/2" NPT	mm	82	35	98	32	6	57
HV-(X)S-3/4-GS-180-MXF	3/4" NPT							
HV-(X)S-1/4-GS-180-FXF	1/4" NPT	In.	3.0"	1.5"	3.9"	1.3"	0.2"	2.2"
HV-(X)S-1/2-GS-180-FXF	1/2" NPT	mm	75	37.5	98	32	6	57
HV-(X)S-3/4-GS-180-FXF	3/4" NPT							
HV-(X)S-1-GS-180-MXF	1" NPT	In.	3.7"	1.6"	4.4"	1.6"	0.3"	2.2"
		mm	95	41.5	112	41	7	57
HV-(X)S-1-GS-180-FXF	1" NPT	In.	3.1"	1.6"	4.4"	1.6"	0.3"	2.2"
		mm	80	40	112	41	7	57

(X)= C or S  
C = Carbon Steel  
S = 316 Stainless Steel

All dimensions shown in the catalog are approximate and subject to change.

## AVAILABLE OPTIONS\*

- High Temperature
- NACE
- Tube End Connection
- Alternate Connection Sizes

\*Lead times/minimums may apply

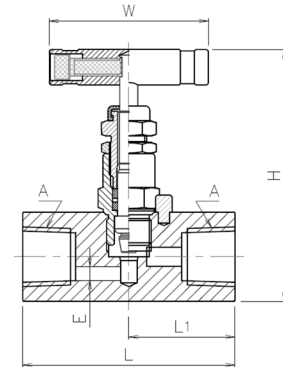
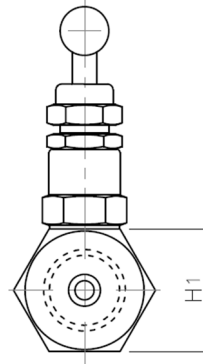
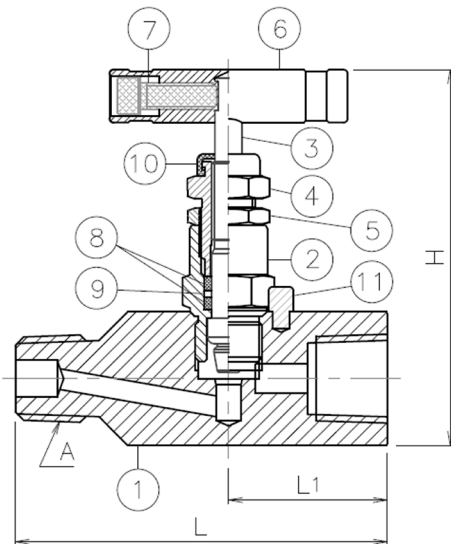
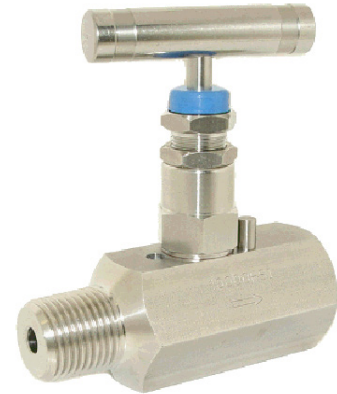


# HV HEX BODY - HARD SEAT NEEDLE VALVE

Strong and durable, instrument grade hex body needle valve with hard seat  
Pressures up to 10,000 psi hard seat

## SPECIFICATIONS

<b>Series Number</b>	"HV"
<b>Material</b>	Carbon steel or 316 stainless steel body
<b>Pressure Rating</b>	Hard seat - 10,000 psi at 200° F
<b>Connection Size</b>	1/4", 1/2", 3/4" or 1" NPT male x female, female x female
<b>Handle</b>	Tee
<b>Box Quantity</b>	Standard: 15 pieces; 1": 10 pieces
<b>Est. Unit Weight</b>	Standard: 1.25 lb/0.58 kg; 1": 1.75 lb/0.80 kg
<b>Working Temp.</b>	-65° F to 842° F



Number	Description	316SS Valve	Carbon Steel Valve
1	Body	S316	C.S.
2	Bonnet	S316	C.S.
3	Stem	S316	S304
4	Adjuster	S316	C.S.
5	Lock Nut	S316	C.S.
6	Handle	S303	C.S.
7	Fixing Screw	S302	C.S.
8	Stem Seal	PTFE	PTFE
9	Stem Seal	Viton®	Viton®
10	Dust Cap	NBR	NBR
11	Locking Pin	S303	S303

Hard Seat Part Number	Unit	L	L1	H	H1	E	W
HV-(X)S-1/4-HS-180-MXF 1/4" NPT	In.	3.2"	1.4"	3.9"	1.3"	0.2"	2.2"
HV-(X)S-1/2-HS-180-MXF 1/2" NPT	In.	3.2"	1.4"	3.9"	1.3"	0.2"	2.2"
HV-(X)S-3/4-HS-180-MXF 3/4" NPT	In.	3.2"	1.4"	3.9"	1.3"	0.2"	2.2"
	mm	82	35	98	32	4.8	57
HV-(X)S-1/4-HS-180-FXF 1/4" NPT	In.	3.0"	1.5"	3.9"	1.3"	0.2"	2.2"
HV-(X)S-1/2-HS-180-FXF 1/2" NPT	In.	3.0"	1.5"	3.9"	1.3"	0.2"	2.2"
HV-(X)S-3/4-HS-180-FXF 3/4" NPT	In.	3.0"	1.5"	3.9"	1.3"	0.2"	2.2"
	mm	75	37.5	98	32	4.8	57
HV-(X)S-1-HS-180-MXF 1" NPT	In.	3.7"	1.6"	4.4"	1.6"	0.3"	2.2"
	mm	95	41.5	112	41	7	57
HV-(X)S-1-HS-180-FXF 1" NPT	In.	3.1"	1.6"	4.4"	1.6"	0.3"	2.2"
	mm	80	40	112	41	7	57

(X)= C or S  
C = Carbon Steel  
S = 316 Stainless Steel

## AVAILABLE OPTIONS\*

- High Temperature
- NACE
- Tube End Connection
- Alternate Connection Sizes

\*Lead times/minimums may apply

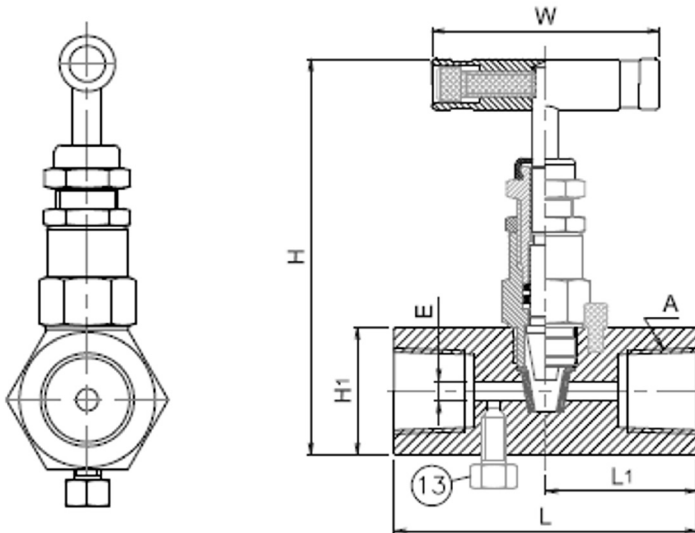
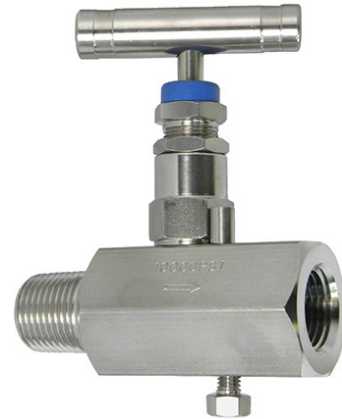
All dimensions shown in the catalog are approximate and subject to change.

# BV BLOCK & BLEED VALVE

Strong and durable, instrument grade hex body needle valve with bleed screw  
 Pressures up to 6,000 psi soft seat, 10,000 psi hard seat

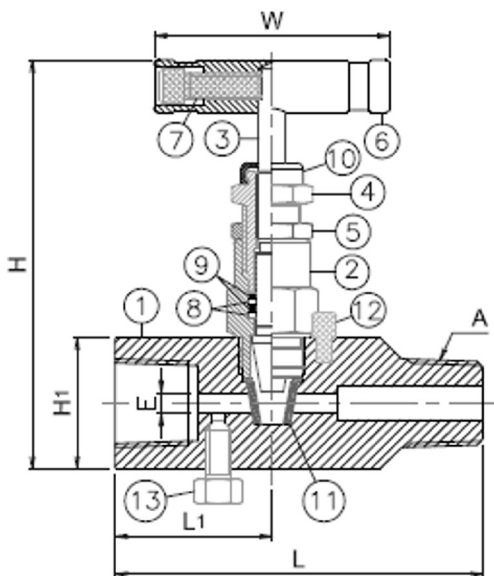
## SPECIFICATIONS

<b>Series Number</b>	"BV"
<b>Material</b>	316 Stainless steel body
<b>Pressure Rating</b>	6000 psi soft seat 10,000 psi hard seat
<b>Connection Size</b>	1/4" NPT or 1/2" NPT male x female
<b>Handle</b>	Tee
<b>Seat Material</b>	Soft Seat - POM Hard Seat - Integrated
<b>Box Quantity</b>	15
<b>Est. Unit Weight</b>	1.25 lb/0.56 kg



Part Number	Unit	A	L	L1	H
BV-SS-1/2-HS-180-MXF	In.	1/4" or 1/2"	3.23"	1.38"	1.50"
BV-SS-1/4-HS-180-MXF	mm				
BV-SS-1/2-GS-180-MXF	mm	82	35	98	
BV-SS-1/4-GS-180-MXF	mm				
Part Number (Cont'd)	Unit	H1	E	W	
BV-SS-1/2-HS-180-MXF	In.	1.26"	0.18"	2.24"	
BV-SS-1/4-HS-180-MXF	mm	32	4.8	57	
BV-SS-1/2-GS-180-MXF	mm				
BV-SS-1/4-GS-180-MXF	mm				
Part Number	Unit	A	L	L1	H
BV-SS-1/2-HS-180-FXF	In.	1/4" or 1/2"	2.95"	1.47"	1.50"
BV-SS-1/4-HS-180-FXF	mm				
BV-SS-1/2-GS-180-FXF	mm	75	37.5	98	
BV-SS-1/4-GS-180-FXF	mm				
Part Number (Cont'd)	Unit	H1	E	W	
BV-SS-1/2-HS-180-FXF	In.	1.26"	0.18"	2.24"	
BV-SS-1/4-HS-180-FXF	mm	32	4.8	57	

7



Number	Description	316SS Valve
1	Body	S316
2	Bonnet	S316
3	Stem	S316
4	Adjuster	S316
5	Lock Nut	S316
6	Handle	S303
7	Fixing Screw	S302
8	Stem Seal	PTFE
9	Stem Seal	Viton®
10	Dust Cap	NBR
11	Soft Seat	POM
12	Locking Pin	S303
13	Bleeding Screw	S316

All dimensions shown in the catalog are approximate and subject to change.

### AVAILABLE OPTIONS\*

- High Temperature
- Tube End Connection
- Alternate Connection Sizes
- Carbon Steel Material
- Female x Female Connection

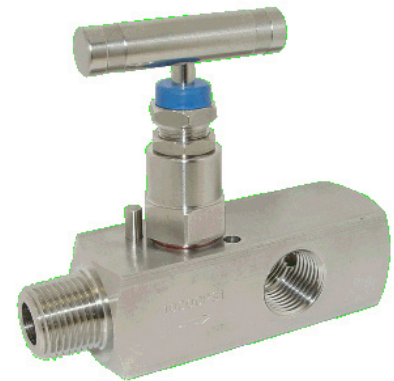
\*Lead times/minimums may apply

# GV MULTI-PORT GAUGE VALVE

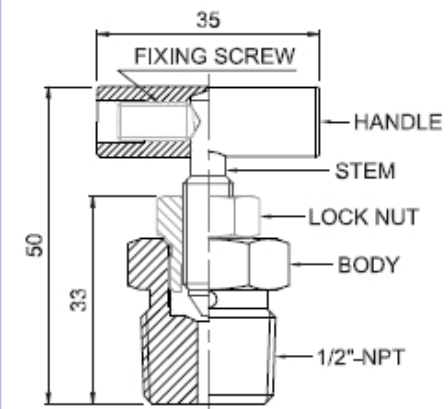
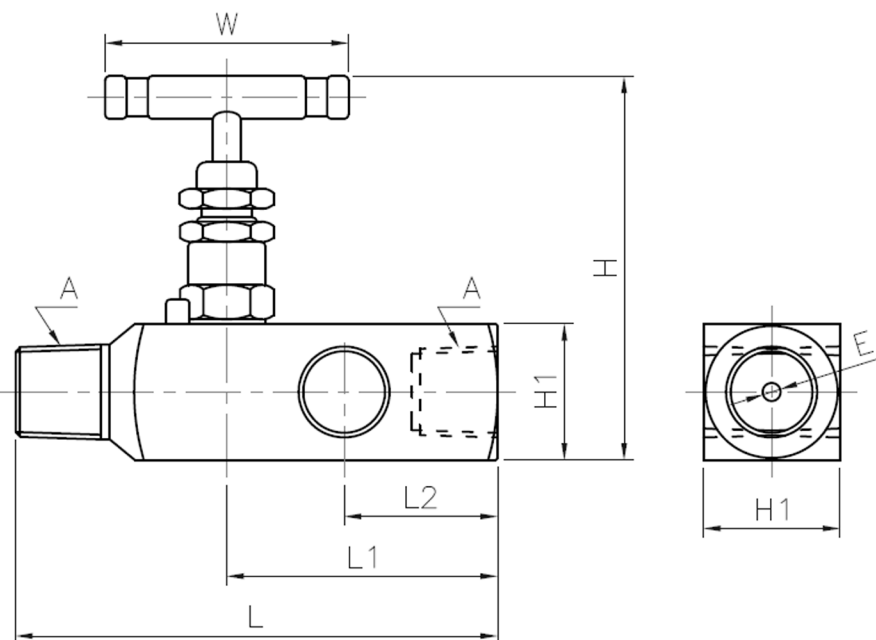
**Strong and durable, instrument grade multi-port gauge valve**  
**Pressures up to 6,000 psi soft seat, 10,000 psi hard seat**

## SPECIFICATIONS

<b>Series Number</b>	"GV"
<b>Material</b>	316 Stainless steel body
<b>Pressure Rating</b>	6000 psi soft seat 10,000 psi hard seat
<b>Connection Size</b>	1/2" NPT male inlet x (3) 1/2" NPT female outlet 3/4" NPT male inlet x (3) 1/2" NPT female outlet
<b>Handle</b>	Tee
<b>Seat Material</b>	Soft Seat - POM Hard Seat - Integrated
<b>Box Quantity</b>	12
<b>Est. Unit Weight</b>	1.80 lb/0.80 kg



## OPTIONAL BLEED VALVE ACCESSORY



P/N: BLEED VALVE

Part Number	Unit	A	L	L1	L2	H	H1	E	W
GV-SS-1/2-HS-3W-MXF	In.	1/2"	4.45"	2.50"	1.42"	3.86"	1.26"	0.24"	2.24"
GV-SS-3/4-HS-3W-MXF	mm	or 3/4"	113	63.5	36	98	32	6	57
GV-SS-1/2-GS-3W-MXF	In.	1/2"	4.45"	2.50"	1.42"	3.86"	1.26"	0.19"	2.24"
GV-SS-3/4-GS-3W-MXF	mm	or 3/4"	113	63.5	36	98	32	4.8	57

## AVAILABLE OPTIONS\*

- High Temperature
- Bleed Valve
- Hex Plug
- Tube End Connection
- Alternate Connection Sizes
- Carbon Steel Material

All dimensions shown in the catalog are approximate and subject to change.

\*Lead times/minimums may apply

# DIAPHRAGM SEALS

Diaphragm seals, also referred to as isolators or chemical seals, are used to protect instruments from viscous, corrosive or very high temperature process media. ESP stocks, fills and calibrates complete diaphragm seal assemblies in a wide variety of configurations.

			
<p><b>M3500 SERIES MINI SEALS</b> Low cost for small instruments Dial size up to 3 1/2"</p>	<p><b>M4500 SERIES MINI SEALS</b> Low cost for medium to large Dial size up to 4 1/2"</p>	<p><b>MLP SERIES MINI LOW PRESSURE</b> Large area diaphragm for low pressures &amp; vacuum</p>	<p><b>MHP SERIES MINI HIGH PRESSURE</b> Mini diaphragm seal for pressures up to 6000 psi</p>
			
<p><b>LARGE THREADED</b> Most versatile for all applications</p>	<p><b>THREADED FLUSH</b> Mini seal - threaded male connection with flush diaphragm</p>	<p><b>SANITARY</b> Tri-Clamp® /Cherry-Burrell®, etc. Food &amp; pharmaceutical Designed for easy cleaning</p>	<p><b>FLANGED CONNECTION</b> Raised face or flat face pressure from 150# to 2500#</p>
			
<p><b>SADDLE WELD</b> Weld-in saddle mount</p>	<p><b>SPECIAL SEALS</b> PTFE, homogenizer, single flange or other custom designs</p>	<p><b>FILLING/CALIBRATION</b> Using any fill fluid suitable for the application. See page 149 for available options.</p>	

# DIAPHRAGM SEALS

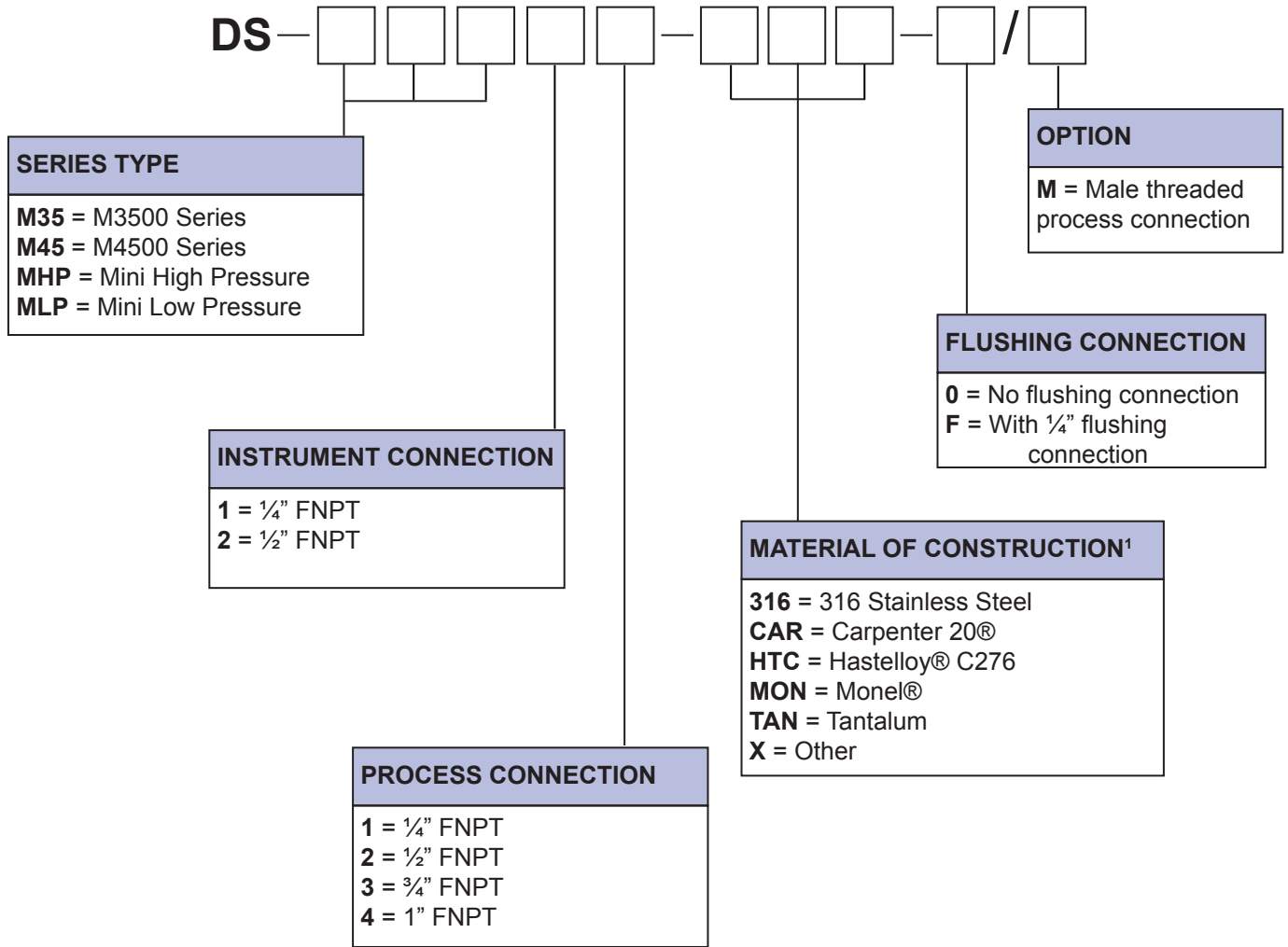


## Considerations when selecting diaphragm seals

<p>Diaphragm seal assemblies consist of a pressure instrument, system fill and the diaphragm seal itself. Diaphragm seal assemblies can be made with a variety of instruments, connections and materials.</p> <p>Diaphragm seals are commonly made of stainless steel; however, various materials from carbon steel to Hastelloy® C276 are available to meet the demands of a wide range of applications.</p> <p>It is important to know as much about the application as possible to ensure that the correct materials are selected for the diaphragm seal assembly.</p>	
<p><b>PROCESS MEDIA</b></p>	<p>In selecting a diaphragm seal, the process media is a top concern. Media composition, ambient and operating temperature, and maximum working pressure are of particular importance in determining the construction of a diaphragm seal system.</p>
<p><b>UPPER HOUSING &amp; INSTRUMENT CONNECTION</b></p>	<p>Typically a support structure for the pressure gauge, the upper housing does not come into direct contact with the process media. Materials of construction include carbon steel, 316 stainless steel and other custom alternatives. The upper housing holds the instrument connection, which is available in a variety of sizes, including NPT and metric.</p>
<p><b>DIAPHRAGM</b></p>	<p>The diaphragm is the isolating device between the process media and the pressure instrument. Since the diaphragm comes in direct contact with the process media, the selection of the diaphragm material depends upon the media being measured and the pressure rating.</p>
<p><b>LOWER HOUSING &amp; PROCESS CONNECTION</b></p>	<p>Also in direct contact with the process media, the lower housing must be compatible with the process being measured. ESP offers a variety of metallic and non-metallic lower housings. The process connection is contained within the lower housing and includes threaded, flanged, clamped or other custom connections.</p>
<p><b>TEMPERATURE</b></p>	<p>Ambient and operating temperature should be known when determining the appropriate materials and fill fluid. For process temperatures over 212° F, a capillary or cooling element is recommended.</p>
<p><b>FILL FLUID COMPATIBILITY</b></p>	<p>For the fill fluid, it is critical to select materials that are compatible with the process media in order to avoid chemical volatility in the case of diaphragm rupture. In food processing applications, a nontoxic fluid should be selected.</p>
<p><b>OTHER REMAINING FACTORS</b></p>	<p>In addition to the above items, consideration should be given to the following: mounting position, response time, maximum pressure ratings, o-ring and gasket materials, bolting materials for flanged connections and more. For further technical assistance, please contact ESP.</p>

NOTE: The above information is for reference only and is not a comprehensive guide. Please contact your ESP representative with any questions.

# MINI DIAPHRAGM SEAL PART NUMBERING SYSTEM



**EXAMPLE: "DS-M3512-316-F"<sup>2</sup>**

**DS** = Diaphragm Seal

**M35** = M3500 Series

**1** = 1/4" FNPT

**2** = 1/2" FNPT

**316** = 316 Stainless steel

**F** = With 1/4" flushing connection



Notes:

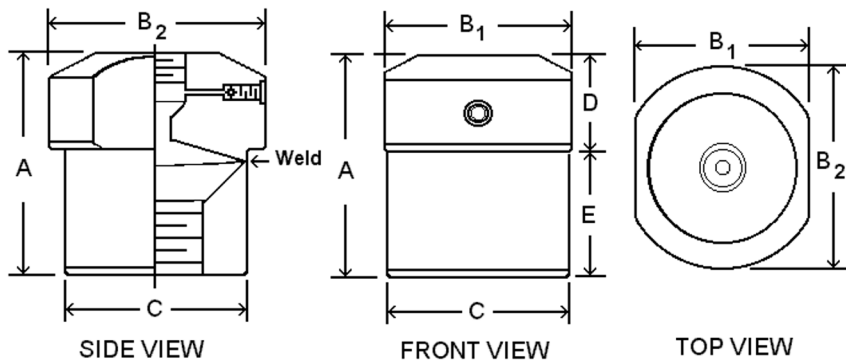
1. Consult ESP for other materials of construction.
2. Not all part numbers or options are available from stock. Consult ESP for availability.

# M3500 SERIES MINI DIAPHRAGM SEAL

**Threaded mini diaphragm seal for dial sizes up to 3 1/2"**  
**Compact, durable all-welded construction**

## SPECIFICATIONS

<b>Design</b>	Diaphragm, upper and lower housing welded
<b>Instruments</b>	Gauges, pressure transducers, transmitters
<b>Appropriate Dial Size</b>	1 1/2" (38 mm) through 3 1/2" (88.9 mm)
<b>Pressures</b>	60 psi through 2500 psi
<b>Upper Housing</b>	Standard: 316 stainless steel Optional: Monel®, Hastelloy® C276, Tantalum
<b>Diaphragm</b>	Standard: 316 stainless steel Optional: Monel®, Hastelloy® C276, Tantalum
<b>Lower Housing</b>	Standard: 316 stainless steel Optional: Monel®, Hastelloy® C276, Tantalum
<b>Process Connection</b>	1/4" FNPT, 1/2" FNPT, 3/4" FNPT
<b>Instrument Connection</b>	1/4" FNPT, 1/2" FNPT
<b>Process Temperature<sup>1</sup></b>	-49°F to 400°F (-45°C to 204°C)

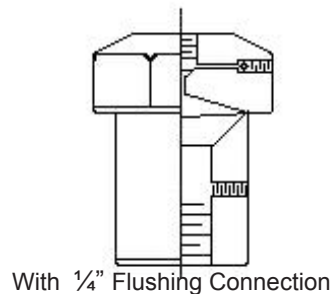


## AVAILABLE OPTIONS\*

- Flushing (1/4") connection available on lower housing
- Male threaded process connection
- Oxygen cleaned
- Material analysis certificate
- Custom upper/lower/diaphragm materials

Diaphragm Seal	Unit	A	B1	B2	C	D	E
Standard	In.	1.50"	1.60"	1.73"	1.49"	0.67"	0.81"
	mm	38	41	44	38	17	21
With Flushing Connection	In.	1.91"	1.60"	1.73"	1.49"	0.63"	1.35"
	mm	49	41	44	38	16	34

\*Lead times/minimums may apply



**Notes:**

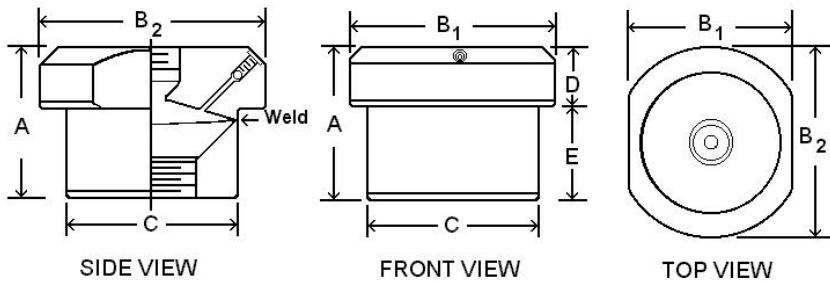
1. Process Temperature Rating can vary based on materials of construction, system fill fluid and pressure gauge selection.

# M4500 SERIES MINI DIAPHRAGM SEAL

Threaded mini diaphragm seal for dial sizes up to 4 1/2"  
Compact, durable all-welded construction

## SPECIFICATIONS

<b>Design</b>	Diaphragm, upper and lower housing welded
<b>Instruments</b>	Gauges, pressure transducers, transmitters
<b>Appropriate Dial Size</b>	Sizes through 4 1/2" (114 mm)
<b>Pressures</b>	30 psi through 2500 psi
<b>Upper Housing</b>	Standard: 316 stainless steel Optional: Monel®, Hastelloy® C276, Tantalum
<b>Diaphragm</b>	Standard: 316 stainless steel Optional: Monel®, Hastelloy® C276, Tantalum
<b>Lower Housing</b>	Standard: 316 stainless steel Optional: Monel®, Hastelloy® C276, Tantalum
<b>Process Connection</b>	1/4" FNPT, 1/2" FNPT, 3/4" FNPT, 1" FNPT
<b>Instrument Connection</b>	1/4" FNPT, 1/2" FNPT
<b>Process Temperature<sup>1</sup></b>	-49°F to 750°F (-45°C to 399°C)

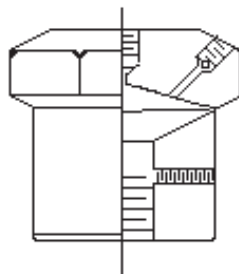


## AVAILABLE OPTIONS\*

- Flushing (1/4") connection available on lower housing
- Male threaded process connection
- Oxygen cleaned
- Material analysis certificate
- Custom upper/lower/diaphragm materials

Diaphragm Seal	Unit	A	B1	B2	C	D	E
Standard	In.	1.48"	2.35"	2.48"	1.91"	0.65"	0.83"
	mm	38	60	63	49	17	21
With Flushing Connection	In.	1.94"	2.28"	2.48"	1.91"	0.63"	1.31"
	mm	49	58	63	49	16	33

\*Lead times/minimums may apply



With 1/4" Flushing Connection

Notes:

1. Process Temperature Rating can vary based on materials of construction, system fill fluid and pressure gauge selection.

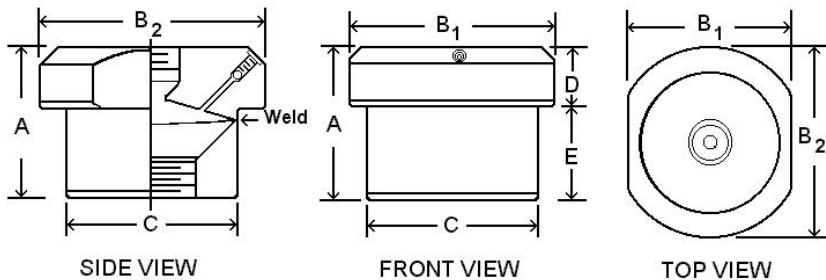


# MHP MINI HIGH PRESSURE DIAPHRAGM SEAL

**Threaded mini diaphragm seal for high pressure applications**  
**Compact, durable all-welded construction**

## SPECIFICATIONS

<b>Design</b>	Diaphragm, upper and lower housing welded
<b>Instruments</b>	Gauges, pressure transducers, transmitters
<b>Appropriate Dial Size</b>	1 1/2" (38 mm) through 6" (152.4 mm)
<b>Pressures</b>	1000 psi through 6000 psi
<b>Upper Housing</b>	Standard: 316 stainless steel Optional: Monel®, Hastelloy® C276, Tantalum
<b>Diaphragm</b>	Standard: 316 stainless steel Optional: Monel®, Hastelloy® C276, Tantalum
<b>Lower Housing</b>	Standard: 316 stainless steel Optional: Monel®, Hastelloy® C276, Tantalum
<b>Process Connection</b>	1/4" FNPT, 1/2" FNPT, 3/4" FNPT, 1" FNPT
<b>Instrument Connection</b>	1/4" FNPT, 1/2" FNPT
<b>Process Temperature<sup>1</sup></b>	-49°F to 400°F (-45°C to 204°C)

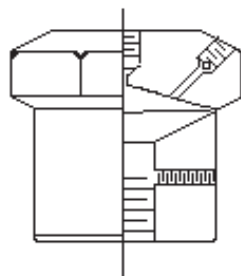


## AVAILABLE OPTIONS\*

- Flushing (1/4") connection available on lower housing
- Male threaded process connection
- Oxygen cleaned
- Material analysis certificate
- Custom upper/lower/diaphragm materials

Diaphragm Seal	Unit	A	B1	B2	C	D	E
Standard	In.	1.60"	1.90"	1.99"	1.62"	0.75"	0.85"
	mm	41	48	51	41	19	22
With Flushing Connection	In.	2.04"	1.90"	1.99"	1.63"	0.75"	0.85"
	mm	52	48	51	41	19	22

\*Lead times/minimums may apply



With 1/4" Flushing Connection

**Notes:**

1. Process Temperature Rating can vary based on materials of construction, system fill fluid and pressure gauge selection.

# MLP MINI LOW PRESSURE DIAPHRAGM SEAL

Threaded mini diaphragm seal for low pressure applications  
Compact, durable all-welded construction

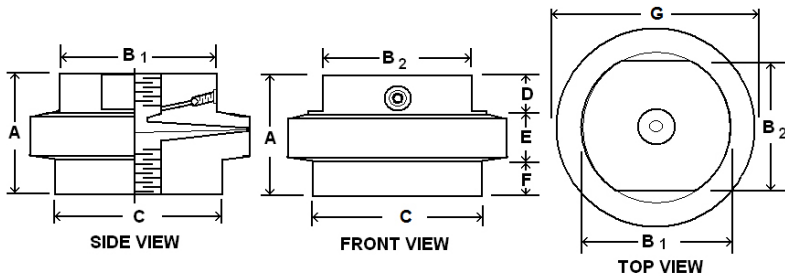
## SPECIFICATIONS

<b>Design</b>	Diaphragm, upper and lower housing welded
<b>Instruments</b>	Gauges, pressure transducers, transmitters
<b>Appropriate Dial Size</b>	1 1/2" (38 mm) through 4 1/2" (114.3 mm)
<b>Pressures</b>	Vacuum or pressures up to 2500 psi
<b>Upper Housing</b>	Standard: 316 stainless steel Optional: Monel®, Hastelloy® C276, Tantalum
<b>Diaphragm</b>	Standard: 316 stainless steel Optional: Monel®, Hastelloy® C276, Tantalum
<b>Lower Housing</b>	Standard: 316 stainless steel Optional: Monel®, Hastelloy® C276, Tantalum
<b>Process Connection</b>	1/4" FNPT, 1/2" FNPT, 3/4" FNPT, 1" FNPT
<b>Instrument Connection</b>	1/4" FNPT, 1/2" FNPT
<b>Process Temperature<sup>1</sup></b>	-49°F to 750°F (-45°C to 399°C)



## AVAILABLE OPTIONS\*

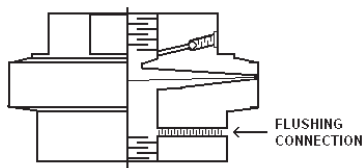
- Flushing (1/4") connection available on lower housing
- Male threaded process connection
- Oxygen cleaned
- Material analysis certificate
- Custom upper/lower/diaphragm materials



Diaphragm Seal	Unit	A	B1	B2	C	D	E	F	G
Standard	In.	1.51"	1.87"	1.74"	1.77"	0.50"	0.53"	0.48"	2.48"
	mm	38	47	44	45	13	13	12	63
With Flushing Connection	In.	1.84"	1.86"	1.70"	2.01"	0.50"	0.50"	0.82"	2.48
	mm	47	47	43	51	13	13	21	63

\*Lead times/minimums may apply

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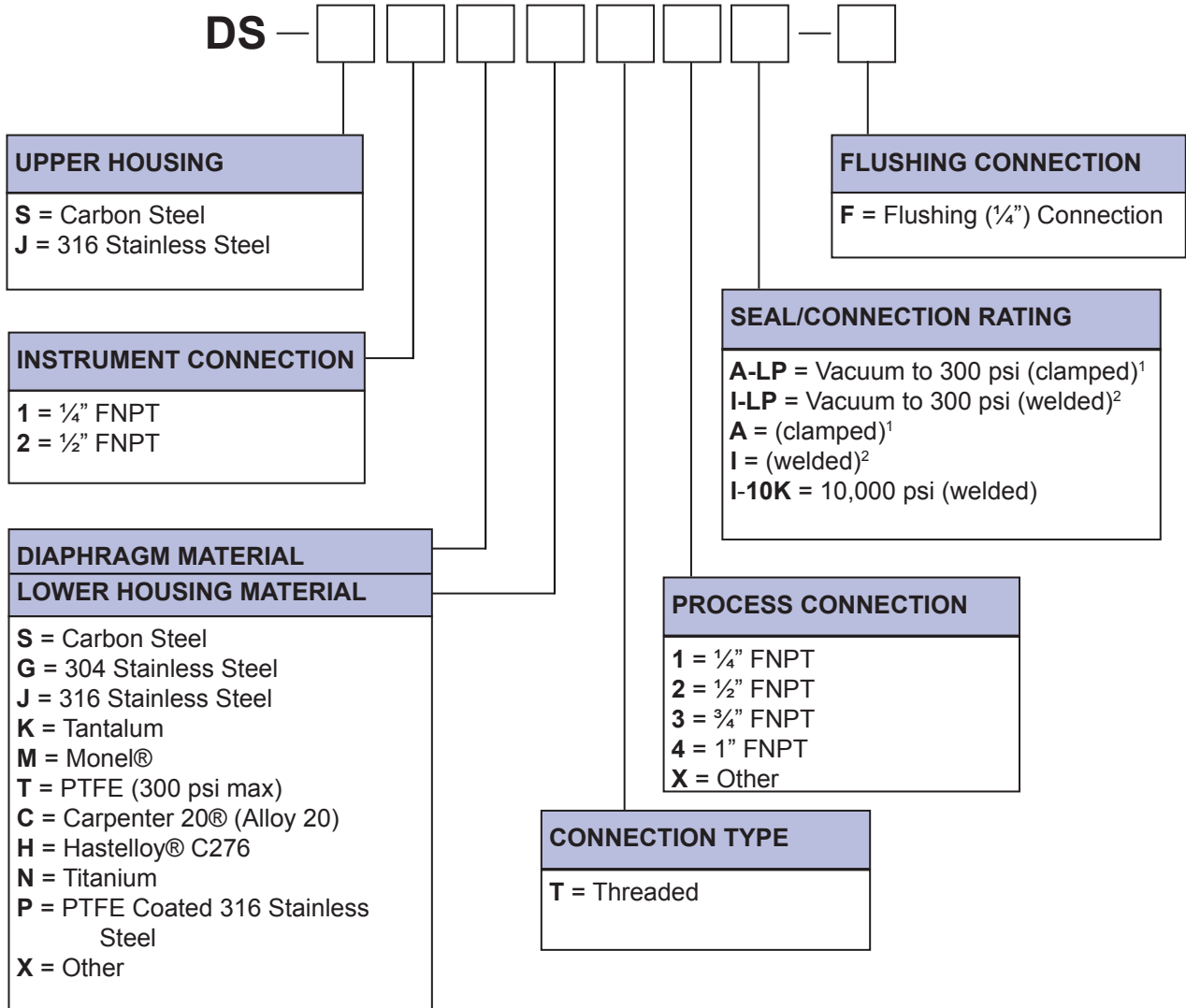


With 1/4" Flushing Connection

Notes:

1. Process Temperature Rating can vary based on materials of construction, system fill fluid and pressure gauge selection.

# THREADED DIAPHRAGM SEAL PART NUMBERING SYSTEM



**EXAMPLE: "DS-J2JJT2I-F"<sup>3</sup>**

**DS** = Diaphragm Seal

**J** = 316 Stainless Steel Upper Housing  
**2** = 1/2" FNPT Instrument Connection  
**J** = 316 Stainless Steel Diaphragm  
**J** = 316 Stainless Steel Lower Housing  
**T** = Threaded Connection  
**2** = 1/2" FNPT Process Connection  
**I** = 2500 psi (welded diaphragm)

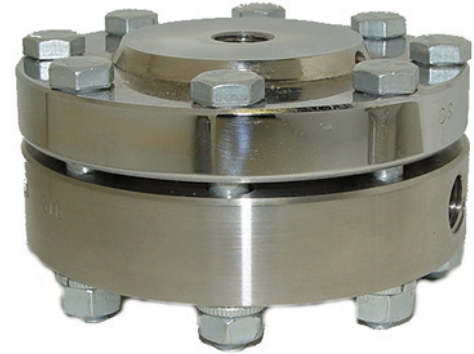
**F** = Flushing (1/4") Connection

Notes:  
 1. Metallic diaphragm rated up to 2000 psi  
 2. Metallic diaphragm rated up to 2500 psi  
 Elastomer diaphragm ratings vary, consult ESP for details.  
 3. Not all part numbers or options are available from stock. Consult ESP for availability.

## Threaded full size diaphragm seal Heavy duty, bolted construction

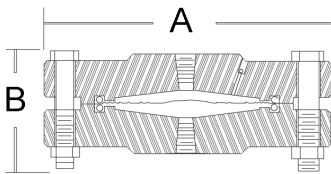
### SPECIFICATIONS

<b>Design</b>	Standard: Diaphragm welded to upper housing Also available: Clamped
<b>Instruments</b>	Gauges, pressure switches, transmitters
<b>Appropriate Dial Size</b>	2 1/2" (63 mm) through 6" (152.4 mm)
<b>Pressures</b>	Vacuum or pressures up to 2500 psi
<b>Upper Housing</b>	Chrome plated carbon steel or stainless steel
<b>Wetted Materials (Diaphragm/ Lower Housing)</b>	Standard: Carbon, 304 or 316 stainless steel Also available: Hastelloy® C276, Monel®, Tantalum, PTFE (clamped), Carpenter 20®, Titanium, Others upon request
<b>Process Connection</b>	1/4" FNPT, 1/2" FNPT, 3/4" FNPT, 1" FNPT
<b>Instrument Connection</b>	1/4" FNPT, 1/2" FNPT
<b>Bolts</b>	Galvanized steel (CS upper) Stainless steel (SS upper)
<b>Gaskets</b>	Standard: Buna N® Also available: Viton®, PTFE, Grafoil®, others upon request
<b>Process Temperature<sup>1</sup></b>	-4°F to 212°F (-20°C to 100°C)

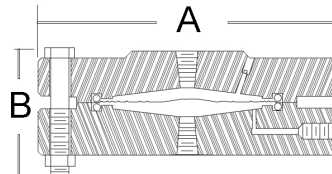


### AVAILABLE OPTIONS\*

- Clamped diaphragm
- Flushing (1/4") connection available on lower housing
- Male threaded process connection
- Oxygen cleaned
- Material analysis certificate
- High temperature with grafoil gasket
- Clean-out ring (available on clamped designs only)

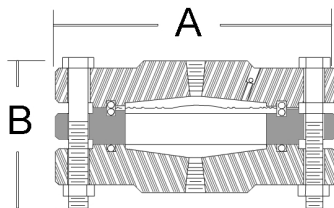


**STANDARD**



**WITH FLUSHING CONNECTION**

\*Lead times/minimums may apply



**WITH CLEAN-OUT RING**

Diaphragm Seal	Unit	A	B
Standard	In.	4.00"	1.50"
	mm	100	38
With Flushing Connection	In.	4.00"	1.75"
	mm	100	45
With Clean-out Ring	In.	4.00"	2.13"
	mm	100	54

Notes:

1. Process Temperature Rating can vary based on materials of construction, system fill fluid, gaskets and pressure gauge selection.

# THREADED HIGH PRESSURE DIAPHRAGM SEAL

Threaded high pressure diaphragm seal rated up to 10,000 psi  
Heavy duty bolted construction

## SPECIFICATIONS

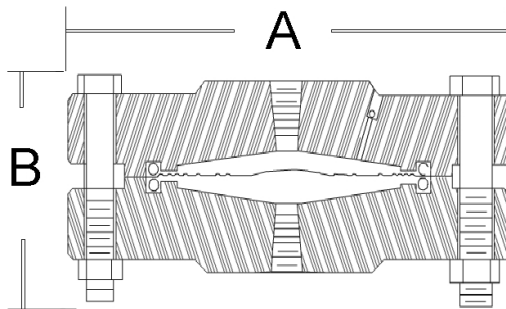
<b>Design</b>	Standard: Diaphragm welded to upper housing Also available: Clamped
<b>Instruments</b>	Gauges, pressure switches, transmitters
<b>Appropriate Dial Size</b>	2 1/2" (63 mm) through 6" (152.4 mm)
<b>Pressures</b>	Pressures from 2500 to 10,000 psi
<b>Upper Housing</b>	Chrome plated carbon steel or stainless steel
<b>Wetted Materials</b>	Standard: Carbon, 304 or 316 stainless steel Also available: Hastelloy® C276, Monel®, Tantalum, PTFE (lined), Carpenter 20®, Titanium, Others upon request
<b>Process Connection</b>	1/4" FNPT, 1/2" FNPT, 3/4" FNPT, 1" FNPT
<b>Instrument Connection</b>	1/4" FNPT, 1/2" FNPT
<b>Bolts</b>	Galvanized steel (CS upper) Stainless steel (SS upper)
<b>Gaskets</b>	Standard: Buna N® Also available: Viton®, PTFE, Grafoil®, others upon request
<b>Process Temperature<sup>1</sup></b>	-4°F to 212°F (-20°C to 100°C)



## AVAILABLE OPTIONS\*

- Flushing (1/4") connection available on lower housing
- Male threaded process connection
- Oxygen cleaned
- Material analysis certificate
- High temperature with grafoil gasket

\*Lead times/minimums may apply



## THREADED HIGH PRESSURE

Diaphragm Seal	Unit	A	B
High Pressure	In.	4"	2 1/4"
	mm	101.6	57.2

Notes:

1. Process Temperature Rating can vary based on materials of construction, system fill fluid, gaskets and pressure gauge selection.

# THREADED LOW PRESSURE DIAPHRAGM SEAL

Threaded diaphragm seal designed for sensitive, low pressure applications, Vacuum - 100 psi, including inches water column and mbar ranges

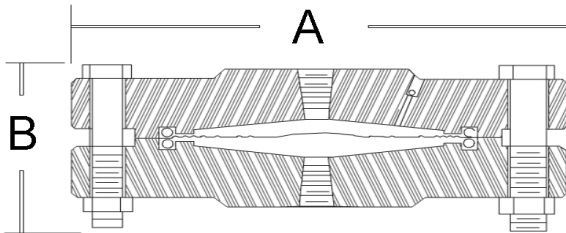
## SPECIFICATIONS

<b>Design</b>	Standard: Diaphragm welded to upper housing Also available: Clamped
<b>Instruments</b>	Gauges, pressure switches, transmitters
<b>Appropriate Dial Size</b>	2 1/2" (63 mm) through 6" (152.4 mm)
<b>Pressures</b>	Vacuum or pressures up to 100 psi
<b>Maximum Pressure</b>	1,000 psi
<b>Upper Housing</b>	Chrome plated carbon steel or stainless steel
<b>Wetted Materials</b>	Standard: Carbon, 304 or 316 stainless steel Also available: Hastelloy® C276, Monel®, Tantalum, PTFE (clamped), Carpenter 20®, Titanium, Others upon request
<b>Process Connection</b>	1/4" FNPT, 1/2" FNPT, 3/4" FNPT, 1" FNPT
<b>Instrument Connection</b>	1/4" FNPT, 1/2" FNPT
<b>Bolts</b>	Galvanized steel (CS upper) Stainless steel (SS upper)
<b>Gaskets</b>	Standard: Buna N® Also available: Viton®, PTFE, Grafoil®, others upon request
<b>Process Temperature<sup>1</sup></b>	-4°F to 212°F (-20°C to 100°C)



## AVAILABLE OPTIONS\*

- Clamped diaphragm
- Flushing (1/4") connection available on lower housing
- Male threaded process connection
- Oxygen cleaned
- Material analysis certificate
- High temperature with grafoil gasket



\*Lead times/minimums may apply

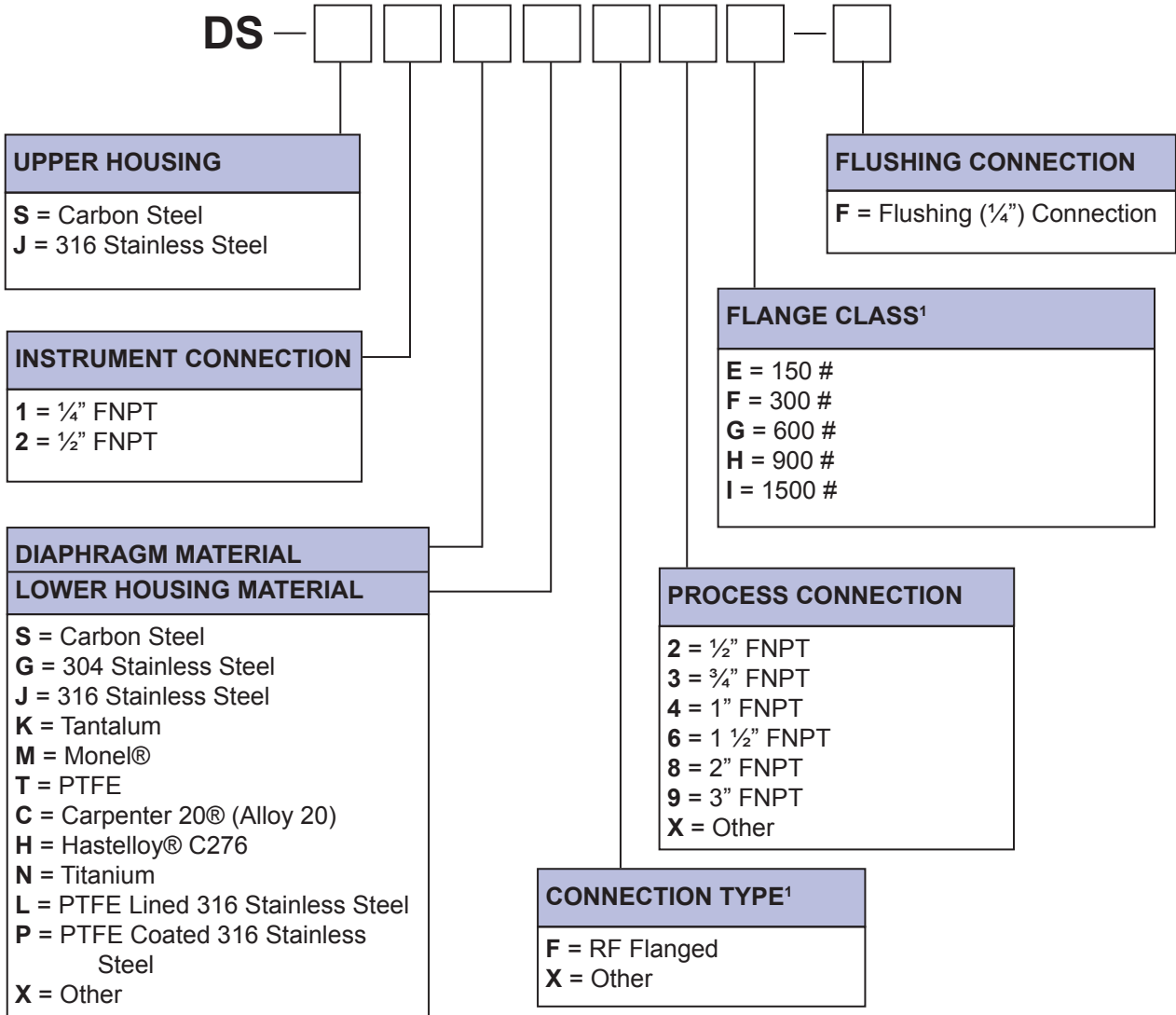
## LOW PRESSURE

Diaphragm Seal	Unit	A	B
Standard	In.	5"	1 1/2"
	mm	127	38

Notes:

1. Process Temperature Rating can vary based on materials of construction, system fill fluid, gaskets and pressure gauge selection.

# FLANGED DIAPHRAGM SEAL PART NUMBERING SYSTEM



**EXAMPLE: "DS-J2JJF2F"<sup>2</sup>**

**DS** = Diaphragm Seal

**J** = 316 Stainless Steel Upper Housing

**2** = 1/2" FNPT Instrument Connection

**J** = 316 Stainless Steel Diaphragm

**J** = 316 Stainless Steel Lower Housing

**F** = RF Flanged Connection

**2** = 1/2" Process Connection

**F** = 300 #

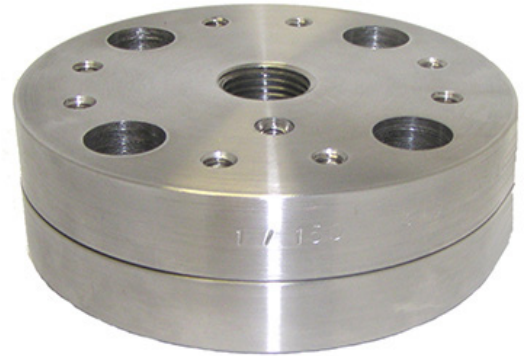


Notes:  
 1. Other connection types and flange classes available upon request.  
 2. Not all part numbers or options are available from stock. Consult ESP for availability.

## RF (Raised Face) flanged diaphragm seal

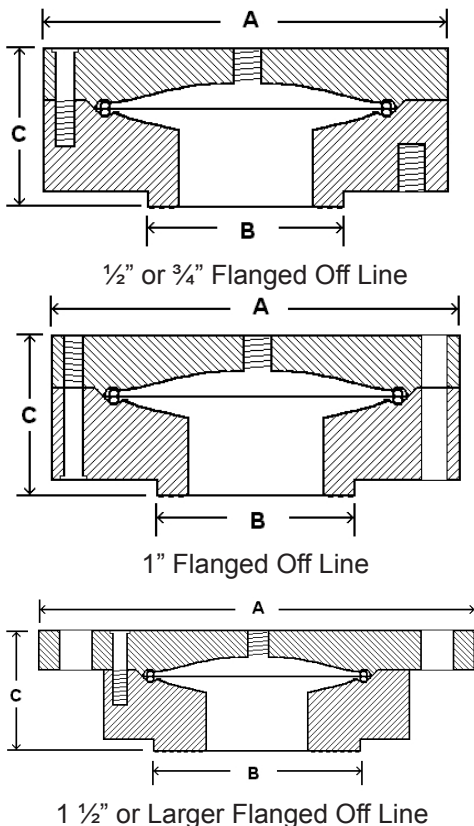
### SPECIFICATIONS

<b>Design</b>	Standard: Diaphragm welded to upper housing Also available: Clamped
<b>Instruments</b>	Gauges, pressure switches, transmitters
<b>Appropriate Dial Size</b>	2 1/2" (63 mm) through 6" (152.4 mm)
<b>Pressures</b>	See ASME B16.5 flange ratings
<b>Upper Housing</b>	Chrome plated carbon steel or stainless steel
<b>Wetted Materials</b>	Standard: Carbon, 304 or 316 stainless steel Also available: Hastelloy® C276, Monel®, Tantalum, PTFE (clamped), Carpenter 20®, Titanium, Others upon request
<b>Process Connection</b>	Available sizes see chart below
<b>Instrument Connection</b>	1/4" FNPT, 1/2" FNPT
<b>Bolts</b>	Galvanized steel (CS upper) Stainless steel (SS upper)
<b>Gaskets</b>	Standard on all stainless: Buna N® Also available: Viton®, PTFE, Grafoil®, others upon request
<b>Process Temperature</b> <sup>1</sup>	-4°F to 212°F (-20°C to 100°C)



### AVAILABLE OPTIONS\*

- Flushing (1/4") connection available on lower housing
- RTJ or other facings available upon request
- 600, 900, 1500# flanged available upon request
- Oxygen cleaned
- Material analysis certificate
- High temperature with Grafoil® gasket



\*Lead times/minimums may apply

Process Connection	Flange Rating Class	A	B	C
1/2"	150 #	3 1/2"	1 3/8"	1 3/4"
3/4"		3 3/4"	1 11/16"	1 3/4"
1/2"	300 #	3 3/4"	1 3/8"	1 3/4"
3/4"		4 5/8"	1 11/16"	1 3/4"
1"	150 #	4 1/4"	1 3/8"	1 1/2"
	300 #	4 7/8"	1 9/16"	1 1/2"
600, 900, 1500 # dimensions available upon request.				
1 1/2" or larger	All dimensions according to size and rating of flange.			

Notes:  
1. Process Temperature Rating can vary based on materials of construction, system fill fluid, gaskets and pressure gauge selection.



# DS-M3A SANITARY DIAPHRAGM SEALS

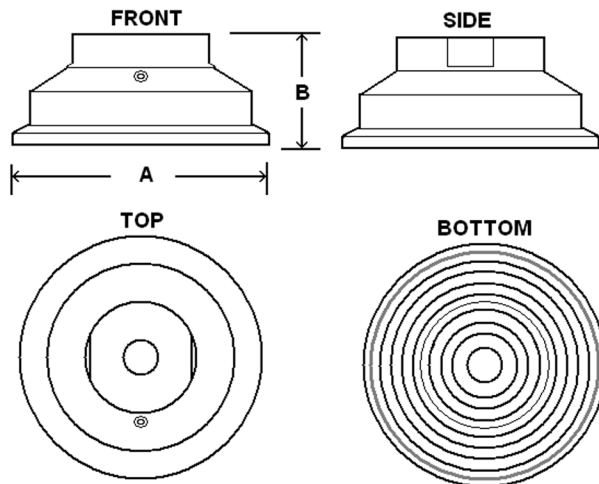
Sanitary Tri-Clamp® style diaphragm seal for applications that require sanitary conditions, including food and beverage applications

## SPECIFICATIONS

<b>Design</b>	Upper housing and separating diaphragm
<b>Instruments</b>	Gauges, pressure switches, transmitters
<b>Appropriate Dial Size</b>	1 ½" (38 mm) through 6" (152.4 mm)
<b>Operating Temp<sup>1</sup></b>	-10° F to 572° F (-23° C to 300° C)
<b>Upper Housing</b>	316 stainless steel
<b>Diaphragm</b>	Standard: 316L stainless steel Other materials available upon request
<b>Sanitary Clamp Size</b>	½" - 4"
<b>Pressure Rating</b>	Based on the clamp and gasket used with the assembly



Designed & manufactured to meet the requirements of the 3A sanitary standard.



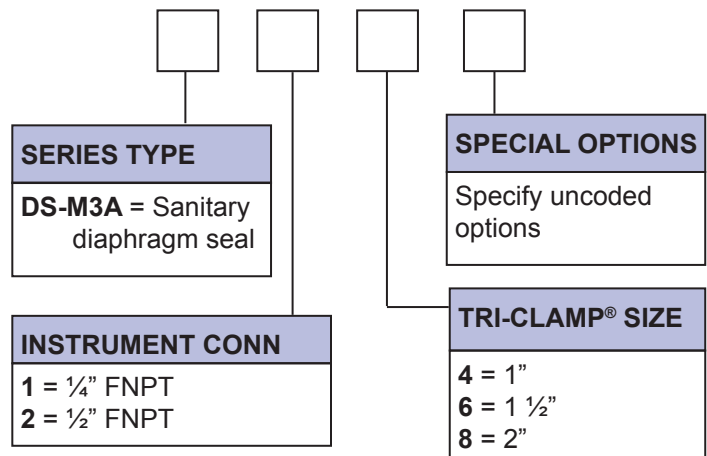
Tri-Clamp® Size	Unit	A	B
1"	In.	2.00"	1.26"
	mm	51	32
1 ½"	In.	2.00"	1.26"
	mm	51	32
2"	In.	2.50"	1.26"
	mm	63	32

## AVAILABLE OPTIONS\*

- Without fill-port
- Material analysis certificate
- ½" and ¾" Tri-Clamp® dimensions available upon request

\*Lead times/minimums may apply

## PART NUMBERING SYSTEM



### Notes:

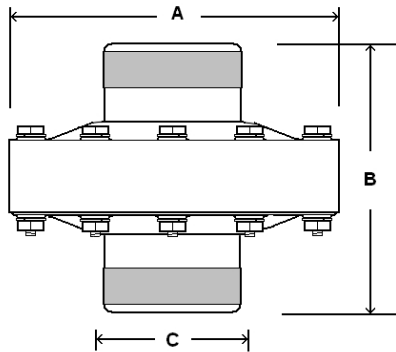
1. Operating Temperature Rating can vary based on materials of construction, system fill fluid and pressure gauge selection.
2. Not all part numbers or options are available from stock. Consult ESP for availability.

# PVC DIAPHRAGM SEAL

**PVC diaphragm seal for applications that are corrosive to metallic components  
Designed for pressures up to 200 psi**

## SPECIFICATIONS

<b>Design</b>	PVC body with stainless steel bands to prevent splitting when installing
<b>Instruments</b>	Gauges, pressure switches, transmitters
<b>Appropriate Dial Size</b>	2 1/2" (63 mm) through 6" (152.4 mm)
<b>Pressures</b>	Vacuum up to 200 psi
<b>Upper Housing</b>	PVC
<b>Diaphragm</b>	PTFE or Viton®
<b>Lower Housing</b>	PVC
<b>Process Connection</b>	1/4" FNPT, 1/2" FNPT
<b>Instrument Connection</b>	1/4" FNPT, 1/2" FNPT
<b>Bolts</b>	304 Stainless Steel
<b>Gaskets</b>	Integral to diaphragm (PTFE)



## AVAILABLE OPTIONS\*

- Oxygen cleaned
- Material analysis certificate

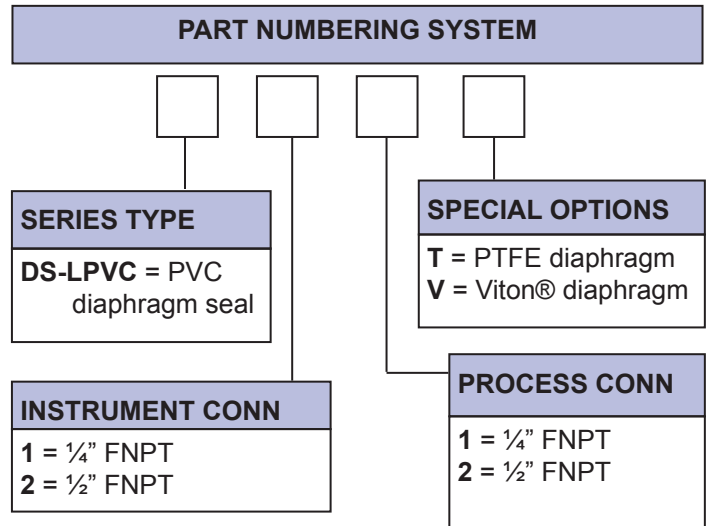
Process Conn Size	Instrument Conn Size	A	B	C
1/4"	1/4"	3.22"	3.38"	1.29"
1/2"	1/2"	3.22"	3.38"	1.29"

Part	Pcs.	Materials
Lower Housing	1	PVC
Diaphragm	1	PTFE or Viton®
Upper Housing	1	PVC
Optional Gauge	1	
Hex Bolt, Nut & Washers	9 sets	304SS, M5x30
Stainless Steel Bands	2	SS

Material	10-20°C 50-68°F	30°C 86°F	40°C 104°F	50°C 122°F	60°C 140°F
PVC working psi	150	115	85	60	15

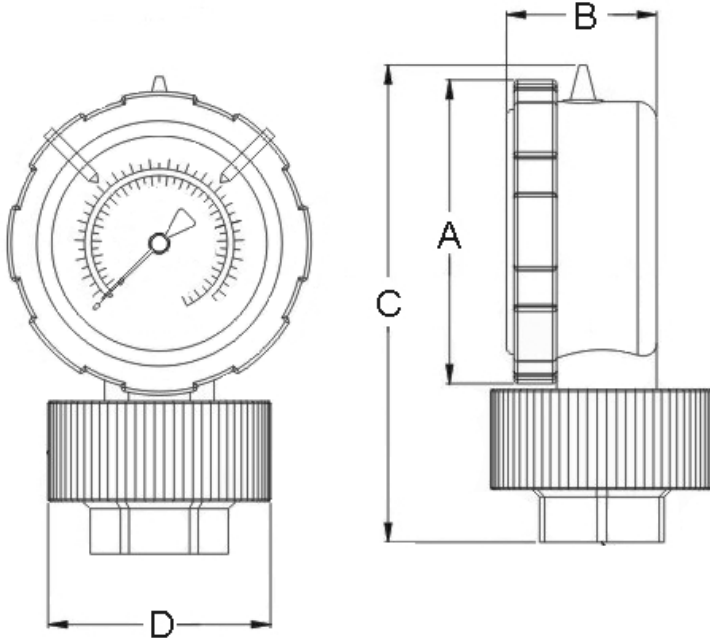
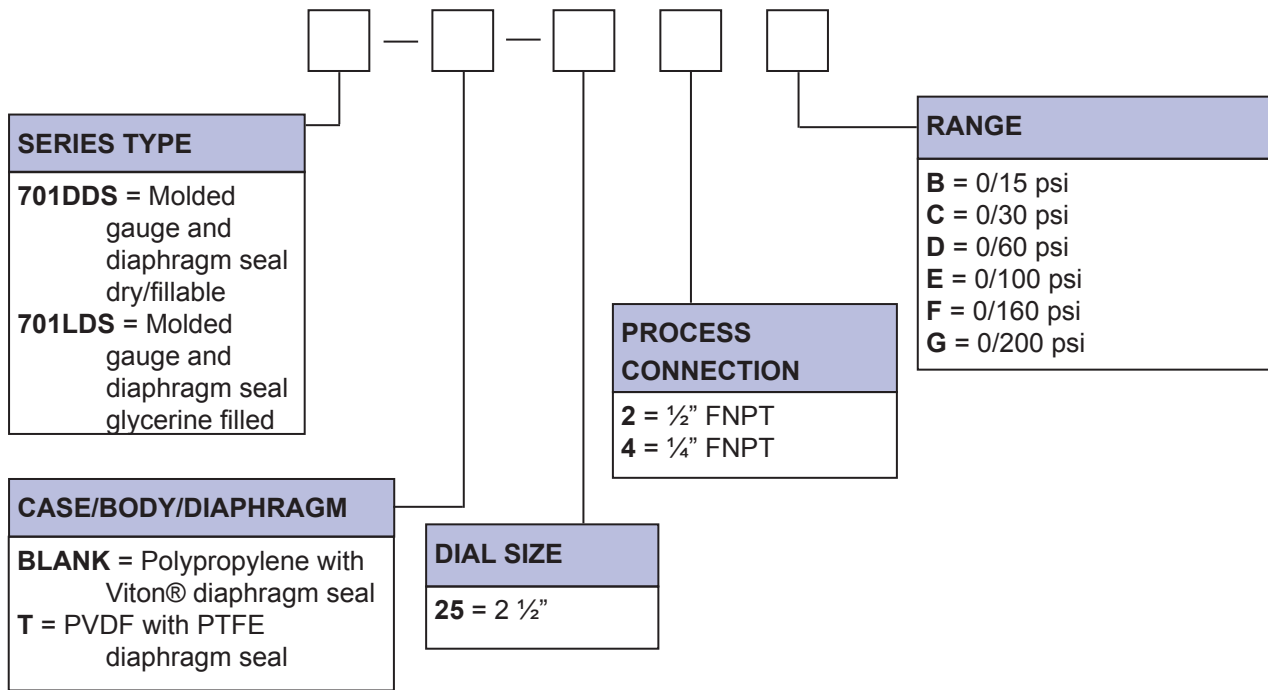
Temperature Ranges - PVC: -10 to 60°C (14 to 140°F)

\*Lead times/minimums may apply



NOTE: Not all part numbers or options are available from stock. Consult ESP for availability.

# 701DDS MOLDED GAUGE & DIAPHRAGM SEAL PART NUMBERING SYSTEM



Dial Range	Figure Intervals	Graduation Intervals
0/15 psi	2 psi	0.2 psi
0/30 psi	5 psi	0.5 psi
0/60 psi	10 psi	1 psi
0/100 psi	20 psi	2 psi
0/160 psi	20 psi	2 psi
0/200 psi	40 psi	5 psi

Dial	Unit	A	B	C	D
2 1/2"	In.	3.16"	1.61"	5.35"	2.32"
	mm	80.5	41	136	59

NOTE: Not all part numbers or options are available from stock. Consult ESP for availability.

# 701DDS MOLDED GAUGE & DIAPHRAGM SEAL

**One-piece molded gauge/diaphragm seal assembly  
Heavy duty, tamper-resistant design**

## SPECIFICATIONS - 701DDS POLYPROPYLENE CASE/VITON® SEAL

<b>Dial Size</b>	2 1/2" (63 mm)
<b>Case</b>	Injection molded polypropylene, dry yet fillable
<b>Wetted Parts:</b>	
<b>Diaphragm</b>	Viton®
<b>Lower Housing</b>	Polypropylene
<b>Bezel</b>	Injection molded polypropylene, removable
<b>Lens</b>	Polycarbonate
<b>Pointer</b>	Black aluminum
<b>Scale</b>	Standard: psi/BAR x 100 = kPa
<b>Pressure</b>	0/15 to 0/200 psi
<b>Accuracy</b>	2-1-2% of span, ASME B40.1 Grade A
<b>Maximum Temp</b>	-4° F to 140° F (-20° C to 60° C)
<b>Internals(non-wetted)</b>	Copper alloy
<b>Process Connection</b>	1/4" FNPT or 1/2" FNPT
<b>System Fill Fluid</b>	Based on customer requirements

*Design meets or exceeds ASME B40.100 pressure gauge standard.*



### AVAILABLE OPTIONS\*

- Liquid Fill Options, see page 173

\*Lead times/minimums may apply

**SPECIFY MOUNT FLUID WHEN ORDERING**

## SPECIFICATIONS - 701DDS-T PVDF CASE/PTFE SEAL

<b>Dial Size</b>	2 1/2" (63 mm)
<b>Case</b>	Injection molded PVDF, dry yet fillable
<b>Wetted Parts:</b>	
<b>Diaphragm</b>	PTFE
<b>Lower Housing</b>	PVDF
<b>Bezel</b>	Injection molded PVDF, removable
<b>Lens</b>	Polycarbonate
<b>Pointer</b>	Black aluminum
<b>Scale</b>	Standard: psi/BAR x 100 = kPa
<b>Pressure</b>	0/15 to 0/200 psi
<b>Accuracy</b>	2-1-2% of span, ASME B40.1 Grade A
<b>Maximum Temp</b>	-4° F to 140° F (-20° C to 60° C)
<b>Internals(non-wetted)</b>	316 stainless steel
<b>Process Connection</b>	1/4" FNPT or 1/2" FNPT
<b>System Fill Fluid</b>	Based on customer requirements

*Design meets or exceeds ASME B40.100 pressure gauge standard.*



### AVAILABLE OPTIONS\*

- Liquid Fill Options, see page 173

\*Lead times/minimums may apply

**SPECIFY MOUNT FLUID WHEN ORDERING**

# DIAPHRAGM SEAL FILL FLUID SPECIFICATIONS

ESP offers a wide variety of fill fluids appropriate for numerous applications. When selecting fill fluids, consideration must be given to the following:

1. Below specifications are for fill fluid only. Maximum temperature ratings of instruments must be taken into consideration in conjunction with selection of fill fluid.
2. Physical properties of the fill fluid at the ambient and process temperature extremes of the application.
3. Chemical compatibility with the process fluid to avoid potentially hazardous reactions in the event of a bourdon tube or diaphragm failure.
4. For food processing applications, the fill fluid selected must be nontoxic.
5. For strong oxidizers, like oxygen, chlorine, hydrogen peroxide or nitric acid, use inert fill fluids, including Fluorolube FS-5<sup>®</sup> and Halocarbon<sup>®</sup>. DO NOT USE hydrocarbon based fluids, such as glycerine and silicone, as doing so may result in an explosive chemical reaction.

\*Selection of fill fluid should only be made by customer taking into account all relevant details.

FILL FLUID	TEMP RANGE	SPECIFIC GRAVITY AT TEMPERATURE		VISCOSITY AT TEMPERATURE	
Glycerine 99.5%	30° to 300° F	1.26	77° F	1110 cSt	68° F
Silicone DC-200 1000 cSt	-50° to 450° F	0.96	77° F	1000cSt	76° F
Mineral Oil	-30° to 200° F	0.85	59° F	57 cSt	68° F
Propylene Glycol (pharmaceutical USP)	-50° to 200° F	1.03	77° F	42.6 cSt	76° F
Halocarbon Oil <sup>®1</sup>	-40° to 400° F	1.87	100° F	6.3 cSt	76° F
Fluorolube FS-5 <sup>®1</sup>	-40° to 500° F	1.87	100° F	5.5 cSt	76° F
Syltherm 800 <sup>®</sup>	-40° to 750° F	0.93	77° F	10.7 cSt	76° F
Neobee M-20 <sup>®</sup>	-4° to 320° F	0.92	77° F	9.5 cP	76° F
Ethylene Glycol (Anti-freeze)	-30° to 300° F	1.10	80° F	30e	76° F

FILL FLUID	APPLICATION	PART NUMBER
Glycerine 99.5%	Standard including Food & Beverage	MOUNT-GLY
Silicone DC-200 1000 cSt	Low Temperature	MOUNT-SIL
Mineral Oil	Food & Beverage	MOUNT-MINERAL
Propylene Glycol (pharmaceutical USP)	Low Temperature	MOUNT-PROPYL
Halocarbon Oil <sup>®1</sup>	Oxygen & Chlorine Service	MOUNT-HALO
Fluorolube FS-5 <sup>®1</sup>	Oxygen & Chlorine Service	MOUNT-FLUOR
Syltherm 800 <sup>®</sup>	High Temperature	MOUNT-SYL
Neobee M-20 <sup>®</sup>	Food & Beverage	MOUNT-NEOBEE M-20
Ethylene Glycol (Anti-freeze)	Low Temperature	MOUNT-GLYCOL

**NOTE 1: Not to be used in contact with aluminum or magnesium.**

Thermometers are used to measure temperature. ESP stocks a variety of temperature measuring instruments, including bimetals, magnetic thermometers, tridicators and scale thermometers.

			
<p><b>STANDARD BIMETAL</b> 90° back angle type available in 2", 3" and 5" dials</p>	<p><b>BIMETAL ADJUSTABLE ANGLE</b> Every angle thermometer available in 3" and 5" dials</p>	<p><b>VARIOUS BIMETALS</b> Pocket style, clip style, hot water thermometer</p>	<p><b>SURFACE</b> Dual magnet mount surface thermometer or spring held for pipe mount</p>
			
<p><b>BARBEQUE</b> 3" dial BBQ pit thermometer reads 50-550° F</p>	<p><b>THERMOWELLS</b> Various sizes, connections and materials</p>	<p><b>INDUSTRIAL TRIDICATORS</b> Indicate both temperature and pressure</p>	<p><b>HEAVY DUTY TRIDICATORS</b> Indicate both temperature and pressure</p>
			
<p><b>REMOTE DIAL THERMOMETER</b> Vapor &amp; gas actuated for direct, surface or panel mounting</p>	<p><b>9" SCALE</b> Adjustable angle available in a variety of stem lengths</p>	<p><b>SOLAR DIGITAL</b> Powered with bi-directional solar panels</p>	<p><b>5" SCALE</b> Red liquid filled (no mercury) white painted steel scale</p>

# BIMETAL THERMOMETERS



## Considerations when selecting bimetal thermometers

A thermometer is an instrument manufactured to measure and display the temperature of a specific application or process medium. A bimetal thermometer uses a bimetallic sensing element, which reacts measurably and consistently with temperature change.

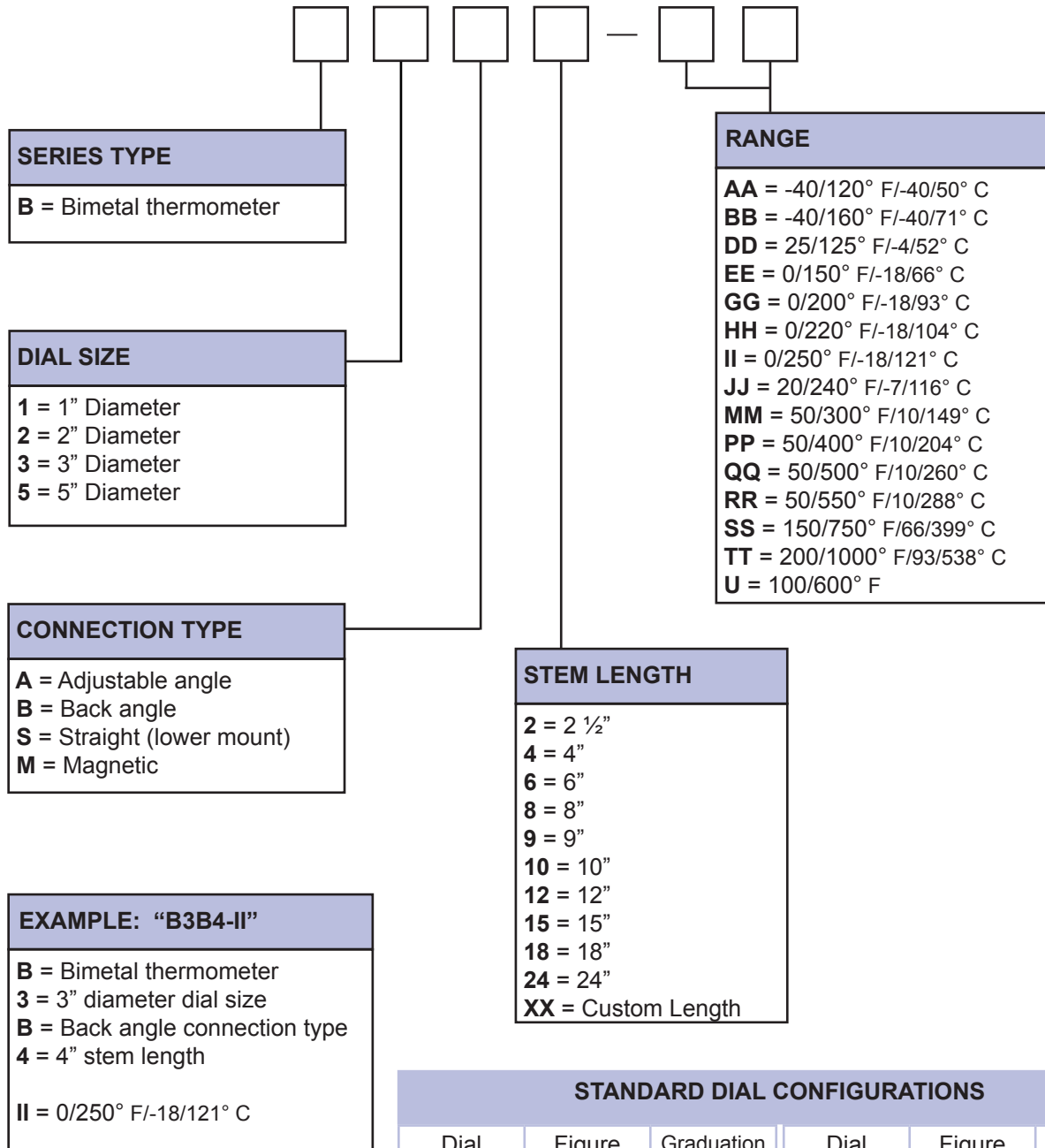
The sensing element is made of two different metals welded together in the form of a coil and enclosed in a stainless steel stem. The coil is connected to a dial pointer on the instrument face. When the stem is exposed to temperature change, the coil expands or contracts and the pointer moves accordingly, providing a temperature reading. While the American standard unit for measuring temperature is degrees Fahrenheit, ESP thermometers typically display both Fahrenheit and Celsius scales.



<p><b>DIAL</b> For 2" through 5" sizes, dials come with anti-parallax design, providing improved readability.</p>	<p>ESP offers a variety of dial sizes including 1", 2", 3" and 5" diameters.</p>
<p><b>CONNECTION SIZE</b></p>	<p>Typical connection sizes include 1/4" NPT and 1/2" NPT. Custom connection sizes are available upon request. Lead times may apply.</p>
<p><b>CONNECTION LOCATION</b></p>	<p>Fixed mount and adjustable angle connections are available from stock. Straight (lower mount) connections are also available upon request.</p>
<p><b>CASE CONSTRUCTION</b> hermetic seal, which prevents both damage to internal parts caused by moisture</p>	<p>Constructed of 300 series stainless steel, ESP thermometers feature a as well as lens fogging.</p>
<p><b>ACCURACY</b> and, as such, offer 1% full scale accuracy.</p>	<p>ESP thermometers are manufactured to ASME B40.1 Grade A standards</p>
<p><b>TEMPERATURE RANGE</b></p>	<p>Standard ranges have been selected to include all normal temperature measurement requirements.</p>
<p><b>THERMOWELLS</b></p>	<p>Thermowells are recommended for all applications.</p>

NOTE: The above information is for reference only and is not a comprehensive guide. Please contact your ESP representative with any questions.

# BIMETAL THERMOMETER PART NUMBERING SYSTEM



STANDARD DIAL CONFIGURATIONS					
Dial Range	Figure Intervals	Graduation Intervals	Dial Range	Figure Intervals	Graduation Intervals
-40/120° F	20° F	2° F	50/300° F	50° F	2° F
-40/160° F	20° F	2° F	50/400° F	50° F	5° F
25/125° F	10° F	1° F	50/500° F	50° F	5° F
0/150° F	20° F	2° F	50/550° F	50° F	5° F
0/200° F	20° F	2° F	150/750° F	100° F	10° F
0/220° F	20° F	2° F	200/1000° F	100° F	10° F
0/250° F	20° F	2° F	100/600° F	50° F	5° F
20/240° F	20° F	2° F			

NOTE: Not all part numbers or options are available from stock. Consult ESP for availability.



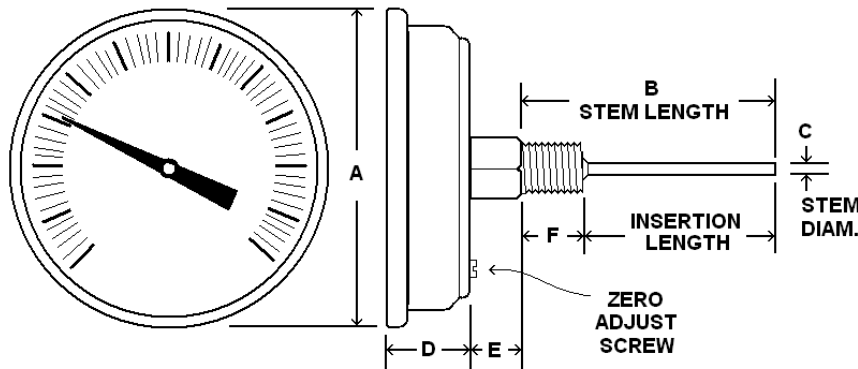
# BIMETAL THERMOMETERS FIXED BACK MOUNT (90°)

Dial type bimetal thermometer  
Features anti-parallax dial, hermetically sealed case

## SPECIFICATIONS

<b>Dial</b>	2" (50 mm), 3" (76 mm), 5" (130 mm) Anti-parallax dial design
<b>Case</b>	Stainless steel, hermetically sealed
<b>Stem</b>	316 stainless steel, welded to connection
<b>Lens</b>	Glass
<b>Pointer</b>	Black aluminum
<b>Connection</b>	Back mount (90°), fixed 1/4" NPT on 2", 1/2" NPT on 3" & 5"
<b>Scale</b>	Standard: dual scale F & C
<b>Accuracy</b>	1% full scale per Grade A, ASME B40.3
<b>Ambient Temp*</b>	-30° F to 180° F
<b>External Adjustment</b>	Zero reset screw on 3" & 5" dial

*Design meets or exceeds ASME B40.3 thermometer standard.*



## AVAILABLE OPTIONS\*

- Certificate of Accuracy, NIST traceable
- Custom Dial
- Special Connection Size
- Single Scale
- Special Ranges
- Custom Lens Material
- Fillable for vibration resistance

\*Lead times/minimums may apply

## APPROXIMATE SHIPPING WEIGHTS/ BOX QUANTITIES

Dial	Unit	A	B	C	D	E	F
2"	In.	2.30"	Stem Length	0.25"	0.51"	0.39"	1/4" or 1/2" NPT
	mm	58.4	Stem Length	6.45	12.9	10	
3"	In.	3.26"	Stem Length	0.25"	0.80"	0.43"	1/2" NPT
	mm	83	Stem Length	6.45	20	11	
5"	In.	5.28"	Stem Length	0.25"	0.82"	0.43"	1/2" NPT
	mm	134	Stem Length	6.45	22	11	

Dial Size	Est. Unit Weight	Box Qty
2"	0.20 lbs (0.10 kg)	upon request
3"	0.65 lbs (0.28 kg)	upon request
5"	1.15 lbs (0.52 kg)	upon request

\*NOTE: High or low ambient temperatures may have adverse effect on accuracy. Consult ESP for instrument selection.

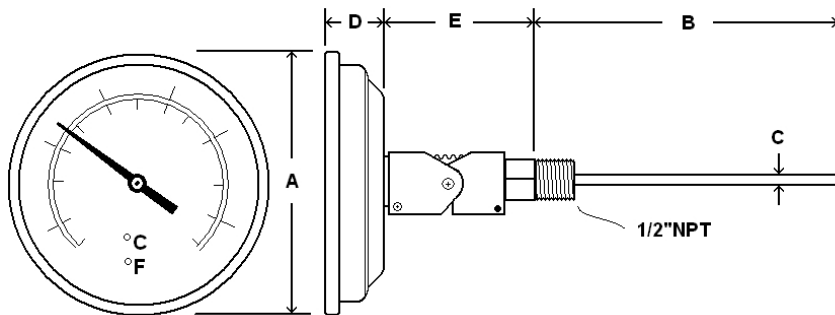
# BIMETAL THERMOMETERS ADJUSTABLE ANGLE TYPE

Every angle adjustable type thermometer  
Features anti-parallax dial and hermetically sealed

## SPECIFICATIONS

<b>Dial</b>	3" (76 mm), 5" (130 mm) Anti-parallax dial design
<b>Case</b>	Stainless steel, hermetically sealed
<b>Stem</b>	316 stainless steel welded to connection
<b>Lens</b>	Glass
<b>Pointer</b>	Black aluminum
<b>Connection</b>	Adjustable angle 1/2" NPT on 3" & 5"
<b>Scale</b>	Standard: dual scale F & C
<b>Accuracy</b>	1% full scale per Grade A, ASME B40.3
<b>Ambient Temp*</b>	-30° F to 180° F
<b>External Adjustment</b>	Zero reset screw on 3" & 5" dial

*Design meets or exceeds ASME B40.3 thermometer standard.*



## AVAILABLE OPTIONS\*

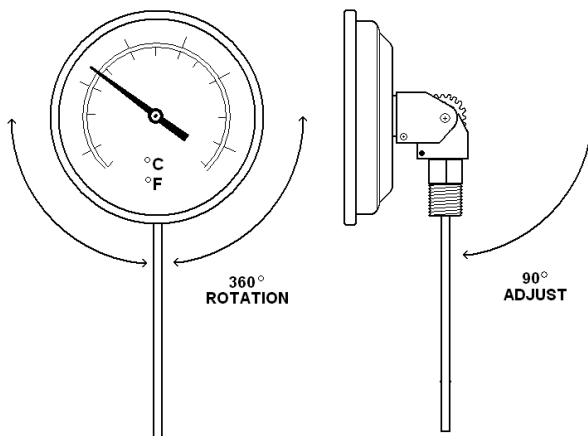
- Certificate of Accuracy, NIST traceable
- Custom Dial
- Special Connection Size
- Single Scale
- Special Ranges
- Custom Lens Material
- Fillable for vibration resistance

Dial	Unit	A	B	C	D	E	F
3"	In.	3.27"	Stem Length	0.25"	0.82"	2.45"	1/2" NPT
	mm	83	Stem Length	6.45	21	62	
5"	In.	5.28"	Stem Length	0.25"	0.82"	2.45"	1/2" NPT
	mm	134	Stem Length	6.45	21	62	

\*Lead times/minimums may apply

## APPROXIMATE SHIPPING WEIGHTS/ BOX QUANTITIES

Dial Size	Est. Unit Weight	Box Qty
3"	1.00 lbs (0.40 kg)	upon request
5"	1.40 lbs (0.60 kg)	upon request



\*NOTE: High or low ambient temperatures may have adverse effect on accuracy.  
Consult ESP for instrument selection.

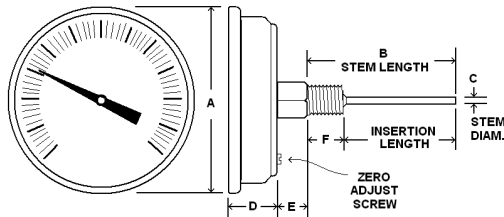
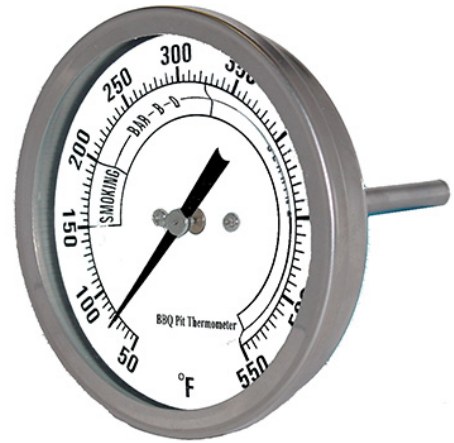
# MISCELLANEOUS BIMETALS



## Miscellaneous bimetals designed for specific applications

### SPECIFICATIONS - BARBEQUE GRILL THERMOMETER (BBQ-1)

- Dial Size** 3" (76 mm)  
Anti-parallax dial
  - Case** All stainless steel construction
  - Stem Length** 2 1/2", 316 stainless welded at connection
  - Connection** 1/2" NPT
  - Lens** Heavy duty glass
  - Pointer** Black aluminum
  - Scale** Standard: single scale F
  - Temperature Range** 50/550° F
  - Accuracy** 1% full scale
  - External Adjustment** Zero reset screw on case back
- Design meets or exceeds ASME B40.3 thermometer standard.*



Part Number	Dial	Unit	A	B	C	D	E	F
BBQ-1	3"	In.	3.28"	2.5"	0.25"	0.82"	0.43"	1/2"
		mm	83	63	7	21	11	NPT

### AVAILABLE OPTIONS\*

- Other stem lengths available upon request

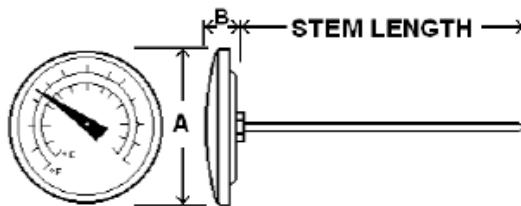
\*Lead times/minimums may apply

### SPECIFICATIONS - 1" DIAL SIZE POCKET THERMOMETER (B1B5)

- Dial Size** 1" (25.4 mm)
  - Case** All stainless steel with plastic sleeve clip case
  - Stem Length** 5"
  - Stem Construction** 1/8" diameter pointed plain stem (non-threaded)
  - Lens** Magnifying plastic
  - Pointer** Red aluminum
  - Scale** Standard: single scale °F
  - Temperature Range** -40/160° to 50/550° F
  - Accuracy** +/- 1.5% full scale
- Design meets or exceeds ASME B40.3 thermometer standard.*



Part Number	Range
B1B5-B	-40/160°F
B1B5-D	25/125°F
B1B5-H	0/220°F
B1B5-R	50/550°F



Dial	Unit	A	B
1"	In.	1.03"	0.51"
	mm	26	13

### AVAILABLE OPTIONS\*

- Other stem lengths available upon request
- 2" dial size available upon request
- Digital version available

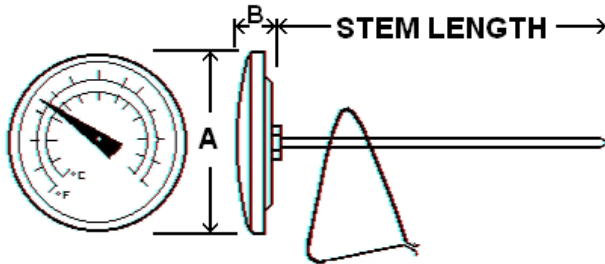
\*Lead times/minimums may apply

## Miscellaneous bimetals designed for specific applications

### SPECIFICATIONS - 2" CLIP STYLE THERMOMETER

<b>Dial Size</b>	2" (50 mm)
<b>Case</b>	All stainless steel with stainless steel clip
<b>Stem Length</b>	6", 8", 12"
<b>Lens</b>	Plastic
<b>Pointer</b>	Black aluminum
<b>Scale</b>	Standard: single scale F
<b>Temperature Range</b>	50/550° F
<b>Accuracy</b>	+/-1.5% full scale
<b>Part Number</b>	B2BX-R-CLIP

*Design meets or exceeds ASME B40.3 thermometer standard.*



### AVAILABLE OPTIONS\*

- Other stem lengths available upon request

Part Number	Stem Length
B2B6-R-CLIP	6"
B2B8-R-CLIP	8"
B2B12-R-CLIP	12"

Dial	Unit	A	B
2"	In.	2.05"	0.41"
	mm	52	10.5

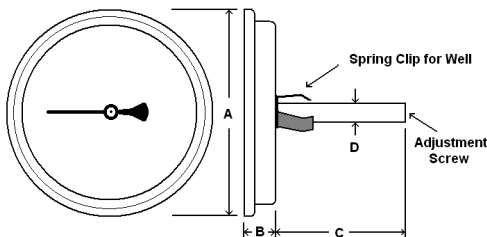
\*Lead times/minimums may apply

### SPECIFICATIONS - HOT WATER THERMOMETER (B2B1-K-XX)

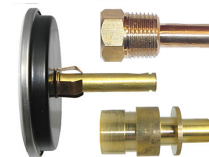
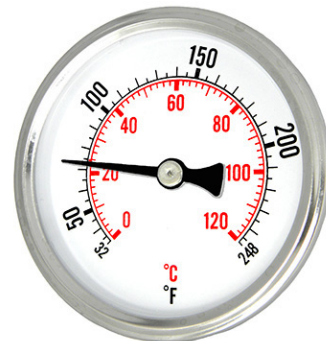
<b>Dial Size</b>	2 1/2" (63 mm)
<b>Case</b>	Steel
<b>Stem Length</b>	2" with Copper alloy thermowell or NPT
<b>Bezel</b>	Stainless steel
<b>Lens</b>	Plastic
<b>Pointer</b>	Black aluminum
<b>Scale</b>	Standard: dual scale F & C
<b>Temperature Range</b>	32/248° F & C
<b>Accuracy</b>	+/- 2% full scale
<b>Thermowell (included)</b>	1/2" NPT Copper alloy threaded or solder type

*Design meets or exceeds ASME B40.3 thermometer standard.*

**Part Numbers**  
 B2B1-K-SW = Solder well  
 B2B1-K = 1/2" NPT



Dial	Unit	A	B	C	D
2"	In.	2.52"	0.45"	1.71"	0.32"
	mm	64	11	43	8



### AVAILABLE OPTIONS\*

- Other stem lengths available upon request
- Other temperature ranges

\*Lead times/minimums may apply

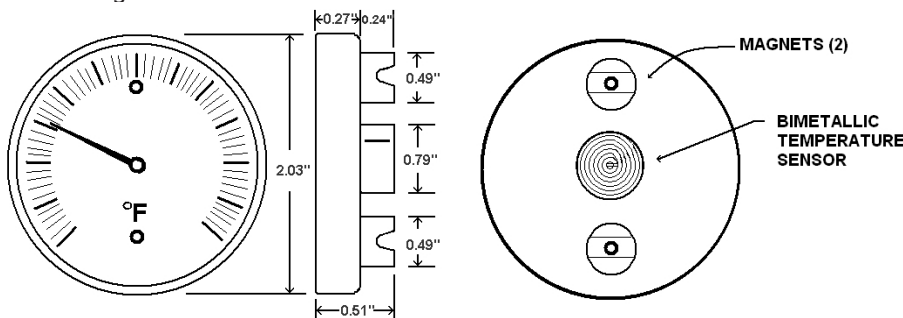
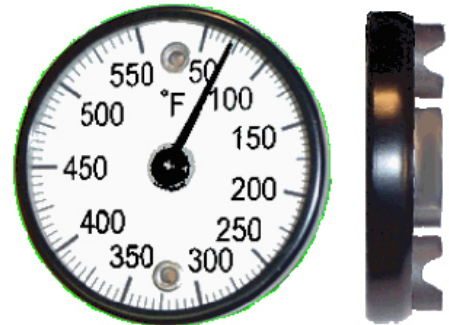
# SURFACE MOUNT THERMOMETERS

Miscellaneous bimetals designed for specific applications

## SPECIFICATIONS - MAGNETIC THERMOMETER (B2MS)

<b>Dial Size</b>	2" (50 mm)
<b>Case</b>	Black steel
<b>Bezel</b>	Black steel
<b>Stem Length</b>	Surface thermometer - no stem
<b>Lens</b>	Glass
<b>Pointer</b>	Black aluminum
<b>Scale</b>	Standard: single scale F
<b>Temperature Range</b>	-100/160° to 50/750° F
<b>Accuracy</b>	+/-3%

Design meets or exceeds ASME B40.3 thermometer standard.



Part Number	Range	Part Number	Range
B2MS-A	-100/160°F	B2MS-Q	0/500°F
B2MS-E	0/150°F	B2MS-S	50/750°F
B2MS-I	0/250°F		

## AVAILABLE OPTIONS\*

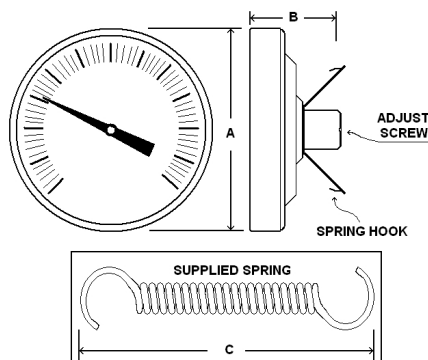
- Custom dials
- Custom temperature ranges

\*Lead times/minimums may apply

## SPECIFICATIONS - SURFACE THERMOMETER (B2SS)

<b>Dial Size</b>	2 1/2" (63 mm)
<b>Case</b>	Stainless steel case
<b>Stem Length</b>	Surface thermometer - no stem Clamp on design with spring
<b>Lens</b>	Glass
<b>Pointer</b>	Black aluminum
<b>Scale</b>	Standard: single scale F
<b>Temperature Range</b>	-50/250° to 0/250° F
<b>Accuracy</b>	+/-3%

**External Adjustment** Zero reset screw on stem  
Design meets or exceeds ASME B40.3 thermometer standard.



Dial	Unit	A	B	C
2 1/2"	In.	2.50"	1.23"	2.74"
	mm	63	31	70

Part Number	Range
B2SS-A	-50/250°F
B2SS-E	0/150°F
B2SS-I	0/250°F

## AVAILABLE OPTIONS\*

- Custom dials
- Custom temperature ranges

\*Lead times/minimums may apply

# THERMOWELLS

ESP offers a complete line of thermowells, manufacturing all sizes, connections and materials, in addition to stocking the most commonly used types.



**STANDARD WELLS**



**LAGGING WELLS**



**ANSI FLANGED**



**RTJ FLANGED**



**WELD-IN**



**SOCKET WELD**



**VAN STONE**



**TEST PORT**

## OPTIONS\*

MATERIALS	PROCESS CONNECTIONS	SPECIAL APPLICATIONS
Brass	Threaded	High Pressure
Carbon Steel	Flanged	High Velocity
304 Stainless Steel	Welded	Sanitary
316 Stainless Steel	Clamped	Test Port
Monel®	Sanitary	
Hastelloy® C276	Van Stone	
Titanium		
Tantalum		
Ceramic		

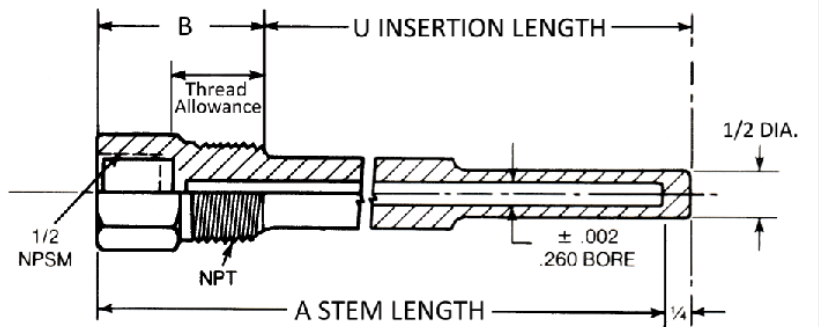
\*Others available upon request.

# THERMOWELLS



## Standard part numbers for bimetal thermowells

Cap and chain available upon request.



### 1/2" NPT INSTRUMENT X 1/2" NPT PROCESS

A	B	U	BRASS*	CARBON STEEL	304 STAINLESS	316 STAINLESS
2 1/2"	1 1/8"	1 5/8"	TW-BR02-22S2	TW-CS02-22S2	TW-ST02-22S2	TW-SS02-22S2
4"	1 3/4"	2 1/2"	TW-BR04-22S2	TW-CS04-22S2	TW-ST04-22S2	TW-SS04-22S2
6"	1 3/4"	4 1/2"	TW-BR06-22S2	TW-CS06-22S2	TW-ST06-22S2	TW-SS06-22S2
9"	1 3/4"	7 1/2"	TW-BR09-22S2	TW-CS09-22S2	TW-ST09-22S2	TW-SS09-22S2
12"	1 3/4"	10 1/2"	TW-BR12-22S2	TW-CS12-22S2	TW-ST12-22S2	TW-SS12-22S2

### 1/2" NPT INSTRUMENT X 3/4" NPT PROCESS

A	B	U	BRASS*	CARBON STEEL	304 STAINLESS	316 STAINLESS
2 1/2"	1 1/8"	1 5/8"	TW-BR02-23S2	TW-CS02-23S2	TW-ST02-23S2	TW-SS02-23S2
4"	1 3/4"	2 1/2"	TW-BR04-23S2	TW-CS04-23S2	TW-ST04-23S2	TW-SS04-23S2
6"	1 3/4"	4 1/2"	TW-BR06-23S2	TW-CS06-23S2	TW-ST06-23S2	TW-SS06-23S2
9"	1 3/4"	7 1/2"	TW-BR09-23S2	TW-CS09-23S2	TW-ST09-23S2	TW-SS09-23S2
12"	1 3/4"	10 1/2"	TW-BR12-23S2	TW-CS12-23S2	TW-ST12-23S2	TW-SS12-23S2
15"	1 3/4"	13 1/2"	TW-BR15-23S2	TW-CS15-23S2	TW-ST15-23S2	TW-SS15-23S2
18"	1 3/4"	16 1/2"	TW-BR18-23S2	TW-CS18-23S2	TW-ST18-23S2	TW-SS18-23S2
24"	1 3/4"	22 1/2"	TW-BR24-23S2	TW-CS24-23S2	TW-ST24-23S2	TW-SS24-23S2

### 1/2" NPT INSTRUMENT X 1" NPT PROCESS

A	B	U	BRASS*	CARBON STEEL	304 STAINLESS	316 STAINLESS
2 1/2"	1 1/8"	1 5/8"	TW-BR02-24S2	TW-CS02-24S2	TW-ST02-24S2	TW-SS02-24S2
4"	1 3/4"	2 1/2"	TW-BR04-24S2	TW-CS04-24S2	TW-ST04-24S2	TW-SS04-24S2
6"	1 3/4"	4 1/2"	TW-BR06-24S2	TW-CS06-24S2	TW-ST06-24S2	TW-SS06-24S2
9"	1 3/4"	7 1/2"	TW-BR09-24S2	TW-CS09-24S2	TW-ST09-24S2	TW-SS09-24S2
12"	1 3/4"	10 1/2"	TW-BR12-24S2	TW-CS12-24S2	TW-ST12-24S2	TW-SS12-24S2
15"	1 3/4"	13 1/2"	TW-BR15-24S2	TW-CS15-24S2	TW-ST15-24S2	TW-SS15-24S2
18"	1 3/4"	16 1/2"	TW-BR18-24S2	TW-CS18-24S2	TW-ST18-24S2	TW-SS18-24S2
24"	1 3/4"	22 1/2"	TW-BR24-24S2	TW-CS24-24S2	TW-ST24-24S2	TW-SS24-24S2

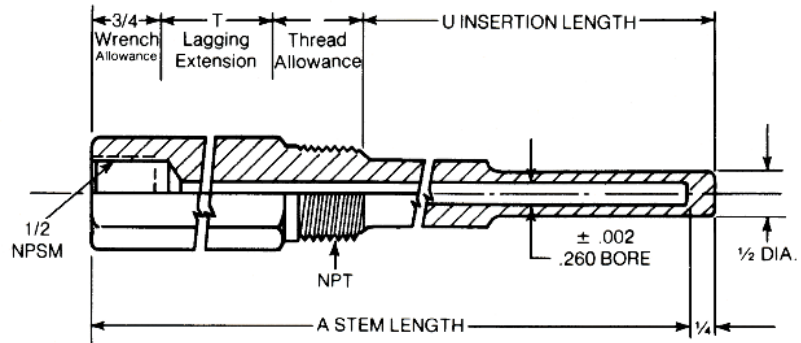
**\*NOTE:** Brass wells are not recommended for installations involving temperatures over 400° F.

NOTE: Not all part numbers or options are available from stock. Consult ESP for availability. Because of continuing improvements, specifications are subject to change without notice.

# THERMOWELLS

## Part numbers for bimetal thermowells with lagging extensions

Cap and chain available upon request.



<b>1/2" NPT INSTRUMENT X 1/2" NPT PROCESS</b>						
A	U	T	BRASS*	CARBON STEEL	304 STAINLESS	316 STAINLESS
4"	1 5/8"	1"	TW-BR04-22L2	TW-CS04-22L2	TW-ST04-22L2	TW-SS04-22L2
6"	2 1/2"	2"	TW-BR06-22L2	TW-CS06-22L2	TW-ST06-22L2	TW-SS06-22L2
9"	4 1/2"	3"	TW-BR09-22L2	TW-CS09-22L2	TW-ST09-22L2	TW-SS09-22L2
12"	7 1/2"	3"	TW-BR12-22L2	TW-CS12-22L2	TW-ST12-22L2	TW-SS12-22L2

<b>1/2" NPT INSTRUMENT X 3/4" NPT PROCESS</b>						
A	U	T	BRASS*	CARBON STEEL	304 STAINLESS	316 STAINLESS
4"	1 5/8"	1"	TW-BR04-23L2	TW-CS04-23L2	TW-ST04-23L2	TW-SS04-23L2
6"	2 1/2"	2"	TW-BR06-23L2	TW-CS06-23L2	TW-ST06-23L2	TW-SS06-23L2
9"	4 1/2"	3"	TW-BR09-23L2	TW-CS09-23L2	TW-ST09-23L2	TW-SS09-23L2
12"	7 1/2"	3"	TW-BR12-23L2	TW-CS12-23L2	TW-ST12-23L2	TW-SS12-23L2
15"	10 1/2"	3"	TW-BR15-23L2	TW-CS15-23L2	TW-ST15-23L2	TW-SS15-23L2
18"	13 1/2"	3"	TW-BR18-23L2	TW-CS18-23L2	TW-ST18-23L2	TW-SS18-23L2
24"	19 1/2"	3"	TW-BR24-23L2	TW-CS24-23L2	TW-ST24-23L2	TW-SS24-23L2

<b>1/2" NPT INSTRUMENT X 1" NPT PROCESS</b>						
A	U	T	BRASS*	CARBON STEEL	304 STAINLESS	316 STAINLESS
4"	1 5/8"	1"	TW-BR04-24L2	TW-CS04-24L2	TW-ST04-24L2	TW-SS04-24L2
6"	2 1/2"	2"	TW-BR06-24L2	TW-CS06-24L2	TW-ST06-24L2	TW-SS06-24L2
9"	4 1/2"	3"	TW-BR09-24L2	TW-CS09-24L2	TW-ST09-24L2	TW-SS09-24L2
12"	7 1/2"	3"	TW-BR12-24L2	TW-CS12-24L2	TW-ST12-24L2	TW-SS12-24L2
15"	10 1/2"	3"	TW-BR15-24L2	TW-CS15-24L2	TW-ST15-24L2	TW-SS15-24L2
18"	13 1/2"	3"	TW-BR18-24L2	TW-CS18-24L2	TW-ST18-24L2	TW-SS18-24L2
24"	19 1/2"	3"	TW-BR24-24L2	TW-CS24-24L2	TW-ST24-24L2	TW-SS24-24L2

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**\*NOTE: Brass wells are not recommended for installations involving temperatures over 400° F.**

NOTE: Not all part numbers or options are available from stock. Consult ESP for availability.



# THERMOWELL PART NUMBERING SYSTEM



**MATERIAL OF CONSTRUCTION**

BR = Brass  
 CS = Carbon Steel  
 ST = 304 SS  
 SS = 316 SS  
 SL = 316 L SS  
 XX = Special

**FLANGE TYPE**

RF = Raised face  
 FF = Flat face  
 RJ = Ring type joint  
 VS = Van stone  
 SW = Socket weld

**STEM LENGTH**

(Overall Thermowell Length - 1/4")

02 = 2 1/2"  
 04 = 4"  
 06 = 6"  
 09 = 9"  
 12 = 12"  
 XX = Special (specify length)

**FLANGE PRESSURE RATING**

0 = No Flange  
 1 = 150 psi  
 3 = 300 psi  
 6 = 600 psi  
 9 = 900 psi  
 5 = 1500 psi

**INSTRUMENT CONNECTION**

Female Thread

1 = 1/4" FNPT  
 2 = 1/2" FNPT  
 X = Special (specify thread size)

**INSERTION (U DIMENSION)**

04.5 = 4 1/2"  
 11.5 = 11 1/2"  
 20.5 = 20 1/2"

**PROCESS CONNECTION**

2 = 1/2"  
 3 = 3/4"  
 4 = 1"  
 5 = 1 1/4"  
 6 = 1 1/2"  
 7 = 2"  
 8 = 2 1/2"  
 9 = 3"  
 X = Special (specify thread size)

**BORE DIAMETER**

2 = 0.260"  
 3 = 0.385"  
 5 = 0.500"

**STYLE**

S = Stepped (standard)  
 E = Straight  
 L = Lagging  
 T = Tapered

**EXAMPLE: "TW-SS12-26T2-10.03RF"**

TW = Thermowell  
 SS = 316 SS  
 12 = 12" stem  
 2 = 1/2" FNPT instrument connection  
 6 = 1 1/2" process connection  
 T = Tapered  
 2 = 0.260" Bore Diameter  
 10.0 = 10" insertion  
 3 = 300 psi flange rating  
 RF = Raised face flange

NOTE: Not all part numbers or options are available from stock. Consult ESP for availability.



# THERMOWELL TECHNICAL DATA

PRESSURE - TEMPERATURE RATING - PSI							
Material	Temperature - °F						
	70°	200°	400°	600°	800°	1000°	1200°
Brass	5000	4200	1000	-	-	-	-
Carbon Steel	5200	5000	4800	4600	3500	1500	-
304SS	7000	6200	5600	5400	5200	4500	1650
316SS	7000	7000	6400	6200	6100	5100	2500
Monel®	6500	6000	5400	5300	5200	1500	-

MAXIMUM FLUID VELOCITY - FEET PER SECOND									
Well Type	Material	Insertion Length - "U"							
		2 1/2"	4 1/2"	7 1/2"	10 1/2"	13 1/2"	16 1/2"	19 1/2"	22 1/2"
1/2" Standard and Lagging	Brass	207	75.5	27.3	13.9	8.4	5.6	4.1	3
		(59.3)	(32.2)	(19.7)					
	Carbon Steel	290	105	38	19.4	11.8	7.8	5.7	4.2
		(106)	(59)	(36.3)					
304SS/316SS	300	109	39.5	20.1	12.2	8.1	5.9	4.4	
	(148)	(82.2)							
Monel®	261	95	34.4	17.5	10.5	7.1	5.2	3.8	
	(118)	(65.5)							
3/4" Standard and Lagging	Brass	207	89.1	32.2	16.4	9.9	6.6	4.8	3.6
		(59.3)	(39.8)	(23.9)					
	Carbon Steel	290	123	44.9	22.8	13.8	9.3	6.7	4.9
		(106)	(71.2)	(42.7)					
304SS/316SS	300	128	46.4	23.6	14.3	9.6	6.9	5.1	
	(148)	(99.3)							
Monel®	261	112	40.6	20.7	12.4	8.3	6.1	4.5	
	(118)	(79.8)							
1" Standard and Lagging	Brass	207	102	37	18.8	11.4	7.6	5.5	4.1
		(59.3)	(47.6)	(28)					
	Carbon Steel	290	143	51.6	26.2	15.9	10.6	7.6	5.7
		(106)	(84.3)	(50.6)					
304SS/316SS	300	148	53.5	27.2	16.5	11	7.9	5.9	
	(148)	(117)							
Monel®	261	128	46.7	23.7	14.4	9.5	6.9	5.1	
	(118)	(93.3)							

**NOTE:** Values listed above are for steam, air, gas and similar density. Values shown in parentheses are for water flow only.

NOTE: ESP' data on thermowell performance is based on industry standards in common use by design engineers and other manufacturers. ESP is not responsible for errors resulting from omission, transmission, transposition, printing or interpretation of such data.

# REMOTE DIAL VAPOR THERMOMETER

The remote dial allows users to view readings when the point of measurement is inaccessible or in an undesirable place

## SPECIFICATIONS - REMOTE DIAL VAPOR THERMOMETER

<b>Dial Size</b>	3 1/2" (88.9 mm)
<b>Case</b>	Stainless steel
<b>Capillary Length</b>	5 feet
<b>Lens</b>	Polycarbonate
<b>Pointer</b>	Black aluminum
<b>Scale</b>	Standard: dual scale °F & °C
<b>Temperature Range</b>	Custom, Stock - see chart below
<b>Accuracy</b>	1% full scale
<b>Box Quantity</b>	30 pieces
<b>Bulb</b>	3" stainless steel plain bulb



## AVAILABLE OPTIONS\*

- Other capillary lengths available upon request
- Other ranges available upon request
- Other dial sizes available upon request

\*Lead times/minimums may apply

Stock Part Numbers	Range	Mounting
V35WFF-180	0/180°F	Front Flange
V35WFF-250	0/250°F	Front Flange
V35UCC-240	30/240°F	U-Clamp
V35WFF-300	0/300°F	Front Flange
V35WFF-550	50/550°F	Front Flange

## CUSTOM ORDER ITEM

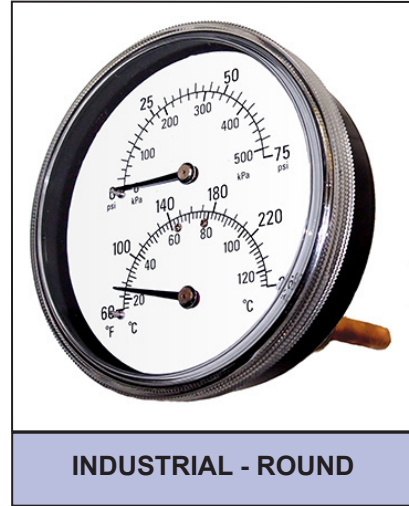
Contact Engineered Specialty Products for available options, part numbers, and applicable lead times

# TRIDICATORS

Measure pressure and temperature in one instrument  
Available in various sizes and configurations



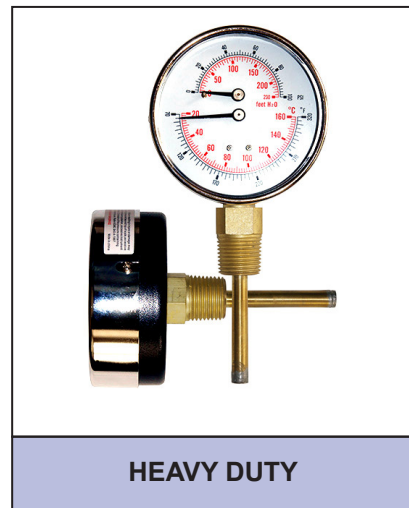
**3" TRIDICATOR**



**INDUSTRIAL - ROUND**



**INDUSTRIAL - SQUARE**



**HEAVY DUTY**

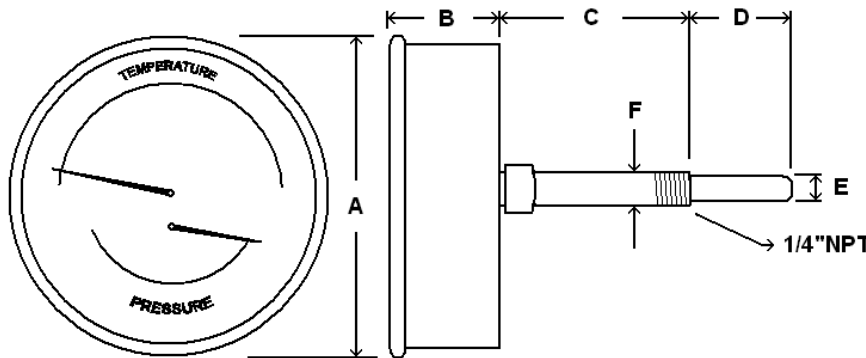
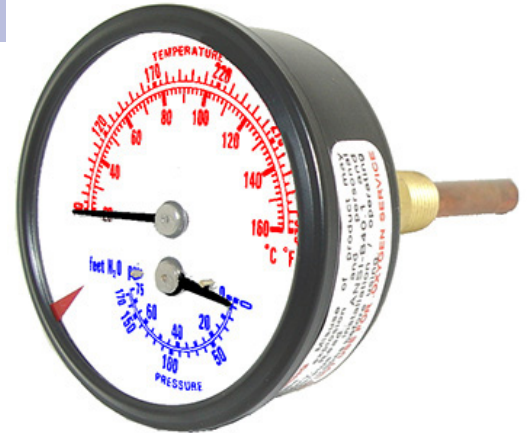
# 2 1/2" TRIDICATORS



Dual reading pressure and temperature instrument  
High quality, economical design for use in commercial and industrial boiler applications

## SPECIFICATIONS

<b>Dial</b>	2 1/2" (63 mm)
<b>Case</b>	Black painted steel, dry non-fillable
<b>Stem</b>	1.75", 2.95" or 3.63", copper alloy
<b>Lens</b>	Plastic with red indicator
<b>Pointer</b>	Black aluminum
<b>Connection</b>	Center back mount 1/4" NPT, copper alloy
<b>Scale</b>	Pressure: dual scale psi & ft of water column Temperature: dual scale F & C
<b>Temperature Range</b>	70/320° F & 20/160° C
<b>Accuracy</b>	3-2-3% full scale per Grade B, ASME B40.1
<b>Ambient Temp*</b>	-30° F to 180° F



## AVAILABLE OPTIONS\*

- Custom Dial
- Special Connection Size
- Single Scale
- Special Ranges
- Custom Lens Material
- Custom Stem Length
- Custom Lagging Dimension
- Stainless Steel Wetted Parts

Dial	Unit	Stem Length	A	B	C	D	E	F
2 1/2"	In.	1.75"	2.64"	1.02"	0.77"	0.96"	0.31"	0.54"
	mm	44.5	67	26	20	25	8	13.6
2 1/2"	In.	2.95"	2.64"	1.02"	2.00"	0.96"	0.31"	0.54"
	mm	75	67	26	51	25	8	13.6
2 1/2"	In.	3.63"	2.64"	1.02"	2.00"	1.60"	0.31"	0.54"
	mm	92.2	67	26	51	41	8	13.6

\*Lead times/minimums may apply

## APPROXIMATE SHIPPING WEIGHTS/ BOX QUANTITIES

Stem Length	Est. Unit Weight	Box Qty
1.75"	0.30 lbs (0.14 kg)	100
2.95"	0.35 lbs (0.16 kg)	50
3.63"	0.35 lbs (0.16 kg)	50

PART NUMBER	DIAL SIZE	PRESSURE		TEMPERATURE	
		psi	Ft of Water	F	C
TRI-RC-254Rx.xx-D	2 1/2"	0/75	0/170	70-320°	20-160°
TRI-RC-254Rx.xx-G	2 1/2"	0/200	0/460	70-320°	20-160°

*Other ranges available upon request.*

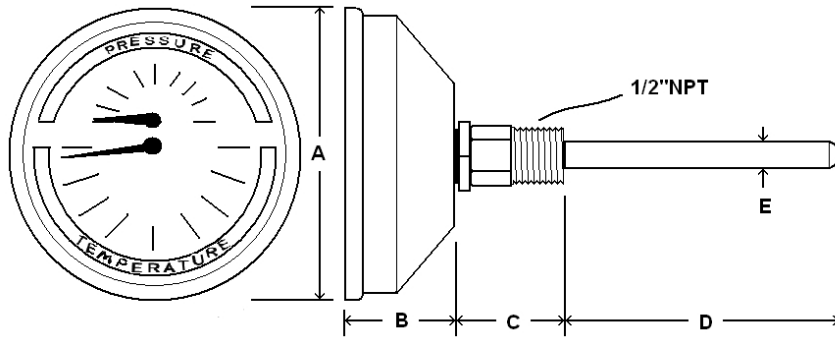
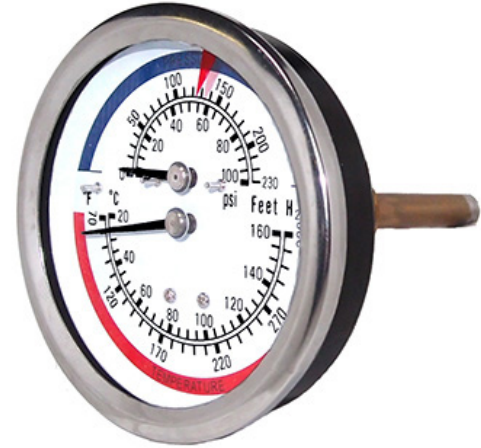
\*NOTE: High or low ambient temperatures may have adverse effect on accuracy. Consult ESP for instrument selection.

# 3" TRIDICATORS

**Dual reading pressure and temperature instrument**  
**High quality, economical design for use in commercial and industrial boiler applications**

## SPECIFICATIONS

<b>Dial</b>	3 1/4" (83 mm)
<b>Case</b>	Black painted steel, dry non-fillable
<b>Stem</b>	3", copper alloy
<b>Lens</b>	Plastic with red indicator
<b>Pointer</b>	Black aluminum
<b>Connection</b>	Center back mount
	1/2" NPT, copper alloy
<b>Scale</b>	Pressure: dual scale psi & ft of water column
	Temperature: dual scale °F & °C
<b>Temperature Range</b>	70/320° F & 20/160° C
<b>Accuracy</b>	3-2-3% full scale per Grade B, ASME B40.1
<b>Ambient Temp*</b>	-30° F to 180° F



## AVAILABLE OPTIONS\*

- Custom Dial
- Special Connection Size
- Single Scale
- Special Ranges
- Custom Lens Material
- Custom Stem Length
- Custom Lagging Dimension
- 316 Stainless Steel Wetted Parts

\*Lead times may apply

Dial	Unit	A	B	C	D	E
3 1/4"	In.	3.31"	1.23"	1.36"	2.23"	0.36"
	mm	84	31	34.4	57	9.3

## APPROXIMATE SHIPPING WEIGHTS/ BOX QUANTITIES

Dial Size	Est. Unit Weight	Box Qty
3 1/4"	0.55 lbs (0.26 kg)	50

PART NUMBER	DIAL SIZE	PRESSURE		TEMPERATURE	
		psi	Ft of Water	F	C
TRI-RC-3.25R-3.00-D	3 1/4"	0/75	0/170	70-320°	20-160°
TRI-RC-3.25R-3.00-E	3 1/4"	0/100	0/230	70-320°	20-160°
TRI-RC-3.25R-3.00-G	3 1/4"	0/200	0/450	70-320°	20-160°
TRI-RC-3.25R-3.00-H	3 1/4"	0/300	0/700	70-320°	20-160°

\*NOTE: High or low ambient temperatures may have adverse effect on accuracy. Consult ESP for instrument selection.

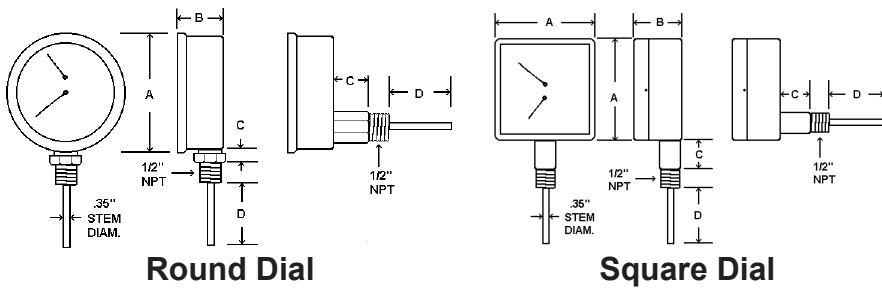
# 4" INDUSTRIAL TRIDICATORS



**Dual reading pressure and temperature instrument**  
**High quality, economical design for use in commercial and industrial boiler applications**

## SPECIFICATIONS

<b>Dial</b>	4" (101 mm)
<b>Case</b>	Painted steel, dry non-fillable
<b>Stem</b>	2", copper alloy
<b>Lens</b>	Round: plastic Square: glass
<b>Pointer</b>	Black aluminum
<b>Connection</b>	Lower mount, lower back mount 1/2" NPT, copper alloy
<b>Scale</b>	Pressure: dual scale psi & kPa Temperature: dual scale °F & °C
<b>Temperature Range</b>	70/320° F & 20/160° C
<b>Accuracy</b>	1% full scale per Grade 1A, ASME B40.1
<b>Ambient Temp*</b>	-30° F to 180° F



## AVAILABLE OPTIONS\*

- Custom Dial
- Special Connection Size
- Single Scale
- Special Ranges
- Custom Lens Material
- Custom Stem Lengths

Dial	Unit	A	B	C	D
Round	In.	4.23"	1.45"	0.51"	2.12"
	mm	107	37	13	54
Square	In.	3.65"	1.47"	0.83"	2.00"
	mm	93	37	21	51

\*Lead times/minimums may apply

PART NUMBER	PRESSURE	TEMPERATURE	CONNECTION	DIAL
TRI-RC-402L-D	0/75 psi	60-260° F	lower	round
TRI-RC-402L-G	0/200 psi	70-320° F	lower	round
TRI-RC-402L-H	0/300 psi	60-260° F	lower	round
TRI-RC-402R-D	0/75 psi	60-260° F	back	round
TRI-RC-402R-G	0/200 psi	70-320° F	back	round
TRI-SQ-402L-D	0/75 psi	60-260° F	lower	square
TRI-SQ-402L-E	0/100 psi	60-260° F	lower	square
TRI-SQ-402L-G	0/200 psi	80-320° F	lower	square
TRI-SQ-402R-D	0/75 psi	60-260° F	back	square
TRI-SQ-402R-E	0/100 psi	60-260° F	back	square
TRI-SQ-402R-G	0/200 psi	80-320° F	back	square
TRI-SQ-402R-H	0/300 psi	80-320° F	back	square

## APPROXIMATE SHIPPING WEIGHTS/ BOX QUANTITIES

Dial Size	Est. Unit Weight	Box Qty
Round	0.95 lbs (0.40 kg)	50
Square	0.95 lbs (0.44 kg)	50

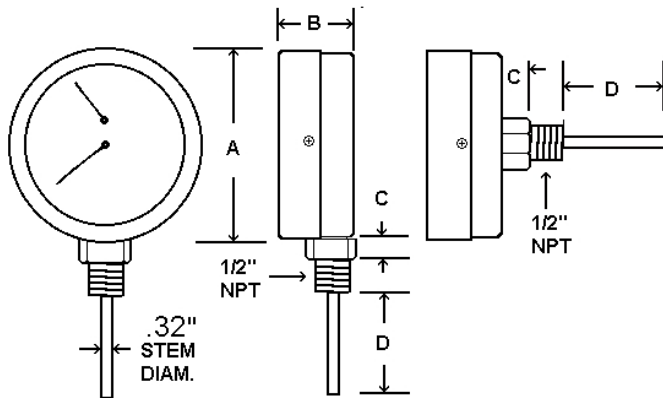
\*NOTE: High or low ambient temperatures may have adverse effect on accuracy. Consult ESP for instrument selection.

# 3" HEAVY DUTY TRIDICATORS

Dual reading pressure and temperature instrument  
 High quality, economical design for use in commercial and industrial boiler applications

## SPECIFICATIONS

<b>Dial</b>	3" (76.2 mm)
<b>Case</b>	Heavy duty, dry non-fillable
<b>Stem</b>	2", copper alloy
<b>Lens</b>	Glass
<b>Pointer</b>	Black aluminum
<b>Connection</b>	Lower mount Center back mount
	1/2" NPT, copper alloy
<b>Scale</b>	Pressure: dual scale psi & feet of water Temperature: dual scale °F & °C
<b>Temperature Range</b>	70/320° F & 20/160° C
<b>Accuracy</b>	3-2-3% full scale per Grade B, ASME B40.1
<b>Ambient Temp*</b>	-30° F to 180° F



Dial	Unit	A	B	C	D
3"	In.	3.21"	1.29"	0.32"	2.00"
	mm	81.5	33	8	51

## AVAILABLE OPTIONS\*

- Custom Dial
- Special Connection Size
- Single Scale
- Special Ranges
- Custom Lens Material
- 316 Stainless Steel Wetted Parts

\*Lead times/minimums may apply

## APPROXIMATE SHIPPING WEIGHTS/BOX QUANTITIES

Dial Size	Est. Unit Weight	Box Qty
3"	0.70 lbs (0.32 kg)	50

PART NUMBER	CONNECTION	DIAL SIZE	PRESSURE		TEMPERATURE	
			psi	Ft of Water	F	C
TRI-HD-302L-E	Lower	3"	0/100	0/230	70-320°	20-160°
TRI-HD-302L-G	Lower	3"	0/200	0/450	70-320°	20-160°
TRI-HD-302R-E	Center Back	3"	0/100	0/230	70-320°	20-160°
TRI-HD-302R-G	Center Back	3"	0/200	0/450	70-320°	20-160°

\*NOTE: High or low ambient temperatures may have adverse effect on accuracy. Consult ESP for instrument selection.

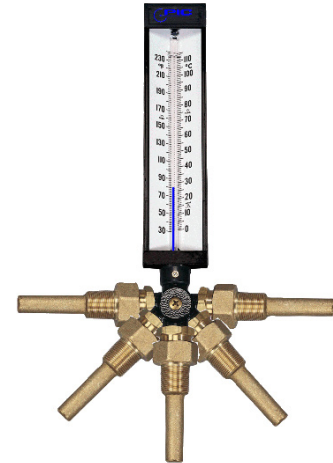


# INDUSTRIAL THERMOMETER

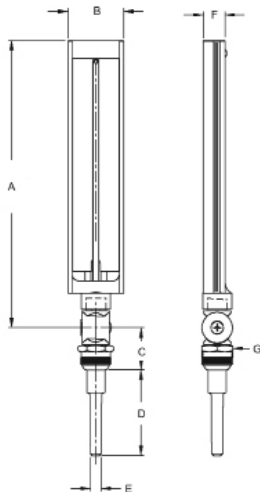
Blue spirit filled adjustable angle thermometer for industrial applications

## SPECIFICATIONS

<b>Scale Size</b>	7" (177.8 mm), 9" (228.6 mm)
<b>Case</b>	Black molded ABS for temps up to 200° F Black enamel die cast aluminum for ranges above 200° F
<b>Stem</b>	3 1/2", 6", 9", 12", copper alloy
<b>Lens</b>	Glass
<b>Indicator</b>	Blue spirit
<b>Connection</b>	Lower mount, adjustable angle 1 1/4" -18" NEF thread
<b>Scale</b>	Dual scale °F & °C
<b>Temperature Range</b>	0-120° F, 30-240° F, Others available from stock
<b>Accuracy</b>	1% scale division per Grade A, ASME B40.3



SCALE SIZE	PART NUMBERS STEM LENGTHS			
	3 1/2"	6"	9"	12"
7"	AS5H7	AS5L7	N/A	N/A
9"	AS5H9	AS5L9	AS5N9	AS5Q9



Scale	Unit	A	B	C	D
7"	In.	9.79"	2.41"	1.67"	Stem
	mm	249	62	43	Stem
7"	In.	0.44"	1.06"	1.25"	
	mm	11	27	32	

Scale	Unit	A	B	C	D
9"	In.	11.7"	2.41"	1.67"	Stem
	mm	297	62	43	Stem
9"	In.	0.44"	1.06"	1.25"	
	mm	11	27	32	



### INDUSTRIAL THERMOWELL PART NUMBERS

Stem	Process Connection	Type	Brass	304 SS	316 SS
3 1/2"	3/4" NPT	Standard	TWB-35	T6E3D2	T4E3D2
		Lagging	TWB-35-LAG	T6E3D2B	T4E3D2B
6"	3/4" NPT	Standard	T1M3D2	T6M3D2	T4M3D2
		Lagging	T1M3D2E	T6M3D2E	T4M3D2E

## AVAILABLE OPTIONS\*

- Straight connection
- 90° back angle connection
- Plastic face at additional charge
- Thermowells
- Cap and Lanyard
- Aluminum Case

\*Lead times/minimums may apply

## APPROXIMATE SHIPPING WEIGHTS/ BOX QUANTITIES

Part Number	Est. Unit Weight	Box Qty
AS5H7	1.00 lbs (0.46 kg)	upon request
AS5L7	1.10 lbs (0.50 kg)	upon request
AS5H9	1.15 lbs (0.52 kg)	upon request
AS5L9	1.20 lbs (0.56 kg)	upon request
AS5N9	1.35 lbs (0.62 kg)	upon request
AS5Q9	1.55 lbs (0.70 kg)	upon request

## Optional Cap and Lanyard

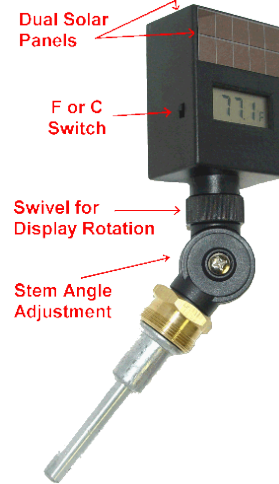


# SOLAR DIGITAL INDUSTRIAL THERMOMETER

Digital adjustable angle thermometer for industrial applications

## SPECIFICATIONS

<b>Display</b>	LCD black character, 1/2" high with gray background
<b>Case</b>	ABS black plastic
<b>Stem</b>	3 1/2" or 6", aluminum
<b>Illuminance</b>	Bi-directional solar collectors, 35 lux Dual solar panels provide better light pick up in low light conditions
<b>Sensor</b>	Glass passivated thermistor
<b>Connection</b>	Lower mount, swivel & adjustable angle 1 1/4" - 18 UNEF Copper alloy jam nut
<b>Scale</b>	Dual scale °F & °C
<b>Temperature Range</b>	-58/302° F or -50/150° C Switchable between °F and °C
<b>Accuracy</b>	Greater value of 1° or 1% of reading
<b>Ambient Temp</b>	-30° F to 140° F
<b>Ambient Temp Error</b>	None
<b>Time Update</b>	Six times per minute
<b>Resolution</b>	0.10° between -58/199.9° F (-50/93° C)
<b>Recalibration</b>	Internal potentiometer
<b>Maximum Humidity</b>	100%



## AVAILABLE OPTIONS\*

- Select 3 1/2" or 6" stem
- Thermowells, see page 169
- Cap and Lanyard, see page 169



Stem	Part Number	Unit	A	B	C	U
3 1/2"	AADHFC	In.	3.20"	7.56"	5.75"	2.50"
		mm	81.3	192	146	63.5
6"	AADLFC	In.	3.20"	10.06"	8.25"	5.00"
		mm	81.3	255.5	209.6	127

\*Lead times/minimums may apply

## APPROXIMATE SHIPPING WEIGHTS/ BOX QUANTITIES

Stem Length	Est. Unit Weight	Box Qty
3 1/2"	0.52 lbs/ (0.24 kg)	upon request
6"	1.00 lbs (0.45 kg)	upon request

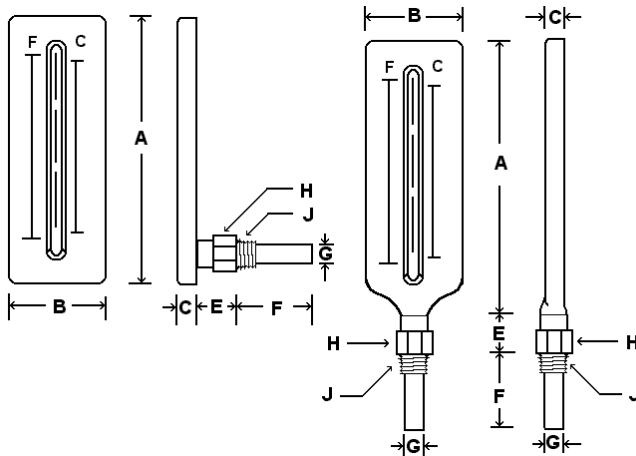
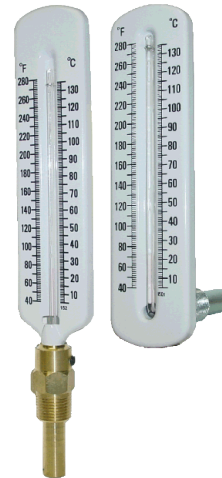
# 160 SERIES

## 5" SCALE THERMOMETER

Red spirit filled economy thermometer for commercial and industrial applications

### SPECIFICATIONS

<b>Scale Size</b>	5" (127 mm) white painted steel with black markings
<b>Stem</b>	2.125", copper alloy
<b>Well</b>	Brass or steel - includes thermowell
<b>Indicator</b>	Red liquid filled - no mercury
<b>Connection</b>	Lower mount, lower back mount ½" NPT
<b>Scale</b>	Dual scale °F & °C
<b>Temperature Range</b>	40/280° F & 15/135° C
<b>Accuracy</b>	+/-1 scale division



Type	Unit	A	B	C	E
Bottom	In.	7.75"	1.81"	0.38"	1"
	mm	197	46	9.7	146
Back	In.	7.00"	1.81"	0.38"	0.88"
	mm	177.8	46	9.7	209.6

Type	Unit	F	G	H	J
Bottom	In.	2.13"	0.47"	0.88"	½"
	mm	54.1	11.9	22.4	NPT
Back	In.	2.13"	0.47"	0.88"	½"
	mm	54.1	11.9	22.4	NPT

PART NUMBER	CONNECTION	WELL
162F	Bottom	Brass
162FS	Bottom	Steel
163F	Back	Brass
163FS	Back	Steel

### AVAILABLE OPTIONS\*

- Lower mount or lower back mount

\*Lead times/minimums may apply

### APPROXIMATE SHIPPING WEIGHTS/ BOX QUANTITIES

Part Number	Est. Unit Weight	Box Qty
162F	0.65 lbs (0.28 kg)	upon request
163F	0.70 lbs (0.32 kg)	upon request

# PRESSURE RANGE SELECTION

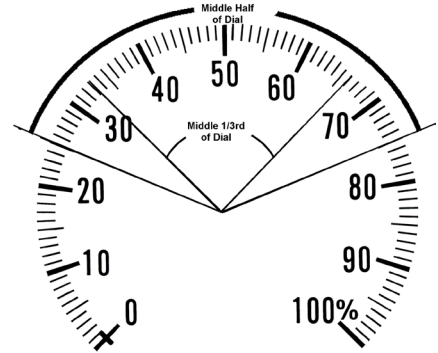
There are several factors that influence pressure range selection. The following excerpt from ASME B40.100 explains along what portion of the scale the gauge should typically operate.

## ASME B40.100-2005

**4.3.1 Operating Pressure.** *The pressure gauge selected should have a full-scale pressure such that the operating pressure occurs in the middle half (25% to 75%) of the scale. The full-scale pressure of the gauge selected should be approximately two times the intended operating pressure.*

*Should it be necessary for the operating pressure to exceed 75% of full scale, contact the supplier for recommendations.*

*This does not apply to test, retarded, or suppressed scale gauges.*



Bourdon tube pressure gauges are designed and built to operate primarily in the middle third of the scale range so that when the gauge is mounted in a vertical and upright position, the pointer will be as close as possible to the 12 o'clock position when reading pressure at normal operating conditions.

Although the gauge will operate full scale, there are other considerations to take into account. If the gauge is primarily operating at the bottom of the scale (near zero), the accuracy or readability would be improved by using a more appropriately applied lower range pressure gauge. (See ASME B40.1-2005) If, on the other hand, the gauge is operating at the top of the scale (near the maximum pressure range of the gauge), the life span of the gauge may be decreased, particularly if the gauge encounters high cycling, temperature extremes and/or excessive vibration.

- A bourdon tube is a curved and hardened or formed piece of metal designed to move a certain amount based on the amount of force applied, then, return to its original shape when at rest, just like a spring. As with any spring, the bourdon tube will fail after extended use. This failure could be as simple as a loss of accuracy, failure to return to zero, or a release of the pressurized medium into the case of the gauge or atmosphere. Note: Extended use could be time in service, number of pressure cycles and extent of the pressure cycle. The larger the number of applied pressure cycles and the greater the extent of the pressure cycle, the earlier the failure will occur.
- Bourdon tubes are by design highly stressed, especially in ranges over 1000 psi. Continuous operation at full scale will result in early fatigue failure and subsequent rupture.
- Continuous, rapid pointer motion will result in excessive wear of the internal mechanism and cause gross errors in accuracy, the pressure indicated and, also, possible early fatigue failure of the bourdon tube. If the pointer motion is due to pressure pulsations, a suitable dampener should be used between the pressure source and the gauge.

To choose the best range for your application, the following factors must be considered:

- A. The normal operating pressure or average system pressure.
- B. System pressure limits (both maximum and minimum).
- C. Primary concern between readability, accuracy and/or durability.

**See ASME B40.1 for additional details.**

LIQUID FILLED GAUGE ADVANTAGES	GLYCERIN														
<ul style="list-style-type: none"> <li>In applications with vibration or pulsation, liquid filling enables reading the dial pointer by dampening the movement.</li> <li>Liquid filling should be considered for any system with dynamic operating conditions because the liquid absorbs vibration and pressure spikes.</li> <li>In general, liquid filling helps extend the life of a gauge by reducing wear in the movement.</li> <li>Because gauges can be filled with different types of liquids, the degree of protection can be suited to process conditions. See fill fluid considerations below.</li> <li>Liquid filled gauges can add to the dependability and accuracy of the measuring system for long periods under extreme operating conditions.</li> </ul>	<ul style="list-style-type: none"> <li>ESP offers a variety of fill fluids including glycerin and silicone.</li> <li>Glycerin (99.7% pure) is the default fill fluid for ESP liquid filled gauges due to its unique fluid properties: Stability, Viscosity, Cost, Low Toxicity, Clarity &amp; Solubility.</li> <li>Upon customer request only: glycerin can be mixed with water to obtain different temperature ratings. Additionally, glycerin can be mixed with water to obtain different temperature ratings<sup>(1)</sup> <table border="1"> <thead> <tr> <th><u>% Glycerin/Water</u></th> <th><u>Low Temp Rating</u></th> </tr> </thead> <tbody> <tr> <td>86/14</td> <td>-13° F</td> </tr> </tbody> </table> </li> </ul> <p><small>(1)Low or Ultra Low temperature glycerin/water mix ratio by special request only. Introducing water into glycerin can introduce potential electrolysts causing cosmetic defects which does not affect the function of the gauge but does affect the warranty of the product</small></p> <table border="1"> <thead> <tr> <th><u>% Silicone</u></th> <th><u>Low Temp Rating</u></th> </tr> </thead> <tbody> <tr> <td>100</td> <td>-40° F</td> </tr> </tbody> </table> <ul style="list-style-type: none"> <li>Silicone is recommended by ESP in low temperature situations except where system medium or environmental compatibilities restrict the use of silicone. Call ESP Engineering to discuss your application and appropriate fill fluids:770-790-6051</li> </ul>	<u>% Glycerin/Water</u>	<u>Low Temp Rating</u>	86/14	-13° F	<u>% Silicone</u>	<u>Low Temp Rating</u>	100	-40° F						
<u>% Glycerin/Water</u>	<u>Low Temp Rating</u>														
86/14	-13° F														
<u>% Silicone</u>	<u>Low Temp Rating</u>														
100	-40° F														
FILL FLUID CONSIDERATIONS	TEMPERATURE RANGES														
<p>Guidelines for determining an appropriate fill fluid include:</p> <ul style="list-style-type: none"> <li>Temperature                     <ul style="list-style-type: none"> <li>Low Temp Application: Silicone Oil</li> <li>High Temp Application: Use high temp rated fluids such as Syltherm® 800</li> </ul> </li> <li>Infrequent but Severe Pressure Spikes: Use high viscosity fluid</li> <li>Gauges with Electrical Contacts: Use insulation oils</li> <li>Chemical Compatibility: Select fill fluid that will not react with the process media in the event of bourdon tube failure.</li> </ul>	<p>While the temperature range for each individual fill fluid varies, the ranges listed below take into consideration the <b>operating temperature permissible for gauges</b>.</p> <table border="1"> <thead> <tr> <th>Gauge Fill Fluid</th> <th>Operating Temp Range</th> </tr> </thead> <tbody> <tr> <td><b>Glycerine</b></td> <td>+30° F to 160° F</td> </tr> <tr> <td>99.7% Food Grade</td> <td>-1° C to 71° C</td> </tr> <tr> <td><b>Silicone</b></td> <td>-40° F to 160° F</td> </tr> <tr> <td>DC 200 1000 cSt</td> <td>-40° C to 71° C</td> </tr> <tr> <td><b>Halocarbon®</b></td> <td>-40° F to 160° F</td> </tr> <tr> <td></td> <td>-40° C to 71° C</td> </tr> </tbody> </table> <p><b>For temperatures above 160° F, contact ESP for assistance in selecting fill fluids rated at higher temperatures and appropriate fill fluids.</b></p>	Gauge Fill Fluid	Operating Temp Range	<b>Glycerine</b>	+30° F to 160° F	99.7% Food Grade	-1° C to 71° C	<b>Silicone</b>	-40° F to 160° F	DC 200 1000 cSt	-40° C to 71° C	<b>Halocarbon®</b>	-40° F to 160° F		-40° C to 71° C
Gauge Fill Fluid	Operating Temp Range														
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DC 200 1000 cSt	-40° C to 71° C														
<b>Halocarbon®</b>	-40° F to 160° F														
	-40° C to 71° C														

# LIQUID FILLING/VENTING SEALED GAUGES

Sealed gauges, whether liquid filled or dry, can build internal pressure that can cause an instrument to be inaccurate. An inaccurate gauge can lead to inaccurate system pressures, inefficient processes and damage to components of pressurized systems. By venting the gauge, the internal case pressure can be returned to atmospheric pressure, thereby improving the accuracy of the gauges.

American National Standards Institute (ANSI) approves American National Standards which include the American Society of Mechanical Engineers (ASME) standard ASME B40.100. This standard addresses venting of sealed gauges within the following section:

*Sealed Cases: Liquid filled or not, will exhibit error as a result of exposure to ambient or media temperature different from that at which the case was sealed unless compensation is provided. This error is caused by internal case pressure changes and depends on fill media, extent of fill and other factors. The error is constant over the entire scale, and if the temperature is stable, within limits, it can be corrected by resetting the pointer. An increase in temperature generally causes an increase in internal case pressure with a resulting decrease in indicated pressure. The opposite occurs for a decrease in temperature. For a given temperature change, the percentage of error noted on the gauge is a function of the range of the gauge. If, for example, the temperature increase causes the internal pressure to increase by 3 psi, then on a 30 psi gauge, this will cause a 10% error, whereas on a 0/100 psi gauge, the error will be 3%. For higher ranges, the percentage of error becomes proportionately less.*

A fill plug fits into the hole in a pressure gauge case. On liquid fillable pressure gauges, a ventable fill plug is used to relieve internal case pressures that occur due to thermal expansion of the fill fluid. Several options are shown below. **IMPORTANT NOTE:** When venting filled gauges, always install in the upright position to prevent leaks.

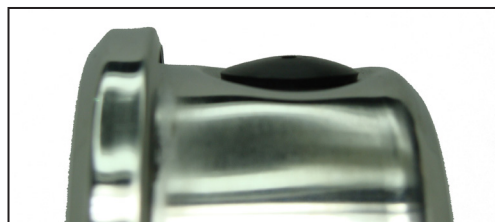
## PRESSURE RELIEF PLUG OPTIONS



FLIP PLUG



CLIP PLUG



FLAT PLUG

## TEST AND CERTIFICATION OF PRESSURE GAUGES

1. All of PIC pressure gauges are manufactured to be in accordance with ASME B40.1.
2. Each gauge is individually tested and calibrated during the assembly process.
3. Although each gauge is individually tested, they are not individually traceable to NIST Standards and therefore not certified as a standard of production.
4. If certification of accuracy is required, independent testing against a known and traceable standard (i.e. a certified dead weight tester) will be required. This typically carries additional fees and charges. Please contact a ESP account representative for more information.
5. If a certificate of conformance is required, ESP can supply this at no or minimal expense. Please contact an account representative for more information.

Although all PIC products are manufactured and tested to be accurate and in calibration, rough handling during shipment may cause pressure gauges to be “knocked out” of calibration. This can occur even though good packaging practice was used.

The American National Standard on pressure gauges (ASME B40.1) recognizes this by including the following statement:

**Caution to users: Pressure gauges can be rendered inaccurate during shipment despite care taken in packaging. To insure conformance to the standard grade to which the pressure gauge was manufactured, it should be checked before use.**

Gauges received “off zero” because of shipping damage can usually be brought back into calibration by a simple pointer adjustment.

**Please make sure your customers are aware of this information.**

## ASME STANDARD ACCURACY GRADES

Accuracy Grade	Permissible Error (+/- percent of span) (excluding friction)			Maximum Friction (% of span)	Min Dial Size (270° dial arc)
	Lower 1/3 of scale	Middle 1/3 of scale	Upper 1/3 of scale		
4A	0.1			Note*	8.5"
3A	0.25			0.25	4.5"
2A	0.5			0.5	2.5"
1A	1.0			1.0	1.5"
A	2.0	1.0	2.0	1.0	1.5"
B	3.0	2.0	3.0	2.0	1.5"
C	4.0	3.0	4.0	3.0	1.5"
D	5.0	5.0	5.0	3.0	1.5"

\*NOTE: Grade 4A gauges must remain within specified tolerance before and after being lightly tapped.



# LIMITED WARRANTY / RETURNS

## LIMITED WARRANTY

Engineered Specialty Products (ESP) warrants all of its mechanical instruments to be free from defects in materials and workmanship. Liability under this warranty is limited to repair or replacement F.O.B. factory of any products which prove to be defective or repayment of the purchase price at ESP's option. Instruments must be returned, transportation prepaid, within one year from date of purchase.

This warranty should not apply to the following:

- A. The product has been subjected to misuse, neglect, abuse, accident, incorrect mounting, improper use or misapplication.
- B. The performance of any system of which ESP products are a component part.
- C. The product has been exposed to any other service, range or environment of greater severity than that for which the products were designed.
- D. The product has been altered or repaired by anyone except ESP or its authorized service agencies.
- E. The serial number or date code has been removed, defaced or changed.
- F. The actual pressure and temperature occurring exceed the values specified for PIC products.
- G. Products with white matter found in the gauge filling caused by electrolysis in the gauge

Unless otherwise specified in a manual or warranty card, or agreed to in writing signed by an authorized ESP representative, PIC products shall be warranted for one year from the date of sale.

The warranty is in lieu of all other warranties expressed or implied, and of all obligations or liabilities on its part for damages including but not limited to consequential damages, following the use or misuse of instruments sold by ESP. No agent is authorized to assume for ESP any liability except as set forth above.

Note: The warranty for any product filled with a glycerin and water mixture is shortened to 3 months from date of purchase. See page 75 for details on water glycerin mixes.

## RETURNS

### What items can be returned?

Any standard product (excluding special order items) may be returned within 30 days for an exchange or refund (less shipping charges).

Shipping discrepancies must be reported within 7 days.

### Who pays for return shipping?

The customer is responsible for return shipping costs unless ESP has made an error in shipment or an item arrives damaged or defective. In the event of a shipment error or a damaged/defective item, ESP will be responsible for the cost of ground shipping only, and only for returns made within 30 days of the purchase date.

Please contact ESP if your defective merchandise is less than \$10.00 in value as returning the merchandise may not be necessary.

### How do I return an item?

Contact ESP for an RGA number and shipping instructions.

### Disclaimer

All prices and policies are subject to change without notice.







# TEMPERATURE CONVERSION CHART

°F	°C
-400.0	-240.0
-364.0	-220.0
-328.0	-200.0
-292.0	-180.0
-256.0	-160.0
-220.0	-140.0
-184.0	-120.0
-148.0	-100.0
-112.0	-80.0
-76.0	-60.0
-58.0	-50.0
-49.0	-45.0
-40.0	-40.0
-31.0	-35.0
-22.0	-30.0
-13.0	-25.0
-4.0	-20.0
5.0	-15.0
14.0	-10.0
17.6	-8.0
21.2	-6.0
24.8	-4.0
28.4	-2.0
32.0	0.0

°F	°C
35.6	2.0
39.2	4.0
42.8	6.0
46.4	8.0
50.0	10.0
59.0	15.0
68.0	20.0
77.0	25.0
86.0	30.0
95.0	35.0
104.0	40.0
113.0	45.0
122.0	50.0
131.0	55.0
140.0	60.0
149.0	65.0
158.0	70.0
167.0	75.0
176.0	80.0
185.0	85.0
194.0	90.0
203.0	95.0
212.0	100.0
230.0	110.0

°F	°C
248.0	120.0
266.0	130.0
284.0	140.0
302.0	150.0
320.0	160.0
338.0	170.0
356.0	180.0
374.0	190.0
392.0	200.0
428.0	220.0
464.0	240.0
500.0	260.0
536.0	280.0
572.0	300.0
608.0	320.0
644.0	340.0
680.0	360.0
716.0	380.0
752.0	400.0
788.0	420.0
824.0	440.0
860.0	460.0
896.0	480.0

## Temperature Conversion Formulas

$$^{\circ}\text{C} = (5/9) * (^{\circ}\text{F} - 32)$$

$$^{\circ}\text{F} = (9/5) * ^{\circ}\text{C} + 32$$

## Gauge with Capillary & Diaphragm Seal - High Temp Application



## Custom Connections

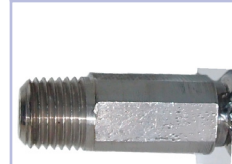
### JIC/UNF/Flare



### Female



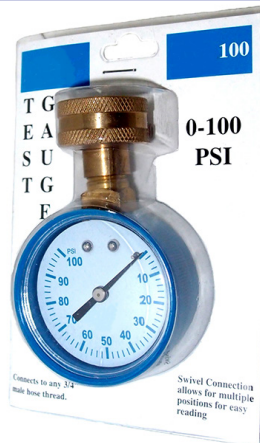
### Long Socket



### SAE



## Clamshell Packaging



## UPC Codes



## Custom Displays



## Pressure Transmitters



## Pressure Switches



## Temperature Switches

