



Product Catalog

Pressure
Temperature
& Electronics



Phone: (716) 773-9300 • Fax: (716) 773-5019 • www.blueribboncorp.com



Blue Ribbon Corp.

2770 Long Road, Grand Island, NY 14072

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Blue Ribbon Corp. is a direct distributor of gauges and thermometers, providing high volumes of low cost quality products, satisfying the needs of OEMs.

Since our beginning, Blue Ribbon Corp. has grown into its own name brand of products with our main manufacturing facility producing Pressure Transmitters & Level Sensors.

Blue Ribbon's ability to provide exceptional field support and service brought about an increase in customer demand, resulting in our expanding into pressure gauges, thermometers, diaphragm seals, and various other products associated with the water and wastewater industries.

Our Goal is to build strong and lasting relationships with our customers. To that end, we apply our knowledge and expertise to each and every unique application need, providing the best product, at the best price, together with an unsurpassed level of customer service.

Product Catalog

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A GP:50 Company **GP:50**



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STEEL UTILITY GAUGE

MODEL BR100D



Model BR101D

FEATURES:

- Dial Sizes: 1½", 2", 2½", and 4"
- An inexpensive utility gauge for the broad commercial market
- Suitable for air, water, oil, gas or any other media not corrosive to brass
- Available in bottom or center connect ⅛" or ¼" (M) NPT

SPECIFICATIONS:

- Black Steel Case
- Lens Material: Glass
- Brass Socket and Movement
- Dial Sizes: 1½", 2", 2½", and 4"
- Phosphor Bronze Bourdon Tube
- Dry, Non-Fillable
- Connection Sizes:
⅛" (M) NPT on 1½" and 2"
¼" (M) NPT on 2" and 2½"
- Accuracy: 3-2-3% (ASME B40.1 Grade B)
- Ambient Temperature: -50 °F to +160 °F
- Dual Scale: PSI & BAR (x100=kPa)
- IP52 Enclosure
- Overpressure: 25% FSO
- Working pressure: 75% FSO

FIELD OPTIONS:

- U-clamp Mount (UC)
- Front Flange Mount (FF)
- Back Flange Mount (BF)
- Plastic Case

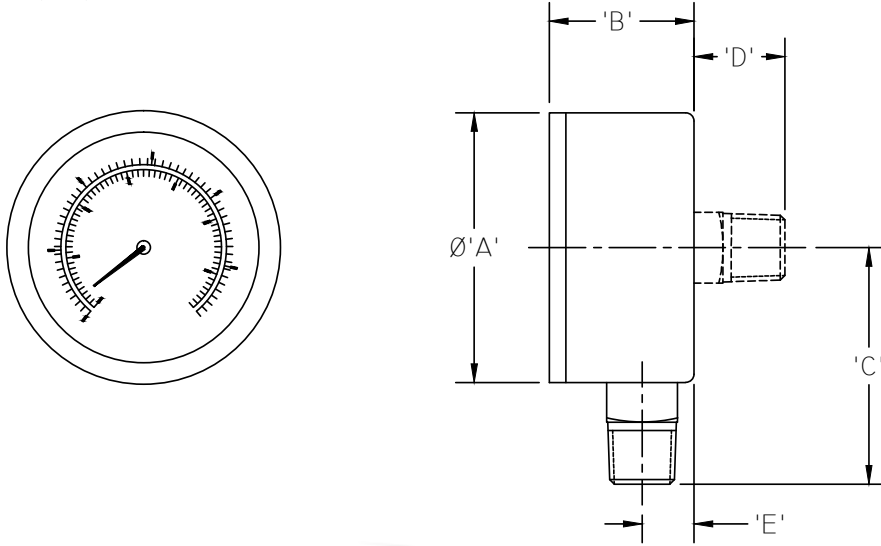
RANGE	RANGE CODES	FIGURES	MINOR, INC.
³⁰ / ₀ " VAC	A	5" hg	0.5" hg
³⁰ / ₀ "15	CB	10" hg / 5 PSI	0.5" hg / 0.5 PSI
³⁰ / ₀ "30	CC	10" hg / 10 PSI	1" hg / 0.5 PSI
³⁰ / ₀ "60	CD	10" hg / 10 PSI	2" hg / 1 PSI
³⁰ / ₀ "100	CE	30" hg / 20 PSI	5" hg / 2 PSI
³⁰ / ₀ "150	CF	30" hg / 20 PSI	5" hg / 2 PSI
³⁰ / ₀ "300	CH	30" hg / 50 PSI	10" & 5 PSI
⁰ / ₁₅	B	2 PSI	0.2 PSI
⁰ / ₃₀	C	5 PSI	0.5 PSI
⁰ / ₆₀	D	10 PSI	1 PSI
⁰ / ₁₀₀	E	20 PSI	2 PSI
⁰ / ₁₆₀	F	20 PSI	2 PSI
⁰ / ₂₀₀	G	40 PSI	5 PSI
⁰ / ₃₀₀	H	50 PSI	5 PSI
⁰ / ₄₀₀	I	50 PSI	5 PSI
⁰ / ₆₀₀	K	100 PSI	10 PSI
⁰ / ₁₀₀₀	M	200 PSI	20 PSI
⁰ / ₁₅₀₀	N	200 PSI	20 PSI
⁰ / ₂₀₀₀	O	400 PSI	50 PSI
⁰ / ₃₀₀₀	P	500 PSI	50 PSI
⁰ / ₅₀₀₀	R	1000 PSI	100 PSI
⁰ / ₆₀₀₀	S	1000 PSI	100 PSI
⁰ / _{10,000}	U	2000 PSI	200 PSI

BR5SL-G-001
REV-C

STEEL UTILITY GAUGE

DIMENSIONAL DRAWING

All dimensions are in inches (mm)



BRI00D
DRY GAUGE

DIAL SIZE	'A'	'B'	'C'	'D'	'E'
Ø1.50 BOTTOM	1.65	0.875	1.43	0.615	0.315
Ø1.50 BACK	1.65	1.05	-	0.550	-
Ø2.00 (1/8)	2.05	1.125	1.615	0.635	0.37
Ø2.00 (1/4)	2.05	1.125	1.815	0.700	0.37
Ø2.50	2.49	1.20	1.22	0.700	0.40
Ø4.00	3.95	1.40	2.845	0.905	0.48

ORDERING GUIDE

Example: BR102D158C

BR102	D	15	8	C
Model Number		Dial Size	Connector Size	Pressure Range
101 - bottom connect		1.5" - 15	8 - 1/8" NPT	See chart on page 1
102 - back connect		2.0" - 20	4 - 1/4" NPT	
Fill Type		2.5" - 25		
D - dry, non-filled		4" - 40		

Available in Front Flange (FF), Back Flange (BF), and U-Clamp (UC) Mount.

All specifications are for reference purposes only. In the interests of continuous product improvement, all specifications are subject to change without notice. Please contact Blue Ribbon Corporation for assistance with your application.





LIQUID FILLED GAUGE

MODEL BR200



Model BR201L Shown

FEATURES:

- Dial Sizes: 1 1/2", 2", 2 1/2", 4", and 6"
- High quality line of liquid filled gauges, also available dry
- Glycerine fill dampens vibration to help extend the life of the gauge
- Bottom and back connections
- 1/8", 1/4", and 1/2" (M)NPT

SPECIFICATIONS:

- Brass Internals and Connection
- Lens Material: Acrylic
- Dial Sizes: 1 1/2", 2", 2 1/2", 4", and 6"
- Phosphor Bronze Bourdon Tube
- Glycerine fill standard
- Accuracy:
 - 1 1/2" and 2" Dial Sizes: 2%
 - 2 1/2" Dial: 1.6% (ASME B40.1, Grade A)
 - 4" and 6" Dial Sizes: 1% (ASME B40.1, Grade 1A)
- Connection Sizes:
 - 1/8" (M) NPT on 1 1/2" and 2"
 - 1/4" (M) NPT on 2", 2 1/2", and 4"
 - 1/2" (M) NPT on 4" and 6"
- Dual Scale: PSI & BAR
- Ambient Temperature:
 - Filled: 0 °F to +150 °F
 - Dry: -30 °F to +150 °F
- Enclosure: IP65

RANGE	RANGE CODES	MAJOR, INC.	MINOR, INC.
³⁰ / ₆ " VAC	A	5	0.5
³⁰ / ₆ "15	CB	5	0.5
³⁰ / ₆ "30	CC	10	1
³⁰ / ₆ "60	CD	10	1
³⁰ / ₆ "100	CE	20	2
³⁰ / ₆ "150	CF	20	2
³⁰ / ₆ "300	CH	50	10
⁹ / ₁₅	B	2	0.2
⁹ / ₃₀	C	5	0.5
⁹ / ₆₀	D	10	1
⁹ / ₁₀₀	E	20	2
⁹ / ₁₆₀	F	20	2
⁹ / ₂₀₀	G	40	4
⁹ / ₃₀₀	H	50	5
⁹ / ₄₀₀	I	50	5
⁹ / ₅₀₀	J	100	10
⁹ / ₆₀₀	K	100	10
⁹ / ₆₀₀	L	100	10
⁹ / ₁₀₀₀	M	200	20
⁹ / ₁₅₀₀	N	200	20
⁹ / ₂₀₀₀	O	400	50
⁹ / ₃₀₀₀	P	500	50
⁹ / ₄₀₀₀	Q	500	50
⁹ / ₅₀₀₀	R	1000	100
⁹ / ₆₀₀₀	S	2000	200
⁹ / _{10,000}	U	2000	200
⁹ / _{15,000}	V	2000	200

FIELD OPTIONS

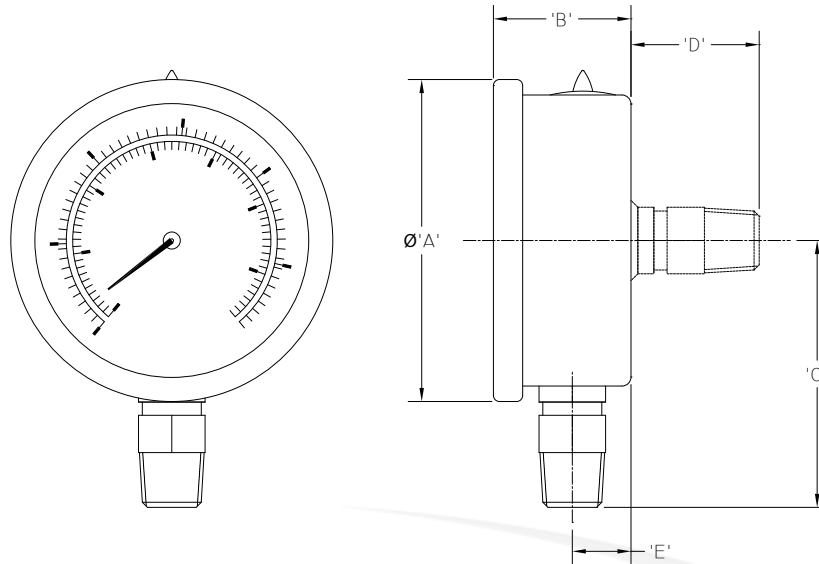
- Single Scale (PSI)
- Available in Dry
- Front Flange (FF), Back Flange (BF), and U-Clamp (UC) mount
- Alternate fills available



LIQUID FILLED GAUGE

DIMENSIONAL DRAWING

All dimensions are in inches (mm)



BR200
FILLABLE GAUGE

DIAL SIZE	'A'	'B'	'C'	'D'	'E'
Ø1.50	1.85	1.08	1.58	0.74	0.9
Ø2.00 (1/8)	2.25	1.155	2.15	0.91	0.585
Ø2.00 (1/4)	2.25	1.155	2.165	0.935	0.585
Ø2.50	2.675	1.16	2.185	1.22	0.458
Ø4.00 (1/4)	4.29	1.4	3.2	1.256	0.703
Ø4.00 (1/2)	4.29	1.4	3.24	1.293	0.703
Ø6.00	6.40	1.93	4.10	1.15	0.56

ORDERING GUIDE

Example: BR201L204F

BR201	L	20	4	F
Model Number		Dial Size	Connector Size	Pressure Range
201 - bottom connect		1.5" - 15	8 - 1/8" NPT	See chart on page 1
202 - back connect		2.0" - 20	4 - 1/4" NPT	
Fill Type		2.5" - 25	2 - 1/2" NPT	
D - dry, non-filled		4" - 40		
L - Liquid, glycerine filled		6" - 60		

Available in Back Flange (BF), Front Flange (FF), and U-Clamp (UC) mount

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LEAD FREE LIQUID FILLED PRESSURE GAUGE



Model BRLF201L



MODEL BRLF200

FEATURES:

The Model BRLF200 Lead Free Liquid Filled Pressure Gauge from Blue Ribbon Corporation is an accurate, bottom connected, liquid-filled pressure gauge. Its lead free construction allows it to be specified within drinking water pump, pipeline and filtration system installations, or anywhere that the mitigation of lead contamination risk is a concern.

SPECIFICATIONS:

- Lead Free Brass Internals and Connection
- Lead Free Phosphor Bronze Bourdon Tube
- Dial Sizes: 1 1/2", 2", 2 1/2", 4", and 6"
- Glycerine fill standard
- Accuracy:
 - 1 1/2" and 2" Dial Sizes: 2%
 - 2 1/2" Dial: 1.6% (ASME B40.1, Grade A)
 - 4" and 6" Dial Sizes: = 1% (ASME B40.1, Grade 1A)
- Connection Sizes:
 - 1/8" (M) NPT on 1 1/2" and 2"
 - 1/4" (M) NPT on 2", 2 1/2", and 4"
 - 1/2" (M) NPT on 4" and 6"
- Dual Scale: PSI & BAR
- Ambient Temperature:
 - Filled: 0 °F to +150 °F
 - Dry: -30 °F to +150 °F
- Enclosure: IP65

FIELD OPTIONS:

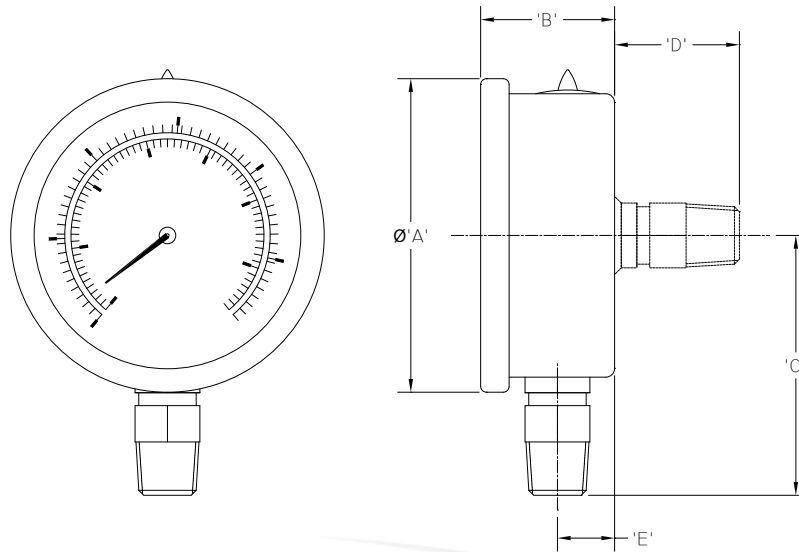
- Single Scale (PSI)
- Available in Dry
- Front Flange (FF), Back Flange (BF), and U-Clamp (UC) mount
- Alternate fills available

RANGE	RANGE CODES	MAJOR, INC.	MINOR, INC.
30"/VAC	A	5	0.5
30"/15	CB	5	0.5
30"/30	CC	10	1
30"/60	CD	10	1
30"/100	CE	20	2
30"/150	CF	20	2
30"/300	CH	50	10
0"/15	B	2	0.2
0"/30	C	5	0.5
0"/60	D	10	1
0"/100	E	20	2
0"/160	F	20	2
0"/200	G	40	4
0"/300	H	50	5
0"/400	I	50	5
0"/500	J	100	10
0"/600	K	100	10
0"/800	L	100	10
0"/1000	M	200	20
0"/1500	N	200	20
0"/2000	O	400	50
0"/3000	P	500	50
0"/4000	Q	500	50
0"/5000	R	1000	100
0"/6000	S	2000	200
0"/10,000	U	2000	200
0"/15,000	V	2000	200

LEAD FREE LIQUID FILLED PRESSURE GAUGE

DIMENSIONAL DRAWING

All dimensions are in inches (mm)



BR200
FILLABLE GAUGE

DIAL SIZE	'A'	'B'	'C'	'D'	'E'
Ø1.50	1.85	1.08	1.58	0.74	0.9
Ø2.00 (1/8)	2.25	1.155	2.15	0.91	0.585
Ø2.00 (1/4)	2.25	1.155	2.165	0.935	0.585
Ø2.50	2.675	1.16	2.185	1.22	0.458
Ø4.00 (1/4)	4.29	1.4	3.2	1.256	0.703
Ø4.00 (1/2)	4.29	1.4	3.24	1.293	0.703
Ø6.00	6.40	1.93	4.10	1.15	0.56

ORDERING GUIDE

Example: BRLF201L204F

BRLF201	L	20	4	F
Model Number		Dial Size	Connector Size	Pressure Range
201 - bottom connect		1.5" - 15	8 - 1/8" NPT	See chart on page 1
202 - back connect		2.0" - 20	4 - 1/4" NPT	
Fill Type		2.5" - 25	2 - 1/2" NPT	
D - dry, non-filled		4" - 40		
L - Liquid, glycerine filled		6" - 60		

Available in Back Flange (BF), Front Flange (FF), and U-Clamp (UC) mount

All specifications are for reference purposes only. In the interests of continuous product improvement, all specifications are subject to change without notice. Please contact Blue Ribbon Corporation for assistance with your application.





STAINLESS STEEL LIQUID FILLED GAUGES



Model BR251L

MODEL BR250L

FEATURES:

The Model BR250L from Blue Ribbon Corporation is a high quality line of liquid filled gauges. Its crimped, welded stainless steel bezel and glycerine fill is designed for gas or liquid applications that require damping.

SPECIFICATIONS:

- Stainless steel welded connection
- Stainless steel crimped bezel
- Glycerine Fill Standard (Dry Available)
- Accuracy:
 - 1 1/2" and 2" dial Sizes: 2%
 - 2 1/2" Dial: 1.6% (ASME B40.1, Grade A)
 - 4" and 6" Dial Sizes: 1% (ASME B40.1, Grade 1A)
- Dual Scale: PSI & BAR (x100=kPa)
- Single Scale (PSI) Available
- Ambient Temperature:
 - Filled: 0 °F to +150 °F
 - Dry: -30 °F to +150 °F
- Welded Socket
- Enclosure: IP65

FIELD OPTIONS:

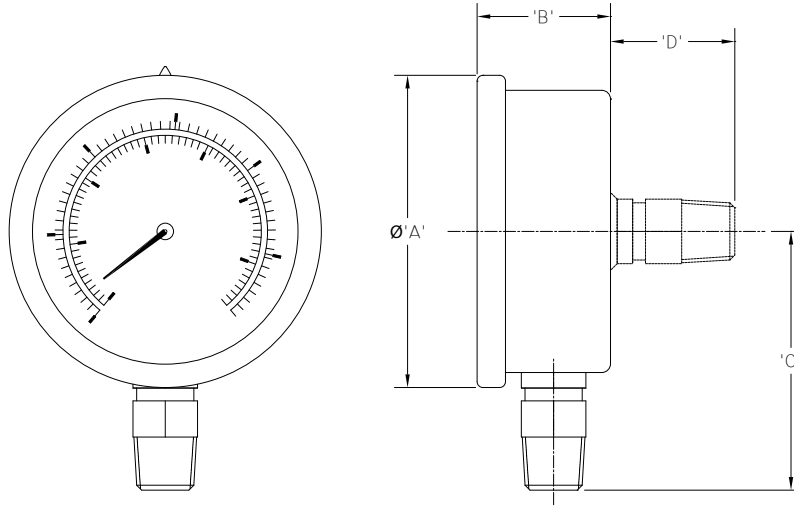
- Dial Sizes:
 - 1 1/2", 2", 2 1/2", 4", 6"
- Connection Sizes:
 - 1/8" (M) NPT on 1 1/2" and 2"
 - 1/4" (M) NPT on 2", 2 1/2", and 4"
 - 1/2" (M) NPT on 4" and 6"
- Front Flange (FF) or Back Flange (BF) Mount
- U-Clamp Mount (UC)

RANGE	CODE	MAJOR INC.	MINOR INC.
30% VAC	A	5	0.5
30%/15	CB	5	0.5
30%/30	CC	10	1
30%/60	CD	10	1
30%/100	CE	20	2
30%/150	CF	20	2
30%/300	CH	50	10
1/15	B	2	0.2
1/30	C	5	0.5
1/60	D	10	1
1/100	E	20	2
1/160	F	20	2
1/200	G	40	4
1/300	H	50	5
1/400	I	50	5
1/500	J	100	10
1/600	K	100	10
1/800	L	100	10
1/1000	M	200	20
1/1500	N	200	20
1/2000	O	400	50
1/4000	P	500	50
1/4000	Q	500	50
1/5000	R	1000	100
1/6000	S	2000	200
1/10,000	U	2000	200
1/15,000	V	2000	200

STAINLESS STEEL LIQUID FILLED GAUGES

DIMENSIONAL DRAWING

All dimensions are in inches (mm)



BR250L
SS LIQUID FILLED GAUGE

DIAL SIZE	'A'	'B'	'C'	'D'
Ø1.50	1.85	1.08	1.58	0.74
Ø2.00 (1/8)	2.25	1.155	2.15	0.91
Ø2.00 (1/4)	2.25	1.155	2.165	0.935
Ø2.50	2.675	1.16	2.185	1.22
Ø4.00 (1/4)	4.29	1.4	3.2	1.256
Ø4.00 (1/2)	4.29	1.4	3.24	1.293

ORDERING GUIDE

Example: BR251L158C

BR251	L	15	8	C
Model Number		Dial Size	Connector Size	Pressure Range
251 - bottom connect		1.5" - 15	8 - 1/8" NPT	See chart on page 1
252 - back connect		2.0" - 20	4 - 1/4" NPT	
Fill Type		2.5" - 25	2 - 1/2" NPT	
D - dry, non-filled		4" - 40		
L - Liquid, glycerine filled		6" - 60		

*Available in Front Flange (FF), Back Flange (BF), and U-Clamp (UC) Mount

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ALL STAINLESS STEEL GAUGE



Model BR301L

SPECIFICATIONS:

- 316 Stainless Steel Case with bayonet bezel design
- 316 Stainless Steel Internals
- Stainless Steel Bourdon Tube & Connection
- IP65 Enclosure
- Glycerine fill standard, Dry available
- Accuracy: 2½" Dial - 1.6%; (ASME B40.1, Grade A)
4" and 6" Dials - 1%; (ASME B40.1, Grade 1A)
- Dual Scale: PSI & BAR (x100=kPa)
- Ambient Temperature: Filled: +30 °F to +160 °F; Dry: -30 °F to +180 °F
- Safety Glass Lens
- Welded Socket
- Overpressure Limit: 30% FSO
- Working Pressure: 75% FSO

FIELD OPTIONS:

- 2½", 4", and 6" dial sizes
- ¼"(M) NPT on 2½" and 4"
- ½"(M) NPT on 4" and 6"
- Front Flange (FF) or Back Flange (BF) Mount
- U-Clamp Mount (UC)
- Brass internals available (*Model 380*)

MODEL BR300

FEATURES:

The Model BR300 series from Blue Ribbon Corporation is a high-quality dry or liquid-filled, all stainless steel back or bottom mount gauge for applications where brass may not be an option.

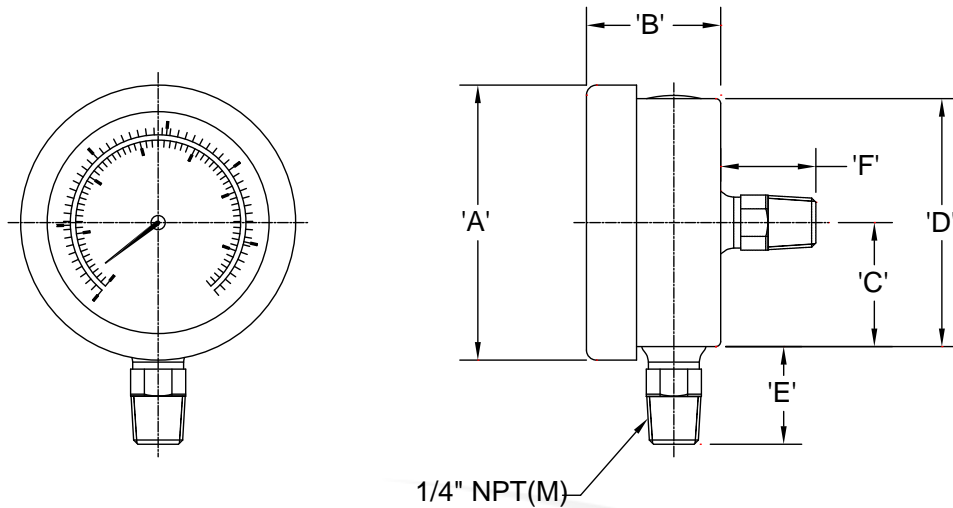
RANGE	RANGE CODES	MAJOR	MINOR
30/0" VAC	A	5	0.5
30/0/15	CB	5	0.5
30/0/30	CC	10	1
30/0/60	CD	10	1
30/0/100	CE	20	2
30/0/150	CF	20	2
30/0/300	CH	50	10
0/15	B	2	0.2
0/30	C	5	0.5
0/60	D	10	1
0/100	E	20	2
0/160	F	20	2
0/200	G	40	2
0/300	H	50	5
0/400	I	50	5
0/500	J	100	10
0/600	K	100	10
0/800	L	100	10
0/1000	M	200	20
0/1500	N	200	20
0/2000	O	400	50
0/3000	P	500	50
0/4000	Q	500	50
0/5000	R	1000	100
0/6000	S	2000	200
0/10,000	U	2000	200
0/15,000	V	2000	200

BR5SL-G-005
REV-D

ALL STAINLESS STEEL GAUGES

DIMENSIONAL DRAWING

All dimensions are in inches (mm)



DIAL SIZE	'A'	'B'	'C'	'D'	'E'	'F'
Ø2.50 (1/4)	2.745	1.96	1.238	2.475	0.975	0.975
Ø2.50 (1/2)	2.745	1.96	1.238	2.475	1.37	1.37
Ø4.00 (1/2)	4.35	1.96	1.963	3.925	1.37	1.37
Ø6.00 (1/2)	6.35	1.96	2.925	5.85	1.37	1.37

ORDERING GUIDE

Example: BR301L254F

BR301	L	25	4	F
Model Number		Dial Size	Connector Size	Pressure Range
301 - bottom connect		2.5" - 25	4 - 1/4" NPT	See chart on page 1
302* - back connect		4" - 40	2 - 1/2" NPT	
Fill Type		6" - 60		
D - dry, non-filled				
L - Liquid, glycerine filled				

*Available in Front Flange (FF), Back Flange (BF), and U-Clamp (UC) Mount

All specifications are for reference purposes only. In the interests of continuous product improvement, all specifications are subject to change without notice. Please contact Blue Ribbon Corporation for assistance with your application.





PROCESS PRESSURE GAUGE

MODEL BR400/BR800



Model BR411/412

FEATURES:

Model BR400/BR800 Series from Blue Ribbon Corporation are a family of highly rugged stainless steel and brass process pressure gauges. They are designed to provide reliable process pressure measurements within safety critical environments such as oil and gas, chemical processing, power stations, environmental engineering and plant construction environments.

SPECIFICATIONS:

- Dial Size: 4 1/2"
- AISI 316 Stainless Steel Bourdon tube & socket (BR400)
- Brass tube and socket (BR800)
- Accuracy: 0.5% FS (ASME B40.1, Grade 2A)
- Phenolic-Solid Front/Blow-Out Back Case
- Lens: Shatterproof Safety Glass
- Movement: 304 Stainless Steel with Over/Under Stops
- Knife Edge Micro-Adjustable Pointer
- IP65 Enclosure
- Working Pressure: 75% FSO
- Over Pressure: 20% Up to 10K PSI; 10% over 10K PSI
- Ambient/Process Temperature
Filled: -40 °F to +160 °F
Dry: -40 °F to +180 °F

OPTIONS:

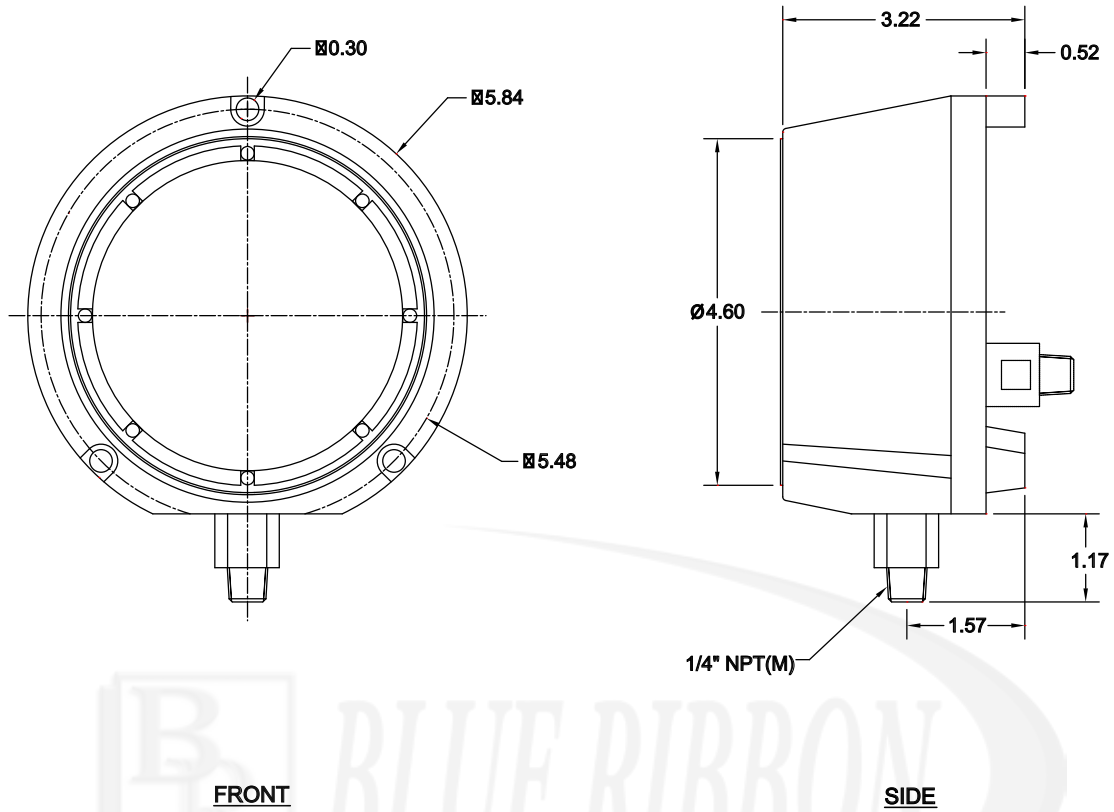
- Liquid Fillable/No Kit Required
- Monel tube & socket available
- Connection Sizes: 1/4" or 1/2" NPT Male
- Bottom mount or back mount (see ordering guide)
- Vibration Free Movement

RANGE	RANGE CODES	FIGURES	MINOR, INC.
3%/ Hg Vac	A	5"	0.2"
3%/15	CB	10" & 5 PSI	1" & 0.5 PSI
3%/30	CC	10" & 5 PSI	1" & 0.5 PSI
3%/60	CD	10" & 10 PSI	2" & 1 PSI
3%/100	CE	10" & 20 PSI	2" & 1 PSI
3%/150	CF	10" & 30 PSI	5" & 2 PSI
3%/200	CG	10" & 50 PSI	5" & 2 PSI
3%/300	CH	10" & 50 PSI	10" & 5 PSI
1/15 PSI	B	3 PSI	0.2 PSI
1/30 PSI	C	5 PSI	0.2 PSI
1/60 PSI	D	5 PSI	0.5 PSI
1/100 PSI	E	10 PSI	1 PSI
1/160 PSI	F	20 PSI	1 PSI
1/200 PSI	G	20 PSI	2 PSI
1/300 PSI	H	50 PSI	2 PSI
1/400 PSI	I	50 PSI	2 PSI
1/600 PSI	K	50 PSI	5 PSI
1/800 PSI	L	100 PSI	5 PSI
1/1000 PSI	M	100 PSI	10 PSI
1/1500 PSI	N	250 PSI	10 PSI
1/2000 PSI	O	200 PSI	20 PSI
1/3000 PSI	P	500 PSI	20 PSI
1/5,000 PSI	R	1,000 PSI	50 PSI
1/10,000 PSI	U	1,000 PSI	100 PSI
1/15,000 PSI	V	2,500 PSI	100 PSI
1/20,000 PSI	V2	2,000 PSI	200 PSI

PROCESS PRESSURE GAUGE

DIMENSIONAL DRAWING

All dimensions are in inches (mm)



ORDERING GUIDE

Example: BR411D454M

BR4	11	D	45	4	M
Model #	Mount Type	Fill Type	Dial Size	Connector Size	Pressure Range
BR4 - SS Internals	11 - bottom mt	D - dry, non-filled	4.5"	2 - 1/2" NPT	See chart on page 1
BR8 - Brass Internals	12 - back mt	L - Glycerine filled		4 - 1/4" NPT	

Option: VFM - Vibration Free Movement

All specifications are for reference purposes only. In the interests of continuous product improvement, all specifications are subject to change without notice. Please contact Blue Ribbon Corporation for assistance with your application.





LOW PRESSURE DIAPHRAGM GAUGE

MODEL BR500D



Model BR500D

FEATURES:

The Model BR500D Series from Blue Ribbon Corporation is a family of dry, non-fillable, diaphragm-based pressure gauges, designed to provide reliable economical measurements of pressures below 10 PSI. Available in brass and stainless steel construction to meet most application and media requirements.

SPECIFICATIONS:

- Accuracy:
 - 2½" Dial: 2.5%; (ASME B40.1, Grade B)
 - 4" and 4½" Dials: 1%; (ASME B40.1, Grade A)
- Dry, Non-fillable
- Working Pressure: 75% FSO
- Overpressure: 30% FSO
- Ambient/Process Temperature: -30 °F to 150 °F
- Enclosure: IP52
- Twist Lock Plastic Lens
- Black Steel Case
- Brass Internals and Connection
- Capsule-Type Diaphragm for Low-Pressure Measurements

FIELD OPTIONS:

- Dial Sizes: 2½", 4" and 4½"
- Connection Sizes: ¼" NPT, ½" NPT on 4½" dial
- 304 Stainless Steel Case (4", 4½" Dial)
- Phenolic Case (4½" Dial)
- Front Flange (FF), Back Flange (BF), and U-Clamp (UC) mount

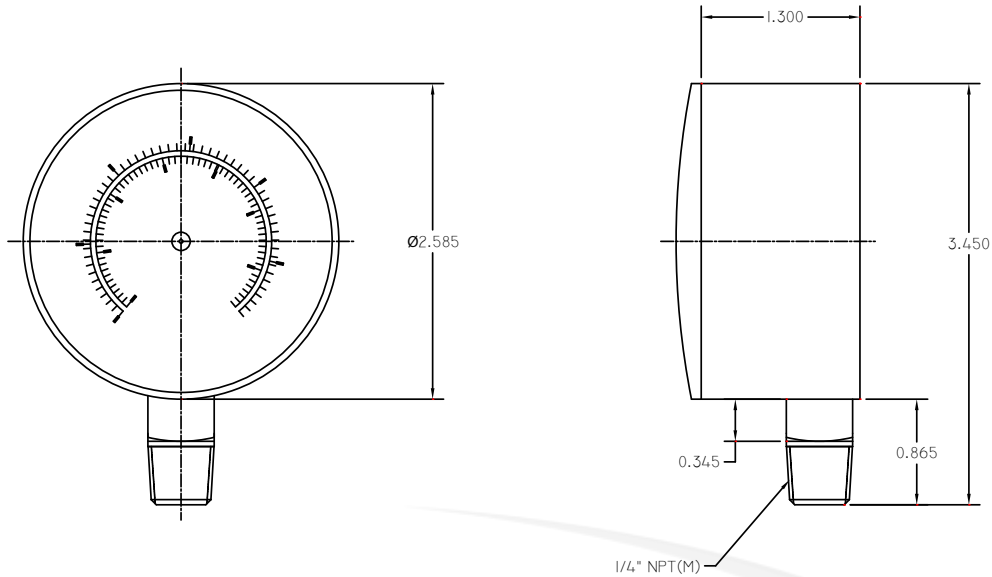
RANGE	RANGE CODES	FIGURES	MINOR, INC.
100-0" WC Vac	AZ	10" WC	1"
55-0" WC Vac	A4	10" WC	1"
32-0" WC Vac	A	4" WC	0.5"
0-15" WC	W	3" WC	0.2"
0-32" WC	X	10" WC	0.5"
0-55" WC	Y	10" WC	1"
0-100" WC	Z	10" WC	2"
0-3 PSI	A1	1 PSI	0.05 PSI
0-5 PSI	A2	1 PSI	0.10 PSI
0-10 PSI	A3	2 PSI	0-2 PSI



LOW PRESSURE DIAPHRAGM GAUGE

DIMENSIONAL DRAWING

All dimensions are in inches (mm)



BR501D-254Y
63MMX1/4" NPT BOTTOM
0-55" W/C/OZ

ORDERING GUIDE

Example: BR501D452M

BR501	D	45	2	M
Model Number		Dial Size	Connector Size	Pressure Range
501 - bottom mount		2.5"	4 - 1/4" NPT	See chart on page 1
502 - back mount		4"		
Fill Type		4.5"	4.5 - 1/2" NPT	
D - dry, non-filled				

Available in Back Flange (BF), Front Flange (FF), and U-Clamp (UC) mount

All specifications are for reference purposes only. In the interests of continuous product improvement, all specifications are subject to change without notice. Please contact Blue Ribbon Corporation for assistance with your application.





CONTRACTOR GAUGE SERIES

MODEL BR601D



Model BR601D
Contractor Gauge Series

FEATURES:

The Model BR601D from Blue Ribbon Corporation is a family of durable contractor pressure gauges, designed to meet the needs of contractors involved in HVAC, plumbing, and industrial and commercial refrigeration applications. Quality and affordability make this series the most attractive gauge for any project where bronze internals are suitable for use.

SPECIFICATIONS:

- Available dial size: 4.5"
- Stainless steel case
- Bronze Bourdon Tube
- Brass socket and movement
- Lead Free Brass
- Glass lens
- Zero adjust screw on dial
- 1% Accuracy Full Scale; (ASME B40.1, Grade 1A)

APPLICATIONS:

- HVAC
- Plumbing
- Refrigeration
- Steam heated processes*

***Note:** a pigtail siphon should always be used when putting pressure gauge into steam service

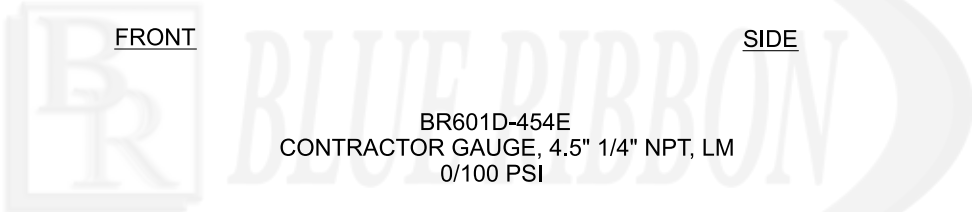
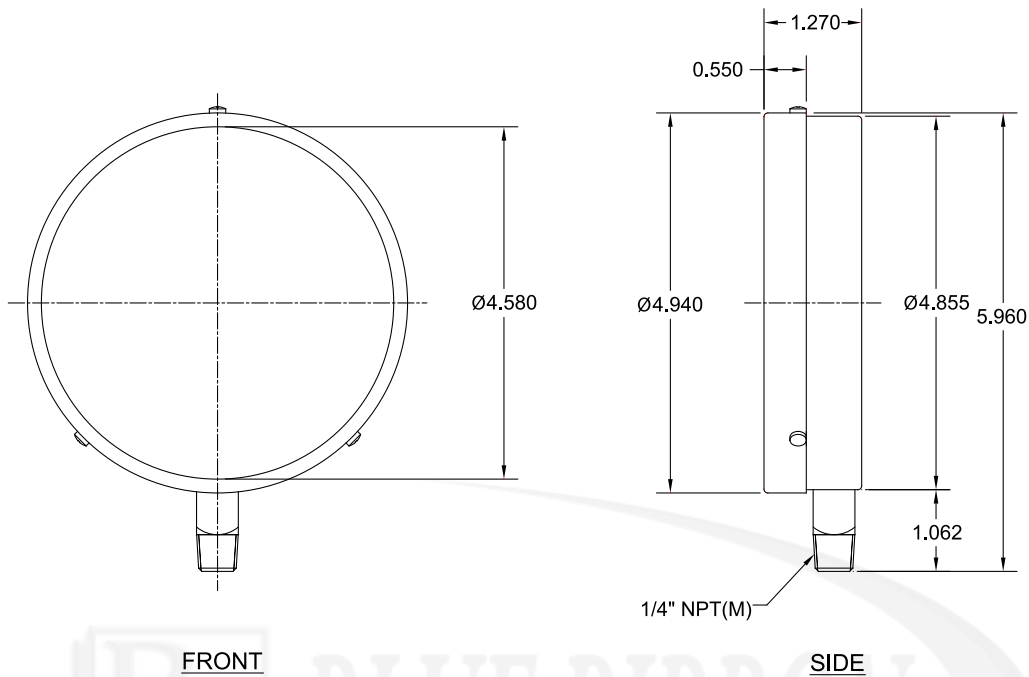
RANGE	RANGE CODES	MAJOR	MINOR
30" HG VAC	A	5" HG	2" HG
30/0/30	CC	5 PSI	1 PSI
30/0/100	CE	10 PSI	1 PSI
30/0/160	CF	25 PSI	2.5 PSI
0/15	B	2.5 PSI	0.25 PSI
0/30	C	5 PSI	1 PSI
0/60	D	10 PSI	1 PSI
0/100	E	10 PSI	1 PSI
0/160	F	20 PSI	2 PSI
0/200	G	20 PSI	2 PSI
0/300	H	50 PSI	5 PSI
0/400	I	50 PSI	5 PSI
0/500	J	50 PSI	5 PSI
0/600	K	50 PSI	5 PSI

BR5SL-G-008
REV-D

CONTRACTOR GAUGE SERIES

DIMENSIONAL DRAWING

All dimensions are in inches (mm)



BR601D-454E
CONTRACTOR GAUGE, 4.5" 1/4" NPT, LM
0/100 PSI

ORDERING GUIDE

Example: BR601D454F

BR601	D	45	4	F
Model Number		Dial Size	Connector Size	Pressure Range
601 - bottom connect		4.5" - 45	4 - 1/4" NPT	See chart on page 1
Fill Type				
D - dry, non-filled				

All specifications are for reference purposes only. In the interests of continuous product improvement, all specifications are subject to change without notice. Please contact Blue Ribbon Corporation for assistance with your application.





ALUMINUM CASE CONTRACTOR GAUGE SERIES

MODEL BR651D



Model BR651D
Aluminum Case Contractor Gauge Series



FEATURES:

Model BR651D from Blue Ribbon Corporation is a rugged, lightweight Contractor pressure gauge, designed to meet the needs of contractors involved in HVAC, plumbing, and industrial and commercial refrigeration applications. The aluminum case provides lightweight durability with the reliability that comes with the Blue Ribbon contractor series.

SPECIFICATIONS:

- Available dial size: 4.5"
- Aluminum Case
(For rust and corrosion resistance)
- Lead Free Brass
- Glass Lens
- Accuracy: $\pm 1\%$; (AMSE B40.1, Grade 1A)
- Adjustable pointer on dial
(For additional fine tuning)
- Large, easy to read numbers
(On single scale PSI only dial)

APPLICATIONS:

- HVAC
- Plumbing
- Refrigeration
- Steam heated processes*

***Note:** a pigtail siphon should always be used when putting pressure gauge into steam service.

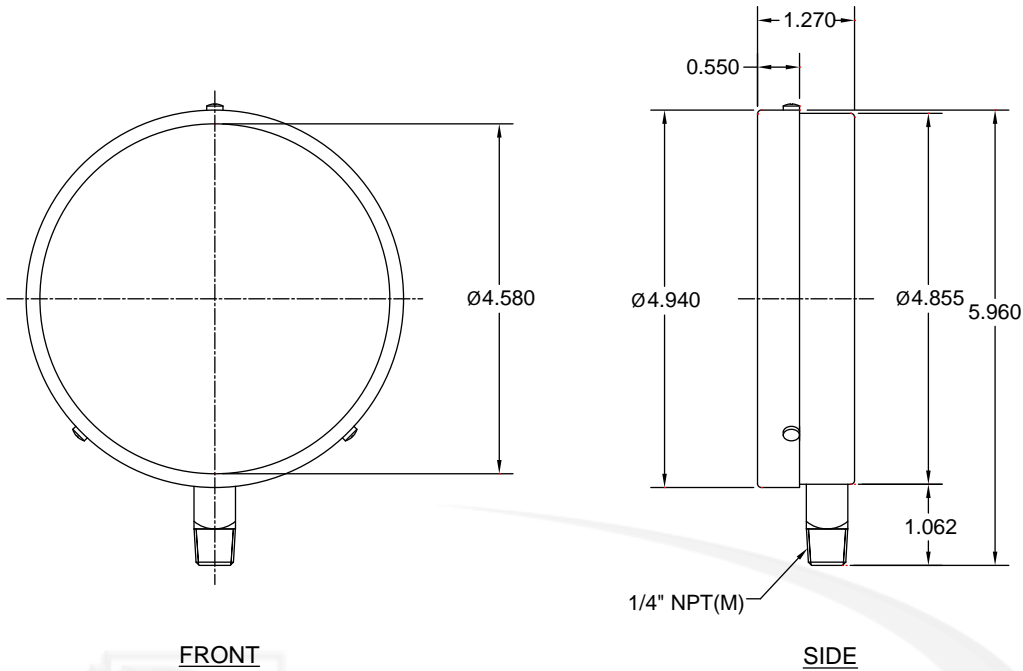
RANGE	RANGE CODES	MAJOR	MINOR
30" HG VAC	A	5" HG	2" HG
$\frac{30}{30}$	CC	5 PSI	1 PSI
$\frac{30}{100}$	CE	10 PSI	1 PSI
$\frac{30}{160}$	CF	25 PSI	2.5 PSI
$\frac{1}{15}$	B	2.5 PSI	0.25 PSI
$\frac{1}{30}$	C	5 PSI	1 PSI
$\frac{1}{60}$	D	10 PSI	1 PSI
$\frac{1}{100}$	E	10 PSI	1 PSI
$\frac{1}{160}$	F	20 PSI	2 PSI
$\frac{1}{200}$	G	20 PSI	2 PSI
$\frac{1}{300}$	H	50 PSI	5 PSI
$\frac{1}{400}$	I	50 PSI	5 PSI
$\frac{1}{500}$	J	50 PSI	5 PSI
$\frac{1}{600}$	K	50 PSI	5 PSI

BR5SL-G-009
REV-D

ALUMINUM CASE CONTRACTOR GAUGE SERIES

DIMENSIONAL DRAWING

All dimensions are in inches (mm)



BR651D-454E
CONTRACTOR GAUGE, 4.5" 1/4" NPT, LM
0/100 PSI

ORDERING GUIDE

Example: BR651D454F

BR651	D	45	4	F
Model Number		Dial Size	Connector Size	Pressure Range
651 - bottom connect		4.5" - 45	4 - 1/4" NPT	See chart on page 1
Fill Type				
D - dry, non-filled				

All specifications are for reference purposes only. In the interests of continuous product improvement, all specifications are subject to change without notice. Please contact Blue Ribbon Corporation for assistance with your application.



BACK FLANGED GAUGE SERIES

MODEL BR660



Model BR661D

FEATURES:

The 660 gauge series from Blue Ribbon Corp. is a heavy duty, accurate, and highly reliable gauge for the mechanical, commercial, and industrial markets. The cast aluminum case and integral back flange are designed to ensure the model 660 will withstand the most rigorous environments.

SPECIFICATIONS:

- Dial Size: 4 1/2"
- Connection Sizes:
Lower (M) NPT 1/4" and 1/2"
Lower Back NPT 1/4" and 1/2"
- Black Aluminum Cast Case w/integral back flange for surface mounting
- Brass Socket and Internals
- 304 SS Bezel
- Safety Glass Lens
- Micrometer Adjustable Pointer
- White Aluminum Dial, Black Numerals
- Accuracy: $\pm 0.5\%$; (ASME B40.1, Grade 2A)
- Max Temp: 250 °F

RANGE	RANGE CODES	MAJOR	MINOR
30" HG VAC	A	5" HG	2" HG
30/0/30	CC	5 PSI	1 PSI
30/0/100	CE	10 PSI	1 PSI
30/0/160	CF	25 PSI	2.5 PSI
0/15	B	2.5 PSI	0.25 PSI
0/30	C	5 PSI	1 PSI
0/60	D	10 PSI	1 PSI
0/100	E	10 PSI	1 PSI
0/160	F	20 PSI	2 PSI
0/200	G	20 PSI	2 PSI
0/300	H	50 PSI	5 PSI
0/400	I	50 PSI	5 PSI
0/500	J	50 PSI	5 PSI
0/600	K	50 PSI	5 PSI

APPLICATIONS

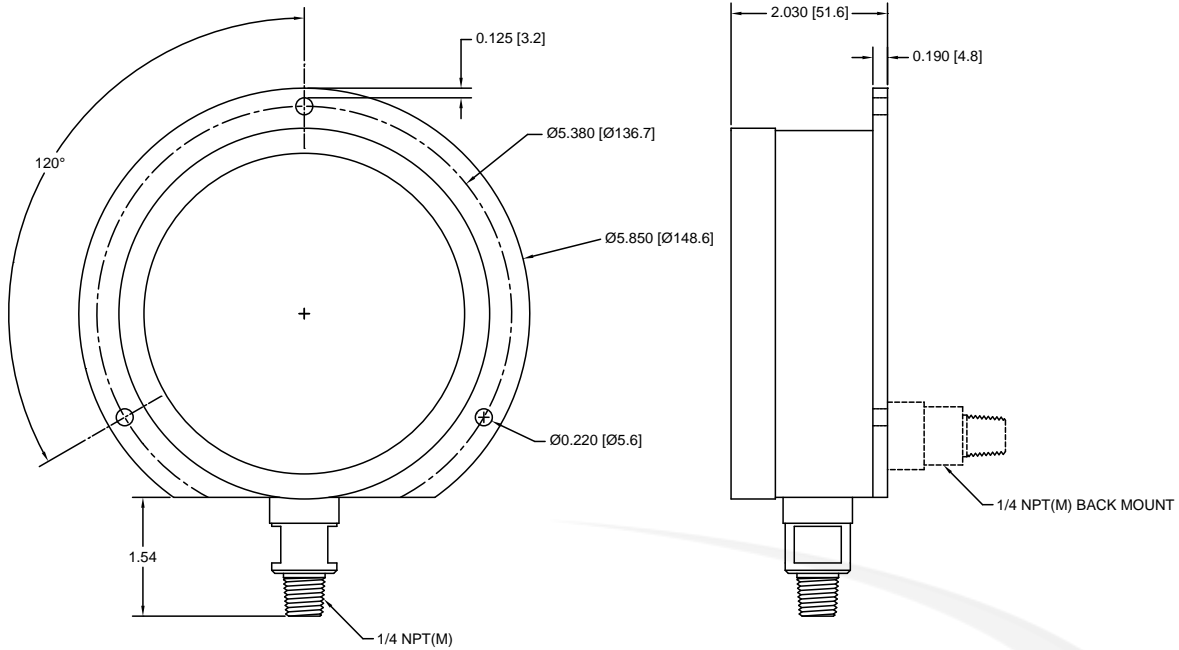
- HVAC
- Plumbing
- Refrigeration
- Steam Heated Processes*

***NOTE:** A pigtail siphon should always be used when installed in steam service.

BACK FLANGED GAUGE SERIES

DIMENSIONAL DRAWING

All dimensions are in inches (mm)



ORDERING GUIDE

Example: BR661D454F

BR661	D	45	4	F
Model Number		Dial Size	Connector Size	Pressure Range
661 - bottom connect 662 - back connect		4.5" - 45	4 - 1/4" NPT	See chart on page 1
Fill Type				
D - dry, non-filled				

All specifications are for reference purposes only. In the interests of continuous product improvement, all specifications are subject to change without notice. Please contact Blue Ribbon Corporation for assistance with your application.





DUAL PRESSURE & TEMPERATURE AMMONIA GAUGE



As Shown: Model BR701w/Back Flange

MODEL BR700

FEATURES:

The Model BR700 Series from Blue Ribbon Corporation is a Dual Pressure and Temperature gauge, designed specifically for ammonia-based closed refrigeration systems.

SPECIFICATIONS:

- Dial Sizes: 2.5" and 4"
- 304 Stainless Steel Case and Ring
- Polycarbonate Lens
- 316 Stainless Steel Tube and Socket
- Bottom and Back 1/4" NPT Connection
- Movement: 304 Stainless Steel
- Pointer: Aluminum
 - 701-702 - Adjustable
 - 751-752 - Fixed
- Ambient Process Temperature:
 - Dry: -40 °F to +150 °F
 - Liquid Filled: -4 °F to +150 °F
- Accuracy:
 - 2.5" Dial: 1.6% FS, (ASME B40.1, Grade A)
 - 4" Dial: 1% FS, (ASME B40.1, Grade 1A)
- Enclosure Rating: IP65

ORDERING GUIDE:

BAYONET BEZEL (Removeable)

BOTTOM MOUNT		
Pressure Range	2.5" Dial	4" Dial
30" 0-150 PSI	BR701D-254CF	BR701D-404CF
30" 0-300 PSI	BR701D-254CH	BR701D-404CH
BACK MOUNT		
Pressure Range	2.5" Dial	4" Dial
30" 0-150 PSI	BR702D-254CF	BR702D-404CF
30" 0-300 PSI	BR702D-254CH	BR702D-404CH

CRIMPED BEZEL (Non-Removeable)

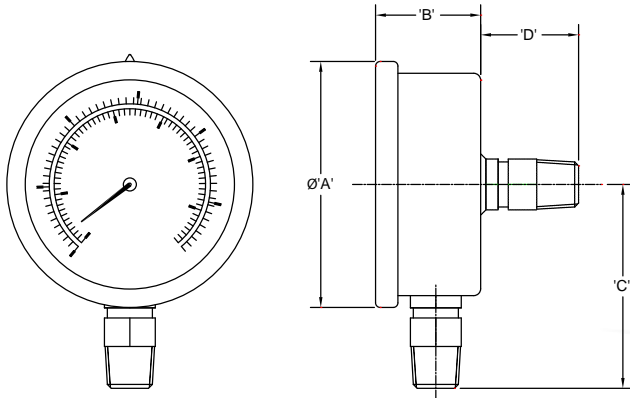
BOTTOM MOUNT		
Pressure Range	2.5" Dial	4" Dial
30" 0-150 PSI	BR751D-254CF	BR751D-404CF
30" 0-300 PSI	BR751D-254CH	BR751D-404CH
BACK MOUNT		
Pressure Range	2.5" Dial	4" Dial
30" 0-150 PSI	BR752D-254CF	BR752D-404CF
30" 0-300 PSI	BR752D-254CH	BR752D-404CH

BR5SL-G-010
REV-C

DUAL PRESSURE & TEMPERATURE AMMONIA GAUGE

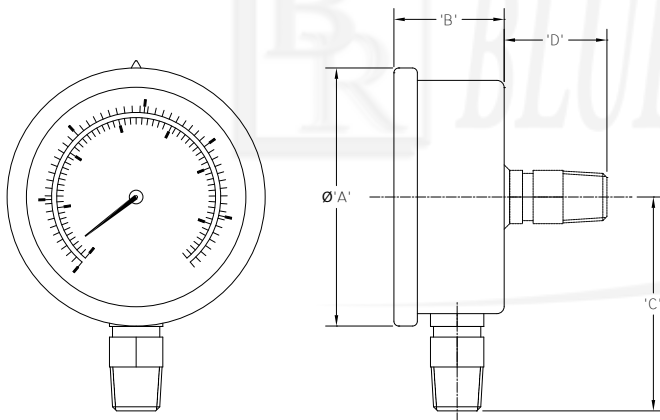
DIMENSIONAL DRAWING

All dimensions are in inches (mm)



BR700
DUAL TEMP/PRESSURE
AMMONIA GAUGE

DIAL SIZE	'A'	'B'	'C'	'D'
Ø2.50	2.675	1.16	1.00	1.22
Ø4.00	4.29	1.4	3.2	1.256



BR751L
SS LIQUID FILLED GAUGE

DIAL SIZE	'A'	'B'	'C'	'D'
Ø1.50	1.85	1.08	1.58	0.74
Ø2.00 (1/8)	2.25	1.155	2.15	0.91
Ø2.00 (1/4)	2.25	1.155	2.165	0.935
Ø2.50	2.675	1.16	2.185	1.22
Ø4.00 (1/4)	4.29	1.4	3.2	1.256
Ø4.00 (1/2)	4.29	1.4	3.24	1.293

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FORGED BRASS CASE GAUGE

MODEL BR901



Model BR901

FEATURES:

- Dial Sizes: 2½", 4"
- For use in mining and automotive hydraulic systems and heavy vibration areas
- Suitable for non-sparking areas
- Available in ¼" process connection
- Immediate shipment upon request in 2.5" dial size

SPECIFICATIONS:

- Forged Brass Case
- Brass Socket and Movement
- Dial Sizes: 2½", 4"
- Phosphor Bronze Bourdon Tube
- Glycerin Filled
- Connection Sizes:
¼" (M) NPT on 2" thru 4"
- Accuracy: 1.5%
- Ambient Temperature: -40 °F to +150 °F
- Easy to Read Single Scale
- IP65 Enclosure
- Meets ASME Standard B40.100

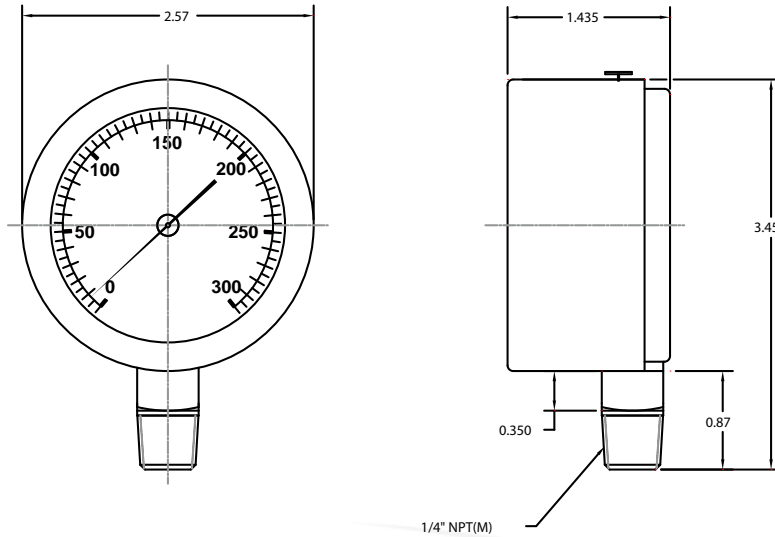
RANGE	RANGE CODES	FIGURES	MINOR, INC.
30/0" VAC	A	5" hg	0.5" hg
30/0/15	CB	10" hg / 5 PSI	0.5" hg / 0.5 PSI
30/0/30	CC	10" hg / 10 PSI	1" hg / 0.5 PSI
30/0/60	CD	10" hg / 10 PSI	2" hg / 1 PSI
30/0/100	CE	30" hg / 20 PSI	5" hg / 2 PSI
30/0/150	CF	30" hg / 20 PSI	5" hg / 2 PSI
30/0/300	CH	30" hg / 50 PSI	10" & 5 PSI
0/15	B	2 PSI	0.2 PSI
0/30	C	5 PSI	0.5 PSI
0/60	D	10 PSI	1 PSI
0/100	E	20 PSI	2 PSI
0/160	F	20 PSI	2 PSI
0/200	G	40 PSI	5 PSI
0/300	H	50 PSI	5 PSI
0/400	I	50 PSI	5 PSI
0/600	K	100 PSI	10 PSI
0/1000	M	200 PSI	20 PSI
0/1500	N	200 PSI	20 PSI
0/2000	O	400 PSI	50 PSI
0/3000	P	500 PSI	50 PSI
0/5000	R	1000 PSI	100 PSI
0/6000	S	1000 PSI	100 PSI
0/10,000	U	2000 PSI	200 PSI



FORGED BRASS CASE GAUGE

DIMENSIONAL DRAWING

All dimensions are in inches (mm)



BR901D-254H
63MMX1/4"NPT Bottom
0-300 PSI

ORDERING GUIDE

Example: BR901L254H

BR901	L	25	4	H
Model Number		Dial Size	Connector Size	Pressure Range
Fill Type		2.5" - 25	4 - 1/4" NPT	
L - Glycerin filled		4.0" - 40		See chart on page 1

All specifications are for reference purposes only. In the interests of continuous product improvement, all specifications are subject to change without notice. Please contact Blue Ribbon Corporation for assistance with your application.





GAS PRESSURE TEST GAUGES

MODEL BRGT



Model BRGT

FEATURES:

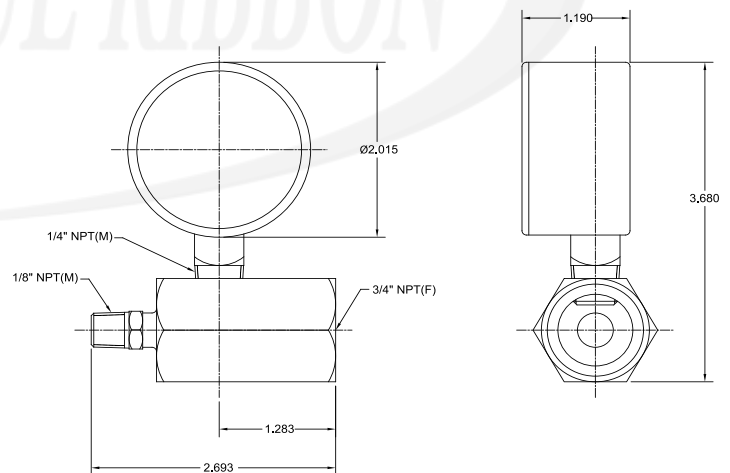
The Model BRGT Series from Blue Ribbon Corporation is a combined utility gas pressure test gauge and valve body. Before gas is run into the system, it is charged with air. The gauge then indicates whether or not there is a leak present within the line. The valve body serves strictly as a bleed port. Series units support the reliable, cost-effective testing of gas line pressures within both commercial and residential applications.

SPECIFICATIONS:

- Dial Size: 2"
- Measurement Range: 0-5 to 0-160 PSI (1/10# increments - only for 0-15)
- Connection: 3/4" FPT
- Accuracy: 3-2-3%, (ASME B40.1, Grade B)

PART NO.	RANGE
BRGT-5	0-5
BRGT-15	0-15
BRGT-30	0-30
BRGT-60	0-60
BRGT-100	0-100
BRGT-160	0-160

NOTE: BRGT-5 is a Capsule-style gauge. Refer to price list for correct pricing.



FRONT

SIDE

BRGT15
2" GAS TEST GAUGE
3/4" NPT(F)





BELL HOUSING GAS PRESSURE TEST GAUGES

MODEL BRGTB



Model BRGTB

FEATURES:

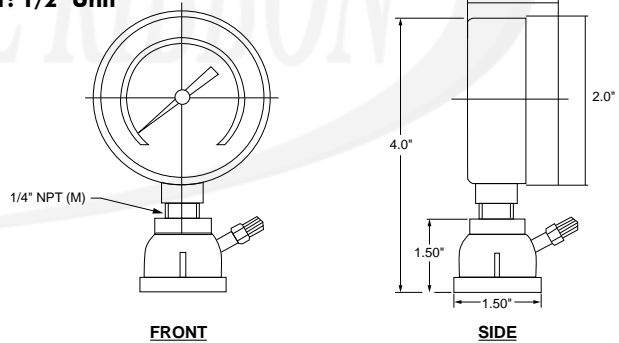
The Model BRGTB Series from Blue Ribbon Corporation is a combined utility gas pressure test gauge with bell housing body. Before gas is run into the system, it is charged with air. The gauge then indicates whether or not there is a leak present within the line. The bell housing body serves strictly as a bleed port. Series units support the reliable, cost-effective testing of gas line pressures within both commercial and residential applications.

SPECIFICATIONS:

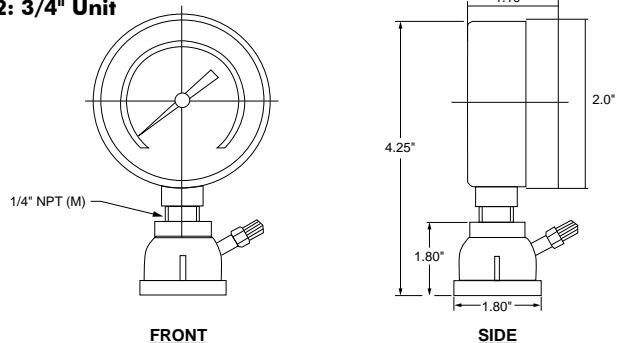
- Dial Size: 2" Pressure Gauge
- Black Steel Case
- Measurement Range: 0-30 PSI and 0-60 PSI
- Connection: 1/2", 3/4" & 1" FPT
- Accuracy: 3-2-3%, (ASME B40.1, Grade B)

PART NO.	CONNECTION	RANGE
BRGTB2-30	1/2"	0-30 PSI
BRGTB2-60	1/2"	0-60 PSI
BRGTB75-30	3/4"	0-30 PSI
BRGTB75-60	3/4"	0-60 PSI
BRGTB1-30	1"	0-30 PSI
BRGTB1-60	1"	0-60 PSI

Drawing 1: 1/2" Unit



Drawing 2: 3/4" Unit



BR5SL-G-035
REV-A



WATER PRESSURE TEST GAUGES

MODEL BRWT

FEATURES:

The Model BRWT300 water pressure test gauge from Blue Ribbon Corporation is a 2" dial utility gauge. The gauge adapts directly to a water tap to accurately and cost-effectively measure line and system pressures. The 3/4" Female hose swivel fits all standard hose connections.



Model BRWT300

SPECIFICATIONS:

- Dial Size: 2"
- Range: 0-300 PSI
- Connection: 3/4" FHT Brass Swivel
- Accuracy: 3-2-3%, (ASME B40.1, Grade B)
- Max Pointer Available

PART NO.	RANGE
BRWT-300	0-300 PSI



GAUGES | THERMOMETERS | SENSORS

Quality & Dependability



from Blue Ribbon Corp



BOILER GAUGE / TRIDICATOR



Model BRPT
Boiler Gauge / Tridicator

MODEL BRPT

FEATURES:

- 2½" and 3" Dial Sizes
- Bottom and Back Connect
- Acrylic Lens & Ring
- Brass Tube & Socket
- Aluminum Pointer

SPECIFICATIONS:

- Temperature Range: 30-250 °F/C
- Pressure Range: 0-75 PSI
- Accuracy:
 - Pressure: 3-2-3% (ASME B40.1, Grade B)
 - Temperature: 3%

PRODUCT OVERVIEW:

The Model BRPT from Blue Ribbon Corporation is a family of high-accuracy tridicators. A tridicator is a dual purpose instrument that reads both temperature and pressure levels on the same dial face using an independent pointer and scale. This instrument, also known as a "Boiler Gauge," is used primarily on heating systems and boilers.

FIELD OPTIONS:

- Connection Sizes:
 - 2.5" Dial: ¼" NPT
 - 3" Dial: ½" NPT

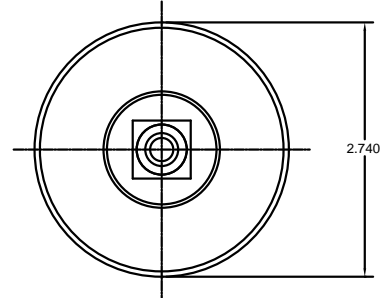
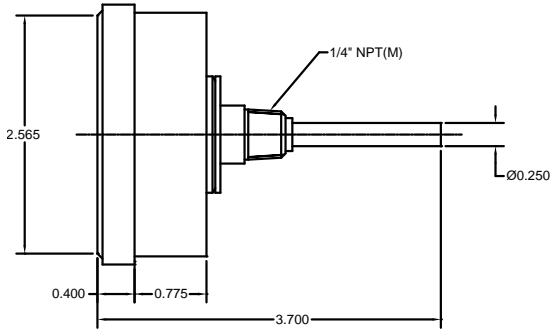
TRIDICATORS			
DIAL SIZE	MOUNTING	RANGE	PART #
2.5"	¼" NPT Back	0-75 PSI 50-320 °F/C	BRPT-00
2.5"	¼" NPT 1" Ext Back	0-75 PSI 30/250 °F/C	BRPT-01
2.5"	¼" NPT Back	0-75 PSI 30-250 °F/C	BRPT-04
3"	½" NPT Back	0-75 PSI 30-350 °F/C	BRPT-02
3"	½" NPT Bottom	0-75 PSI 30-250 °F/C	BRPT-03
3"	½" NPT Bottom	0-200 PSI 30-250 °F/C	BRPT-05
3"	½" NPT Back	0-200 PSI 70-320 °F/C	BRPT-06
3"	½" NPT Back	0-200 PSI 30-250 °F/C	BRPT-07
3"	½" NPT Back	0-60 PSI 70-320 °F/C	BRPT-09
3"	½" NPT Back	0-100 PSI 30-250 °F/C	BRPT-08
3"	½" NPT Back	0-250 PSI 30-250 °F/C	BRPT-98
3"	½" NPT Bottom	0-250 PSI 30-250 °F/C	BRPT-99

BR5SL-G-013
REV-C

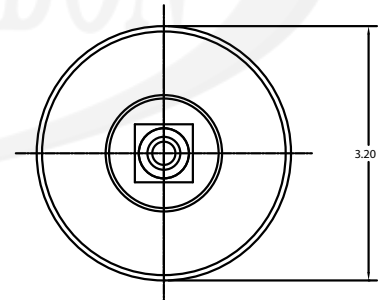
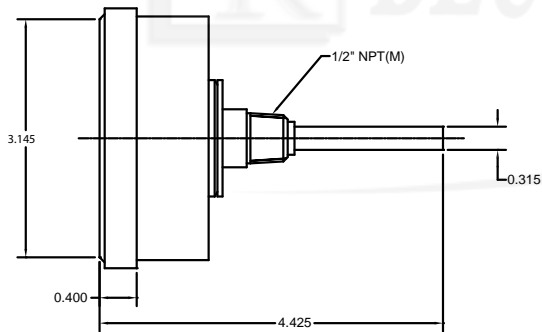
BOILER GAUGE / TRIDICATOR

DIMENSIONAL DRAWING

All dimensions are in inches (mm)



BRPT-00
2.5" TRIDICATOR, 1/4" NPT
0-75 PSI/KPA & 50-320 F/C
BACK, 2.15" STEM



BRPT-07
3.0" TRIDICATOR, 1/2" NPT
0-200 PSI/KPA & 30-250 F/C
BACK, 2.75" STEM

All specifications are for reference purposes only. In the interests of continuous product improvement, all specifications are subject to change without notice. Please contact Blue Ribbon Corporation for assistance with your application.



DIGITAL PRESSURE GAUGE

MODEL BR DG-11



Model BR DG-11
Digital Pressure Gauge

FEATURES:

- Simple two-button operation
- Zero reset button
- Auto restore for last pressure reading
- Back-lit LCD display
- Overload display function
- 14.7 PSIV to 30 PSI, to 10K PSI (PSIA or PSIG)

SPECIFICATIONS:

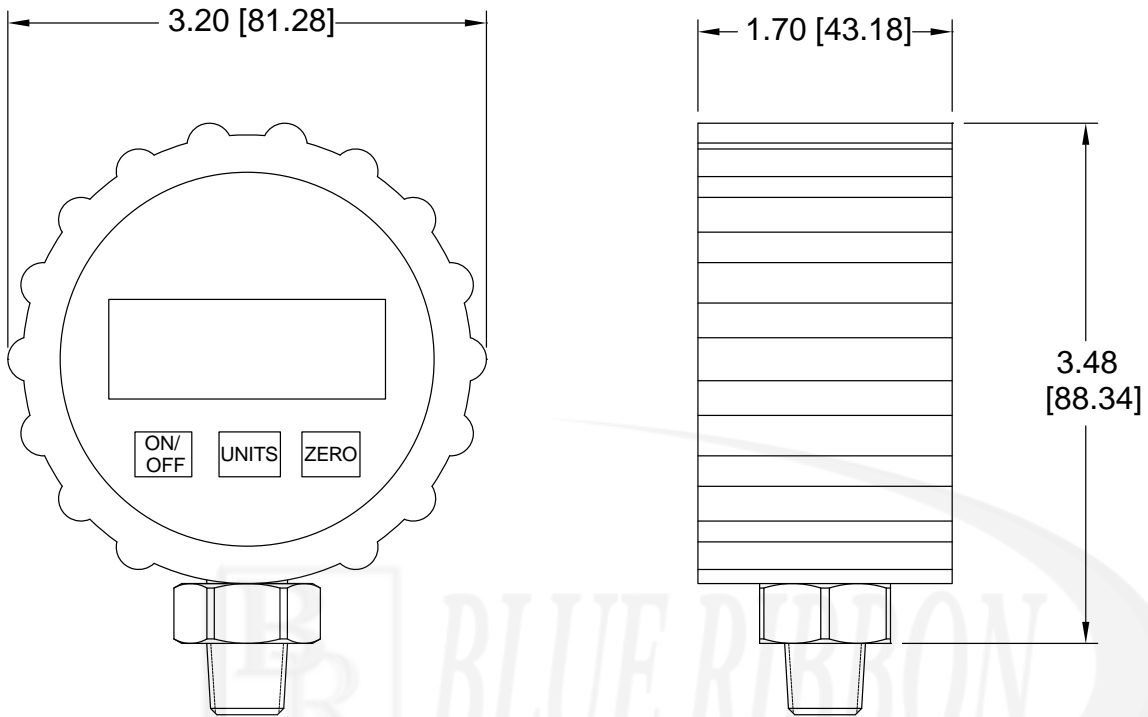
- 3" Dial (3.2" with rubber boot)
- 1.85" x 0.65" backlit LCD Display
- **Unit display:** PSI, BAR, Kg/cm²
(Calibration record provided in Pa, KPa, MPa)
- 1/4" NPT pressure port, SAE4, 1/8" NPT, optional 1/4" BSP
- Valox™ 420 case material, 17-4 PH stainless steel standard pressure port (alternate materials available)
- **Approximate weight:** 8 oz
- **Pressure Ranges:** -14.7 to 30 PSI, up to 10K PSI (PSIA or PSIG)
- **Proof Pressure:** 2.5x Rated Pressure
- **Burst Pressure:** 4x Rated Pressure / 30K PSI max.
- **Accuracy:**
±0.5% FSO standard, (ASME B40.1, Grade 2A) includes linearity, hysteresis, and repeatability, 0.25% FSO (ASME B40.1, Grade 3A) and ±0.1% FSO (ASME B40.1, Grade 4A) optional
- **Thermal error:** <±0.5% FSO
- **Compensated temperature range:** +35 °F to +130 °F
- **Operating temperature:** +15 °F to +140 °F
- **Storage temperature:** -5 °F to +160 °F
- **Power source:** 9V battery
- Automatic power off (5 minutes with LOW BATT indicator)
- Optional protective rubber boot
- NEMA 4/IP65 enclosure

BR5SL-G-014
REV-E

DIGITAL PRESSURE GAUGE

DIMENSIONAL DRAWING

All dimensions are in inches (mm)



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MUD GAUGE DIAPHRAGM TYPE



BRMG
Mud Gauge Diaphragm Type

BRMG

FEATURES:

- Pressure range from 5K PSI to 15K PSI (345 to 1,034 BAR)
- Socket and case welded for high vibration and corrosive service
- Fixed pointer and movable dial
- 4" glycerine filled dial
- Weather proof/anti-corrosive gun metal casting
- Easy-to-read analog display

APPLICATIONS:

- Mud pump pressure
- Stand pipe pressure
- Oil and gas well head pressures

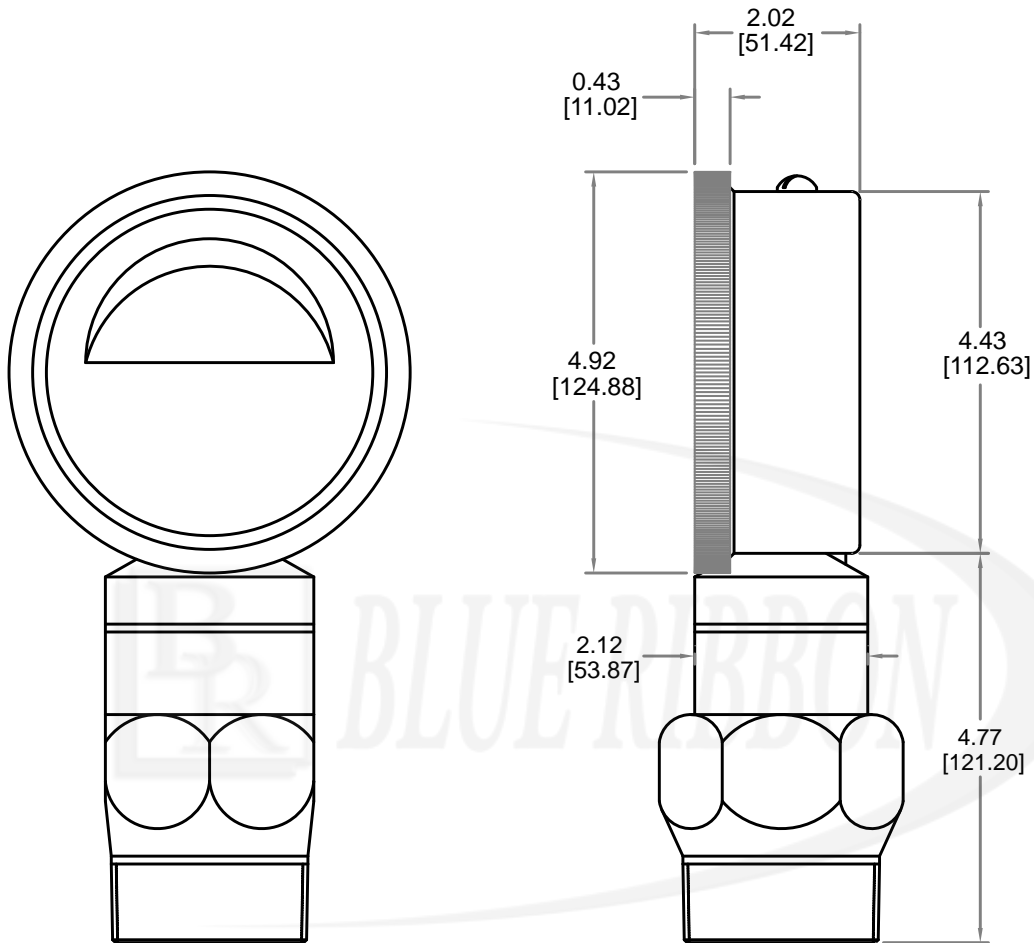
SPECIFICATIONS:

- **Bourdon tube:** 316 stainless steel
- **Movement:** 304 stainless steel
- **Diaphragm:** 316L stainless steel
- **Casing:** Anti-corrosion treated carbon steel
- **Process Connection:** Bottom mount 2" NPT
- **Accuracy:** 3-2-3% (ASME B40.1 Grade B)
- **Static Accuracy:** 2.5% FSO
- **Pressure Ranges:** 0 to 10K PSI thru 0 to 15K PSI (690 thru 1,034 BAR)
- **Dial:** 4" Glycerine filled plexiglass
- **Neoprene rubber pad** for mud protection

MUD GAUGE DIAPHRAGM TYPE

DIMENSIONAL DRAWING

All dimensions are in inches (mm)



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BLUE RIBBON CORPORATION

PRESSURE CONVERSION / CUSTOM DIAL TABLE

TO CONVERT FROM TO	psi	mbar	bar	atm	Pa	kPa	cmH ₂ O @ 20 °C	inH ₂ O @ 20 °C	ftH ₂ O @ 20 °C	mmHg @ 0 °C	inH ₂ O @ 0 °C	kg/cm ²	ft sea water
psi	1	68.9476	0.0689476	0.0680460	6894.76	6.8947	70.433	27.730	2.3108	51.7149	2.03602	0.07030686	2.2457
mbar	0.0145038	1	0.001	9.86923 x 10 ⁻⁴	100	0.100	1.0215	0.40218	0.03352	0.75006	0.0295300	0.00101972	0.32571
bar	14.5038	1000	1	0.986923	100000	1000	1021.5	402.18	33.52	750.06	29.5300	1.019716	32.571
atm	14.6959	1013.25	1.01325	1	101325	101.325	1035.08	407.511	35.959	760.0	29.9213	1.033227	33.002
Pa	1.45038 x 10 ⁻⁴	0.01	0.00001	9.86923 x 10 ⁻⁶	1	0.001	0.010215	0.0040218	3.352 x 10 ⁻⁴	7.5006 x 10 ⁻³	2.95300 x 10 ⁻⁴	1.019716 x 10 ⁻⁵	3.2571 x 10 ⁻⁴
kPa	0.145038	10.0	0.010	0.0098692	1000	1	10.215	4.02118	0.3352	7.5006	0.295300	0.0101972	0.32571
cmH ₂ O @ 20 °C	0.014198	0.97891	9.7891 x 10 ⁻⁴	9.66105 x 10 ⁻⁴	97.891	0.097891	1	0.3937	0.035281	0.73424	0.028907	9.9821 x 10 ⁻⁴	0.031884
inH ₂ O @ 20 °C	0.036063	2.4864	0.0024864	2.45392 x 10 ⁻³	248.64	0.24864	2.5400	1	0.083333	1.8650	0.073424	0.0025354	0.080986
ftH ₂ O @ 20 °C	0.432756	29.8368	0.0298368	0.0294470	2983.68	2.98368	30.480	12	1	22.380	0.881089	0.030425	0.97183
mmHg @ 0 °C	0.0193368	1.33322	0.0013322	0.00131579	133.322	0.133322	1.3619	0.53620	0.04468	1	0.03937	0.00135951	0.043424
inH ₂ O @ 0 °C	0.491154	33.8639	0.0338639	0.0334211	3386.39	3.38639	34.593	13.619	1.13491	25.400	1	0.0345316	1.1030
kg/cm ²	14.2233	980.665	0.980665	0.967842	98060.5	98.0665	1001.8	394.41	32.868	735.559	28.959	1	31.9410
ft sea water	0.4453	30.702	0.030702	0.030301	3070.2	3.0702	31.3638	12.3482	1.02900	23.029	0.90664	0.031308	1



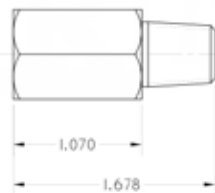
MODEL 'FTS' FILTER TYPE SNUBBER



Model 'FTS' Filter Type Snubber



FRONT



SIDE

FEATURES:

Pressure Oscillations and other sudden pressure changes can affect the delicate mechanisms of a pressure gauge or pressure transmitter. This can result in either complete failure of the instrument or false and inaccurate readings. Pressure snubbers are designed to reduce or prevent these oscillations and fluctuations from reaching and affecting pressure instruments.

Pressure snubbers stop pressure spikes only; a pressure snubber will not stop any overpressure. Spikes last for milliseconds only, over pressures lasting longer than that can damage the pressure sensor.

The Pressure snubbers shown are the "filter" type using a porous filter media made of sintered metal. Because the filter element is a fine mesh type, it should be used on processes that do not contain anything that would clog the media. In the event that the snubber does get clogged with dirt or particulate from the process, our snubbers can be disassembled for cleaning if necessary.

SPECIFICATIONS:

- **Connection Sizes:** 1/4" or 1/2" NPT
- **Stainless steel or brass**
- **Water, air, oil or gas**
- **No moving parts - nothing to break or wear out**
- **Pressure rating:**
 - Brass: 3,000 PSI
 - Stainless Steel: 10,000 PSI

PART #	MATERIAL	THREAD	MAXIMUM PRESSURE
BW42	BRASS	1/4 x 1/4	3,000 PSI
BR-BW42-1/2	BRASS	1/2 x 1/2	10,000 PSI
SW42	304SS	1/4 x 1/4	20,000 PSI
BR-SW42	304SS	1/4 x 1/4 (Adjustable)	6,000 PSI
BR-A05E	316SS	1/2 x 1/2	20,000 PSI

PRESSURE SNUBBER WITH CHOKE VALVE



Pressure Snubber with Choke Valve

FEATURES:

- Adjustable pressure pulsation dampener protects pressure gauges against pressure perturbation, surges, and fluid hampers
- Isolates gauge for service or replacement

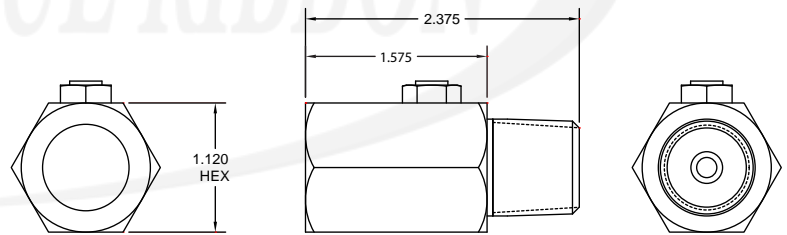
APPLICATIONS:

- Pulsation
- Heavy duty process
- Industrial

PRESSURE RANGES:

- 3,000 to 10,000 PSI

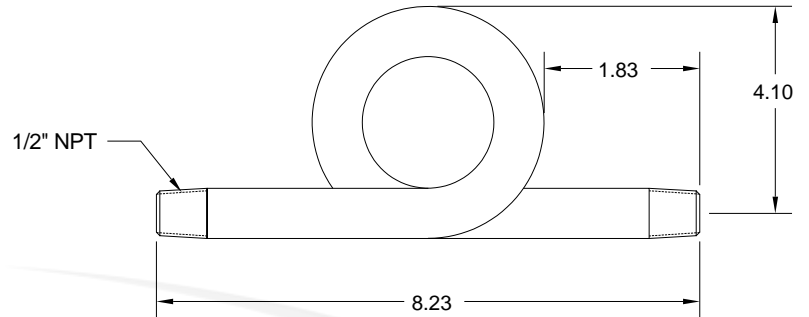
SPECIFICATIONS:



STAINLESS STEEL SNUBBER

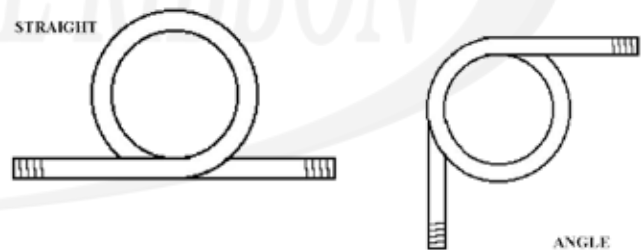
PART #	THREAD	"B"	"C"	"D" HEX	MAXIMUM PRESSURE
MSB4	¼-⅛ NPT	0.51" (13 mm)	1.77" (45 mm)	0.67" (17 mm)	3,000 PSI
MSS4	¼-⅛ NPT	0.51" (13 mm)	1.77" (45 mm)	0.67" (17 mm)	5,000 PSI
MSB6	⅜-⅛ NPT	0.59" (16 mm)	2.36" (60 mm)	1.18" (30 mm)	5,000 PSI
MSS6	⅜-⅛ NPT	0.59" (16 mm)	2.36" (60 mm)	1.18" (30 mm)	10,000 PSI
MSB8	½-¼ NPT	0.79" (20 mm)	2.36" (60 mm)	1.18" (30 mm)	5,000 PSI
MSS8	½-¼ NPT	0.79" (20 mm)	2.36" (60 mm)	1.18" (30 mm)	10,000 PSI

SIPHON (PIGTAIL)



pigtail syphon TUBE
BR-A032
1/2" NPT

Pigtail Siphons from Blue Ribbon Corporation are typically used to act as a cooling or warming leg for applications where the process temperature may be higher or lower than the "normal" working temperature range, as specified by NIST B40.1, in relation to the instrumentation. Temperature extremes can lead to measurement inaccuracy, or otherwise shorten the life span of instrumentation that is not specifically designed for severe duty applications.



PART #	DESCRIPTION	PRESSURE	TEMP
A03B	1/4" NPT Brass Pigtail	250 PSI	+400 °F
A031	1/4" NPT Iron Pigtail, Schedule 40 Iron	500 PSI	+400 °F
CPS4	1/4" NPT Steel Pigtail, Schedule 80 Steel	1000 PSI	+850 °F
CPS2	1/2" NPT Steel Pigtail	1000 PSI	+850 °F
CPSS4	1/4" NPT Stainless Steel Pigtail	2000 PSI	+1000 °F
CPSS2	1/2" NPT Stainless Steel Pigtail	2000 PSI	+1000 °F

GAUGE COCK & MINI VALVES



A14

1/4" (F) NPT X 1/4" (F) NPT

Brass Body Rating:
700 PSI at +250 °F

	A	B
In.	1.60	1.30
MM	40	33



A15

1/4" (F) NPT X 1/4" (M) NPT

Brass Body Rating:
700 PSI at +250 °F

	A	B
In.	1.60	1.35
MM	40	34



NV--B--1/4

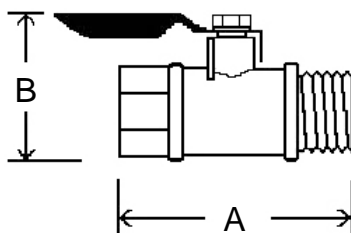
Needle Valve

1/4" (F) NPT X 1/4" (F) NPT

Brass Body Rated at 5000 PSI

	A	B
In.	1.62	1.94
MM	41	49

Dimensional Reference:





INSTRUMENTATION VALVES

Blue Ribbon Corporation's High-quality instrumentation valves are designed for heavy-duty process control or other industrial applications that require high-pressure carbon steel or stainless steel shut-off valves.

Our valves are available hard seat (10,000 PSI) or soft seat (6,000 PSI), 1/4" or 1/2" NPT, straight or angle pattern, male x male, female x female, or male x female configurations to suit a variety of requirements.

NVS Super Mini			NV (1/4" NPT) Mini			NV (1/2" NPT) & NVL (1/4" NPT) Full Size			HV Hex Body			GV Multi-Port		
	In.	mm		In.	mm		In.	mm		In.	mm		In.	mm
A	1.02	26	A	1.81	46	A	2.67	68	A	3.65	93	A	3.68	93
B	0.32	8	B	0.50	13	B	2.64	67	B	3.23	82	B	4.46	113
C1	0.40	10	C	0.17	4	C	1.12	29	C	1.26	32	C	1.26	32
C2	0.20	6	D	0.44	11	D	0.73	19	D	1.65	42	D	1.61	41
D	0.46	12	E	0.34	9	E	2.25	57	E	0.75	19	E	0.82	21
E	0.75	19	F	0.75	19				F	2.25	57	F	2.25	57
F	0.52	13	G	0.61	15									
G	1.31	33	H	1.04	26									

Part Number System:

<p>Valve Designation</p> <p>NVS = "Super Mini" Style NV = Standard Size NVL = Full Size Body 1/4" NPT HV = Hex Body Valve GV = Multi-Port Gauge Valve</p> <p>Body Material</p> <p>CS = Carbon Steel SS = 316 Stainless Steel</p> <p>Connection Size</p> <p>1/4 = 1/4" NPT 3/8 = 3/8" NPT 1/2 = 1/2" NPT</p>	<p>Outlet Connection</p> <p>F = Female M = Male</p> <p>Inlet Connection</p> <p>F = Female M = Male</p> <p>Body Pattern</p> <p>180 = Straight Pattern 90 = Angle Pattern</p> <p>Seat / Pressure Rating</p> <p>GS = Gas Service / 6000 PSI HS = Hydraulic Service / 1000 PSI</p>
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PRESSURE LIMITING VALVE



Pressure Limiting Valve

FEATURES:

Gauge Savers from Blue Ribbon Corporation are called Overload Protectors or Pressure Limiting Valves. The PLV cuts off pressure rising above the desired pressure value (preset value), thus preventing failure of pressure gauge (instruments) and also stops possible damages such as hazardous leakages, explosions, etc.

The Gauge Saver shuts off the system with quick and positive action of built in push-rod device. As and when, the pressure falls below the preset pressure value, the line and/or the pressure gauge will be automatically put into operation again. The Gauge Saver is of extreme importance and necessity for the protection of the pressure sensitive instruments against over pressures, sudden line induced pressure surges, which are principal causes of the instrument and subsequent system failure. The Gauge Saver can be supplied to function at different cut-off-pressure values upon special request. Repeat accuracy of the unit depends on the rate of pressure rise. However, an accuracy of $\pm 10\%$ of the set pressure may be expected.

SPECIFICATIONS:

- Prevents damage to gauge and instruments due to sudden pressure surge
- 316 Stainless Steel Construction
- Compact Design
- Automatic Positive Action
- Inline Installation
- Repeatable Performance
- Maximum Working Pressure: 6,000 PSI

Available Configurations

PLV	1/2" MALE	1/2" MALE	6,000 PSI
PLV	1/2" MALE	1/2" FEMALE	6,000 PSI
PLV	1/2" FEMALE	1/2" FEMALE	6,000 PSI
PLV	1/4" FEMALE	1/4" FEMALE	6,000 PSI
PLV	1/4" MALE	1/4" MALE	6,000 PSI
PLV	1/4" MALE	1/4" FEMALE	6,000 PSI

Available Ranges

RANGE	ADJUSTMENT SPAN (PSI)
1	50 TO 120
2	80 TO 120
3	150 TO 300
4	250 TO 600
5	700 TO 1000
6	1200 TO 1800
7	2000 TO 3000
8	3000 TO 6000



TEST PORT PLUGS

PIPING SYSTEM TEST PLUGS

FEATURES:



Test Port Plugs

Piping System Test Plugs from Blue Ribbon Corporation are designed for permanent installation into piping systems for quick access during maintenance checks. They are designed to be used with gauge adapters for pressure tests or pocket thermometer insertion without shutting down or draining the system. Models are available with the Nordel or Neoprene Cores, Brass or Stainless Steel bodies, in sizes ranging from 1/8" NPT through 1/2" NPT. Cap and chain included.

MODEL #	NOMINAL SIZE (IN)	OAL (IN)	MATERIAL	PRESSURE/TEMPERATURE	LOWER CONNECTION (IN)	BODY HEX (IN)	CAP HEX (IN)	CORE MATERIAL
BLU-18TP	1/8 NPT	1-3/4	Brass	200 °F/1000 PSI	1/8 NPT	13/16	9/16	Nordel
BLU-14TP	1/4 NPT	1-1/2	Brass	200 °F/1000 PSI	1/4 NPT	1-1/16	1-1/2	Nordel
BLU-38TP	3/8 NPT	1-1/2	Brass	200 °F/1000 PSI	3/8 NPT	1-1/16	1-1/2	Nordel
BLU-12TP	1/2 NPT	1-1/2	Brass	200 °F/1000 PSI	1/2 NPT	1-1/16	1-1/2	Nordel
BLU-SST-25TP	1/4 NPT	1-1/2	SS 304	200 °F/1000 PSI	1/4 NPT	1-1/16	1-1/2	Nordel
BLU-12TPXL	1/2 NPT	3"	Brass	200 °F/1000 PSI	1/2 NPT	1-1/16	1-1/2	Nordel
BLU-14TPXL	1/4 NPT	3"	Brass	200 °F/1000 PSI	1/4 NPT	1-1/16	1-1/2	Nordel
BLU-ADP	1/4"	2.8"	Brass/SS	200 °F/1000 PSI	1/4"			Nordel

TEMPERATURE & PRESSURE TEST KIT

MODEL BRKIT-PT

DESCRIPTION & FEATURES:

- Two bi-metal thermometers, 0 to 250 °F (-18 °C to 121 °C) and -40 to 160 °F (-40 °C to 71 °C)
- BR101 3½" Steel case, brass internals, Pressure Gauge 0-100 PSI
- Stainless steel gauge adapter probe for test plug insertion
- Compact and durable carrying case

PRODUCT OVERVIEW:

The Blue Ribbon Temperature and Pressure Test Kit contains our best selling BR101 3.5" pressure gauge, gauge adapter, two bi-metal thermometers covering both high and low temperature ranges with a durable carrying case to protectively store the test equipment for convenience and portability.

SPECIFICATIONS:

- Pressure Gauge: Model BR101K-354E
3.5" dial, 0-100 PSI, steel case brass internals, ¼" bottom mount and -40 to 160 °F (-40 °C to 71 °C)
- Low Range Thermometer: Model BR1-5TBF 1" dial pocket thermometer, 5" length sheath protector -40/160 °F only
- High Range Thermometer: Model BR1-5TIF 1" dial pocket thermometer, 5" length sheath protector 0/250 °F only
- Gauge Adapter: Model BR-BLU_TPA4
1.75" x .0125 stainless steel probe with ¼" Brass NPTF swivel gauge fitting



Model BRKIT-PT

SS CASE TEST GAUGE - BOURDON TYPE



Model BR-Test Case

MODEL BR-TEST CASE

FEATURES:

- Standard Version Dial Size: 6"
- Stainless Steel Case & High Precision Measuring System
- High Resolution Dial
- Anti Parallax Mirror Band (Eye Friendly)
- Socket Directly Welded to Case
- Standard Followed in General EN 837-1
- Calibration Certificate with Traceability to National / International Standards

SPECIFICATIONS:

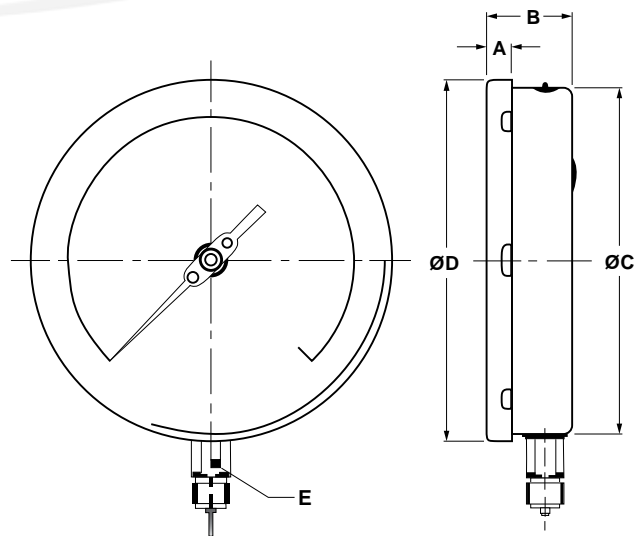
- Accuracy Class: 0.25 (at 68 °F (20 °C))
- Ambient Temperature: Maximum 149 °F (65 °C)
- Process Temperature: Maximum 149 °F (65 °C)
- Case & Bezel: AISI 304 SS (Bayonet Type)
- Bourdon: Beryllium Copper
- Socket: AISI 316L SS
- Movement: High Precision Jewel Bearing Type
- Integral Dampening Screw: AISI 316 SS
- Protection: IP 65
- Dial: Aluminium, green with black marking & Anti parallax mirror band
- Pointer: Balanced, knife-edge micrometer adjustable
- Pointer Stopper: Spring Type
- Gasket: Neoprene
- Welding: Alloy brazing
- Window: Shatter proof / safety glass
- Blow Off Disc: Neoprene
- Carrying Case: Wooden carrying case
- Calibration Certificate: 5 Point calibration certificate traceable to national / international standard

APPLICATIONS:

- Calibration / Testing in Laboratory, Fits for various process industries and all gaseous / liquid media that will not obstruct the pressure system.

NS	A	B	ØC	ØD	E	Weight in lbs. (with Wooden Box)
6.0 "	.35"	1.18"	6.0"	6.31	.52"	5.5 lbs

TYPE 2



BR5SL-G-020
REV-A

COOLING TOWER

MODEL BR-CT12



Model BR-CT12

FEATURES:

The Model BR-CT12 from Blue Ribbon Corporation protects gauges, switches and transmitters, and is used where the process media temperature exceeds the rating of the instrument. For process media temperatures up to 570 °F (300 °C) it can reduce the media temperature by as much as 500 °F (260 °C)

SPECIFICATIONS:

- Socket: 316L Stainless Steel
- Tube: 316 Stainless Steel
- Maximum Operating Pressure: 1,500 PSI
- Maximum Process Temperature: 570 °F (300 °C) or 932 °F (500 °C)
- Connection:
 - 1/4" NPTM x 1/4" NPTF
 - 1/2" NPTM x 1/2" NPTF

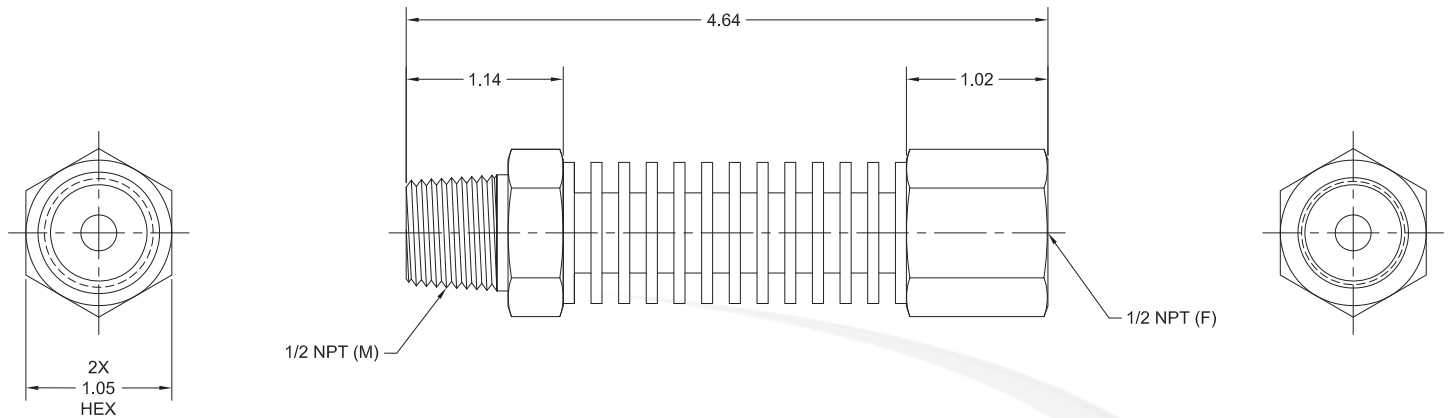
APPLICATIONS:

- Clean (no particulate) media, gases
- When used with a diaphragm seal, the pressure rating of the diaphragm seal must be acknowledged
- Extreme high temperature installations
- Used in oil & gas installations, chemical processing and mining

MODEL BR-CT12 COOLING TOWER

DIMENSIONAL DRAWING

All dimensions are in inches (mm)



ORDERING GUIDE

Example: BR-CT12-400

BR-CT12 Maximum Process Temperature	1/4" NPTM x 1/4" NPTF	1/2" NPTM x 1/2" NPTF
570 °F (300 °C)	BR-CT12-400	BR-CT12-500
932 °F (500 °C)	BR-CT12-600	BR-CT12-700

All specifications are for reference purposes only. In the interests of continuous product improvement, all specifications are subject to change without notice. Please contact Blue Ribbon Corporation for assistance with your application.





DIAPHRAGM SEAL

SERIES 1000

FEATURES:

The Blue Ribbon Series 1000 diaphragm seal is an economical isolation device used to protect pressure instrumentation from the media to be measured. Designed with a rugged, two-piece bolted construction for pressure ranges from 30"Hg vacuum to 2500 PSI, the Series 1000 provides exceptional protection in corrosive applications or where the pressure instrumentation process port alone may be prone to clogging.



Series 1000

SPECIFICATIONS:

Housing

- 316 Stainless Steel

Diaphragm

- 316 Stainless Steel

Construction

- Two-Piece Bolted

Gasket

- Buna-N (30 PSI to 2500 PSI)
- Viton (30"HgV to 30 PSI)

Connection

- Bottom: 1/4", 1/2", 3/4" and 1" NPT
- Top: 1/4" and 1/2" NPT

Process Temperature

- -22 °F to +212 °F (-30 °C to +100 °C)

OPTIONS:

- Flushing Port/Connection
- Viton and Teflon Gaskets
- Monel, Hastelloy-C Diaphragm

LOWER HOUSING

BR-D-1000	1/4" SS Lower
BR-D-1001	1/2" SS Lower
BR-D-1002	1/2" SS Lower with Flushing Port
BR-D-1003	3/4" SS Lower
BR-D-1004	3/4" SS Lower with Flushing Port
BR-D-1005	1" SS Lower
BR-D-1006	1" SS Lower with Flushing Port
BR-D-1007-V	1/4" Viton
BR-D-1008-V	1/2" Viton
BR-D-1009-V	3/4" Viton

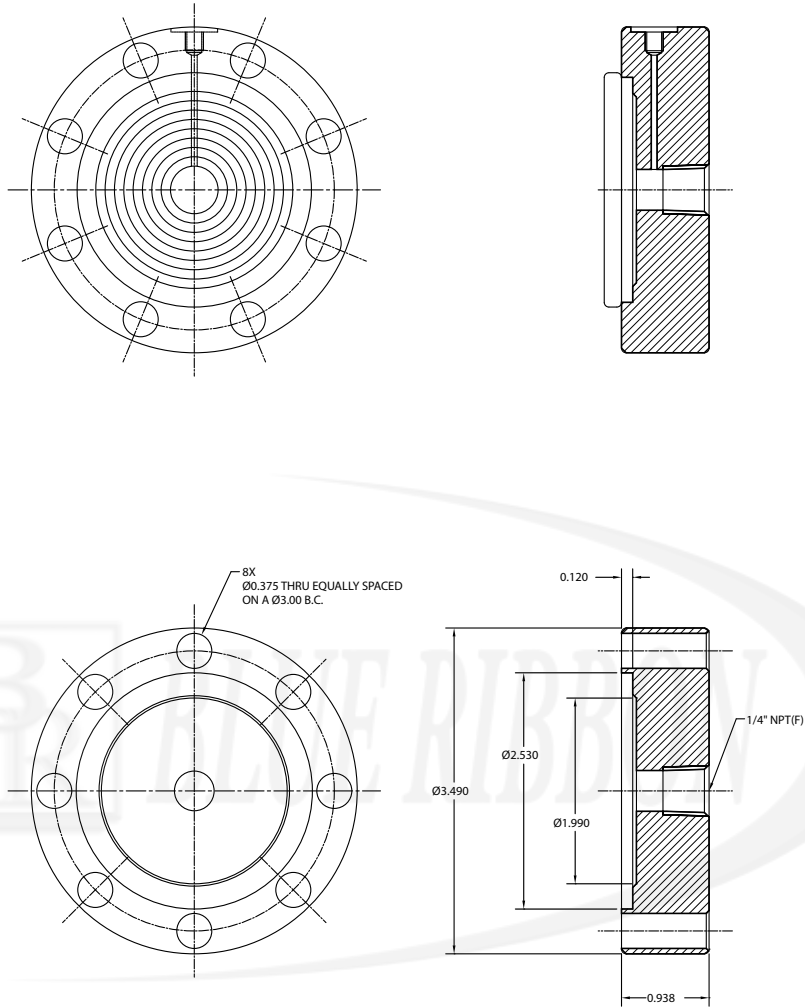
UPPER HOUSING

BR-D-2000	1/4" NPT SS 316 SS Diaphragm
BR-D-2001	1/4" NPT SS Monel Diaphragm
BR-D-2002	1/4" NPT SS Hastelloy-C Diaphragm
BR-D-2003	1/4" NPT SS Viton Diaphragm
BR-D-2004	1/2" NPT SS 316 SS Diaphragm
BR-D-2005	1/2" NPT SS Monel Diaphragm
BR-D-2006	1/2" NPT SS Hastelloy-C Diaphragm
BR-D-2007	1/2" NPT SS Viton Diaphragm

DIAPHRAGM SEAL

DIMENSIONAL DRAWING

All dimensions are in inches (mm)



BR-D-1000/BR-D-2000
3.5" DIA.
316SST

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PVC DIAPHRAGM SEAL

SERIES 3000

FEATURES:

The Series 3000 from Blue Ribbon Corporation is a Teflon diaphragm seal or isolation device with PVC construction, used to provide economical protection of pressure sensing instrumentation from measured media. This Series is particularly useful for the economical protection of instrumentation from corrosion and clogging, and offers an option for application where some materials may be limited by corrosion.

SPECIFICATIONS:

- **Housing:** PVC
- **Diaphragm:** PTFE
- **Operating Pressure:** Vacuum to 200 PSI
- **Instrument Connection:** 1/4" NPT
- **Process Connection:** 1/4" and 1/2" NPT
- **Process Temperature:** +77 °F to +104 °F)



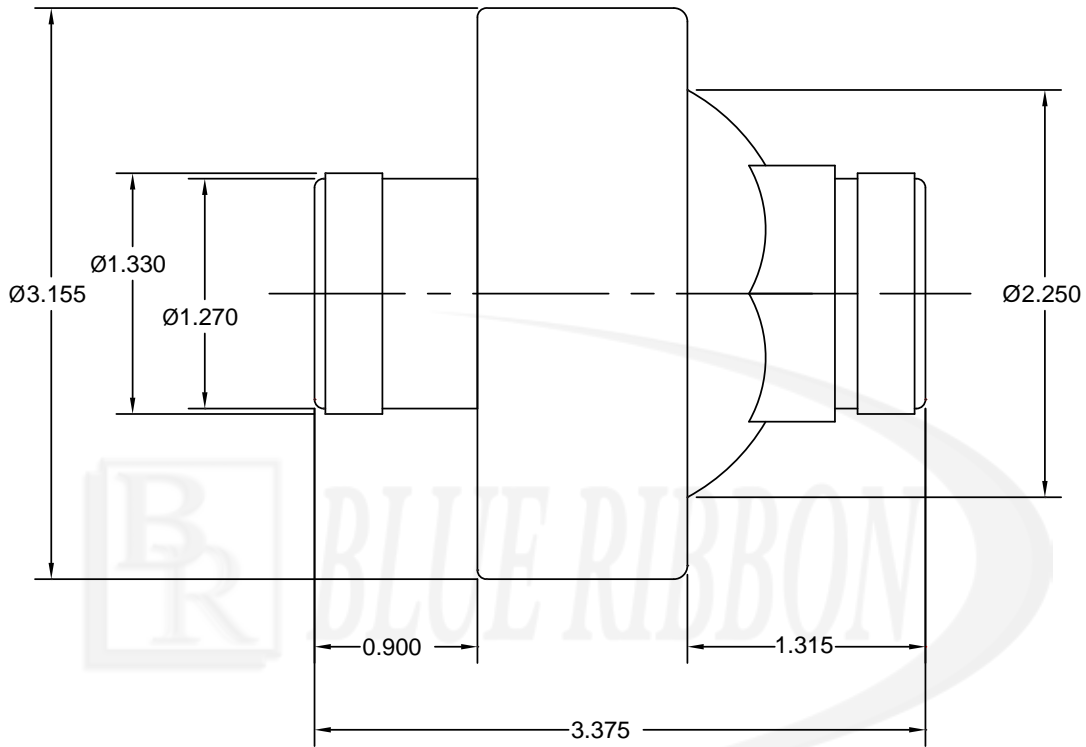
Series 3000

PVC Diaphragm Seal	
BR-D-3000	1/4" FNPT x 1/4" FNPT
BR-D-3001	1/4" FNPT x 1/2" FNPT

PVC DIAPHRAGM SEAL

DIMENSIONAL DRAWING

All dimensions are in inches (mm)



DIAPHRAGM SEAL PVC/PTFE 3000 SERIES

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DIAPHRAGM SEAL

SERIES 4000

FEATURES:

The Series 4000 from Blue Ribbon Corporation are diaphragm seals or isolation devices used to provide economical protection of pressure sensing instrumentation from measured media. The Series is designed with a stainless steel diaphragm for small to medium instrumentation ranging from 30 to 2500 PSI. The Series 4000 provides ultimate protection for gauges and measuring instruments thru 4½" dial sizes in applications where space limitations are a concern.



Series 4000

TECHNICAL SPECIFICATIONS:

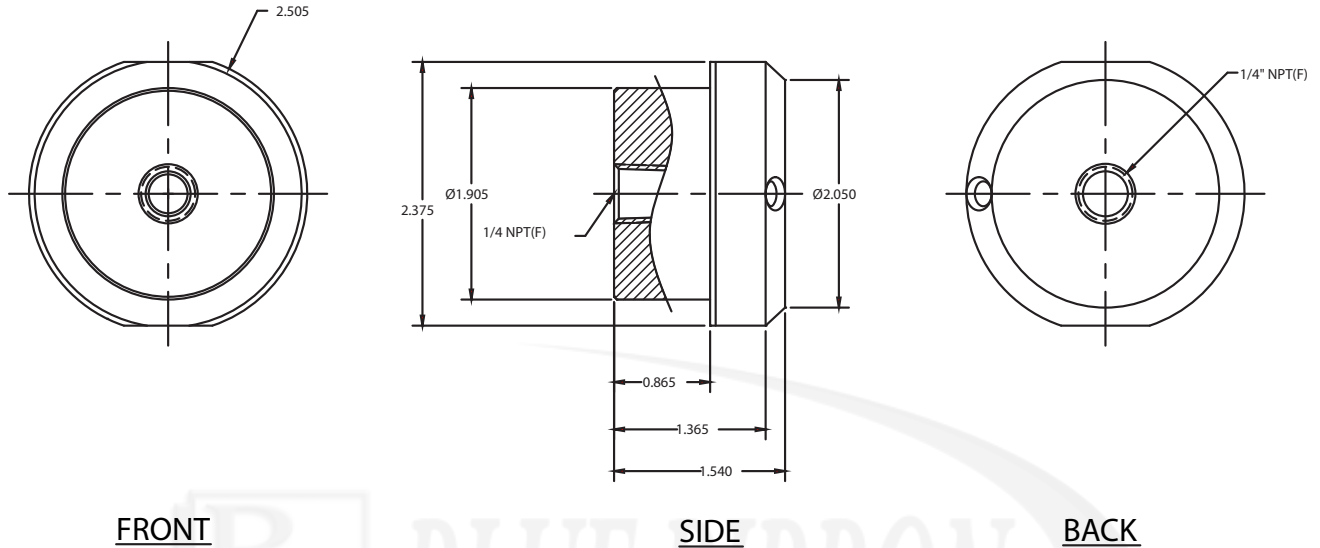
- **Housing:** 316 Stainless Steel
- **Diaphragm:** 316 Stainless Steel
- **Operating Pressure:** 30 to 2500 PSI
- **Instrument:** ¼" NPT
- **Process Connection:** ¼" NPT
- **Process Temperature:** -49 °F to +302 °F

Part #	Description
BR-D-4000	¼" NPT x ¼" NPT

DIAPHRAGM SEAL

DIMENSIONAL DRAWING

All dimensions are in inches (mm)



FRONT

SIDE

BACK

BR-D-4000
316SS
4000 SERIES

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STAINLESS STEEL DIAPHRAGM SEAL

SERIES 5000

FEATURES:

The Series 5000 from Blue Ribbon Corporation are diaphragm seals or isolation devices used to provide economical protection of pressure sensing instrumentation from measured media. The Series is designed with a stainless steel diaphragm for small to medium instrumentation ranging from 30 to 2500 PSI. The Series 5000 provides ultimate protection for gauges and measuring instruments thru 4½" dial sizes in applications where space is at a premium.



Series 5000

TECHNICAL SPECIFICATIONS:

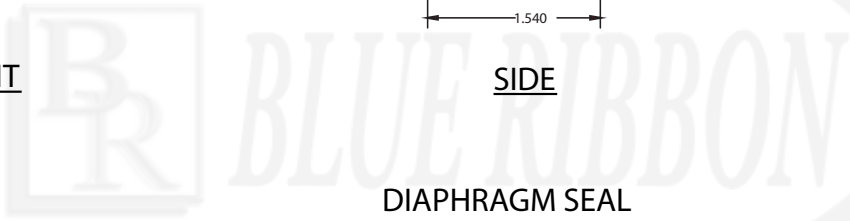
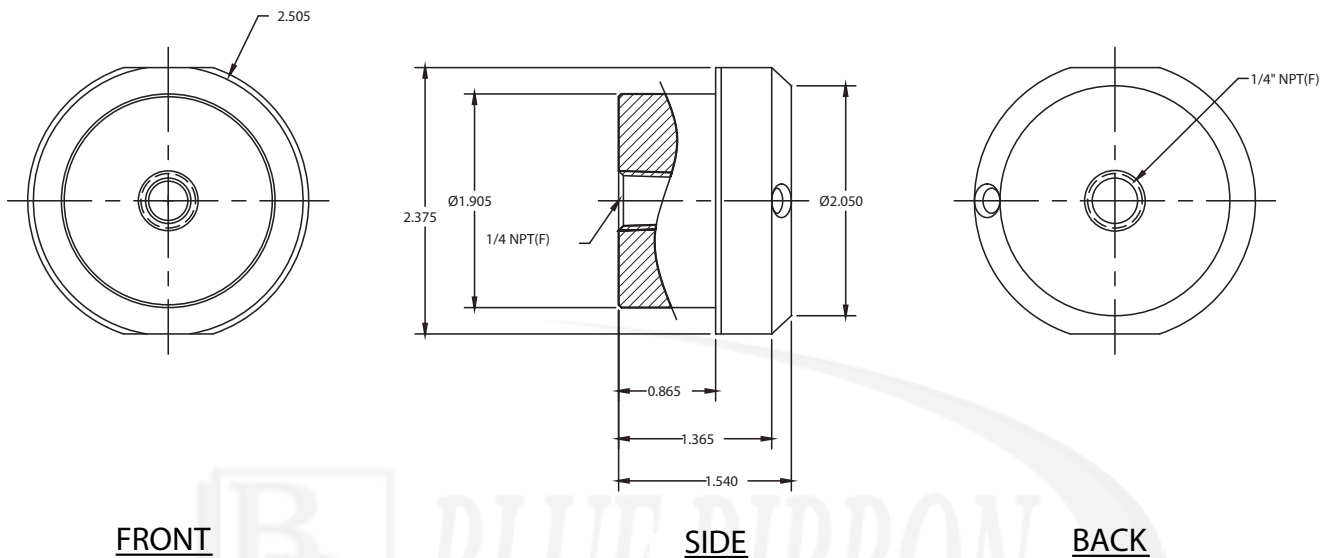
- **Housing:** 316 Stainless Steel
- **Diaphragm:** 316 Stainless Steel
- **Operating Pressure:** 30 to 2500 PSI
- **Instrument:** ¼" NPT
- **Process Connections:** ¼" and ½" NPT
- **Process Temperature:** -49 °F to +302 °F

Part #	Description
BR-D-5000	¼" NPT x ¼" NPT
BR-D-5001	¼" NPT x ½" NPT
BR-D-5002	½" NPT x ½" NPT

STAINLESS STEEL DIAPHRAGM SEAL

DIMENSIONAL DRAWING

All dimensions are in inches (mm)



DIAPHRAGM SEAL
316SS
5000 SERIES

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DIAPHRAGM SEAL

SERIES 6000

FEATURES:

The Series 6000 from Blue Ribbon Corporation is a lightweight, all-stainless steel, welded one-piece diaphragm seal or isolation device, used to provide economical protection of pressure sensing instrumentation from measured media. The Series is designed for small instrumentation ranging from vacuum to 2500 PSI. It also provides protection for gauges and measuring instruments in dial sizes ranging from 1½" to 3½", as well as in space-limited applications.



Series 6000

TECHNICAL SPECIFICATIONS:

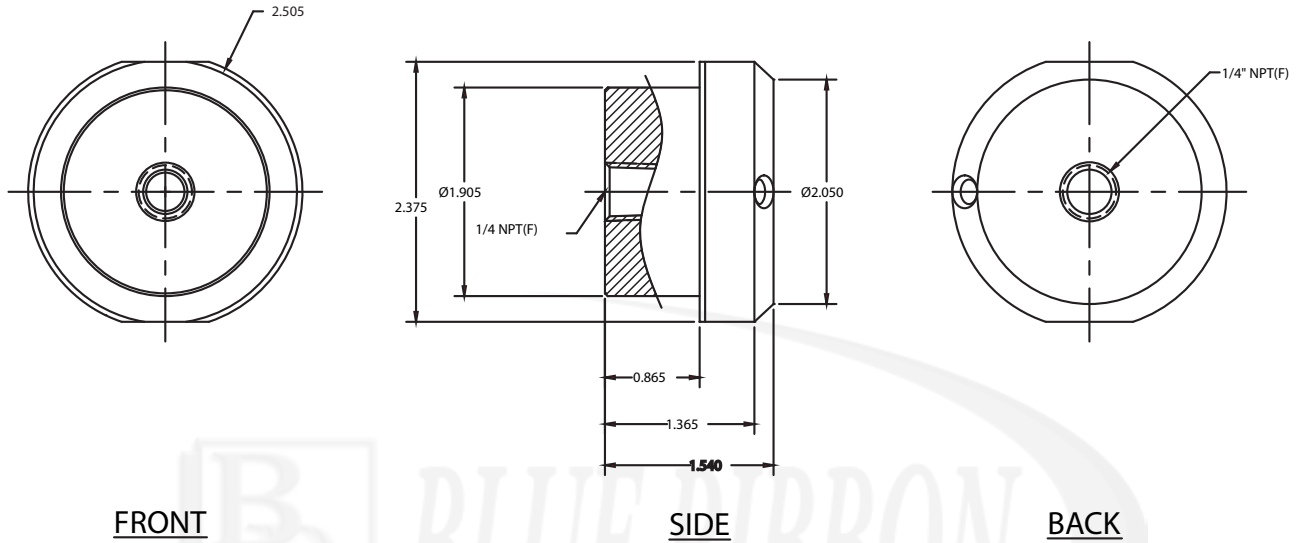
- **Housing:** 316 Stainless Steel
- **Diaphragm:** 316 Stainless Steel
- **Operating Pressure:** Vacuum to 2500 PSI
- **Instrument:** ¼" NPTF
- **Process Connections:** ¼" NPTF, ¼" NPTM, ½" NPTF
- **Process Temperature:** -46 °F to +302 °F

Part #	Description
BR-D-6000	¼" NPT x ¼" NPT
BR-D-6001	¼" NPTF x ½" NPTM
BR-D-6002	½" NPTF ½" NPTF

DIAPHRAGM SEAL

DIMENSIONAL DRAWING

All dimensions are in inches (mm)



BR-D-6000
316SS
6000 SERIES

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WELDED FLANGED DIAPHRAGM SEAL



Series 7000

SPECIFICATIONS:

Housing

- 316 SS, Monel, Hastelloy C, Titanium, Tantalum, PVC, Carbon Steel and Teflon.
- Upper Housing 316 SS and Carbon Steel

Connection

- 1/4", 1/2" NPT Female connection standard
- 1", 1.5", 2" pipe size - 150# and 300# pressure rating standard

Process Temperature

- 450 °F (232 °C)
- 400 °F (204 °C) [Teflon lined]

Two-Piece Construction

FIELD OPTIONS:

- Various sizing and housing materials available

SERIES 7000

APPLICATIONS

- Oil Refineries
- Chemical Plants
- Industry

WELDED FLANGED UPPER SS

SIZE	PART#	INSTRUMENT	DIAPHRAGM	LOWER
1" - 150# RF	BR-D-7000	1/2" NPT	316 SS	316 SS
	BR-D-7001	1/2" NPT	Tantalum	316 SS
	BR-D-7002	1/2" NPT	Hastelloy C	Monel
	BR-D-7003	1/2" NPT	Hastelloy C	Hastelloy C
	BR-D-7004	1/4" NPT	316 SS	316 SS
	BR-D-7005	1/4" NPT	Tantalum	316 SS
	BR-D-7006	1/4" NPT	Hastelloy C	Monel
1" 300# RF	BR-D-7007	1/4" NPT	Hastelloy C	Hastelloy C
	BR-D-7008	1/2" NPT	316 SS	316 SS
	BR-D-7009	1/2" NPT	Tantalum	316 SS
	BR-D-7010	1/2" NPT	Hastelloy C	Monel
	BR-D-7011	1/2" NPT	Hastelloy C	Hastelloy C
	BR-D-7012	1/4" NPT	316 SS	316 SS
	BR-D-7013	1/4" NPT	Tantalum	316 SS
	BR-D-7014	1/4" NPT	Hastelloy C	Monel
	BR-D-7015	1/4" NPT	Hastelloy C	Hastelloy C
1.5" 150# RF	BR-D-7016	1/2" NPT	316 SS	316 SS
	BR-D-7017	1/2" NPT	Tantalum	316 SS
	BR-D-7018	1/2" NPT	Hastelloy C	Monel
	BR-D-7019	1/2" NPT	Hastelloy C	Hastelloy C
	BR-D-7020	1/4" NPT	316 SS	316 SS
	BR-D-7021	1/4" NPT	Tantalum	316 SS
	BR-D-7022	1/4" NPT	Hastelloy C	Monel
	BR-D-7023	1/4" NPT	Hastelloy C	Hastelloy C

WELDED FLANGED DIAPHRAGM SEAL

SERIES 7000

WELDED FLANGED UPPER SS				
SIZE	PART#	INSTRUMENT	DIAPHRAGM	LOWER
1.5" - 300# RF	BR-D-7024	½" NPT	316 SS	316 SS
	BR-D-7025	½" NPT	Tantulum	316 SS
	BR-D-7026	½" NPT	Hastelloy C	Monel
	BR-D-7027	½" NPT	Hastelloy C	Hastelloy C
	BR-D-7028	¼" NPT	316 SS	316 SS
	BR-D-7029	¼" NPT	Tantalum	316 SS
	BR-D-7030	¼" NPT	Hastelloy C	Monel
	BR-D-7031	¼" NPT	Hastelloy C	Hastelloy C
2" 150# RF	BR-D-7032	½" NPT	316 SS	316 SS
	BR-D-7033	½" NPT	Tantulum	316 SS
	BR-D-7034	½" NPT	Hastelloy C	Monel
	BR-D-7035	½" NPT	Hastelloy C	Hastelloy C
	BR-D-7036	¼" NPT	316 SS	316 SS
	BR-D-7037	¼" NPT	Tantulum	316 SS
	BR-D-7038	¼" NPT	Hastelloy C	Monel
	BR-D-7039	¼" NPT	Hastelloy C	Hastelloy C
2" 300# RF	BR-D-7040	½" NPT	316 SS	316 SS
	BR-D-7041	½" NPT	Tantulum	316 SS
	BR-D-7042	½" NPT	Hastelloy C	Monel
	BR-D-7043	½" NPT	Hastelloy C	Hastelloy C
	BR-D-7044	¼" NPT	316 SS	316 SS
	BR-D-7045	¼" NPT	Tantulum	316 SS
	BR-D-7046	¼" NPT	Hastelloy C	Monel
	BR-D-7047	¼" NPT	Hastelloy C	Hastelloy C

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3" AND 5" DIAL BIMETAL THERMOMETER

MODEL BR3 AND BR5



Model BR3
3" Dial Bi-Metal Thermometer

FEATURES:

- All Stainless Steel Construction
- 3" (75mm) and 5" (127mm) dial size
- Glass Lens
- Anti-Parallax Dial
- Vibration resistant design for reduced needle flutter
- Fast Response
- Hermetically sealed IP68
- Welded Stem

APPLICATIONS:

- Heating and Air Conditioning
- Industrial Wastewater
- Accurate Temperature Measurements

SPECIFICATIONS:

- Dial: 3" (75mm) and 5" (127mm)
- Aluminum with black markings, anti-parallax
- Case, Ring and Stem AISI 304 SS
- Recalibrator Screw Standard
- Lens: Glass, hermetically sealed
- Connection: 1/2" NPT standard
- Movement: Bi-metallic coil
- Pointer: Aluminum, painted black
- Maximum Operating Pressure: 125 PSI (861 kPa)
- Operating Temperature: 75% of full scale value (recommended maximum)
- Ambient Temperature: -58 °F to 248 °F (-50 °C to 120 °C)
- Accuracy: ±1% of full scale (ASME B40.3, Grade A)
- Enclosure Rating: IP68

*Options Available Upon Request:

- Safety Glass
- Silicone Fill

ORDERING GUIDE

STEM LENGTH*	PART NUMBER		CODE	RANGE
	3" DIAL	5" DIAL		
2.5"	BR3-2	BR5-2	TA	-40/120 F & C
4"	BR3-4	BR5-4	TB	-40/160 F & C
6"	BR3-6	BR5-6	TE	0/150 F & C
9"	BR3-9	BR5-9	TG	0/200 F & C
12"	BR3-12	BR5-12	TJ	20/240 F & C
15"	BR3-15	BR5-15	TI	0/250 F & C
18"	BR3-18	BR5-18	TM	50/300 F & C
24"	BR3-24	BR5-24	TP	50/400 F & C
			TR	50/550 F & C
			TS	150/750 F & C
			TT	200/1000 F & C

BIMETAL THERMOMETER ADJUSTABLE ANGLE TYPE

MODEL BR3A AND BR5A



Model BR3A and BR5A
Bi-Metal Thermometer Adjustable Angle Type

FEATURES:

- All Stainless Steel Construction
- Adjustable Angle Connection
- 3" (75mm) and 5" (127mm) dial size
- Glass Lens
- Anti-Parallax Dial
- Vibration resistant design for reduced needle flutter
- Fast Response
- Hermetically sealed IP68
- Accuracy: $\pm 1\%$ Full Scale
- Welded Stem

APPLICATIONS:

- Heating and Air Conditioning
- Industrial
- Wastewater

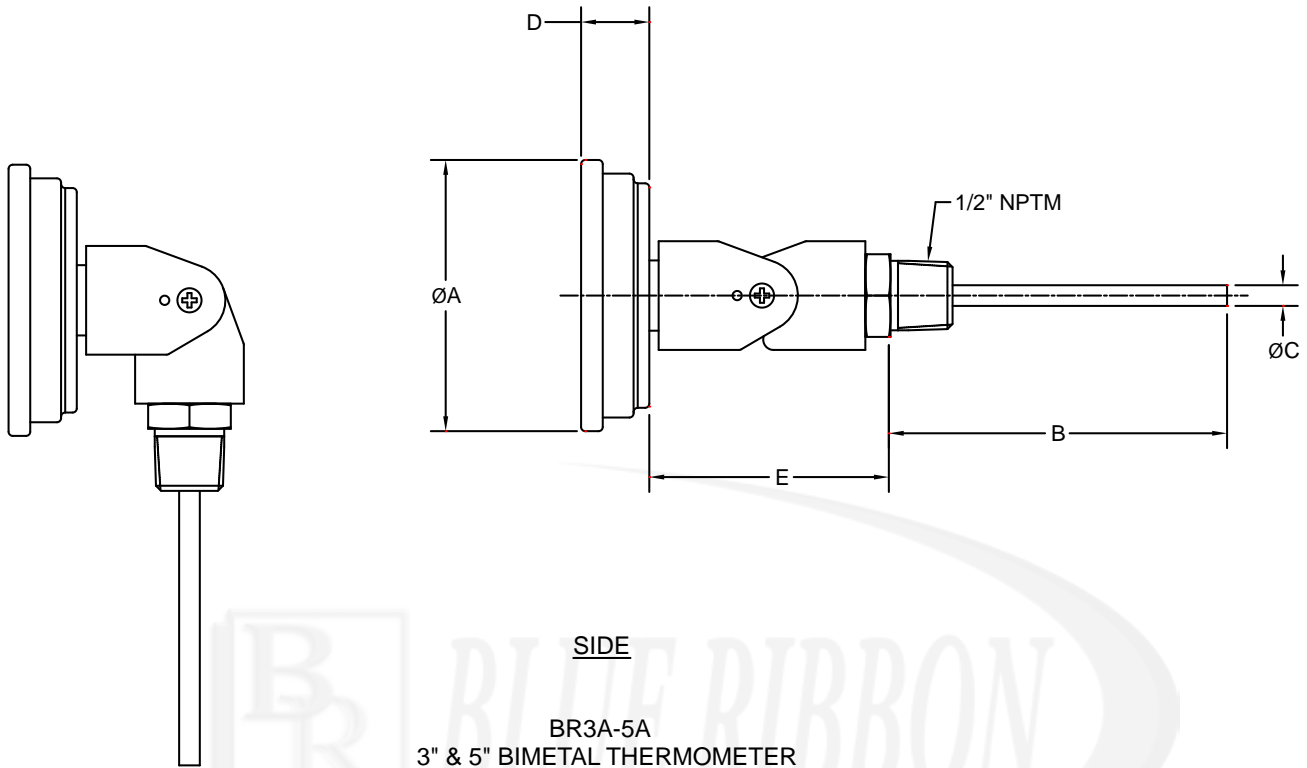
SPECIFICATIONS:

- Dial: 3" (75mm) and 5" (127mm)
- Aluminum with black markings, anti-parallax
- Case, Ring and Stem AISI 304 SS
- Recalibrator Screw Standard
- Lens: Glass, hermetically sealed
- Connection: $\frac{1}{2}$ " NPT standard
- Pointer: Aluminum, painted black
- Maximum Operating Pressure: 125 PSI (861 kPa)
- Operating Temperature: 75% of full scale (recommended)
- Ambient Temperature: -58 °F to 248 °F (-50 °C to 120 °C)
- Accuracy: $\pm 1\%$ of full scale (ASME B40.3, Grade A)
- Enclosure Rating: IP68

BIMETAL THERMOMETER ADJUSTABLE ANGLE TYPE

DIMENSIONAL DRAWING

All dimensions are in inches (mm)



ORDERING GUIDE

		A	B	C	D	E
3" DIAL	IN.	3.18"	STEM LGTH	.25"	.60"	2.38"
	MM	80.78	STEM LGTH	6.45	15.24	9.76
5" DIAL	IN.	5.13"	STEM LGTH	.25"	.67"	.38"
	MM	130.87	STEM LGTH	6.45	16.95	9.76

STEM LENGTH*	PART NUMBER		CODE	RANGE
	3" DIAL	5" DIAL		
2.5"	BR3A-2	BR5A-2	TA	$-40/120$ F & C
4"	BR3A-4	BR5A-4	TB	$-40/160$ F & C
6"	BR3A-6	BR5A-6	TE	$0/150$ F & C
9"	BR3A-9	BR5A-9	TG	$0/200$ F & C
12"	BR3A-12	BR5A-12	TJ	$20/240$ F & C
15"	BR3A-15	BR5A-15	TI	$0/250$ F & C
18"	BR3A-18	BR5A-18	TM	$50/300$ F & C
24"	BR3A-24	BR5A-24	TP	$50/400$ F & C
			TR	$50/550$ F & C
			TS	$150/750$ F & C
			TT	$200/1000$ F & C

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INDUSTRIAL THERMOMETER 9" SCALE ADJUSTABLE ANGLE TYPE

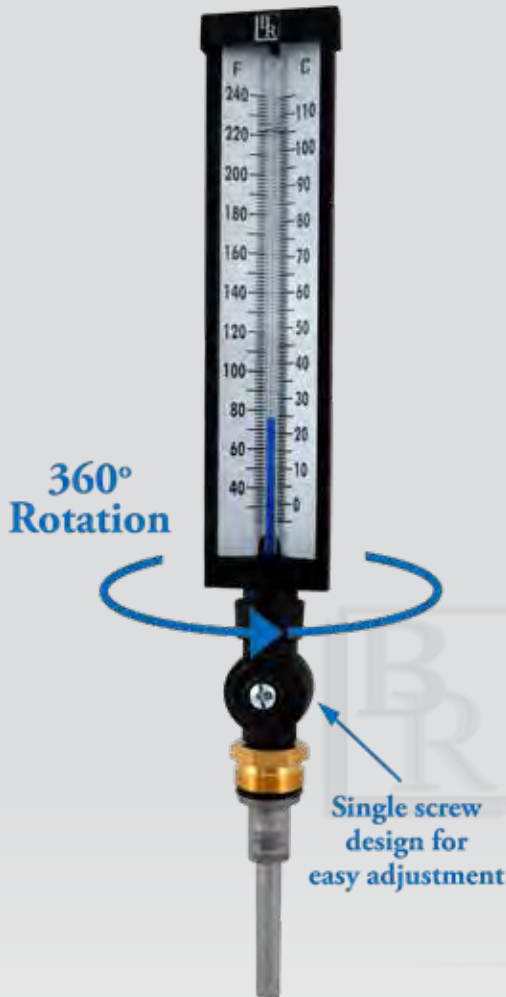
MODEL BR9A

FEATURES:

- Single screw design for easy adjustment and full 360° rotation
- Available in 3.5" and 6" stem lengths
- Blue spirit filled thermometer set inside V-shaped aluminum scale with high-contrast black on white numeric scale for easy reading
- NIST traceable calibration with guaranteed accuracy to ± 1 scale division
- Black enameled die cast aluminum construction with glass front minimizing dirt and dust build up for ranges up to 400 °F (200 °C)
- Optional plastic face
- 1¼–18 UNEF swivel nut connection assembly with tapered bulb chamber for proper well seating
- Available in Straight Form and 90° Back Angle

SPECIFICATIONS:

- Dial: 9" (230mm) aluminum
- Lens: Glass
- Connection: 1¼–18 UNEF swivel nut
3.5" or 6" stem length (see ordering guide)
- Scale: Aluminum painted white with black markings
- Bulb Chamber: Tapered cast aluminum with graphite fill
- Tube, Sensing Liquid: Glass, spirit organic fluid
- Adjustment: Fully adjustable
- Accuracy: $\pm 1\%$
- Enclosure Rating: IP54

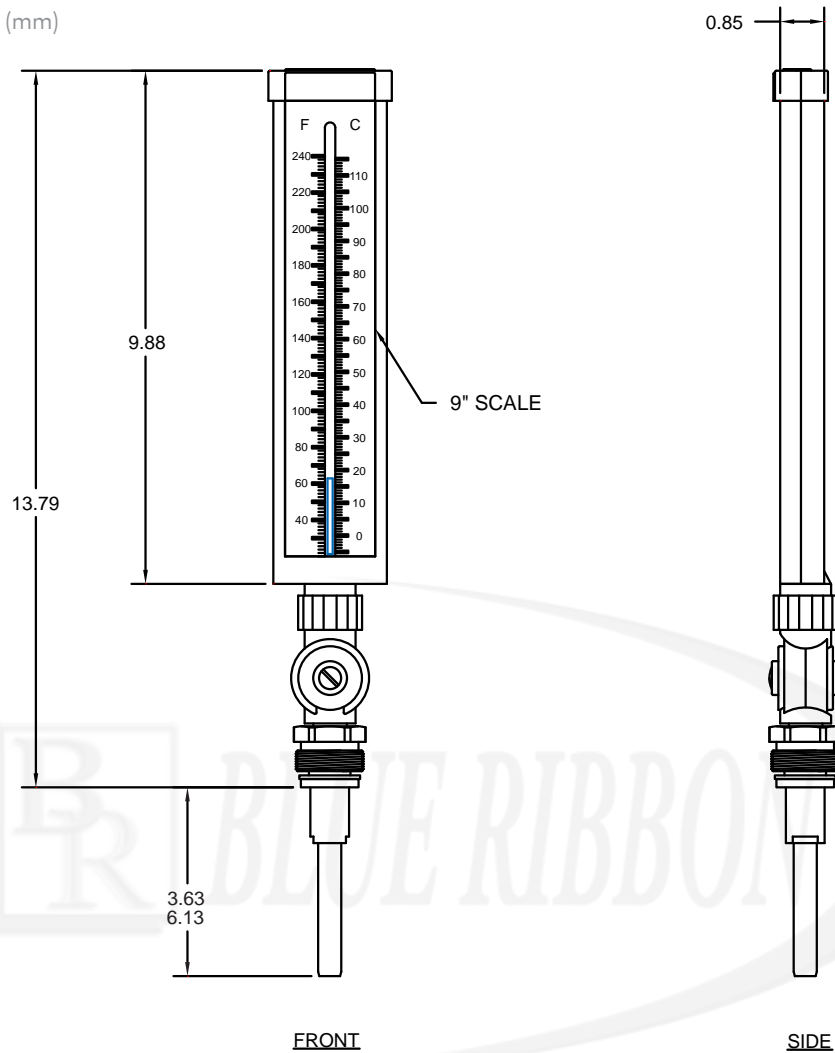


Model BR9A35
(Thermowell sold separately,
See Model BR9TW)

INDUSTRIAL THERMOMETER 9" SCALE ADJUSTABLE ANGLE TYPE

DIMENSIONAL DRAWING

All dimensions are in inches (mm)



ORDERING GUIDE

Example: BR9A35-240

MODEL	STEM LENGTH	TEMP RANGE
BR9A	35 = 3.5"	110 = -40-110 °F/C
	6 = 6"	120 = 0-120 °F/C
		160 = 30-160 °F/C
		180 = 30-180 °F/C
		240 = 30-240 °F/C
		300 = 30-300 °F/C

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SOLAR DIGITAL THERMOMETER

MODEL BR9A35-SD



Model BR9A35-SD

FEATURES:

- Solar Powered reading in digital format (°F & °C)
- High Impact ABS Case
- Vari-Angle Connection
- Made to switch to both temperature scales (°F & °C)
- $\pm 1.0\%$ Accuracy
- Optional plastic face
- 16 Lux Rating

APPLICATIONS:

- Heating
- Ventilation
- Air Conditioning

SPECIFICATIONS:

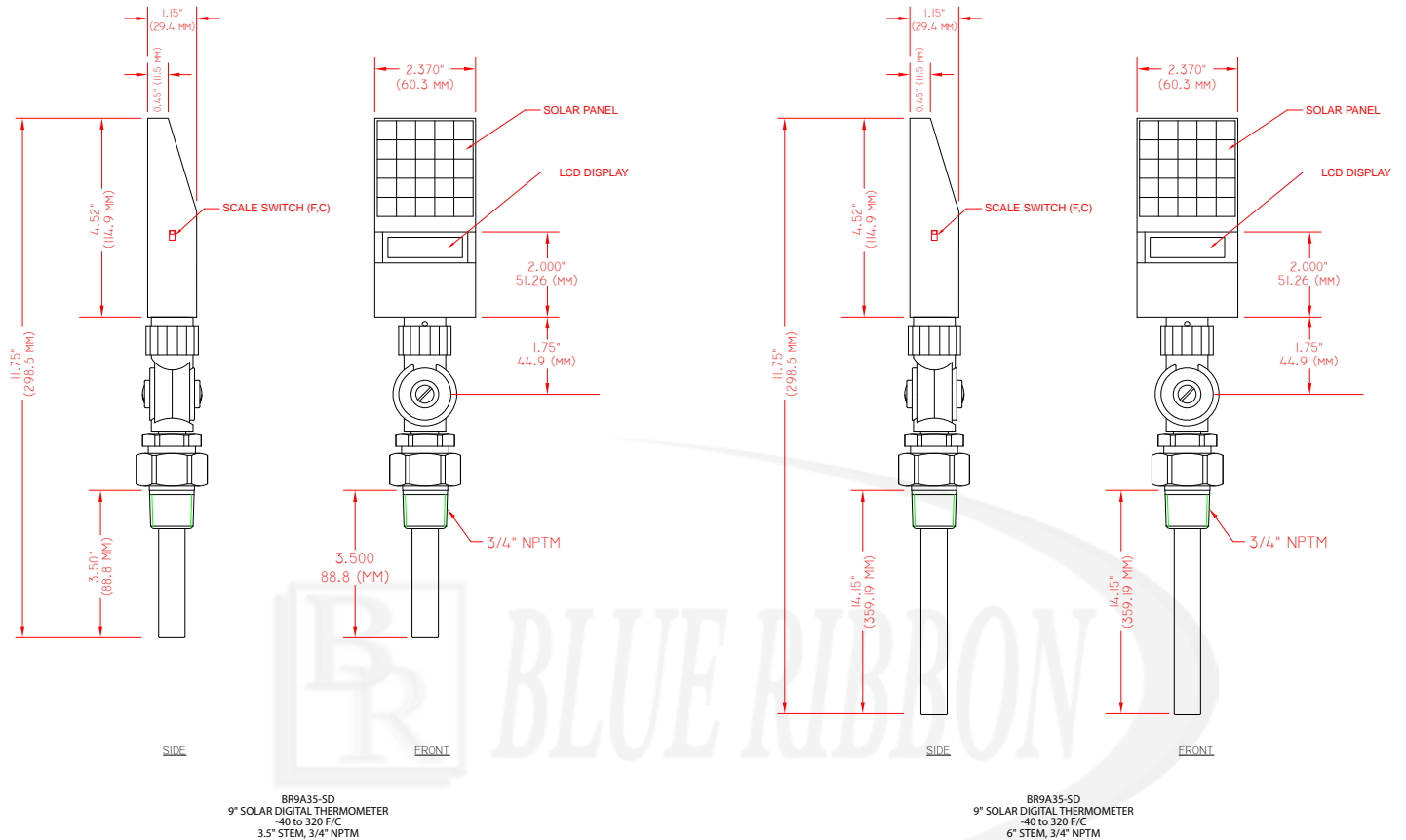
- Display: 2.34" x 4.35" sensing display/readout
- Case: High Impact ABS
- Lux Rating: 16 Lux
- Stem Length: 3.5" or 6"
- Thermowell: $\frac{3}{4}$ " NPT brass thermowell (Standard)
- Temperature Range: -40 to 320 °F (-40 to 160 °C)
- Accuracy: $\pm 1\%$
- Process Temperature: -50 to 320 °F (-45.5 to 160 °C)
- Adjustment: Fully adjustable
- Enclosure Rating: IP54

BR5SL-T-010
REV-B

SOLAR DIGITAL THERMOMETER

DIMENSIONAL DRAWING

All dimensions are in inches (mm)



ORDERING GUIDE

Example: BR9A35-SD

MODEL	STEM LENGTH	TEMP RANGE
BR9A-SD	35 = 3.5"	-40-320 °F /
	6 = 6"	-40-160 °C

All specifications are for reference purposes only. In the interests of continuous product improvement, all specifications are subject to change without notice. Please contact Blue Ribbon Corporation for assistance with your application.





HOT WATER THERMOMETERS

MODELS BRHW5/5A



Models BRHW5/5A

OVERVIEW:

The BRHW5/5A series thermometers are rugged and economical. Available in both bottom and adjustable angle connections with an easy to read dual scale, they provide an excellent option for a number of heat related applications.

APPLICATIONS:

- Hydronic heating system
- Boiler
- Water line temperature measurement

SPECIFICATIONS:

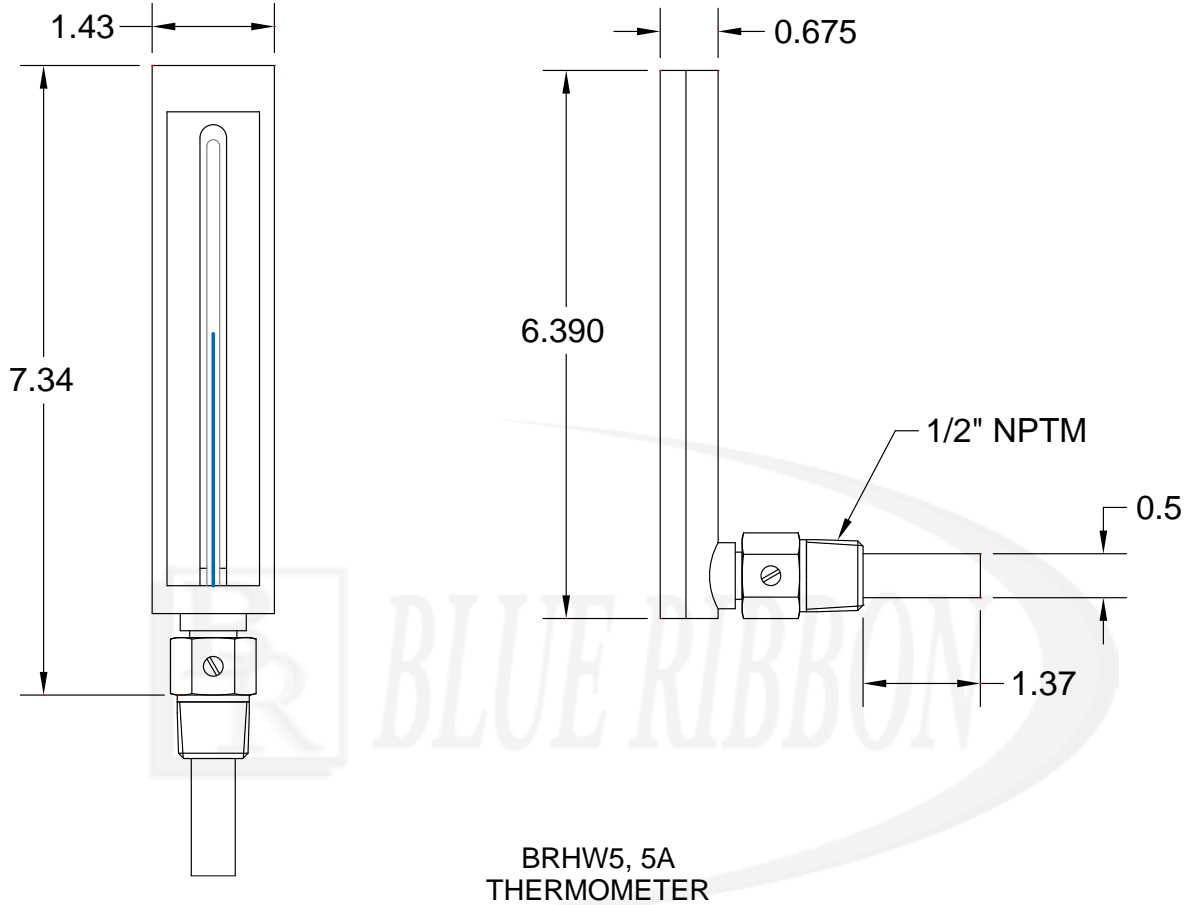
- 5" Valox case
- Easy-to-read black on white scale
- Blue Liquid Filled (Mercury-free)
- 1/2" NPT Connection
- Separable Brass well
- Bottom and adjustable connection
- Accuracy: ± 1 Scale Division

BR5SL-T-004
REV-A

HOT WATER THERMOMETERS

DIMENSIONAL DRAWING

All dimensions are in inches (mm)



Temp. Range	Straight	Angle
-40 to 110 F/C	BRHW5S	BRHW5A
30 to 240 F/C	BRHW5S-240	BRHW5A-240

All specifications are for reference purposes only. In the interests of continuous product improvement, all specifications are subject to change without notice. Please contact Blue Ribbon Corporation for assistance with your application.





HOT WATER THERMOMETER

MODEL BRHW

FEATURES:

- An economical and accurate means to measure air or water temperatures
- Separable thermowell with optional sweat well
- Bimetallic element
- Dual scale (Fahrenheit & Celsius)
- Easy to install
- 1/2" NPT Connection
- 1 year warranty

SPECIFICATIONS:

- 2.5" dial (63mm), aluminum case
- Glass lens
- 1/2" NPT Connection
- Bi-metallic sensing element
- Recalibrator Standard
- Accuracy: ± 1



Model BRHW
Hot Water Thermometer



Model BRHW-SW
Hot Water Thermometer
with Socket Weld Thermowell

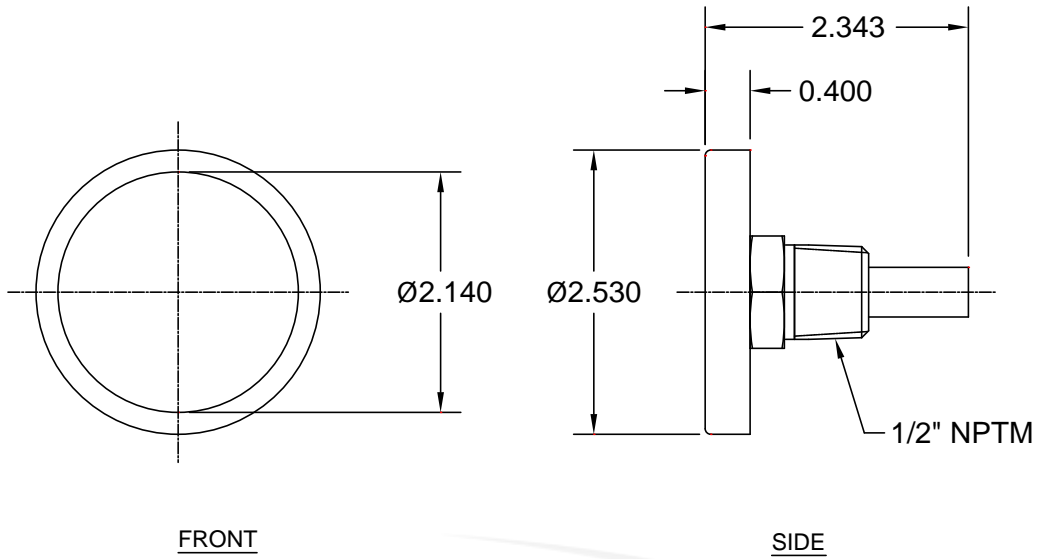
Part Number	Temp. Range	Connection
BRHW	30 to 240 °F	1/2" NPT
BRHW-SW	30 to 240 °F	3/4" Sweat Well

BR5SL-T-005
REV-B

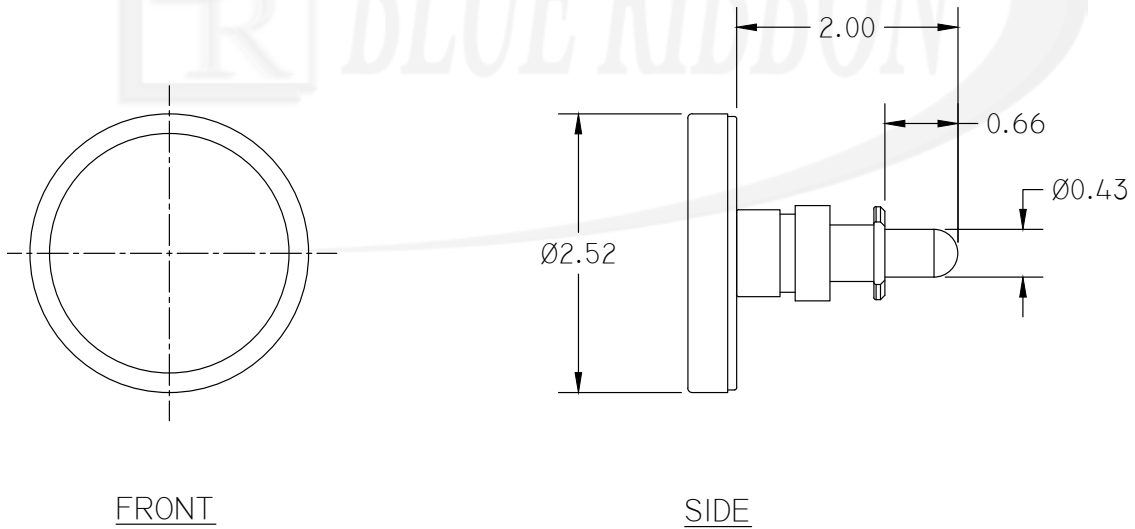
HOT WATER THERMOMETERS

DIMENSIONAL DRAWING

All dimensions are in inches (mm)



BRHW
2.5" hot water thermometer



BRHW-SW
2.5 HOT WATER THERM

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CLAMP-ON THERMOMETER

MODEL BRCT

FEATURES:

- Clamp-on design with steel spring
- Dual Scale (°F & °C)
- Easy to install
- Fits pipe sizes to 4" (100mm)

SPECIFICATIONS:

- **Dial:** 2.5" (63mm) aluminum with black markings
- **Case:** Steel
- **Lens:** Plexiglass
- **Ring:** Steel, chrome plated
- **Sensing Element:** Bi-metallic coil
- **Pointer:** Aluminum, painted black
- **Over-Range Enclosure Rating:** 25% of Full-scale value
- **Temperature Range:** 32 °F to 250 °F (0 °C to 121 °C)
- **Ambient/Process Temperature:** -40 °F to 390 °F (-40 °C to 200 °C)
- **Accuracy:** ±3% of Full-scale
- **Enclosure Rating:** IP52

APPLICATIONS:

- To measure surface temperature on pipe.



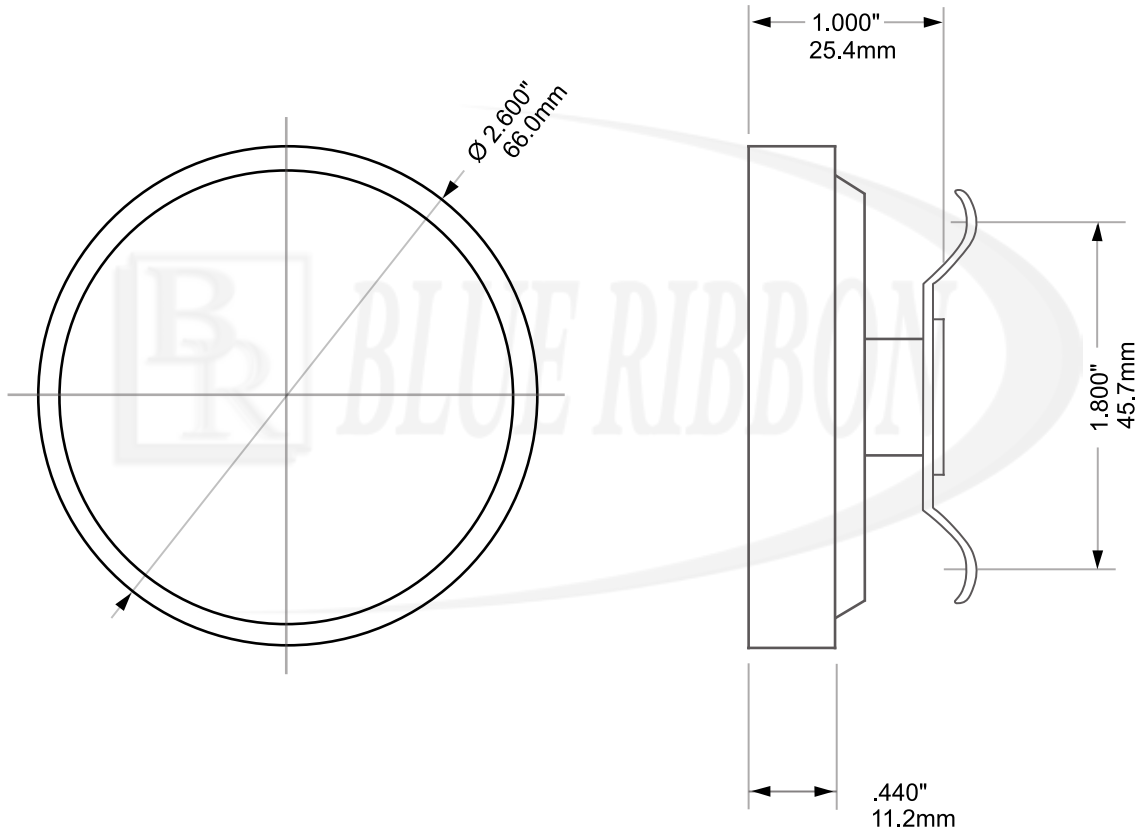
Model BRCT
Clamp-On Thermometer

BRCT CLAMP-ON THERMOMETER

DIMENSIONAL DRAWING

All dimensions are in inches (mm)

BRCT Clamp-On Thermometer



Range	Code
32 °F to 250 °F (0 °C to 121 °C)	BRCT

All specifications are for reference purposes only. In the interests of continuous product improvement, all specifications are subject to change without notice. Please contact Blue Ribbon Corporation for assistance with your application.

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BIMETAL THREADED THERMOWELLS

MODEL BRTW

FEATURES:

Model BRTW bimetal threaded thermowells from Blue Ribbon Corporation are designed to protect the thermometer from possible exposure to process media that may be corrosive or under pressure. Thermowells also facilitate removal of the industrial thermometer without interruption of the process. Their durable design offers high reliability and media compatibility in a range of sizes and materials.

SPECIFICATIONS:

- **Thermometer Connection:**
 - 1/2" NPT female (other thread sizes available upon request)
- **Process Connection:**
 - 3/4", 1/2" or 1" NPT connection (other thread sizes available upon request)
- **Bore:**
 - 0.260" (6.5mm)
- **Construction:**
 - Stepped construction
 - Tapered construction standard
- **Materials:**
 - Brass, AISI 304 stainless steel, AISI 316 stainless steel
 - Other materials available upon request



Model BRTW
Bimetal Threaded Thermowells

ORDERING GUIDE

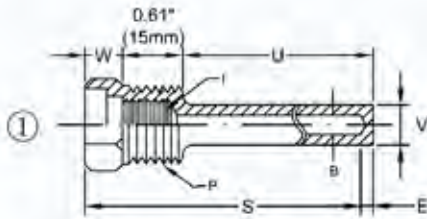
Example: BR-TW22-4-BRS
Brass Bimetal Thermowell, 3.5" NPT 4" Stem

Model	Connection	Stem Length	Material
BR-TW	22 - 1/2" NPT	2.5 - 2.5"	BRS - Brass
	75 - 3/4" NPT	4 - 4"	304 - 304 SS
		6 - 6"	316 - 316 SS
		9 - 9"	

BIMETAL THREADED THERMOWELLS

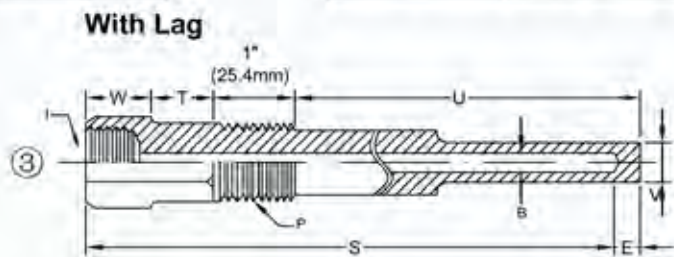
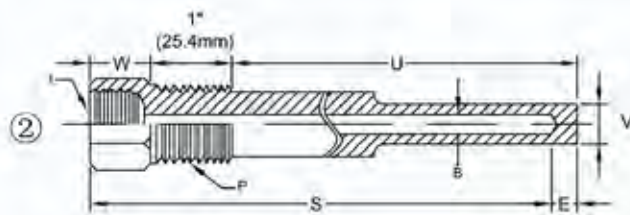
DIMENSIONAL DRAWING

All dimensions are in inches (mm)



Stem	W	U	S	E	V	B	I	P
2.5"	0.40" (10.16mm)	1.75" (44.45mm)	2.5" (63.50mm)	0.26" (6.60mm)	0.44" (11.18mm)	0.26" (6.60mm)	1/2" NPSM	3/4" NPT

U	Insertion Length
E	Tip Thickness
S	Stem Length
T	Lagging Extension
W	Wrench Allowance
B	Bore Diameter
V	Shank Diameter
P	Process Connection
I	Internal Thread



Stem	W	U	U(With Lag)	S	E	V	B	T	I	P
4"	0.75" (19.05mm)	2.50" (63.50mm)	1.90" (48.26mm)	4" (101.60mm)	0.25" (6.35mm)	0.5" (12.70mm)	0.26" (6.60mm)	0.6" (15.24mm)	1/2" NPSM	3/4" NPT
6"	0.75" (19.05mm)	4.50" (114.30mm)	2.50" (63.50mm)	6" (152.40mm)	0.25" (6.35mm)	0.5" (12.70mm)	0.26" (6.60mm)	2" (50.80mm)	1/2" NPSM	3/4" NPT
9"	0.75" (19.05mm)	7.50" (190.50mm)	4.50" (114.30mm)	9" (228.60mm)	0.25" (6.35mm)	0.5" (12.70mm)	0.26" (6.60mm)	3" (76.20mm)	1/2" NPSM	3/4" NPT
12"	0.75" (19.05mm)	10.50" (266.70mm)	7.50" (190.50mm)	12" (304.80mm)	0.25" (6.35mm)	0.5" (12.70mm)	0.26" (6.60mm)	3" (76.20mm)	1/2" NPSM	3/4" NPT
15"	0.75" (19.05mm)	13.50" (342.9mm)	10.50" (266.70mm)	15" (381.00mm)	0.25" (6.35mm)	0.5" (12.70mm)	0.26" (6.60mm)	3" (76.20mm)	1/2" NPSM	3/4" NPT
18"	0.75" (19.05mm)	16.5" (419.1mm)	13.50" (342.9mm)	18" (457.20mm)	0.25" (6.35mm)	0.5" (12.70mm)	0.26" (6.60mm)	3" (76.20mm)	1/2" NPSM	3/4" NPT
24"	0.75" (19.05mm)	22.5" (571.5mm)	19.50" (495.30mm)	24" (609.60mm)	0.25" (6.35mm)	0.5" (12.70mm)	0.26" (6.60mm)	3" (76.20mm)	1/2" NPSM	3/4" NPT

All specifications are for reference purposes only. In the interests of continuous product improvement, all specifications are subject to change without notice. Please contact Blue Ribbon Corporation for assistance with your application.





INDUSTRIAL THREADED THERMOWELLS

MODEL BR9TW

FEATURES:

- Designed for use with all 9" (228mm) Industrial thermometers.
- Allows for easy replacement of thermometer without interruption of the industrial process.
- Protects thermometer from exposure to the process media.
- 1-year warranty

SPECIFICATIONS:

- **Thermometer Connection:**
 - 1/2" NPT female (other thread sizes available upon request)
- **Process Connection:**
 - 3/4", 1/2" NPT standard, optional thread sizes available
- **Bore:**
 - 0.467" (11.9mm)
- **Construction:**
 - Stepped construction
 - Tapered construction standard
- **Materials:**
 - Brass, AISI 304 stainless steel, AISI 316 stainless steel
 - Other materials available upon request



Model BR9TW
Industrial Threaded Thermowells

ORDERING GUIDE

Example: BR9TW-B-35
Brass Thermowell with 3.5" Stem

Model	Material	Stem Length	Lagging
BR9TW	B-Brass	35-3.5"	1-1"
	LFB - Lead Free Brass	6-6"	25-2.5"
	SS - 304 Stainless Steel		

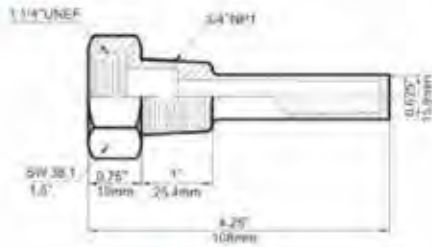
BR5SL-T-007
REV-A

INDUSTRIAL THREADED THERMOWELLS

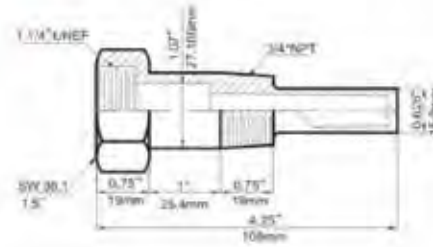
DIMENSIONAL DRAWING

All dimensions are in inches (mm)

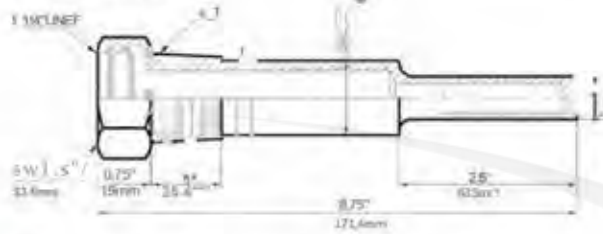
3.5" Stem without Lag



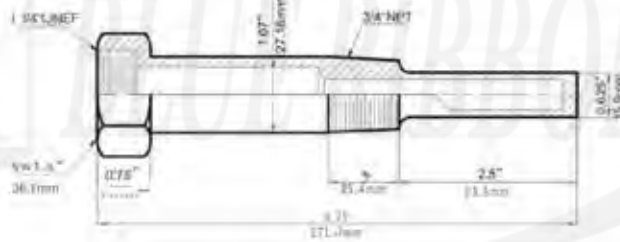
3.5" Stem with Lag



6" Stem without lag



6" Stem with lag



Stem	W	U	U(With Lag)	S	E	V	B	T	I	P
3.5"	0.75" (19.05mm)	2.50" (63.50mm)	1.50" (38.10mm)	3.5" (88.90mm)	0.16" (4.06mm)	0.62" (15.75mm)	0.44" (11.18mm)	1.00" (25.40mm)	1 1/4"-18 UNEF	3/4" NPT
6"	0.75" (19.05mm)	5.00" (127.00mm)	2.50" (63.50mm)	6" (152.40mm)	0.16" (4.06mm)	0.62" (15.75mm)	0.44" (11.18mm)	2.5" (63.50mm)	1 1/2"-18 UNEF	3/4" NPT
8"	0.75" (19.05mm)	7.00" (177.80mm)	4.50" (114.30mm)	8" (203.20mm)	0.16" (4.06mm)	0.62" (15.75mm)	0.44" (11.18mm)	2.5" (63.50mm)	1 3/4"-18 UNEF	3/4" NPT
12"	0.75" (19.05mm)	11.00" (279.40mm)	8.00" (203.20mm)	12" (304.80mm)	0.16" (4.06mm)	0.62" (15.75mm)	0.44" (11.18mm)	3" (76.20mm)	1 3/2"-18 UNEF	1" NPT
18"	0.75" (19.05mm)	17.00" (431.80mm)	14.00" (355.60mm)	18" (457.20mm)	0.16" (4.06mm)	0.62" (15.75mm)	0.44" (11.18mm)	3" (76.20mm)	1 3/2"-18 UNEF	1" NPT

All specifications are for reference purposes only. In the interests of continuous product improvement, all specifications are subject to change without notice. Please contact Blue Ribbon Corporation for assistance with your application.





SUBMERSIBLE PUMP LIFT STATION / SLUDGE LEVEL TRANSMITTER

MODEL BC001 BIRDCAGE®

FEATURES:

- 3-inch diameter sensing diaphragm resists clogging
- Protective baffle plate reduces risk of sensor damage
- Corrosion-resistant, all stainless steel construction
- Submersible to 1,100 feet (335 meters) WC
- Surge protection from lightning strikes and voltage spikes
- Ranges from 0-5 thru 0-500 PSI (0-10 thru 0 to 1,100 FTWC)
- Lifetime Surge Warranty Replacement Program when partnered with the BCP3000 Surge Protector (sold separately)
- Stock quantities available to ship in 1 to 3 days

APPLICATIONS:

- Submersible pump lift station level monitoring
- Wet wells
- Process sumps
- Water tanks and reservoirs
- Process sludge (including heavy sludge)
- Water and wastewater level monitoring

PRODUCT OVERVIEW:

The BC001 Birdcage® from Blue Ribbon Corporation is a submersible lift station and sludge level transmitter. Its all stainless steel design incorporates a 3-inch diameter clog-resistant sensing diaphragm and corrosion-resistant protective baffle plate. These features facilitate high-accuracy level measurements, even in heavy sludge conditions. This combination of durability and accuracy, along with over 25 years of proven field service, make the Birdcage® the industry gold standard in water and wastewater level monitoring.

FIELD OPTIONS:

- FM & CSA Intrinsically Safe
- External lightning / surge protection package optional
- 4-20 mA or 0-5 Vdc Output
- Optional temperature Output

*For details of available approvals, go to:
<https://blueribboncorp.com/certifications/>



Model BC001 Birdcage®

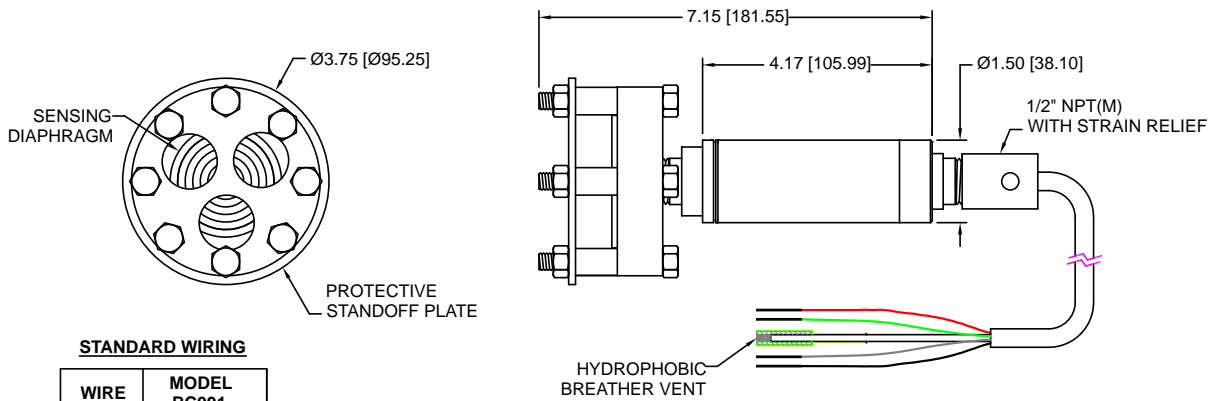


BR5SL-TX-001
REV-B

SUBMERSIBLE PUMP LIFT STATION / SLUDGE LEVEL TRANSMITTER

DIMENSIONAL DRAWING

All dimensions are in inches (mm)



STANDARD WIRING

WIRE	MODEL BC001
1/RED	+EXC/SIG
2/GRN	N/C
3/WHT	N/C
4/BLK	-EXC/SIG
5/BLU	N/C
6/BRN	N/C
SHIELD	OPEN

REFERENCE SPECIFICATIONS

ELECTRICAL

- Supply Voltage: 9 to 36 Vdc
- Output Signal: 4-20 mA
- Circuit Protection: RFI, EMI & surge protection
- Load Impedance: 1,350 Ω max. at 36 Vdc and 750 Ω at 24 Vdc
- Insulation Resistance: > 10 MΩ at 50 Vdc and +70 °F
- Connection: 1/2" NPT (M) conduit with 40 feet of 3-conductor, 18 AWG Hytel jacketed cable (optional Tefzel jacketing)

MATERIALS OF CONSTRUCTION

Housing: 316 SST

Wetted Parts: 316 SST

THERMAL SPECIFICATIONS

- Compensated: 0 °F to + 140 °F (-17.7 °C to +60 °C)
- Operating Ambient: -40 °F to +150 °F (-40 °C to +66 °C)
- Effect on Zero Span ±2% FSO/100 °F

STATIC ACCURACY (RSS) (HYSTERESIS, NON-LINEARITY & REPEATABILITY @ +70 °F)

- Standard: ±0.5%
- Optional: ±0.2%
- Zero/Span Balance and FSO: ±1.0% FSO at +70 °F

MECHANICAL

- Process connection: Oil filled diaphragm
- Proof Pressure: 2X FSO
- Burst Pressure: 5X FSO
- External Pressure: 500 PSI max. (35 BAR)
- Weight: 5.5 lb (2.5 kg)

PRESSURE RANGES

0-5 thru 0-500 PSI (0-10 FTWC thru 0-1153 FTWC)
0-3 thru 0-335 meters WC

All specifications are for reference purposes only. In the interests of continuous product improvement, all specifications are subject to change without notice. Please contact Blue Ribbon Corporation for assistance with your application.





SUBMERSIBLE LEVEL TRANSMITTER

MODEL BR313L

PRODUCT OVERVIEW:

The Model BR313L from Blue Ribbon Corporation is a line of highly accurate and reliable submersible level transmitters. The corrosion-resistant 316L stainless steel construction, and an integrated hydrophobic breather vent help provide years of maintenance-free service.

FEATURES:

- Available ranges of 0-20" WC thru 300 PSI (50 MBAR to 21 BAR)
- Case rated to 900 FTWC (275 meters WC)
- Up to $\pm 0.10\%$ FSO accuracy
- 316L stainless steel housing with optional titanium
- Hytrel jacketed cable with optional Tefzel®
- Lightning suppression as standard

APPLICATIONS:

- Wet wells, ponds, rivers and tank level measurements
- Water treatment
- Ground water monitoring
- Dredging levels
- Shipboard level control

FIELD OPTIONS:

- Slim 0.69" (1.74 cm) diameter (Model BR313S)
- Titanium construction (Model BR313L-NI)
- Additional Hytrel cable and Tefzel® jacketed cable lengths
- Tapered inlet with stand-off plate for wastewater
- Remote zero and span adjustments



Model BR313L
Submersible Level Transmitter

BR5SL-TX-002
REV-B

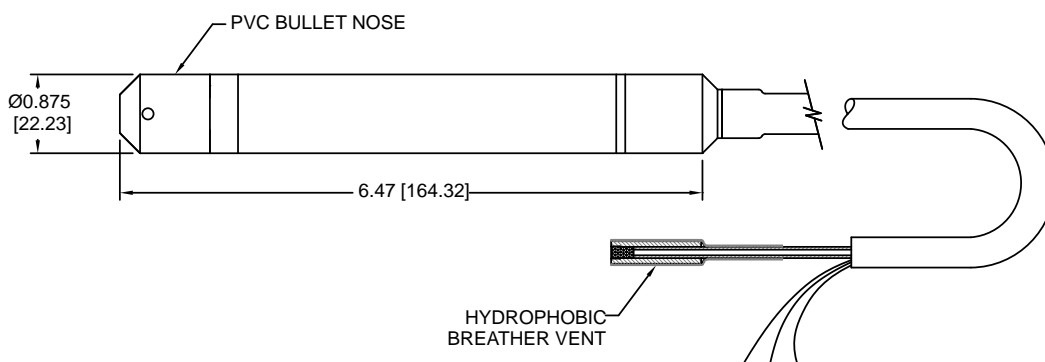
SUBMERSIBLE LEVEL TRANSMITTER

DIMENSIONAL DRAWING

All dimensions are in inches (mm)

STANDARD WIRING

WIRE	MODEL 313L
RED	+EXC/SIG
BLK	-EXC/SIG
GRN	N/C
WHT	N/C
SHIELD	OPEN



REFERENCE SPECIFICATIONS

<p>ELECTRICAL</p> <ul style="list-style-type: none"> • Excitation Voltage: 9 to 36 Vdc • Output Signal: 4-20 mA • Circuit Protection: Short circuit or reversed wired – Indefinite • Load Resistance: 1400 Ω max. at 40 Vdc excitation • Response Time: ≤5 ms to 90% • Connection: Hytrel jacketed, 4-conductor, 18 AWG with vent tube and hydrophobic filter, 8' long, other lengths available. 	<p>MECHANICAL</p> <ul style="list-style-type: none"> • Process Connection: PVC bullet nose • External Pressure: Rated to 900 FTWC (274 meters) max. • Proof Pressure: 2X FSO • Burst Pressure: 4X FSO • Approximate Weight: 10 oz (0.3 kg) nominal (options may increase weight) • Diameter: 0.875" (2.22 cm)
<p>MATERIALS OF CONSTRUCTION</p> <ul style="list-style-type: none"> • Wetted Parts: 316L, PVC, Neoprene, and Hytrel jacketed cable • Housing: 316L stainless steel, optional titanium • Cable Jacket Material: Hytrel (Tefzel optional) • Cable Seal: Viton (Optional materials available) • Nose Cap: PVC • Internal Fill: Silicone (Other options available) 	<p>PRESSURE RANGES</p> <ul style="list-style-type: none"> • 0-20" WC thru 0 to 300 PSI (0-50 MBAR thru 0-21 BAR)
<p>STATIC ACCURACY (RSS) (HYSTERESIS, NON-LINEARITY & REPEATABILITY @ +70 °F)</p> <p>Standard: ±0.5% FSO</p> <p>Improved: ±0.2% FSO, and ±0.1% FSO</p> <p>Zero & Span Balance: ±1.0% FSO @ +70 °F</p>	<p>THERMAL SPECIFICATIONS</p> <ul style="list-style-type: none"> • Compensated Range: 0 °F to +140 °F (-17.7 °C to +60 °C) • Operating Range: -40 °F to +185 °F (-40 °C to +85 °C) • Storage Ambient: -40 °F to +195 °F (-40 °C to +90.6 °C) • Effect on Zero/Span: < ±2.0% FSO/100 °F

All specifications are for reference purposes only. In the interests of continuous product improvement, all specifications are subject to change without notice. Please contact Blue Ribbon Corporation for assistance with your application.





SLIM SUBMERSIBLE LEVEL TRANSMITTER



Model BR313S
Slim Submersible Level Transmitter

MODEL BR313S

FEATURES:

- Slim 0.685" (17.4 mm) diameter housing
- 0 to 20" WC thru 300 PSI (211 meters WC)
- 4-20 mA output
- Rugged, welded, leak-proof stainless steel construction
- Silicon sensor technology
- Up to 0.10% FSO accuracy
- Hydrophobic breather filter

APPLICATIONS:

- Sewage lift and pump stations
- Deep well and borehole
- Groundwater monitoring
- Shipboard level control
- Weirs, wells, pond, reservoir, and dam level

PRODUCT OVERVIEW:

Model BR313S from Blue Ribbon Corporation has all of the same features as our popular BR313L, but with a slim 0.685" (17.4 mm) diameter housing for applications that have limited installation space. All Blue Ribbon submersible level transmitters are built with a rugged leak-proof stainless steel construction, lightning surge protection and an integrated hydrophobic filter to provide accurate level measurement with years of corrosion-free service for all types of applications.

FIELD OPTIONS:

- Lightning suppression
- Additional Hytrel cable and Tefzel® jacketed cable lengths

BR5SL-TX-003
REV-D

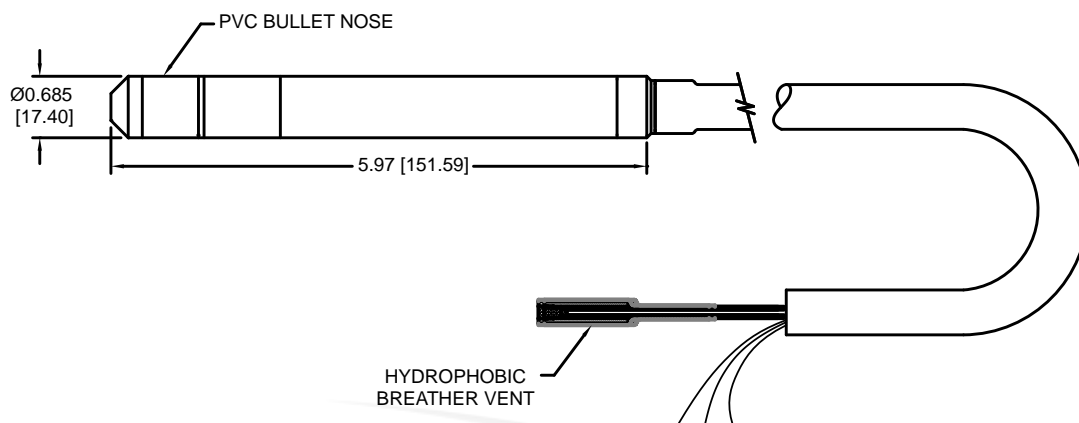
SLIM SUBMERSIBLE LEVEL TRANSMITTER

DIMENSIONAL DRAWING

All dimensions are in inches (mm)

STANDARD WIRING

WIRE	MODEL 313S
RED	+EXC/SIG
BLK	-EXC/SIG
GRN	N/C
WHT	N/C
SHIELD	OPEN



REFERENCE SPECIFICATIONS

ELECTRICAL <ul style="list-style-type: none"> • Excitation Voltage: 9 to 36 Vdc • Output Signal: 4-20 mA output • Circuit Protection: Short circuit or reversed wired – Indefinite • Load Impedance: 1400 Ω max. at 40 Vdc excitation • Response Time: ≤ 5 ms to 90% • Connection: Molded Hytrel jacket, 6-conductor with breather tube, 24 AWG, 8' long, optional lengths available, Tefzel[®] cable optional 	MECHANICAL <ul style="list-style-type: none"> • Process Connection: PVC bullet nose • External Pressure: Rated to 500 PSI (35 BAR) max. • Proof Pressure: 2X FSO • Burst Pressure: 4X FSO • Approximate Weight: 10 oz (0.3 kg) nominal, options may increase weight • Diameter: 0.685" (17.4 mm)
MATERIALS OF CONSTRUCTION <ul style="list-style-type: none"> • Housing: Type 316 stainless steel 	PRESSURE RANGES <ul style="list-style-type: none"> • 0-20" WC thru 500 PSI (50 MBAR to 35 BAR)
STATIC ACCURACY (RSS) (HYSTERESIS, NON-LINEARITY & REPEATABILITY @ +70 °F) <p>Standard: $\pm 0.5\%$ FSO Optional: $\pm 0.2\%$ FSO, and $\pm 0.1\%$ FSO Zero/Span Balance: $\pm 1.0\%$ FSO @ +70 °F</p>	THERMAL SPECIFICATIONS <ul style="list-style-type: none"> • Compensated: 0 °F to +140 °F (-17.7 °C to +60 °C) • Operating: -40 °F to +150 °F (-40 °C to +65.5 °C) • Storage: -40 °F to +150 °F (-40 °C to +65.5 °C) • Effect on Zero/Span: $< \pm 2.0\%$ FSO/100 °F

All specifications are for reference purposes only. In the interests of continuous product improvement, all specifications are subject to change without notice. Please contact Blue Ribbon Corporation for assistance with your application.



TITANIUM SUBMERSIBLE LEVEL TRANSMITTER



Model BR313L-NI
Titanium Submersible Level Transmitter

MODEL BR313L-NI

FEATURES:

- 0 to 20" WC thru 0 to 300 PSI (692 FTWC)
- 4-20 mA output
- Rugged, welded, leak-proof construction
- Slim 1.0" (2.5 cm) diameter titanium housing
- Up to 0.10% FSO accuracy

APPLICATIONS:

- Deep well and borehole
- Groundwater monitoring
- Reservoirs / dams
- Rig ballast control
- Weirs, wells, pond, reservoir, and dam level

PRODUCT OVERVIEW:

Model BR313L-NI from Blue Ribbon Corporation utilizes an all-titanium design to provide long-term stability and continued performance under the harshest conditions, including corrosive and hazardous applications. The slim design and high media resistance perform exceptionally well in downhole applications that often have tight space constraints and caustic environmental conditions.

FIELD OPTIONS:

- Remote zero-span adjust
- Lightning suppression
- Additional lengths, Tefzel® or Hytrel jacketed cable

BR5SL-TX-004
REV-B

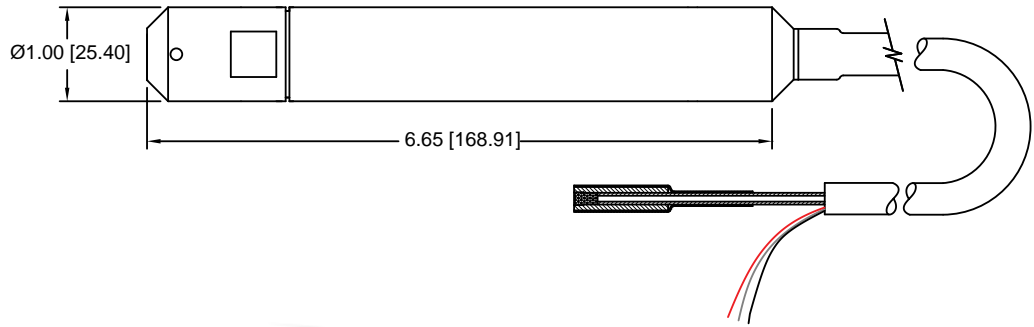
TITANIUM SUBMERSIBLE LEVEL TRANSMITTER

DIMENSIONAL DRAWING

All dimensions are in inches (mm)

STANDARD WIRING

WIRE	MODEL 313L/NI
RED	+EXC/SIG
BLK	-EXC/SIG
GRN	N/C
WHT	N/C
SHIELD	OPEN



REFERENCE SPECIFICATIONS

<p>ELECTRICAL</p> <ul style="list-style-type: none"> • Supply Voltage: 9 to 36 Vdc • Output Signal: 4-20 mA output • Circuit Protection: Short circuit or reversed wired – Indefinite • Load Resistance: 1400 Ω max. at 40 Vdc excitation • Response Time: ≤ 5 ms to 90% • Connection: Molded Hytrel jacketed, 6-conductor with breather tube, 24 AWG, 8' long, optional lengths available, Tefzel[®] jacketed cable optional 	<p>MECHANICAL</p> <ul style="list-style-type: none"> • Process connection: 1/4" NPT (F) with PVC bullet nose • External Pressure: Rated to 500 PSI (1,153 FTWC) max. • Proof Pressure: 2X FSO • Burst Pressure: 4X FSO • Approximate Weight: 10 oz (0.3 kg) nominal, options may increase weight • Diameter: 1.0" (2.5 cm)
<p>MATERIALS OF CONSTRUCTION</p> <ul style="list-style-type: none"> • Housing: Titanium • Wetted Material: Titanium / Ceramic and Viton 	<p>PRESSURE RANGES</p> <ul style="list-style-type: none"> • 0-20" WC thru 300 PSI (50 MBAR to 35 BAR)
<p>STATIC ACCURACY (HYSTERESIS, NON-LINEARITY & REPEATABILITY @ +70 °F)</p> <ul style="list-style-type: none"> • Standard: $\pm 0.5\%$ FSO • Improved: $\pm 0.2\%$ FSO, and $\pm 0.1\%$ FSO • Zero/Span Balance: $\pm 1.0\%$ FSO @ +70 °F 	<p>THERMAL SPECIFICATIONS</p> <ul style="list-style-type: none"> • Compensated: 0 °F to +140 °F (-17.7 °C to +60 °C) • Operating: -40 °F to +150 °F (-40 °C to +65.5 °C) • Storage: -40 °F to +150 °F (-40 °C to +65.5 °C) • Effect on Zero/Span: $< \pm 2.0\%$ FSO/100 °F at full scale

All specifications are for reference purposes only. In the interests of continuous product improvement, all specifications are subject to change without notice. Please contact Blue Ribbon Corporation for assistance with your application.





SUBMERSIBLE LEVEL TRANSMITTER FOR HAZARDOUS LOCATIONS



Model 313AI
Submersible Level Transmitter
for Hazardous Locations

Current Approvals:



Pending Approvals:



MODEL 313AI

FEATURES:

- ATEX & IEC approvals
- Submersible to 700 FTWC (213.4 meters WC)
- 1" diameter
- FM & CSA approvals pending
- All 316L stainless steel construction
- Lightning suppression standard

APPLICATIONS:

- Wet wells, ponds, rivers and tank level
- Water treatment
- Ground water monitoring
- Irrigation

PRODUCT OVERVIEW:

The GP:50 Model 313AI for Blue Ribbon Corp. is an ATEX intrinsically safe submersible level transmitter, providing high-accuracy level measurements for hazardous locations. The corrosion-resistant 316L stainless steel construction, integrated lightning suppression and hydrophobic breather vent help provide years of maintenance-free service.

APPROVALS:

Currently Available:

- ATEX/IEC Intrinsically Safe: II 1 G Ex ia IIC T5 Ga

Pending:

- ATEX/IEC Zone 2: II 3 G Ex nA/ic IIC T5 Gc
- FM, CSA Intrinsically Safe: Class I, Division 1, Groups A-G, T5, Ex ai IIC T5
- FM/CSA: Division/ Zone 2: Class I Division 2, Groups A-G, T5, Ex nC/nA/nL T5

BR5SL-TX-005
REV-A

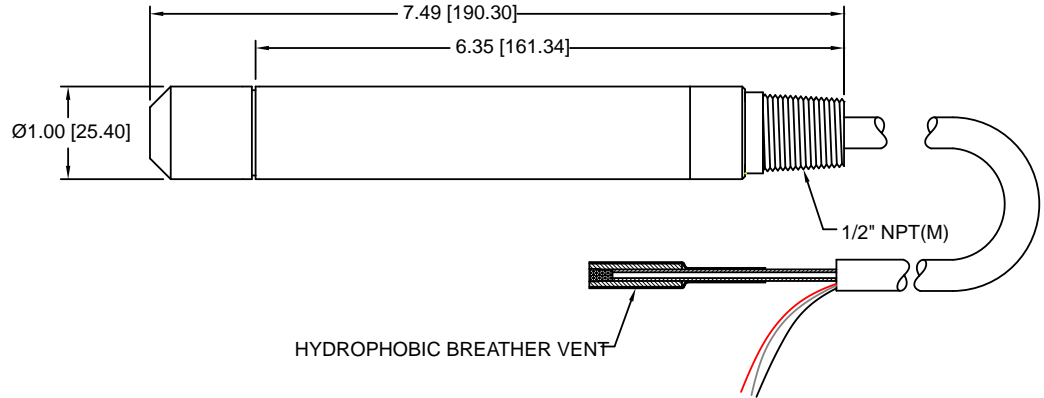
SUBMERSIBLE LEVEL TRANSMITTER FOR HAZARDOUS LOCATIONS

DIMENSIONAL DRAWING

All dimensions are in inches (mm)

STANDARD WIRING

WIRE	MODEL 313AI
RED	+EXC/SIG
BLK	-EXC/SIG
DRN	CASE GND



REFERENCE SPECIFICATIONS

ELECTRICAL	MECHANICAL
<ul style="list-style-type: none"> • Supply Voltage: 9 to 28 Vdc • Output Signal: 4-20 mA • Circuit Protection: Lightning and surge protection optional • Response Time: <5 ms • Connection: 1/2" NPT (M) conduit 8' of 18 AWG, 4 conductor, shielded, Hytrel jacketed cable with integral vent tube and hydrophobic filter (additional lengths available) 	<ul style="list-style-type: none"> • Process Connection: AS43905E4 (M) w/PVC bullet nose • Proof Pressure: 2.0X FSO • Burst Pressure: 4.0X FSO • Weight: <12 oz (340 g) • Diameter: 1" (25.4 mm)
STATIC ACCURACY (RSS) (HYSTERESIS, NON-LINEARITY & REPEATABILITY @ +70 °F) Standard: ±0.5% FSO Improved: ±0.2% FSO Zero & Span Balance: ±2.0% FSO	PRESSURE RANGES <ul style="list-style-type: none"> • 0 to 2 PSI thru 0 to 300 PSI (138 mBAR thru 21 BAR) • 0 to 4 FTWC thru 0 to 700 FTWC (1219 mm thru 213 m WC)
MATERIALS OF CONSTRUCTION <ul style="list-style-type: none"> • Wetted Parts: 316L SS, PVC, Neoprene, and Hytrel jacketed cable • Housing: 316 Stainless Steel • Cable Jacket Material: Hytrel (Optional Tefzel) • Cable Seal: Viton (Optional materials available) • Nose Cap: PVC 	THERMAL SPECIFICATIONS <ul style="list-style-type: none"> • Compensated: 0° F to +140 °F (-17.7 °C to +60 °C) • Operating Temperature: -40 °F to +185 °F (-40 °C to +85 °C) • Storage: -40 °F to +195 °F (-40 °C to +90.6 °C) • Effect on Zero/Span: < ±2.0% FSO/100 °F

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SERIAL / DIGITAL INTERFACE SUBMERSIBLE LEVEL TRANSMITTER



Model BR913
Serial/Digital Interface Submersible
Level Transmitter

MODEL BR913

PRODUCT OVERVIEW:

Model BR913 from Blue Ribbon Corporation is a high-accuracy submersible level transmitter. It features an asynchronous serial communication output (SDI12-v 1.3), typically used to monitor environmental data. This also allows for communication with compatible data loggers or data acquisition systems. The incorporation of a hydrophobic breather vent ensures extended trouble-free service within demanding applications. These features, combined with the low power requirements of the Model 913, make it particularly ideal for remote well monitoring applications.

FEATURES:

- SDI-12 Interface
- 0-30" WC to 0-700 FTWC (762 mm to 213.4 meters WC)
- Welded, leak-proof, 316L stainless steel construction
- Optional 0.685" diameter
- Up to $\pm 0.05\%$ FSO accuracy
- Optional Tefzel® jacketed cable

APPLICATIONS:

- Remote well monitoring including wet wells, ponds, and riverbeds
- Ground water monitoring
- Tank level measurements
- Water treatment
- Irrigation Systems

FIELD OPTIONS:

- Available in 0.875 or 0.685" (2.2 or 1.7 cm) diameter
- Hytrel or Tefzel® jacketed cable
- Titanium construction
- Temperature output

BR5SL-TX-006
REV-A

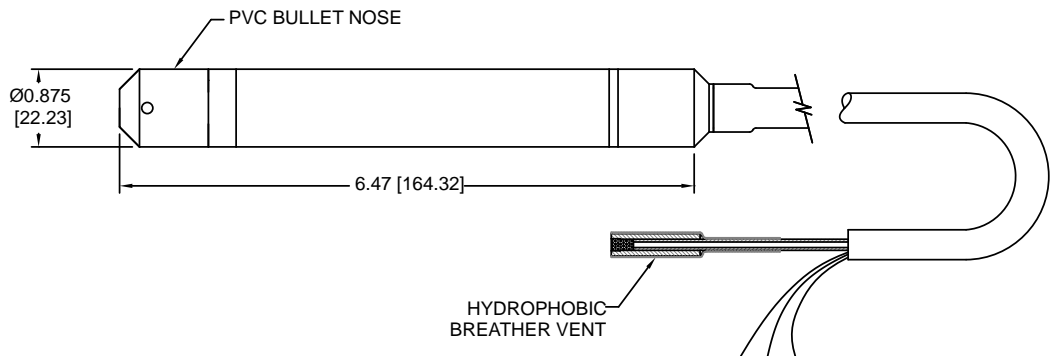
SERIAL/DIGITAL INTERFACE SUBMERSIBLE LEVEL TRANSMITTER

DIMENSIONAL DRAWING

All dimensions are in inches (mm)

STANDARD WIRING

WIRE	MODEL 913
RED	+EXC
BLK	-EXC
GRN	SDI-12 DATA
WHT	N/C
SHIELD	OPEN



REFERENCE SPECIFICATIONS

ELECTRICAL	MECHANICAL
<ul style="list-style-type: none"> • Supply Voltage: 6.0 to 36 Vdc • Output Signal: SDI-12- standard version 1.3 • Input Impedance: >10 MΩ • Resolution: 24-bit • Baud Rate: 1200 baud • Circuit Protection: Short circuit or reversed wired – Indefinite Input protection and EMC filtering • Response Time: 1 sec. • Idle Current: <50 μA, <15 mA consumption during measurement • Connection: Hytrel jacketed, 4 conductor, 18 AWG with vent tube and hydrophobic filter, 8' long, optional lengths available 	<ul style="list-style-type: none"> • Process connection: PVC bullet nose • External Pressure: Case rated to 900 FTWC (275 Meters WC) • Proof Pressure: 2X FSO • Burst Pressure: 3X FSO • Weight: <10 oz, 284 g • Diameter: 0.875" (2.2 cm) standard; 0.685" (1.7 cm) optional
STATIC ACCURACY (HYSTERESIS, NON-LINEARITY & REPEATABILITY @ +70 °F) <ul style="list-style-type: none"> • Standard: ±0.5% FSO • Improved: ±0.20% FSO, ±0.1% FSO, ±0.05% FSO • Zero Balance and FSO: ±1.0% FS 	PRESSURE RANGES <ul style="list-style-type: none"> • 0-30" WC to 0-700 feet WC (762 mm to 213.4 meters WC)
MATERIALS OF CONSTRUCTION <ul style="list-style-type: none"> • Wetted Parts: 316L SST, Hytrel, PVC • Housing: 316L SST (Optional Titanium) • Pressure Cavity: 316L stainless steel (Optional Titanium) • Internal Fill: Silicone 	THERMAL SPECIFICATIONS <ul style="list-style-type: none"> • Compensated: 0 °F to +140 °F (-7 °C to +60 °C) • Operating Temperature: -40 °F to +185 °F (-40 °C to +85 °C) • Storage: -40 °F to +195 °F (-40 °C to +90.6 °C) • Effect on Zero/Span: <±2.0% FSO/100 °F • Temperature Resolution: ±0.1 °C

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CORROSION RESISTANT LEVEL TRANSMITTER

MODEL BR313G

FEATURES:

- Chemically resistant PVDF construction
- Bullet nose with ceramic sensing element
- 0 to 3 PSI thru 0 to 700 PSI (7 feet WC thru 1640 FTWC)
- PTFE jacketed vented cable
- IP68 rating to 700 PSI (1640 FT)

APPLICATIONS:

- Corrosive chemical tank level
- Water tank and reservoir level
- Process plant water level
- Ground water reclamation

PRODUCT OVERVIEW:

The Model BR313G utilizes an all PVDF housing (titanium housing optional) with ceramic sensing element to provide a highly corrosion resistant level sensor. This series provides reliable performance in hazardous environments with aggressive chemicals for years of trouble free service.

FIELD OPTIONS:

- Additional lengths of Teflon jacketed cable
- 0-5Vdc output



Model BR313G
Corrosion Resistant Level Transmitter
(Shown with PTFE Cable)

BR5SL-TX-007
REV-I

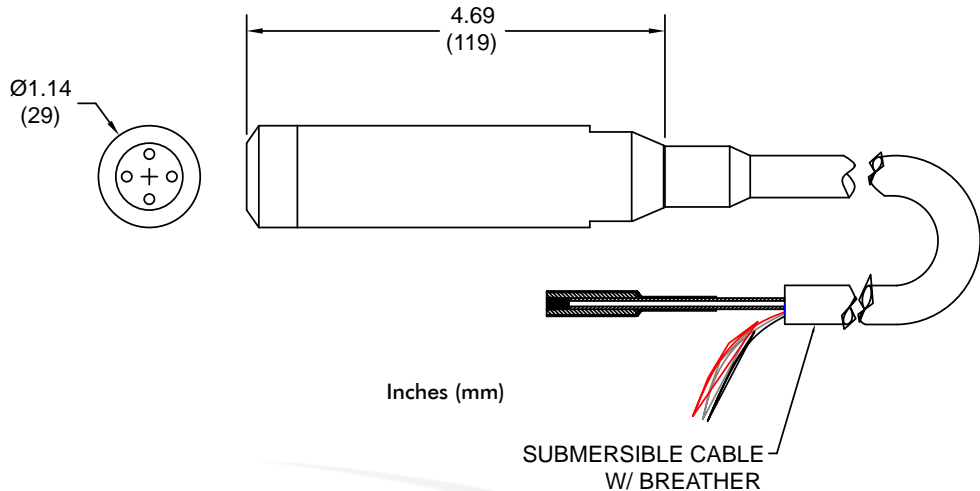
CORROSION RESISTANT LEVEL TRANSMITTER

DIMENSIONAL DRAWING

All dimensions are in inches (mm)

STANDARD WIRING

WIRE	MODEL 313G
RED	+EXC/SIG
YEL	-EXC/SIG
BLU	GND
WHT	N/C
SHIELD	OPEN



REFERENCE SPECIFICATIONS

ELECTRICAL <ul style="list-style-type: none"> • Supply Voltage: 12 to 36 Vdc • Output Signal: <ul style="list-style-type: none"> (313G) 4-20 mA (213G) 0 to 5 Vdc • Response Time: <5 ms 	MECHANICAL <ul style="list-style-type: none"> • Proof Pressure: 2X FSO • Burst Pressure: 3X FSO • Weight: >1.0 lbs (680 g) • Diameter: 1.14" (29 mm)
STATIC ACCURACY (RSS) (HYSTERESIS, NON-LINEARITY & REPEATABILITY @ +70 °F)	PRESSURE RANGES
Standard: ±0.5% FSO Improved: ±0.25% FSO	<ul style="list-style-type: none"> • 0 to 3 PSI thru 0 to 700 PSI (207 mBAR thru 48 BAR) • 0 to 6.5 FTWC thru 0 to 1640 FTWC (2 mWC thru 500 mWC)
MATERIALS OF CONSTRUCTION	THERMAL SPECIFICATIONS
<ul style="list-style-type: none"> • Housing Assembly: PVDF, titanium optional • Sensor Diaphragm: Ceramic (other options available, consult factory) • O-Ring Seal: FKM Fluorocarbon rubber • Cable: Teflon jacketed cable with integrated vent tube and hydrophobic filter 	<ul style="list-style-type: none"> • Compensated: 15° F to +168 °F (-10 °C to +76 °C) • Operating Temperature: -40 °F to +185 °F (-40 °C to +85 °C) • Storage: -40 °F to +212 °F (-40 °C to +100 °C) • Effect on Zero/Span: ±1.4% FSO/100 °F

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FLUSH SUBMERSIBLE LEVEL TRANSMITTER

MODEL BR313F



Model BR313F
Flush Submersible Level Transmitter

FEATURES:

- Large flush ceramic diaphragm
- 0 to 2 INWC thru 0 to 285 PSI
- Corrosion resistant, leak-proof construction
- PTFE, PUR or PE cable with FKM flourine seal
- Designed to 500 PSI external pressure
- Flush design saves cost and down time by eliminating sensor clean up

APPLICATIONS:

- Submersible pump lift station level monitoring
- Water tanks and reservoirs
- Process sumps
- Water and wastewater level monitoring
- Water recycling
- Sludge or slurry levels
- Other aggressive media

PRODUCT OVERVIEW:

Model BR313F utilizes a flush 1.575" diameter ceramic sensor that inhibits grease and biosolid buildup typically found in water treatment level applications. This flush ceramic design saves cost by eliminating sensor clean-out found with many other non flush designs. The corrosion-resistant 304SS construction, and an integrated hydrophobic breather vent help provide years of maintenance-free service.

FIELD OPTIONS:

- PTFE, PUR, or Polyurethane jacketed cable
- Titanium, or 316L SS housing

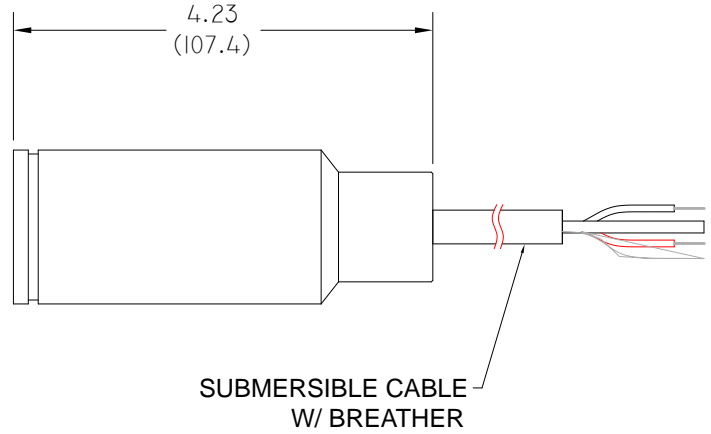
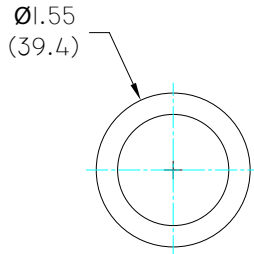


FLUSH SUBMERSIBLE LEVEL TRANSMITTER

DIMENSIONAL DRAWING

All dimensions are in inches (mm)

STANDARD WIRING	
WIRE	MODEL 313F
RED	+EXC/SIG
BLK	-EXC/SIG
GRN	N/C
WHT	N/C
SHIELD	OPEN



REFERENCE SPECIFICATIONS

<p>ELECTRICAL</p> <ul style="list-style-type: none"> • Supply Voltage: 12 to 36 Vdc • Output Signal: 4-20 mA output • Circuit Protection: Short circuit or reversed wired – Indefinite • Load Resistance: 100 Ω max. at 50 Vdc excitation • Response Time: ≤3 ms to 90% • Connection: ½" NPT (M) w/8 ft 18 AWG Hytrel® jacketed cable (Tefzel® jacketed cable optional) 	<p>MECHANICAL</p> <ul style="list-style-type: none"> • Zero Balance and FSO: ±0.75% FSO @ +70 °F • Process Connection: Flush ceramic • External Pressure: Rated to 500 PSI (1,153 ft WC) max. • Proof Pressure: 1.5X FSO • Burst Pressure: 4X FSO • Approximate Weight: 10 oz (240 g) nominal, options may increase weight • Diameter: 1.575"
<p>MATERIALS OF CONSTRUCTION</p> <ul style="list-style-type: none"> • Housing: 304 SS (Optional 316L or Titanium) • Sensor: Ceramic Al2O3 - 96% • Cable: PTFE, PUR or PE available • Cable Seal: FKM flourine 	<p>PRESSURE RANGES</p> <ul style="list-style-type: none"> • 20 INWC to 0-285 PSI
<p>STATIC ACCURACY (RSS) (HYSTERESIS, NON-LINEARITY & REPEATABILITY @ +70 °F)</p> <p>Standard: ±0.5% FSO</p> <p>Improved: ±0.25% FSO, and ±0.1% FSO</p> <p>Zero & Span Balance: ±0.1% FSO @ +70 °F</p>	<p>THERMAL SPECIFICATIONS</p> <ul style="list-style-type: none"> • Compensated: +14 °F to +158 °F (-10 °C to +70 °C) • Operating: -4 °F to +158 °F (-20 °C to +70 °C) • Storage: -40 °F to +180 °F (-40 °C to +82 °C) • Effect on Zero/Span: <±2.0% FSO/100 °F at full

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LOW-COST OEM PRESSURE TRANSDUCER

MODEL BR1002/1003



Model BR1002/1003
Low-Cost OEM Pressure Transducer

FEATURES:

- Low-cost, high reliability
- Up to 0.25% FSO accuracy
- Compact 0.870" diameter
- Rugged, all welded construction
- NEMA - 4X/IP65 rated
- CE Directives: EMC, PED, ROHS

APPLICATIONS:

- Automotive
- Industrial OEM
- On-board vehicle
- Compressor controls
- Pneumatic/hydraulic controls
- Pump controls

PRODUCT OVERVIEW:

The Model BR1002/1003 from Blue Ribbon Corp is a family of lower cost, industrial grade OEM pressure transducers, featuring corrosion-resistant, all stainless steel wetted parts and housings. Series transducers are ideal for higher volume pressure monitoring applications, particularly where lower costs are required, yet where the need for precision measurement accuracy remains. Units are available with choice of 4-20 mA, 0 to 5 Vdc or 0 to 10 Vdc output, as well as various electrical connection and pressure port options. Typical applications for the Model BR1002/1003 include off-road vehicle, HVAC/R, hydraulic and pneumatic control systems, pumps and compressors, and industrial engine pressure monitoring.

FIELD OPTIONS:

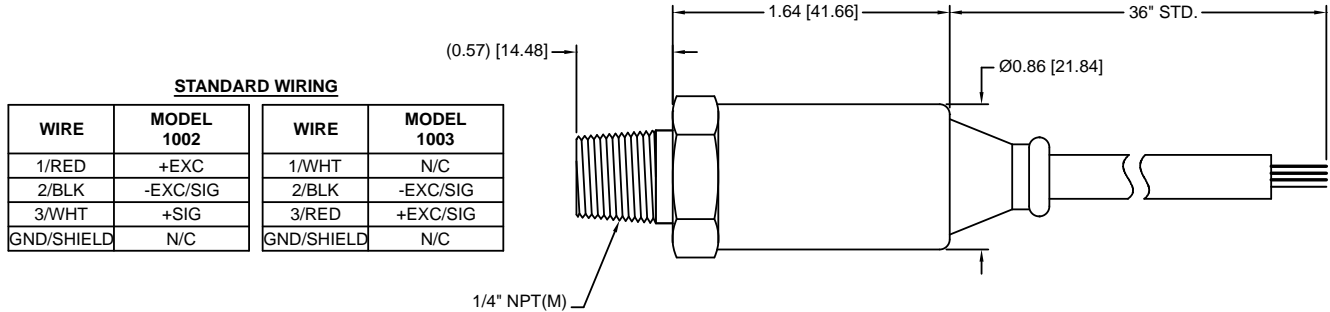
- 4-20 mA, 0-5 Vdc, 0-10 Vdc and 10 mV/V outputs available
- Alternate connectors & pressure ports

BR5SL-TX-011
REV-G

LOW-COST OEM PRESSURE TRANSDUCER

DIMENSIONAL DRAWING

All dimensions are in inches (mm)



REFERENCE SPECIFICATIONS

ELECTRICAL	MECHANICAL
<ul style="list-style-type: none"> • Supply Voltage: 9 to 32 Vdc • Output Signal: (1002) 0 to 5 Vdc, 0 to 10 Vdc optional (1003) 4-20 mA • Circuit Protection: Reverse polarity • Compliance: CE directives: EMC, PED, ROHS • Response Time: <5 ms • Connection: 36" long, 24 AWG, 4 conductor cable (Other options available) 	<ul style="list-style-type: none"> • Process Connection: 1/4" NPT (M) standard (other options available) • Proof Pressure: 1.5X FSO • Burst Pressure: 3X FSO or 17,500 PSIG (1,207 BAR), whichever is less • Weight: <4 oz (113 g)
STATIC ACCURACY (BFSL) (HYSTERESIS, NON-LINEARITY & REPEATABILITY @ +70 °F)	PRESSURE RANGES
Standard: ±0.5% FSO Improved: ±0.2% FSO Zero Balance & FSO: ±1.0% FSO @ +70 °F	<ul style="list-style-type: none"> • 0 to 15 thru 0 to 10K PSI (1,034 mBAR thru 689 BAR), gauge, vacuum, and absolute pressure reference available
MATERIALS OF CONSTRUCTION	THERMAL SPECIFICATIONS
<ul style="list-style-type: none"> • Wetted Parts: 316 stainless steel and 17-4 stainless steel • Housing: 316 stainless steel • Internal Fill: May contain Silicone oil fill (consult factory for alternatives) 	<ul style="list-style-type: none"> • Compensated: 0 °F to +180 °F (-17.7 °C to +82 °C) • Operating Temperature: -40 °F to +180 °F (-40 °C to +82 °C) • Storage Ambient: -40 °F to +250 °F (-40 °C to +121 °C) • Effect on Zero/Span: <±2.0% FSO/100 °F

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LOW-COST OEM PRESSURE TRANSDUCER

MODEL BR1002/1003-CA



Model BR1002/1003-CA
Low-Cost OEM Pressure Transducer

FEATURES:

- Available ranges from 0 to 15 PSI thru 0 to 10K PSI (1,034 mBAR to 689 BAR)
- Choice of mV/V, Vdc & 4-20 mA output
- Rugged, welded, stainless steel construction
- High proof pressure
- Economically priced

APPLICATIONS:

- Automotive
- Industrial OEM
- On-board vehicle
- Compressor controls
- Pneumatic/hydraulic controls
- Pump controls

PRODUCT OVERVIEW:

The Model BR1002/1003-CA from Blue Ribbon Corp is a family of lower cost, industrial grade OEM pressure transducers, featuring corrosion-resistant, all stainless steel wetted parts and housings. Series transducers are ideal for higher volume pressure monitoring applications, particularly where lower costs are required, yet where the need for precision measurement accuracy remains. Units are available with choice of 4-20 mA, 0 to 5 Vdc or 0 to 10 Vdc output, as well as various electrical connection and pressure port options. Typical applications for the Model BR1002/1003-CA include off-road vehicle, HVAC/R, hydraulic and pneumatic control systems, pumps and compressors, and industrial engine pressure monitoring.

FIELD OPTIONS:

- Vdc & 4-20 mA
- Alternate connectors & pressure ports

BR5SL-TX-033
REV-B

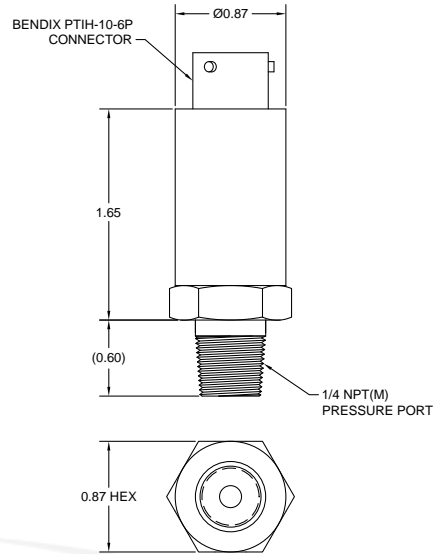
LOW-COST OEM PRESSURE TRANSDUCER

DIMENSIONAL DRAWING

All dimensions are in inches (mm)

STANDARD WIRING

PIN	MODEL 1002	MODEL 1003
A	+EXC	+EXC/SIG
B	+SIG	N/C
C	N/C	N/C
D	-EXC/SIG	-EXC/SIG
E	N/C*	N/C*
F	N/C*	N/C*



REFERENCE SPECIFICATIONS

ELECTRICAL

- **Supply Voltage:** 9 to 36 Vdc
- **Output Signal:**
(1002) 0 to 5 Vdc, 0 to 10 Vdc optional
(1003) 4-20 mA
- **Load Resistance:** 3.5 mA nominal 6 mA max.
- **Response Time:** <5 ms
- **Connection:** 36" long Belden 8723, 24 AWG, 4 conductor cable

STATIC ACCURACY (BFSL) (HYSTERESIS, NON-LINEARITY & REPEATABILITY @ +70 °F)

- **Standard:** ±0.5% FSO
- **Improved:** ±0.2% FSO or ±0.1% FSO
- **Zero & Span Balance:** ±1.0% FSO @ +70 °F

MATERIALS OF CONSTRUCTION

- **Wetted Parts:** 316 stainless steel and 17-4 stainless steel
- **Housing:** 316 stainless steel

MECHANICAL

- **Process Connection:** 1/4" NPT (M) standard (options available)
- **Proof Pressure:** 1.5X FSO
- **Burst Pressure:** 3X FSO or 17,500 PSIG (1,207 BAR), whichever is less
- **Weight:** <4 oz (113 g)

PRESSURE RANGES

- 0 to 15 thru 0 to 10K PSI (1,034 thru 689 BAR), gauge, vacuum, and absolute pressure reference available

THERMAL SPECIFICATIONS

- **Compensated:** 0 °F to +180 °F (-17.7 °C to +82 °C)
- **Operating Temperature:** -40 °F to +180 °F (-40 °C to +82 °C)
- **Storage:** -40 °F to +250 °F (-40 °C to +121 °C)
- **Effect on Zero/Span:** <±2.0% FSO/100 °F

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INDUSTRIAL GRADE PRESSURE TRANSDUCER

MODELS BR111, BR211, BR311



Model BR111 / BR211 / BR311
Industrial Grade Pressure Transducer

FEATURES:

- Available ranges from 0-30" WC thru 0-15K PSI (75 MBAR to 1,034 BAR)
- Choice of mV/V, Vdc, & 4-20 mA output
- Rugged, welded, stainless steel construction
- High proof pressure
- Economically priced

APPLICATIONS:

- Hydraulic & pneumatic controls
- Die casting
- Rolling & steel mills
- Compression skids
- Irrigation pumps pressure
- Oilfield truck pressures
- Skidded process systems

PRODUCT OVERVIEW:

The Model BR111/211/311 from Blue Ribbon Corp is a family of industrial grade pressure transducers. These strain gauge-based sensors are expressly designed to withstand the shock, vibration and pressure spikes common to most hydraulic and pneumatic control systems. The highly rugged, all-welded stainless steel design of the Model BR111/211/311 offers high corrosion resistance, making the sensors an ideal choice for demanding oil & gas, steelworks, rolling mills and process control applications. Units are also available with optional 10X proof pressure for extended worry-free service life within challenging environments.

FIELD OPTIONS:

- Zero and span adjustments
- 80% and 100% shunt calibration
- Alternate connectors and pressure ports
- For Intrinsically Safe and Explosion Proof approvals, see specially designated datasheet for Models BR311 I/GI/AI and BR111/211/311XP

BR5SL-TX-013
REV-F

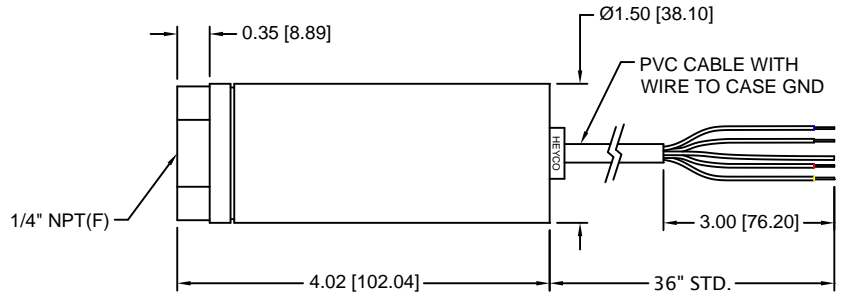
INDUSTRIAL GRADE PRESSURE TRANSDUCER

DIMENSIONAL DRAWING

All dimensions are in inches (mm)

STANDARD WIRING

PIN OR WIRE COLOR	MODEL 111	MODEL 211	MODEL 311
1/A/RED	+EXC	+EXC	+EXC/SIG
2/B/GRN	+SIG	+SIG	N/C
3/C/WHT	-SIG	N/C	N/C
4/D/BLK	-EXC	-EXC/SIG	-EXC/SIG
5/E/BLU	+SHUNT (OPT)	+SHUNT (OPT)	+SHUNT (OPT)
6/F/BRN	-SHUNT (OPT)	-SHUNT (OPT)	-SHUNT (OPT)



REFERENCE SPECIFICATIONS

ELECTRICAL	MATERIALS OF CONSTRUCTION
<ul style="list-style-type: none"> Excitation Voltage: (Model 111) 3.5 to 15 Vdc (Model 211) 9.0 to 36 Vdc (Optional outputs may affect excitation) (Model 311) 9.0 to 36 Vdc Output Signal: (Model 111) 0-1 thru 0-2000 PSI: to 3.0 mV/V (Optional 5 to 10 mV/V) >2,000 - 15,000 PSI: 1.0 to 3 mV/V >15K PSI: from 1.0 to 2.5 mV/V (Model 211) 0 to 5 Vdc, 0 to 10 Vdc (other outputs available) (Model 311) 4-20 mA Bridge Resistance (values vary): Silicone Sensor: 3 to 5KΩ Strain Gage: 5KΩ (350Ω Option) (Some mV/V options are amplified, changes bridge resistance, consult factory) Input Impedance: (Model 111) ~4K to 6K Ω Amplified Output Circuit Protection: (Model 211/311) RFI, EMI & Reverse polarity protected Response Time: (211/311): <3 ms 10% to 90% (111) Unamplified: 2-5 kHz Connection: 36" long PVC Jacketed cable, 4-conductor 	<ul style="list-style-type: none"> Wetted Parts: ≤ 1500 PSI: 316L SST w/silicone oil fill >2000 PSI: 17-4 PH SST (Other materials available, consult factory) Housing: 300 series stainless steel Internal Fill: If applicable: Silicone oil fill (Fomblin oil available, consult factory)
	STATIC ACCURACY (BFSL) (HYSTERESIS, NON-LINEARITY & REPEATABILITY @ +70 °F) <ul style="list-style-type: none"> Standard: ±0.5% FSO Improved: ±0.2% FSO or ±0.1% FSO Zero & Span Balance: ±1% FSO at +70 °F for each
	MECHANICAL <ul style="list-style-type: none"> Process Connection: 1/4" NPT (F) standard (options available) Proof Pressure: 2X FSO or 22.5K PSI (1,551 BAR), whichever is less Burst Pressure: 5X FSO or 23K PSI (1,586 BAR), whichever is less, Vacuum 5X FSO in gauge pressure Approximate weight: 10 oz. (0.3 kg) nominal (options may increase weight)
	PRESSURE RANGES <ul style="list-style-type: none"> 0 to 30" WC thru 0 to 15K PSI (0 to 1,034 BAR) PSIG, PSIS, PSIA, PSIV & compound ranges available.
	THERMAL SPECIFICATIONS <ul style="list-style-type: none"> Compensated: 0 °F to +180 °F (-17.7 °C to +82 °C) Operating: -40 °F to +250 °F (-40 °C to +121 °C) Storage: -65 °F to +250 °F (-53 °C to +121 °C) Effect on Zero/Span: ±1.0% FSO/100 °F Improved or expanded temperature compensation available

All specifications are for reference purposes only. In the interests of continuous product improvement, all specifications are subject to change without notice. Please contact Blue Ribbon Corporation for assistance with your application.



INTRINSICALLY SAFE PRESSURE TRANSDUCER

MODEL BR311 I, GI, AI

FEATURES:

- 0 to 5 PSI thru 0 to 75K PSI (75 mBAR to 1,034 BAR)
- FM, CSA, ATEX & IEC approvals
- Welded, rugged construction
- Optional high overpressure protection

APPLICATIONS:

- Rig safety systems
- Well head control
- Gas pipeline
- Control Panels
- On-board transmission & engine monitoring

PRODUCT OVERVIEW:

The GP:50 Model 11 series for Blue Ribbon Corporation provides a rugged solution in hazardous areas. The all-welded, stainless steel design provides years of reliable service in some of the harshest applications.

FIELD OPTIONS:

- FM, CSA, ATEX, IEC Intrinsically Safe
- Zero & Span adjust
- Alternate connectors & pressure ports
- For explosion-proof, see Model 311X/P



Model BR311 I, GI, AI
Intrinsicly Safe Pressure Transducer

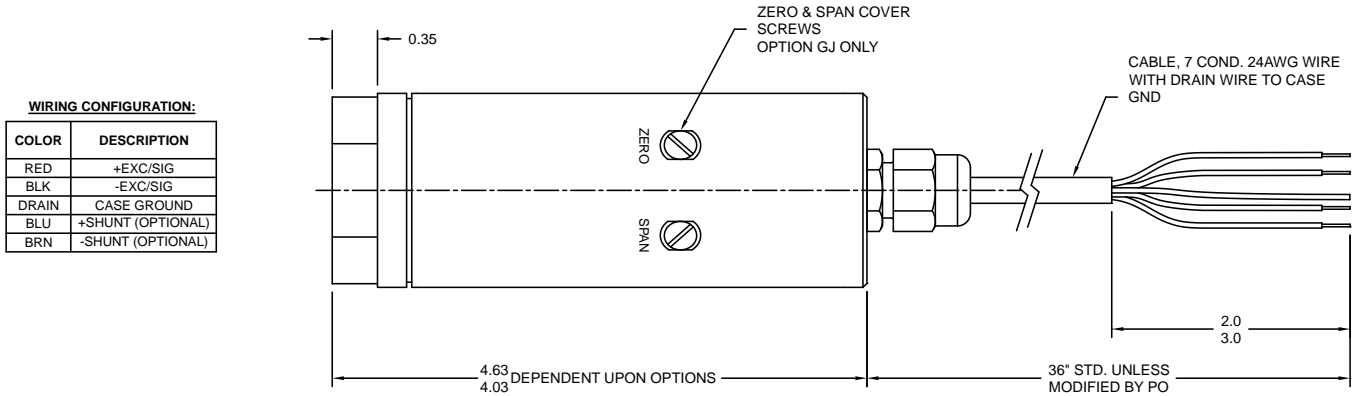


BR5SL-014
REV-B

INTRINSICALLY SAFE PRESSURE TRANSDUCER

DIMENSIONAL DRAWING

All dimensions are in inches (mm)



REFERENCE SPECIFICATIONS

<p>ELECTRICAL</p> <ul style="list-style-type: none"> • Excitation Voltage: 10 to 28 Vdc excitation • Output Signal: 4-20 mA output • Insulation Resistance: > 10 MΩ @ 50 Vdc, +70 °F • Circuit Protection: RFI, EMI & Reverse polarity protected • Response Time: <5 ms 10% to 90% • Connection: 36" long PVC Jacketed, 24 AWG , 7 conductor cable with drain wire 	<p>MECHANICAL</p> <ul style="list-style-type: none"> • Process Connection: ¼" NPT (F) for ranges <20 KPSI (1.4 BAR) High pressure coned fittings for ranges 20K to 75K PSI (1,379 to 5,171 BAR) • Proof Pressure: 1.5X FSO ≤30K PSI range, 1.2X FSO >30K PSI range • Burst Pressure: 2.5X FSO ≤10K PSI; 5X FSO >10K PSI and ≤30K PSI; 1.5X ≤75K PSI • Approximate Weight: 10 oz, (0.3 kg) nominal (options may increase weight)
<p>MATERIALS OF CONSTRUCTION</p> <ul style="list-style-type: none"> • Wetted Parts: 316 or 17-4 PH stainless steel (Options available, consult factory) • Housing: 316 stainless steel • Internal Fill: ≤2000 PSI Silicone Oil (Fomblin optional) 	<p>PRESSURE RANGES</p> <ul style="list-style-type: none"> • 0 to 5 thru 0 to 75K PSI (0 to 0.3 thru 0 to 5,171 BAR) (PSIG, PSIS, PSIA, PSIV & Compound ranges available)
<p>STATIC ACCURACY (HYSTERESIS, NON-LINEARITY & REPEATABILITY @ +70 °F)</p> <ul style="list-style-type: none"> • Standard: ±0.5% • Improved: ±0.20% and ±0.1% • Zero & Span Balance: ±1.0% FSO @ +70 °F, 0.5% optional 	<p>THERMAL SPECIFICATIONS</p> <ul style="list-style-type: none"> • Compensated Range: 0 °F to +180 °F (-18 °C to +82 °C) • Operating Range: -40 °F to +176 °F (-40 °C to +80 °C) • Storage Ambient: -65 °F to +250 °F (-53 °C to +121 °C) • Effect on Zero/Span: ±2.0% FSO/100 °F <p>Improved or expanded temperature compensation available</p>

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EXPLOSION PROOF & ZONE 2/DIV 2 PRESSURE TRANSMITTER



Models 111X/P, 211X/P,
311X/P & 311N/AN/GN
Explosion Proof & Zone 2/Div 2
Pressure Transmitter

APPROVALS



MODELS 111X/P, 211X/P, 311X/P & 311N/AN/GN

FEATURES:

- 0-5 PSI thru 0 to 75K PSI (75 MBAR) to 1, 034 BAR)
- FM, CSA, ATEX, & IEC approvals
- Welded, rugged construction
- Optional high overpressure protection
- Available in NACE MR-01-75 compliant wetted parts

APPLICATIONS:

- Rig safety systems
- Wellhead control
- Gas pipeline
- Control panels
- Onboard transmission & engine monitoring

PRODUCT OVERVIEW:

Blue Ribbon Model 11 Series provides a rugged solution in hazardous approved areas. The all welded, stainless steel design provides years of reliable service in some of the harshest applications.

APPROVALS:

- **FM, FM/CSA:** Class I/II/III, Div 1 Grps A-G, T6 at Ta=40C
 - **Zone 2 / Division 2**
 - **FM:** Class I, Zone 2 AEx nC IIC T5, Class I, Div. 2, Grp. A, B, C, D Class II, Grp. E, F, G, Class III T5, Ta=80C
 - **CSA:** Ex nA IIC T5 Ex nL IIC T5, Class I Div. 2 Grp. A, B, C, D Class II Div. 2 Grp. E, F, G Class III T5, Ta=80C
 - **ATEX:** CE0575 II 3 G Ex nA IIC, Ex ic IIC T5, TA=80C
 - **IEC:** Ex na IIC, Ex ic IIC T5, Ta=80C
- (all Zone 2/Div 2 approvals are electrical connector dependent)

For Intrinsically Safe Approval see 311 I, GI, AI Data Sheet

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REV-F

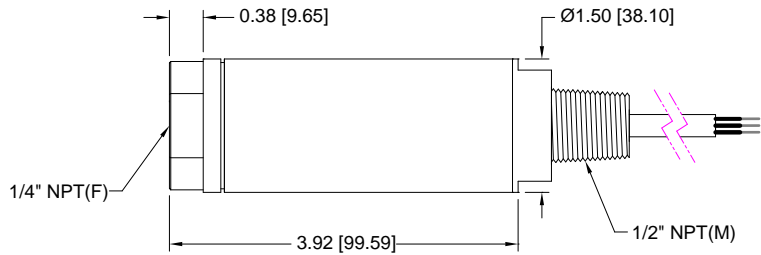
EXPLOSION PROOF & ZONE 2/DIV 2 PRESSURE TRANSMITTER

DIMENSIONAL DRAWING

All dimensions are in inches (mm)

STANDARD WIRING

WIRE	MODEL 111X/P	MODEL 211X/P	MODEL 311X/P/N/AN/GN
RED	+EXC	+EXC	+EXC/SIG
GRN	+SIG	CASE GND	CASE GND
WHT	-SIG	+SIG	N/C
BLK	-EXC	-EXC/SIG	-EXC/SIG
GRN/YEL	CASE GND	N/C	N/C



REFERENCE SPECIFICATIONS

ELECTRICAL
<ul style="list-style-type: none"> Excitation Voltage: (Model 111X/P) 3.5 to 15 Vdc (Model 211X/P) 10.5 to 32 Vdc (Model 311X/P) 9 to 36 Vdc (Model 311 N/AN/GN) 10 to 28 Vdc Output Signal: (Model 111) 3 mV/V (Amplified Output) (Model 211) 0 to 5 Vdc, 0 to 10 Vdc (alternate outputs available) (Model 311) 4-20 mA Output Signal: (Model 111) 3 mV/V (Amplified Output) Bridge Resistance: (Model 111) 4K-6KΩ (Amplifier on output stage) (Options available) Load Impedance: (Model 211) 50 Ω max. 24 Vdc (Model 311) 750 Ω max. 24 Vdc Input Current: (Model 211) 8mA nominal Response Time: <5 ms 10% to 90% Connection: 1/2" NPT M conduit w/ 6ft 18 AWG multi-conductor cable
MATERIALS OF CONSTRUCTION
<ul style="list-style-type: none"> Wetted Parts: 316 or 17-4 PH stainless steel Housing: 316 stainless steel Internal Fill: ≤2000 PSI Silicone Oil (Fomblin Optional)

STATIC ACCURACY (RSS) (HYSTERESIS, NON-LINEARITY & REPEATABILITY @ +70 °F)
Standard ±0.5%
Improved ±0.2% or ±0.1%
Zero & Span Balance: ±1% FSO at +70 °F
MECHANICAL
<ul style="list-style-type: none"> Process Connection: 1/4" NPT (F) for ranges <20K PSI (1.4 BAR) High pressure coned fittings for ranges 20K to 75K PSI (1,379 to 5,171 BAR) Proof Pressure: 1.5X FSO ≤30K PSI, 1.2X FSO >30K PSI Burst Pressure: 2.5X FSO ≤10K PSI, 5X FSO >10K PSI and ≤30K PSI, 1.5X ≤75K PSI Approximate Weight: 1 lb (0.5 kg) nominal (options may increase weight) Unit designed to meet or exceed IP67 Rating. (Some options may affect rating, consult factory)
PRESSURE RANGES
<ul style="list-style-type: none"> 0 to 5 PSI thru 0 to 75K PSI (0 to 0.3 BAR thru 0 to 5,171 BAR) (PSIG, PSIS, PSIA, PSIV & compound ranges available)
THERMAL SPECIFICATIONS
<ul style="list-style-type: none"> Compensated Range: 0 °F to +180 °F (-17.7 °C to +82 °C) Operating Range: -40 °F to +176 °F (-40 °C to +80 °C) Storage Ambient: -65 °F to +250 °F (-53 °C to +121 °C) Effect on Zero/Span: ±2.0% FSO/100 °F

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HAZARDOUS LOCATION PRESSURE TRANSMITTER

MODEL BR240/340 AI/AN/AF



Model BR240/340 AI/AN/AF
Hazardous Location Pressure Transmitter

Current Approvals:



Pending Approvals:



FEATURES:

- Compact design for easier installation
- All stainless steel welded rugged construction
- ATEX & IEC Approvals
- Improved accuracy and thermally compensated
- Ranges 0 to 1 PSI thru 0 to 50K PSI (69 Mbar to 3447 Bar)
- NACE MR-01-75 compliant wetted parts available

APPLICATIONS:

- Natural Gas Compression
- Rig safety systems
- Well head control
- Control panels
- On-board transmission & engine monitoring

PRODUCT OVERVIEW:

Model 40 series from Blue Ribbon Corp incorporates over 25 years of oil field proven design in a 1" diameter package. The 40 series provides a rugged solution for hazardous approved areas, especially where space constraints are a concern. Its all-welded stainless steel design will provide years of reliable service in some of the harshest environments.

APPROVALS:

Currently Available:

- ATEX/IEC Intrinsically Safe: II 1 G Ex ia IIC T5 Ga
- ATEX/IEC Zone 2: II 3 G Ex nA/ic IIC T5 Gc
- ATEX/IEC Flameproof: II 2 G Ex b T4 to T6

Pending:

- FM/CSA: Intrinsically Safe: Class I, Division 1, Groups A-G, T5, Ex ia IIC T5
- FM/CSA: Division/ Zone 2: Class I Division 2, Groups A-G, T5, Ex nC/nA/nL T5

BR5SL-TX-016
REV-F

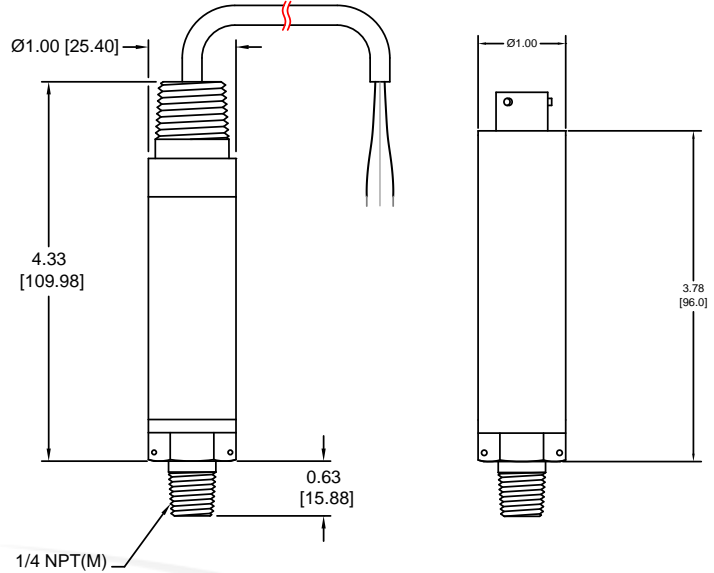
HAZARDOUS LOCATION PRESSURE TRANSDUCER

DIMENSIONAL DRAWING

All dimensions are in inches (mm)

STANDARD WIRING CONFIGURATION

PIN OR WIRE COLOR	MODEL 240	MODEL 340
A/1/RED	+EXC	+EXC/SIG
B/2/GRN	+SIG	CASE GND
C/3/WHT	CASE GND	N/C
D/4/BLK	-EXC/SIG	-EXC/SIG
E/5/BLU	N/C	N/C
F/6/BRN	N/C	N/C



REFERENCE SPECIFICATIONS

ELECTRICAL
<ul style="list-style-type: none"> Excitation Voltage: (Model 240) 9 to 28 Vdc (Model 340) 10 to 28 Vdc Output Signal: (Model 240) 0-5 Vdc, 1-5Vdc, and 0-10Vdc (Model 340) 4-20 mA Load Impedance: (Model 240) 50K Ω max. 24 Vdc (Model 340) 750 Ω max. 24 Vdc Input Current: (Model 240) 8 mA nominal Insulation Resistance: >10 MΩ at 50 Vdc and +70 °F EMI Specs: EMC directive 2004/108/EC, EN 61326 emission Connection: 1/2" NPT M conduit w/ 6ft 18 AWG multi-conductor cable (options available)
MATERIALS OF CONSTRUCTION
<ul style="list-style-type: none"> Wetted Parts: \leq2000 PSI 316L SST >2000 PSI 17-4 PH SST, Inconel 718 available Housing: 316 stainless steel Internal Fill: \leq2000 PSI Silicone Oil (Optional Fomblin)

STATIC ACCURACY (HYSTERESIS, NON-LINEARITY & REPEATABILITY @ +70 °F)
<ul style="list-style-type: none"> Standard \pm0.20% FSO Optional \pm0.10%
Zero & Span Balance: \pm 1% FSO at +70 °F
MECHANICAL
<ul style="list-style-type: none"> Process Connection: 1/4" NPT (M), options available Proof Pressure: 2X FSO up to 20K PSI, 1.2X > 20K PSI Burst Pressure: 5X FSO up to 20K PSI, 1.5X > 20K PSI Approximate Weight: 0.5 lb (0.23 kg) nominal, options may increase weight Environmental: Designed to meet IP67 (Some options may affect this. Consult factory if critical.)
PRESSURE RANGES
<ul style="list-style-type: none"> 0 to 1 PSI thru 0 to 50K PSI, some options may affect range (PSIG, PSIS, PSIA, PSIV & compound ranges available)
THERMAL SPECIFICATIONS
<ul style="list-style-type: none"> Compensated Range: 0 °F to +180 °F (-18 °C to +82 °C) Operating Range: -40 °F to +250 °F (-40 °C to +121 °C) (Hazardous Approval Area rating may affect limits) Storage Ambient: -65 °F to +250 °F (-53 °C to +121 °C) Effect on Zero/Span: \pm1.0% FSO/100 °F

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FLUSH MOUNT PRESSURE TRANSMITTER

MODEL BR340-IM



Model BR340-IM
Flush Mount Design

Current Approvals:



FEATURES:

- Flush faced sensor minimizes media plugging and damage
- Compact 1" diameter
- Rugged, all-welded stainless steel design
- No zero offset from installation
- 5X proof pressure

APPLICATIONS:

- Wastewater treatment
- Onboard vehicles
- Skidded systems
- Sludge and slurries
- Adhesives and paints
- Pump suction and discharge lines of blender trucks
- Corrosive and high viscosity media

PRODUCT OVERVIEW:

The Model BR340-IM series from Blue Ribbon Corporation is a flush face mounted industrial pressure transmitter. It is expressly designed for higher viscosity media, particularly where such media can otherwise clog or damage traditional non-flush port sensor designs. The rugged, all-welded, Inconel design of the BR340-IM series allows for greater compatibility with corrosive media. No zero offset is caused during sensor installation.

FIELD OPTIONS:

- Direct NPT or flanged process mounting
- Select electrical connectors
- 4-20 mA or 0-5Vdc output

AVAILABLE APPROVALS:

- ATEX & IEC Hazardous approvals
- FM & CSA Pending

BR5SL-TX-017
REV-A

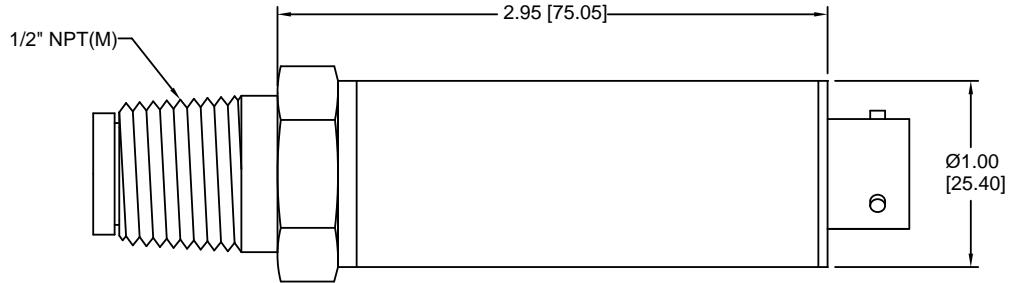
FLUSH MOUNT PRESSURE TRANSMITTER

DIMENSIONAL DRAWING

All dimensions are in inches (mm)

STANDARD WIRING

PIN	MODEL 340IM
A/1/RED	+EXC/SIG
B/2/GRN	N/C
C/3/WHT	N/C
D/4/BLK	-EXC/SIG
E/5/BLU	N/C
F/6/BRN	N/C



REFERENCE SPECIFICATIONS

<p>ELECTRICAL</p> <ul style="list-style-type: none"> • Supply Voltage: 9.0 to 40 Vdc • Output Signal: 4-20 mA • Load Impedance: 1,350 Ω max. at 36 Vdc and 750 Ω max. Vdc • Circuit Protection: RFI, EMI and reverse polarity • Insulation Resistance: > 10 MΩ at 50 Vdc and 70 °F • Connection: 1/2" NPT (M) conduit with 3/6" cable leads or 6-pin connector (PTIH-10-6P) 	<p>MECHANICAL</p> <ul style="list-style-type: none"> • Process Connection: 1/2" NPT (M) • Pressure Ranges: 0-75 thru 0-750 PSI (5 thru 52 BAR) gauge, sealed gauge, absolute • Proof Pressure: 2X FSO or 2K PSI (138 BAR), whichever is less (5X FSO optional) • Burst Pressure: 5X FSO or 3.5K PSI (242 BAR), whichever is less • Environmental: Designed to meet IP67 (Some options may affect this. Consult factory if critical.) • Approximate Weight: <0.5lb (225g)
<p>MATERIALS OF CONSTRUCTION</p> <ul style="list-style-type: none"> • Wetted Parts: Inconel 718 • Housing: 316 stainless steel 	<p>TEMPERATURE</p> <ul style="list-style-type: none"> • Compensated: 0 °F to +180 °F (-17.8 °C to +82 °C) • Operating Range: -50 °F to +250°F (-46 °C to +121 °C) • Storage Ambient: -65 °F to +250°F (-53 °C to +121 °C) • Effect on Zero/Span: \pm2.0% FSO/100 °F
<p>STATIC ACCURACY (RSS) (HYSTERESIS, NON-LINEARITY & REPEATABILITY @ +70 °F)</p> <p>Standard: \pm0.5% FSO Improved: \pm0.2% FSO Zero & Span Balance: \pm2.0% FSO at +70 °F</p>	

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SMART RANGEABLE HAZARDOUS LOCATION PRESSURE TRANSMITTER



Model BR411, 411XP
Smart Rangeable Pressure Transmitter



MODEL BR411, 411XP

FEATURES:

- 4-20 mA with digital HART protocol
- 0-15 PSI thru 0-100K PSI (0-1 thru 6,895 BAR)
- 5:1 turndown ratio
- Secondary containment for oil services
- Submersible version
- FM, CSA explosion-proof versions

APPLICATIONS:

- Offshore rigs and pumping platforms
- Oil and gas/chemical pipeline and processing
- Marine and shipboard service
- Submersible level

PRODUCT OVERVIEW:

GP:50 Model 411, 411X/P for Blue Ribbon Corporation is a SMART rangeable pressure transmitter incorporating a 4-20 mA output with digital HART protocol. Units are offered with both CSA and FM approval options, as well as a variety of process and electrical connections. Improved accuracy provides for a stable measurement throughout the total compensated temperature range.

FIELD OPTIONS:

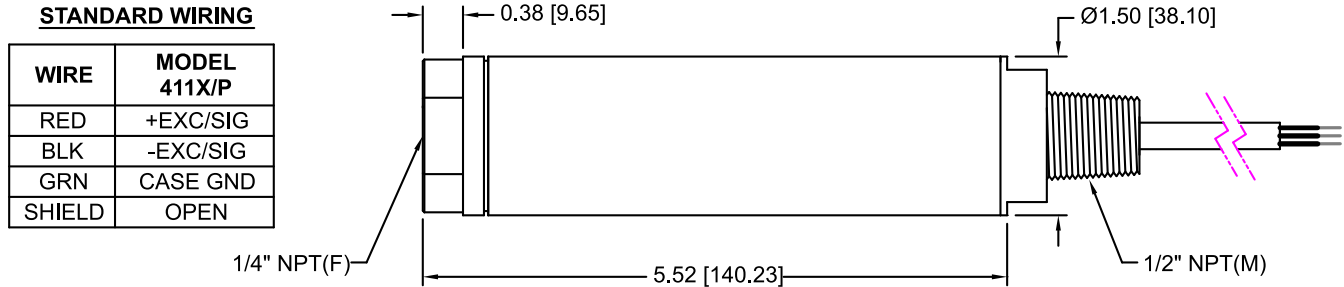
- 5:1 turndown ratio for most ranges
- Multiple pressure and temperature outputs
- Exotic wetted materials
- Submersible level option
- Alternate process connections
- Optional 4-20 mA temperature output

BR5SL-TX-018
REV-A

SMART RANGEABLE HAZARDOUS LOCATION PRESSURE TRANSMITTER

DIMENSIONAL DRAWING

All dimensions are in inches (mm)



REFERENCE SPECIFICATIONS

<p>ELECTRICAL</p> <ul style="list-style-type: none"> • Supply Voltage: 12-36 Vdc • Output Signal: Two wire 4-20 mA with digital HART protocol (optional 4-20 mA temperature output) • Input Impedance: 250 Ω at 17 Vdc • Insulation Resistance: > 10 MΩ at 50 Vdc • Circuit Protection: RFI, EMI & Reverse polarity (voltage transients above 45 V to 20 A at 0.02 milliseconds) • Resolution: 12-bit • Frequency Response: From 0.07 to 40 sec (software adjustable) • Connection: 1/2" NPT M conduit with 6-ft 18 AWG multi conductor cable 	<p>MECHANICAL</p> <ul style="list-style-type: none"> • Process Connection: 0-5 thru 0-15K PSI (0-0.3 thru 0-1,035 BAR), PSIV: 1/4" NPT (F) 0-20K thru 0-50K PSI (0-1,380 thru 0-3,450 BAR): Autoclave type F-250-C 0-60K thru 0-75K PSI (0-4,135 thru 0-5,170 BAR): Autoclave type F-312-C150 • Proof Pressure: 0-15K (1,035 BAR) PSI 1.5X FSO 20K-100K (6,894 BAR) PSIG 1.2X FSO • Burst Pressure: 0-15K 3X FSO 20K-100K (6,894 BAR) PSIG 1.5X FSO or 125K PSIG (8,618 BAR), whichever is less • Long-term Stability: 0.25% FSPR over six months • Approximate Weight: <24 oz (0.7 kg) • Enclosure: IP67
<p>MATERIALS OF CONSTRUCTION</p> <ul style="list-style-type: none"> • Wetted Parts: 17-4 PH stainless steel (Optional Inconel 718, K12X, or 13-8 Monel) • Housing: 316 stainless steel 	<p>THERMAL SPECIFICATIONS</p> <ul style="list-style-type: none"> • Compensated Range: 0 to +170 °F (-18 °C to +77 °C) • Operating Range: -40 °F to +185 °F (-40 °C to +85 °C) • Storage Ambient: -65 °F to +250 °F (-53 °C to +121 °C) • Effect on Zero/Span: (1:1): ±0.25% FSO/100 °F (5:1): ±0.50% FSO/100 °F
<p>STATIC ACCURACY (BFSL) (HYSTERESIS, NON-LINEARITY & REPEATABILITY @ +70 °F)</p> <p>Standard: ±0.25% FSO Improved: ±0.1% FSO</p> <p>Zero Balance and FSO: ±0.5% FSO at +70 °F</p>	
<p>PRESSURE RANGES</p> <ul style="list-style-type: none"> • 0-15 PSI thru 0-100K PSIS, PSIA, PSIV, PSIG (1 BAR V thru 6,895 BAR) • Range Adjustments: 5:1 for ranges 0-5 PSI thru 0-100K PSI (0.3 BAR thru 6,895 BAR) 	

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HIGH-ACCURACY PRESSURE TRANSDUCER

MODEL BR241 / 341



Model BR241 / 341
High-Accuracy Pressure Transducer

FEATURES:

- High accuracy to $\pm 0.05\%$ FSO
- High thermal stability $\pm 0.20\%$ FSO/100 °F
- -40 to +250 °F compensation
- Compact, lightweight, all stainless steel design
- Less than 4 millisecond response time
- Tightest thermal stability in its class

APPLICATIONS:

- Dynamometer testing
- Transmission testing
- Brake testing
- Hydraulic & Pneumatic valve testing
- Jet engine testing
- Emission test stands

PRODUCT OVERVIEW:

Blue Ribbon Model 241/341 is our most accurate pressure transducer. It is 5x tighter through temperature than standard industrial transmitters with a 0.20% FSO / 100 °F thermal stability. The compact, corrosion-resistant, all-welded stainless steel design of the Model BR241/341 offers ease of installation within space constrained environments. Static accuracy is available to $\pm 0.05\%$ FSO, with a total thermal error of 0.25% FSO over the compensated temperature range.

FIELD OPTIONS:

- Optional zero and span adjustment
- Shunt calibration for active line testing without a pressure source
- Comprehensive list of process and electrical connections for existing application retrofits

BR5SL-TX-020
REV-E

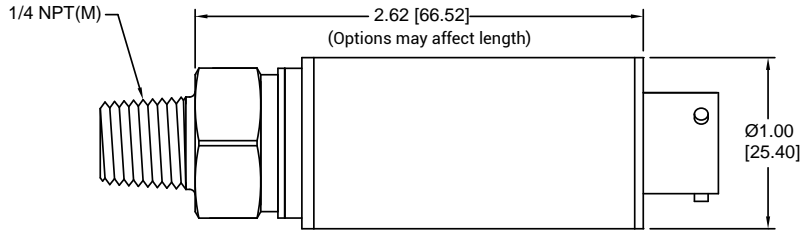
HIGH-ACCURACY PRESSURE TRANSDUCER

DIMENSIONAL DRAWING

All dimensions are in inches (mm)

MODEL BR241 WIRING		MODEL BR341 WIRING	
PIN/WIRE	DESCRIPTION	PIN/WIRE	DESCRIPTION
A/1/RED	+EXC	A/1/RED	+EXC
B/2/GRN	+SIG	B/2/BLK	-EXC/SIG
C/3/-	N/C	C/3/-	N/C
D/4/BLK	-EXC/SIG	D/4/BLU	PROGRAM GND*
E/5/BRN	N/C or SHUNT	E/5/BRN	N/C or SHUNT
F/6/ORG	PROGRAM*	F/6/ORG	PROGRAM*

*Do not connect to program pins.



REFERENCE SPECIFICATIONS

<p>ELECTRICAL</p> <ul style="list-style-type: none"> • Supply Voltage: 9 to 32 Vdc (some options may affect this) • Output Signal: (Model 241) 0 to 5 Vdc, 0-10 Vdc (Model 341) 4-20 mA • Circuit Protection: Reverse polarity protected Output may be grounded indefinitely Over voltage protection to 1kV for <1ms • Response Time: 1mSec (Typical) • Connection: PTIH-10-6P 	<p>MECHANICAL</p> <ul style="list-style-type: none"> • Process Connection: 1/4" NPT (M) (consult factory for complete list of options) • Proof Pressure: 2X FSO • Burst Pressure: 5X FSO or 22.5K PSI max. (1,551 BAR) • Random Vibration: 25 G RMS (20 to 2000 Hz) • Shock: 100G peak for 11 msec, 1/2 Sine • Approximate Weight: <0.5 lb (227gms)
<p>MATERIALS OF CONSTRUCTION</p> <ul style="list-style-type: none"> • Wetted Parts: ≤2,000 PSI: 316L SST, Hastelloy optional >2,000 PSI: 17-4 PH SST (Inconel 718, 316L SS optional) • Housing: 300 series stainless steel • Internal Fill: ≤2000 PSI Silicone oil fill (Other fill available) 	<p>PRESSURE RANGES</p> <ul style="list-style-type: none"> • 0-30" WC thru 8K PSI (2.5 mBAR to 552 BAR) Gauge, Vacuum, Absolute, Sealed Gauge
<p>STATIC ACCURACY (HYSTERESIS, NON-LINEARITY & REPEATABILITY @ +70 °F)</p> <ul style="list-style-type: none"> • Standard: ±0.10% • Improved: ±0.05% FSO • Zero & Span Balance: ±0.5% FSO @ +70 °F 	<p>THERMAL SPECIFICATIONS</p> <ul style="list-style-type: none"> • Compensated Range: 0 °F to +180 °F (-18 °C to +82 °C) • Operating Range: -40 °F to +250 °F (-40 °C to +121 °C) • Expanded Range: -40 °F to +250 °F (-40 °C to +121 °C) • Storage Ambient: -40 °F to +250 °F (-40 °C to +121 °C) • Effect on Zero/Span: ±0.5% FSO/100 °F standard (±1.0% FSO/100 °F from -40 to 185 °F / (-40 °C to +85 °C)) • Improved Performance: ±0.20% FSO/100 °F (-40 °F to +250 °F (-40 °C to +121 °C))

All specifications are for reference purposes only. In the interests of continuous product improvement, all specifications are subject to change without notice. Please contact Blue Ribbon Corporation for assistance with your application.





BIRDCAGE® SERIES SURGE PROTECTOR

MODEL BCP3000



Model BCP3000
Birdcage® Series Surge Protector

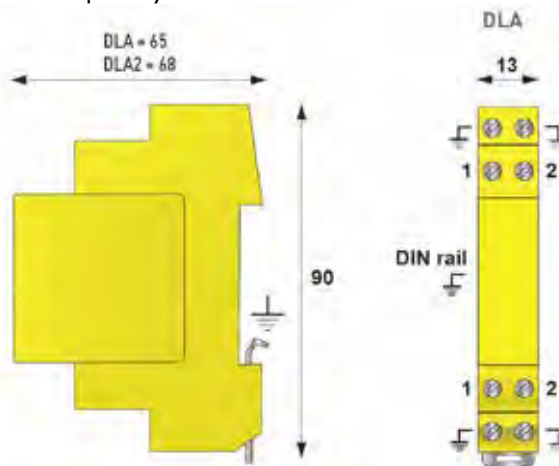
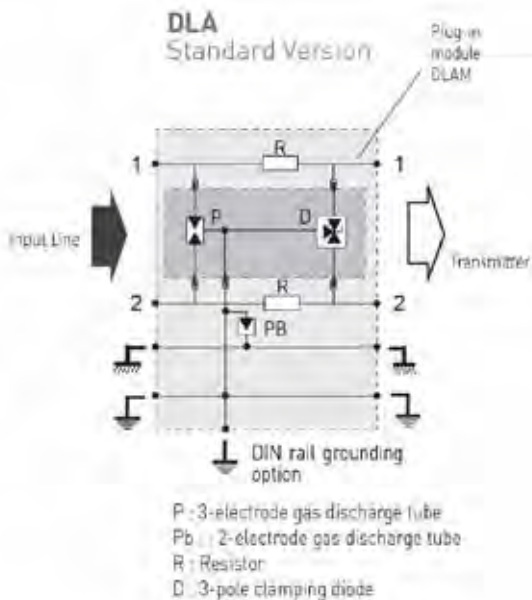


FEATURES:

- Lifetime warranty against lightning and voltage surges for BC001 Birdcage® (4-20mA only)
- 13mm DIN rail mount chassis
- Replaceable surge module
- UL 479B listed
- Multiple ground options
- High current gas discharge tubes (GDT)
- Fast response Surge-Arresting Diode (SAD)

TECHNICAL SPECIFICATIONS:

- Power: 24 VDC
- IEC Category/EN Type: C2/D1
- Highest Continuous Voltage (Uc): 28V
- Lightning Test Current (Iimp) 10/250µs 2x: 20kA
- Maximum Line Current: 300µs
- Nominal Discharge Surge Current 8/20µs: 5kA
- Total Surge Current 8/20 µs: 20 kA
- Protection Level (Up) 8/20µs-5kA: 40V
- Temperature Range: -50° to +85°C
- Test Standard: UL 497B (USA), NF EN 64643-21
- Dimensions (H x W x D): 65 x 13 x 90 mm
- Maximum Frequency: >3MHz



BR5SL-TXa-025
REV-D

CABLE HANGER

MODEL BCH2000

FEATURES:

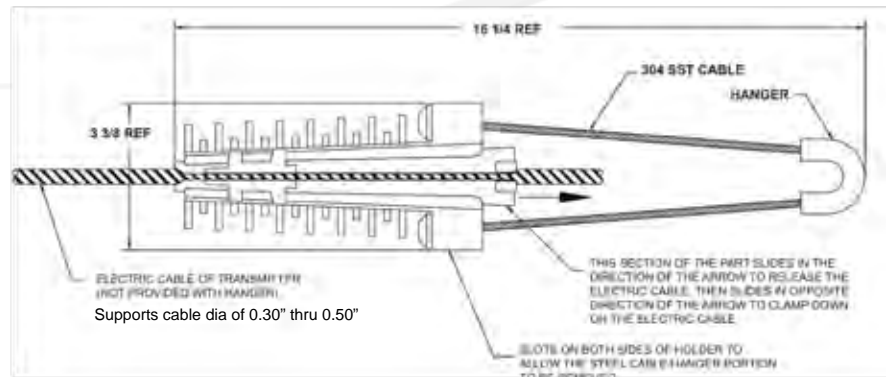
- Low cost, high durability
- Withstands 200 pounds of weight
- Heavy duty molded plastic
- Tapered insert - non-slip design
- Made for Standard Blue Ribbon polyurethane & Tefzel® cable
- Designed for cable diameters of 0.30" thru 0.50"

PRODUCT OVERVIEW:

The Model BCH2000 Cable Hanger from Blue Ribbon Corporation is designed to eliminate unnecessary stresses on the transmitter while installed in the application. Affordably priced, the BCH2000 Cable Hanger is designed for easy installation within a variety of environments.



Model BCH2000
Cable Hanger





PUMP CONTROLLER

MODEL BD300

OVERVIEW:

The Model BD300 Pump Controller is designed exclusively for use with the Blue Ribbon Birdcage® submersible level transmitter to provide multiple pump alternation for pumping stations and water municipalities. Featuring four programmable relay switches, a large 6 digit LED dual display, AC or DC power input, on board USB port and an isolated 24 Vdc power supply for use with any 4-20mA device. The BD300 is NEMA 4X and IP65 rated for the most demanding environments.

FEATURES:

- 0-20 mA, 4-20 mA, 0-5 V, 1-5 V, and $\pm 10V$ Inputs
- Isolated 24 VDC Power Supply
- Large sunlight readable dual 6-digit display
- NEMA 4X, IP65 Front
- Universal 85-265 VAC, or 12/24 VDC Input Power Models
- Front panel programming display and function keys
- Automatic round horizontal tank, or 32-point linearization
- Duplex and triplex pump control
- On board USB port for easy interface to Bulldog Pro programming software
- Free BULLDOG Pro Software for Operation, Monitoring, and Programming
- Standard 1/8 DIN (45mm x 92mm)

FIELD OPTIONS:

- NEMA 4X field enclosure with or without new light & horn option
- 4-Relay & Digital I/O Expansion Modules
- 1/4 DIN panel adapter (92mm x 92mm) Sunlight Readable Display Models



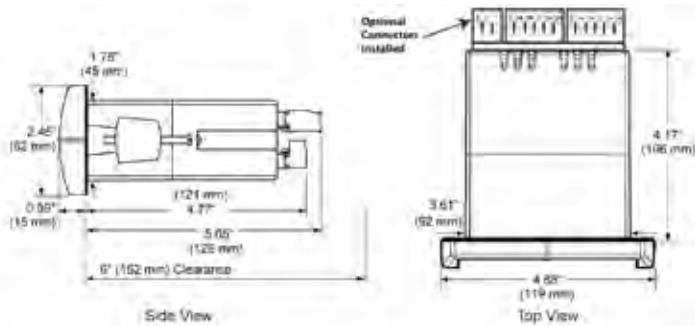
Models BD300
Pump Controller



PUMP CONTROLLER

DIMENSIONAL DRAWING

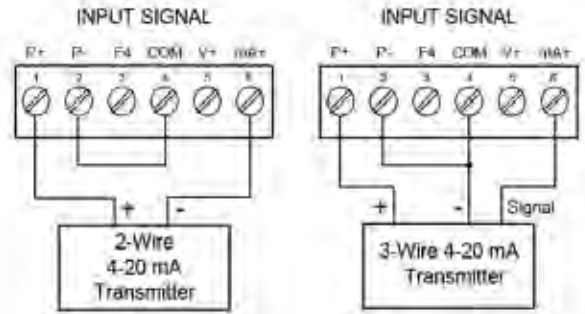
All dimensions are in inches (mm)



Notes:

1. Panel cutout required: 1.772" x 3.622" (45 mm x 92 mm)
2. Panel thickness: 0.040 - 0.250" (1.0 mm - 6.4 mm)
3. Mounting brackets lock in place for easy mounting
4. Clearance: Allow 6" (152 mm) behind the panel

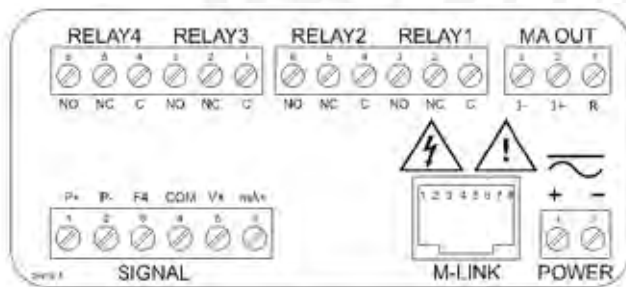
USING THE BD300 24 VDC POWER SUPPLY:



NEMA 4X FIELD ENCLOSURES:

Thermoplastic NEMA 4X enclosures are constructed for indoor or outdoor use.

CONNECTION DIAGRAM:



BD281

ACCESSORIES:

MODEL	DESCRIPTION
BDDRMK	DIN RAIL MOUNTING KIT FOR TWO EXPANSION MODULES
BDXM	4-RELAY EXPANSION MODULE
BDIO	4 DIGITAL INPUTS & 4 DIGITAL OUTPUTS MODULE
BDCCC	DUAL ANALOG OUTPUT EXPANSION MODULE
BDUSBSA	USB SERIAL ADAPTER
BD281	1/8 DIN ENCLOSURE

All specifications are for reference purposes only. In the interests of continuous product improvement, all specifications are subject to change without notice. Please contact Blue Ribbon Corporation for assistance with your application.





DUAL INPUT PUMP CONTROLLER

MODEL BD306

OVERVIEW:

The Model BD306 Dual Input Pump Controller from Blue Ribbon Corporation offers high-reliability monitoring and control when used with the Birdcage® submersible level transmitter. Unit features dual input process control with Math Functions, Programmable Display & Function Keys, RS-242, RS-485 and Modbus® RTU Serial Communication Protocol, making it suitable for use in a variety of industrial applications.



Models BD306
Pump Controller



FEATURES:

- Dual Input Process Controller with Math Functions
- 0-20 mA, 4-20 mA, 0-5 V, 1-5 V, and $\pm 10V$ Inputs
- Large Dual-Line 6-Digit Display, 0.60" & 0.46"
- NEMA 4X, IP65 Front
- Universal 85-265 VAC, or 12/24 VDC Input Power
- Programmable Display & Function Keys
- 32-Point, Square Root, or Exponential Linearization
- Multi-Pump Alternation Control
- USB, RS-232, RS-485 and Modbus® RTU Serial Communication Protocol
- Free BULLDOG Pro Software for Operation, Monitoring, and Programming
- Standard 1/8 DIN (45mm x 92mm)

FIELD OPTIONS:

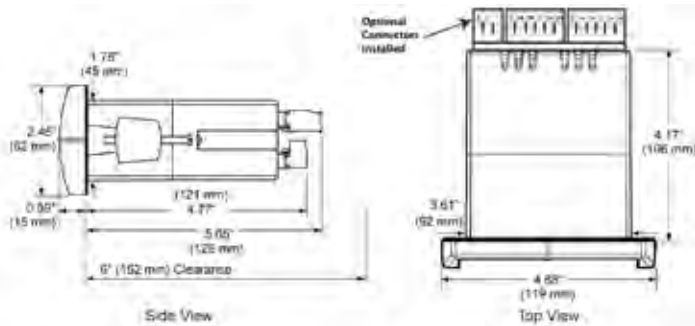
- 4 Relays + Isolated 4-20 mA Output
- External 4-Relay & Digital I/O Expansion Modules
- Sunlight Readable Display Models

BR5SL-PC-004
REV-A

DUAL INPUT PUMP CONTROLLER

DIMENSIONAL DRAWING

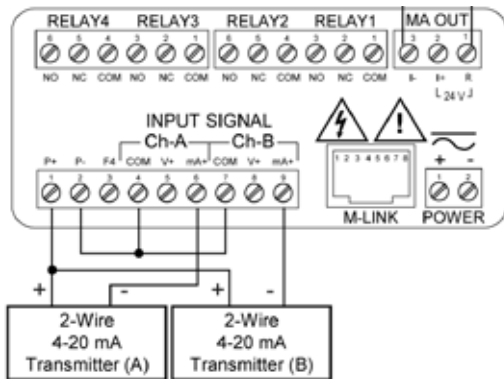
All dimensions are in inches (mm)



Notes:

1. Panel cutout required: 1.772" x 3.622" (45 mm x 92 mm)
2. Panel thickness: 0.040 - 0.250" (1.0 mm - 6.4 mm)
3. Mounting brackets lock in place for easy mounting
4. Clearance: Allow 6" (152 mm) behind the panel

CONNECTION DIAGRAM:



NEMA 4X FIELD ENCLOSURES:

Thermoplastic NEMA 4X enclosures are constructed for indoor or outdoor use.



BD281

ACCESSORIES:

MODEL	DESCRIPTION
BDDRMK	DIN RAIL MOUNTING KIT FOR TWO EXPANSION MODULES
BDXM	4-RELAY EXPANSION MODULE
BDIO	4 DIGITAL INPUTS & 4 DIGITAL OUTPUTS MODULE
BDCCC	METER COPY CABLE
BDUSBSA	USB SERIAL ADAPTER
BD281	1/8 DIN ENCLOSURE

All specifications are for reference purposes only. In the interests of continuous product improvement, all specifications are subject to change without notice. Please contact Blue Ribbon Corporation for assistance with your application.



SET POINT PUMP CONTROLLER

MODEL BD100

OVERVIEW:

The Model BD100 Bulldog from Blue Ribbon Corporation is a set point pump controller designed exclusively for use with the Blue Ribbon Birdcage® level sensor providing basic pump control functions.

The BD100 controller is an easy and inexpensive solution for monitoring and controlling pump station water levels. With six programmable level set points for pump control, including on/off set points for two pumps and settings for two alarms, and a preprogrammed set of default parameters to simplify the user interface and set-up.



Model BD100
Set Point Pump Controller

FEATURES:


- Control ON-OFF for two pumps
- Front-panel programming
- Analog output for runtimes
- Secure menu for all other preset values
- 24 VDC power
- Accepts 4-20 mA or 1-5 VDC
- Non-volatile memory, no batteries
- Alternation of pumps set as default
- Set points continuously displayed, along with current level readings.



BR5SL-PC-001
REV-A

SET POINT PUMP CONTROLLER

Standard Specifications listed below. Consult factory for further options, which may change the overall dimensions.

Set point Range	Low and High points are selected independently
Display	Two 4 digit, 7 segment, 14.2mm (0.56") high LED's
Control Action	Selectable for Reverse (pump up) or Direct (pump down): Selectable for alternation or not
Control Output Ratings	Relays: 2 each SPDT, 10A at 240 VAC resistive, ½ hp at 120 VAC, ⅓ hp at 240 VAC Alarm Relays: 2 each SPST 3A at 240 VAC resistive, 1.5A at 240 VAC inductive, pilot Duty Rating: 240 VA 2A at 120 VAC or 1A at 240 VAC
Additional Outputs	Two switched voltage outputs mirror action of relays, for recording motor start cycles and run times
Accuracy	±0.25% of reading ±1 least significant digit
Resolution	1 count or 0.1 counts (sensor dependent)
Isolation	Relays and SSR outputs, 1500 VAC from all inputs and outputs; 24 VDC loop power, 500 VAC to all inputs and outputs
Power Consumption	5 VA maximum
Electrical supply	100 to 240 VAC nominal, +10% to 15%, 50 to 400 Hz single phase; 132 to 240 VDC +10% to 20%
Loop Powered Supply	Isolated +24 VDC supplies power to the Birdcage or Pressure Sensor
Temperature Range	Operating Range: -10 °C to 55 °C (-14 °F to 130 °f) Storage Range: -40 °C to +80 °C (-40 °F to +175 °F)
Agency Approvals	UL508, CE 
Humidity Range	0 to 90% up to 40 °C for non-condensingw
Memory Backup	Non-volatile memory, no batteries
Panel Cutout	92mm X 92mm (3.625" X 3.625")
Depth Behind Mounting Services	103mm (4.0")
Weight	454 g (16 oz)
Front Panel Rating	IP66 (Type NEMA 4X)

All specifications are for reference purposes only. In the interests of continuous product improvement, all specifications are subject to change without notice. Please contact Blue Ribbon Corporation for assistance with your application.





DUAL SET POINT PUMP CONTROLLER

MODEL BD200

FEATURES:

The Bulldog Model BD200 versatile, simple, and inexpensive, making it the ideal instrument for controlling dual pump lifting stations. Setpoints for ON/OFF and HI/LO alarms are easily set on the front panel. These same buttons also Enable/Disable pump alternation. A selectable time delay of up to 60 seconds on power-up for pump two prevents both pumps from starting at the same time and a large current draw. Alarms for pump seal failure and motor windings overheating are indicated by lights on the front panel. The dial can also display a runtime clock for each pump. An isolated 4-20 mA retransmission is standard. The front face is rated NEMA-4X for outdoor panel mounting. The BD-200 is also available with RS-232 or RS-485 protocol for connectivity with SCADA systems.



Model BD200
Dual Set Point Pump Controller




SPECIFICATIONS:

- Selectable pump alternation when used with two pumps to minimize pump wear. With alternation "On", a seal failure or over temperature condition will force the non-failed pump to lead status and stop alternation
- Alarm light for seal failure when used with a submersible pump that includes a moisture sensor
- Alarm light for overheating when used with a pump that includes a thermostat. Pump is removed from service & can be brought back online manually or automatically when pump has cooled down
- Runtime displayed by a front panel button.
- 24 VDC power for level transmitter
- 4-20 mA or voltage signal output
- Non-volatile memory, no batteries
- Test System function simulates process input to test program, or to ensure pumps are operating
- User-selectable security lock-out of programming and/or setpoints

BR5SL-PC-002
REV-A

SET POINT PUMP CONTROLLER

Standard Specifications are listed below. Consult factory for further options, which may change the overall dimensions.

Input	4 (or 0) to 20 mADC or 2 (or 0) to 10 VDC selectable
Input Impedance	Current = 10 Ω , Voltage = 100K Ω
Output Ratings	Control Relays: SPDT, 10A @ 240 VAC resistive, ¼ hp @ 120 VAC, ½ hp @ 240 VAC Alarm Relays: SPST, 3A @ 240 VAC resistive, ¼ hp @ 120 VAC
Control Type	On/Off, reverse (pump out) or direct (pump in) acting
Accuracy	$\pm 0.25\%$ of span ± 1 least significant digit
Display	Two 4 digit, 7 segment, 14.2mm (0.56") high LED's
Resolution	1 count
Power Consumption	7.5 VA maximum
Electrical Supply	100 to 240 VAC nominal, +10% to 15%, 50 to 400 Hz single phase; 132 to 240 VDC +10% to 15%
Loop Powered Supply	Isolated +24 VDC @ 50 mA, regulated
Temperature Range	Operating Range: -10 °C to 55 °C (-14 °F to 130 °F) Storage Range: -40 °C to +80 °C (-40 °F to +175 °F)
Humidity Range	0 to 90% up to 40 °C for non- condensing
Seal Failure (Moisture Sensor)	Power: 2.5 VDC Search Current: 3 micro amps Resolution: 10K to 500K ohms in 10K ohm steps
Agency Approvals	UL508, CE 
Memory Backup	Non-volatile memory, no batteries
Panel Cutout	92mm X 92mm (3.622" X 3.622")
Weight	454 g (16 oz)
Front Panel Rating	IP66 (Type NEMA 4X)
Options	RS-232 or RS-485 with Modbus protocol; Ethernet using TCP/IP
Accessories	Weatherproof Enclosures, NEMA 4X

All specifications are for reference purposes only. In the interests of continuous product improvement, all specifications are subject to change without notice. Please contact Blue Ribbon Corporation for assistance with your application.





MODEL BB4000 QUAD PUMP CONTROLLER

MODEL BB4000

OVERVIEW:

With the accuracy of pressure-sensing level transmitters and the simplicity of float inputs, the Blue Ribbon Corporation Model BB4000 is the ideal controller for your application. This quad pump controller is easily configured for either analog sensors or float discrete inputs.



Model BB4000
Quad Pump Controller

FEATURES:

- Field configured for floats or analog sensor inputs, including 20 VDC loop power
- Optional 4 analog sensor inputs or 18 discrete (float switches)
- Alternates pumps and performs lag pump delays
- Provides high and low alarms with full front panel
- Adjustable parameter values
- Optional VFD speed control output
- Pump up (fill) or pump down (empty) control
- 6 Amp pump relay outputs and alarm outputs
- Visual indication up to 255 feet
- Full front panel setup for all control options and menu items
- 120 VAC input power. Line rate and transient protection
- Isolated and transient protected (4-20 mA) analog level input
- RS-232 serial port
- Modbus Protocol
- RTU or ASCII mode
- First ON - First OFF, or First ON - Last OFF alternation
- Alternator logic skips disabled pumps, remembers lead pump position during outage
- Timed (1 minute) level simulation
- Security code protected parameter setup
- Status of discrete inputs may be viewed from front of controller
- Phoenix-style connectors
- Adjustable lag pumps delay
- High and Low level alarm relays and alarm indication
- Wet well level analog input zero and span adjustments

BR5SL-PC-005
REV-A

MODEL BB4000 QUAD PUMP CONTROLLER

Standard Specifications listed below. Consult factory for further options, which may change the overall dimensions.

Input Power	120 VAC ($\pm 10\%$, 13 VA max), metal oxide varistor transient protection
EMI Line Filter	Pie type
Agency Approvals	UL508, CAN/CSA
Ambient Operating Temperature	Without analog outputs: $-20\text{ }^{\circ}\text{C}$ to $+65\text{ }^{\circ}\text{C}$ ($-4\text{ }^{\circ}\text{F}$ to $+149\text{ }^{\circ}\text{F}$) With analog outputs: $-20\text{ }^{\circ}\text{C}$ to $+50\text{ }^{\circ}\text{C}$ ($-4\text{ }^{\circ}\text{F}$ to $+122\text{ }^{\circ}\text{F}$)
Level Display	3-digit, 7-segment LED, 0-25 foot range (selectable decimal point position)
Indicators	LED
Color	White with Blue silk screening
Relays	6A at 250 VAC. 6A at 30 VDC
Loop Powered Supply	Isolated +24 VDC at 50 mA, regulated
Level Analog Input	Isolated 4-20 mA, 250 Ω load, transient protected
Discrete Inputs	Optically isolated and transient protected. Each input draws 7 mA at 24 VDC
Power for Discrete Inputs	Unregulated 24 VDC. Transient protected.
Power for Analog Inputs	Regulated 20 VDC $\pm 1\text{V}$. Transient protected.
Analog Outputs	Isolated 4-20 mA. Maximum load resistance: 600 Ω . Each output may be configured as a speed reference for any of the pumps, or set to follow well level input.
Auxiliary Analog Inputs	4 isolated 4-20 mA. 250 Ω load, transient protected.
Variable Frequency	<ul style="list-style-type: none"> VFD speed reference: the controller must be ordered with an analog output Drive Control for speed control of each pump that will be on a VFD. Three setup parameters are provided to establish a linear wet level v/s pump speed curve. Pump speed clamp logic: will not allow VFD speed reference to drop below the "VFD Minimum Speed" setup parameter value. Pump start speed boost logic: if enabled, will temporarily ramp pump speed to 100% to give the check valve a chance to open. Call pump last logic: the controller will call pumps in the Bypass Mode last (external circuitry must be connected to discrete inputs on the controller, to signal when a pump is in the Bypass Mode).

All specifications are for reference purposes only. In the interests of continuous product improvement, all specifications are subject to change without notice. Please contact Blue Ribbon Corporation for assistance with your application.





JUNCTION BOX

MODEL BCJ4000

FEATURES:

The Model BCJ4000 Junction box from Blue Ribbon with an IP66 rated corrosion resistant enclosure is designed specifically for water and waste water applications. The VALOX construction, non-metallic screws and hydrophobic vent filter provide a maintenance free option to sheet steel J-boxes and the convenient 3 pole terminal strip allows for simple hook-up with the Blue Ribbon BCP3000 lightning surge protector and Bird Cage level transmitter.



MODEL BCJ4000

SPECIFICATIONS:

- Overall size (W x H x D): 5" x 3" x 4"
- IP66 Rated Enclosure
- Corrosive resistant VALOX® construction
- ASTM-D-48 up to +280 °F heat deflection temperature
- Four holes for surface mounting
- Maintenance-free Hydrophobic filter
- Two cord grips accommodate 0.23" to 0.47" cables
- Finger safe, three-pole terminal strip

DIMENSION: INCHES (mm)	
Inside Height	4.69 (119.02)
Inside Width	2.61 (66.4)
Inside Depth	3.72 (69.06)
Outside Height	5.03 (127.83)
Outside Width	3.06 (77.83)
Outside Depth	4.02 (76.67)



COMMON OPTION CODES

Please Consult factory for other options

OUTPUT PER MODEL#

- 1xx** mV/V
- 2xx** Vdc
- 3xx** mA
- 4xx** HART
- 5xx** CANbus
- 6xx** USB
- 7xx** RS485
- 8xx** RS232
- 9xx** SDI-12

1002/1102 Vdc

1003/1103 mA

M-Spike mV/V

V-Spike Vdc

C-Spike mA

APPROVALS

- AI** ATEX/IEC Intrinsic Safety
- AN** ATEX/IEC Zone 2 (311 only)
- EC** CE marking
- GI** ATEX/IEC/FM/CSA Intrinsic Safety
- GN** ATEX/IEC/FM/CSA Div/Zone 2
 - I** FM/CSA Intrinsic Safety
 - N** FM/CSA Div/Zone 2
 - P** FM/CSA Explosion Proof
 - Z** FM/CSA Intrinsic Safety
 - X** FM Explosion Proof

ACCURACY

- B** $\pm 0.5\%$ FSO
- C** $\pm 0.2\%$ FSO
- D** $\pm 0.1\%$ FSO
- E** $\pm 0.05\%$ FSO

PRESSURE REFERENCE

- 2** Gauge
- 3** Absolute
- 4** Vacuum
- 6** Sealed Gauge (hermetic)
- 7** Sealed Gauge (non-hermetic)
- 8** Elevated / Suppressed

ELECTRICAL CONNECTIONS

- AA** 36" Wire lead standard
- CA** PTIH-10-6P, 6-Pin Bendix
- CF** 1/2" NPT (M) with 36" leads
- CJ** DIN 43650 Form A with mate
- DA** DIN43650 Form C (Mini Din) w/mate
- DC** Turck 4-Pin M12, Eurofast
- DR4** Turck 4-Pin, 7/8-16 THD
- DT4** Mini Fast, 4-Pin, 7/8-16 THD
- HK** 36" Non-Vented Poly Cable NEMA-4x Rating

PRESSURE PORTS

- AA** 1/4" NPT (F) standard
- FA** AS5202-04 (F) 7/16"-20 UNF-3A
- FD** AS4395E04 (M) 7/16"-20 UNF-3A
- FH** 1/8" NPT (F)
- FJ** 1/4" NPT (M)
- FL** 1/8" NPT (M)
- FM** Autoclave F250C (F) 1/4" Tube 9/16-18 Thd
- FN** 1/2" NPT (M)
- HK** 36" Non-Vented Poly Cable NEMA 4X Rating
- IC** F375C (F), 3/4-16 (F) 3/8" Tube 3/4-16
- ID** F312C150 (F), 5/16" Tube 5/8-18
- LG** SAE-4 (F) [7/16"-20 UNF (F)]
- LH** SAE-6(M) with O-ring, 9/16"-18 (M)

MISCELLANEOUS

- GE** Improved Temperature Compensation
- GF** Expanded Process Temp (-40 °F to 250 °F)
- GH** 100% Internal Shunt Cal
- GJ** Zero & Shunt Adjustments
- GK** Inconel x750 wetted parts
- GL** Cleaned for oxygen service
- GP** Hastelloy C-276 wetted parts
- GS** 0-10 Vdc FSO
- GA** Improved FSO ($\pm 0.5\%$ FSO)
- GB** Alternate electronic output
- GD** 10X over-pressure of 22,500 psi, (whichever is less)
- MA** 1-5 Vdc Output
- ME** 80% Shunt Cal
- MR** Alternate Pin out / wiring (specify on sales order)

TECHNICAL/APPLICATION NOTES



Pressure, Level & Temperature Transmitters & Transducers

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LEVEL MEASUREMENT UTILIZING A PRESSURE TRANSMITTER

Technical Note #1

One method of determining level in a tank, pond, weir or well is to utilize a pressure transmitter. There is a direct relationship between liquid level and "head" pressure. Depending on the installation requirements, pressure transmitters are available in submersible, screw on, flange mount, flush mount and many other installation configurations.

Pressure & Level Relationship

The pressure at the bottom of an open tank or body of liquid is related to the height of the liquid. This level pressure is called hydrostatic head pressure. Typical units of measure for hydrostatic pressure are inches of water column or feet of water column. (in WC / ft WC)

27.679 inches of water column is approximately equivalent to 1 PSI at 40° C. The volume of water will not affect the hydrostatic head pressure, it is the height that affects the pressure. Whether 27.679 inches deep in the middle of a large body of water or small bucket of water the head pressure is the same.

When measuring liquid level with a pressure transmitter, specific gravity must also be taken into account. $P=SG \cdot H$ ($H = P/SG$) shows the relationship between the height of the liquid, specific gravity and hydrostatic pressure.

H – Height of the liquid being measured
P – Hydrostatic head pressure at the bottom of the tank
SG – Media's specific gravity. (A dimensionless number)

If the media's specific gravity is unknown it can be calculated from the density of the liquid being measured. $SG = \text{Density of media} \div \text{Density of water at } 40^\circ \text{ C}$. Density of water is 1.00 g/cm³. The density of gasoline equals 0.82 g/cm³. Therefore, the SG of gasoline is $0.82 \text{ g/cm}^3 \div 1.00 \text{ g/cm}^3 = 0.82$

Example:

Calculating hydrostatic head of 240 inches of gasoline in a vessel is as follows:

Height (H) = 240" of Gasoline
Specific Gravity (SG) = 0.82 $P=SG \cdot H$ therefore
 $P=0.82 \times 240 \text{ inches} = 196.8 \text{ in WC}$.

The hydrostatic pressure (P) at the bottom of this vessel is equivalent to 196.8 in of water column.

TECHNICAL/APPLICATION NOTES

To convert this level measurement to pressure (PSI) the following conversion is used:

- 1 inch of water column = 0.03613 PSI (≈ 27.679 inches of water column = 1 PSI).
- 196.8 in WC x 0.03613 = 7.110 PSI
- 240 Inches of Gasoline = 7.110 PSI of hydrostatic pressure at the bottom of this container.

Specific gravity can have a significant effect on the level measurement. If this same vessel were filled with water to the same depth there would be a 22% increase in head pressure.

INSTALLATION TYPES

Open Tank / Pond / Weir Level Measurement

When utilizing a pressure transmitter for level measurement the installation must carefully be considered. In an open tank or body of water where the liquid being measured is open to atmospheric pressure, there are a variety of installation options.

Tank Mounted Level Sensor

Fig. 1

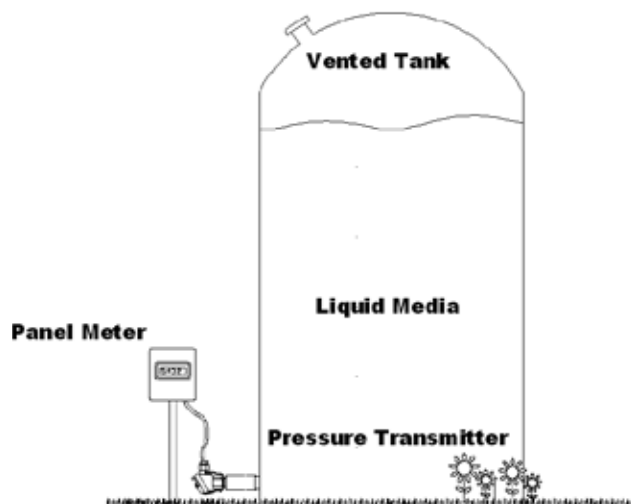


Figure 1: Shows a pipe mount style pressure transmitter. This style transmitter is typically plumbed to the base or side of a vessel & the signal sent to a panel meter or other reading device. This can be utilized where a pipe tap or other mechanical process connection can easily be accessed. A shut-off valve should be utilized for ease of removal.



Pressure, Level & Temperature Transmitters & Transducers

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LEVEL MEASUREMENT UTILIZING A PRESSURE TRANSMITTER

Technical Note #1

This type of transmitter can also be installed using a flanged or flush mount connection. Flush mount transmitters are typically found in sanitary applications or where the media being measured can plug a recessed process connection.

Figure 2: Shows a submersible pressure or level transmitter. This style of transmitter is lowered into the well or tank via its integral cable. Installation is easier than the pipe mount style especially where a plumbed connection is not readily available, like on a fiberglass tank, underground tank or in an open well or pond.

For both installations the transmitter should be of gauge format to eliminate any barometric effects.

Submersible transmitters typically come with an integral vent tube in the cable, which is terminated in the panel meter or junction box topside. The pipe mount version transmitter is also available with a vented cable option so as to provide ingress protection when mounted outdoors.

Fig. 2

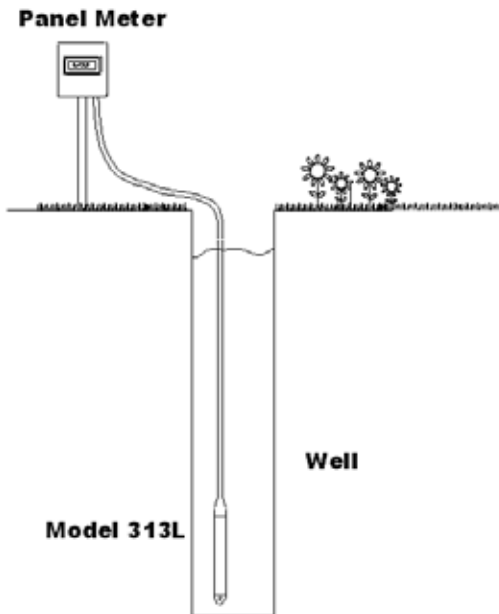


Figure 3: Shows a pipe-mounted transmitter with a zero suppression option. Zero suppression allows for level measurement of just the upper bowl and cancels out the tower pipe level / head pressure.

Fig. 3

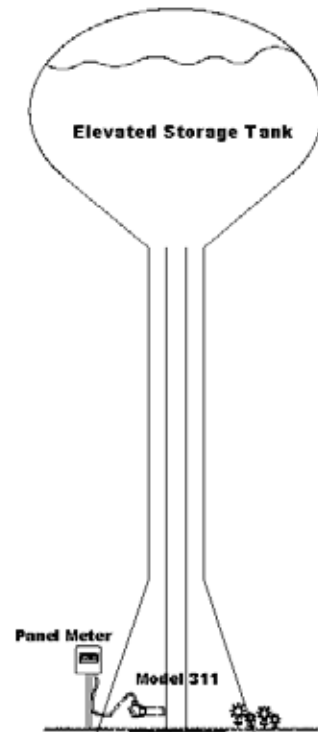


Figure 4: – Pressurized Tank level (next page)

Sometimes media is stored in a tank under a pressurized gas blanket. This gas blanket can vary from a fraction of a PSI to many PSI. This pressurized gas blanket has an additive effect on the total media head pressure. The total head pressure is now equivalent to the blanket gas pressure plus the hydrostatic head pressure.

If a standard pressure sensor is attached to the base of the tank as shown in Fig 4 it would provide a signal equivalent to the media's head pressure and the pressure of the gas blanket combined.

For example, if the gas blanket was 1 PSI and the media had 10 ft of head pressure, a bottom or side mounted gauge transmitter would read 5.335 PSI or 12.31 FT WC since $1\text{ PSI} = 2.306\text{ FT WC} + 10\text{ FT WC} = 5.335\text{ PSI}$.



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LEVEL MEASUREMENT UTILIZING A PRESSURE TRANSMITTER

Technical Note #1

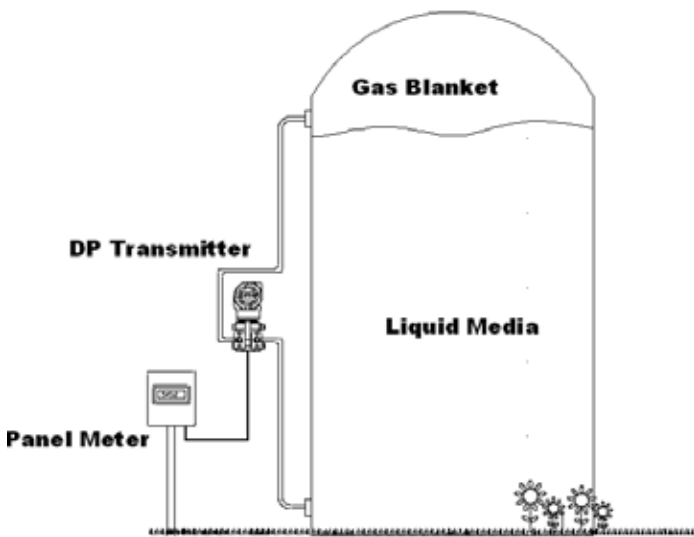
Utilizing this style of pressure transmitter will work if the blanket pressure can be measured and subtracted from the readings of the transmitter. This can be difficult to accomplish and total accuracy is affected.

The most common method of getting an accurate level measurement in this application is to utilize a Differential Pressure Transmitter (DP). Fig 4 shows a DP transmitter installed with the High side plumbed to the base of the tank and the Low side is plumbed to the air blanket on top. Typically stainless steel, oil-filled capillary tubing is attached to remote diaphragm seals and coupled to each side of the DP transmitter, as shown in Fig 4. This provides a flanged or clamped style fitting for tank mounting purposes.

The High side then senses the media head pressure combined with the air blanket pressure. The low side senses just the air blanket pressure.

The low side air blanket reading then offsets the high side combined reading and provides an accurate level measurement.

Fig. 4



For example, assume this tank is 10 feet tall and has 9 feet of water level inside and 1 PSI of an air blanket.

Knowing that water has a specific gravity of 1.00, the hydrostatic head pressure and gas pressure reading at the base of the tank or on the high side of the DP would total: 9 FT WC + 1 PSI = (2.307 FT WC) = 11.307 FT WC TTL.

The low side of the DP is measuring the gas blanket pressure of 1 PSI which is then subtracted from the High side reading. 11.307 FT WC – 1 PSI = 9 FT WC level.

9 FT WC is the corrected media level in this tank example. Changes in the gas pressure blanket or level are all corrected via the DP measurement.

There can be a number of variables to consider with this type of installation.

- What is the media and ambient temperature?
- Are the capillaries exposed to the same temperature?
- Mounting location of the DP transmitter
- Will the system be exposed to vacuum?

Whatever your level or pressure application requirements, Blue Ribbon Corp has a technical staff willing to assist you with your needs.

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DETECTING LEAKS

Technical Note #2

Pressure vessels, valves, tanks, heat exchangers, radiators, drums, welds, and gasket integrity are just a few products that require high seal integrity to insure a reliable leak free product. There are a few ways to insure this integrity, pressure decay or leak testing is the most common. Helium or Ion leak detection systems work very well but require expensive equipment and may exceed the requirements necessary.

Pressure decay utilizing a pressure transmitter is simple to use, cost effective and can be more efficient in a production environment, especially if higher pressures are required to test the integrity of the vessel.

Pressurizing the vessel or test piece and monitoring pressure output from the transmitter will indicate any subsequent loss of pressure due to a leak in the vessel.

There are two methods,utilizing either a gauge or differential pressure transmitter to measure pressure decay.

Setup 1: (Single Ended - Gauge Pressure)

Diagram 1 shows a container being tested utilizing a 150 PSI gauge type transmitter. If the container is pressurized to 150 PSI and then the valve is closed, the transducer will sense a leak in pressure via a drop in output.

Small leaks may be detected with this setup but the process can be time consuming.

Percent error of the transmitter, and pressure range of the transmitter greatly affect the decay resolution.

If the gauge transmitters total error band is 1%FSO a 1.5 PSI (41.52" WC) error may be present. (150 PSI x 1% TTL Error band = 1.5 PSI). This may be too large of an error if small leak rates need to be detected.

Diagram 1

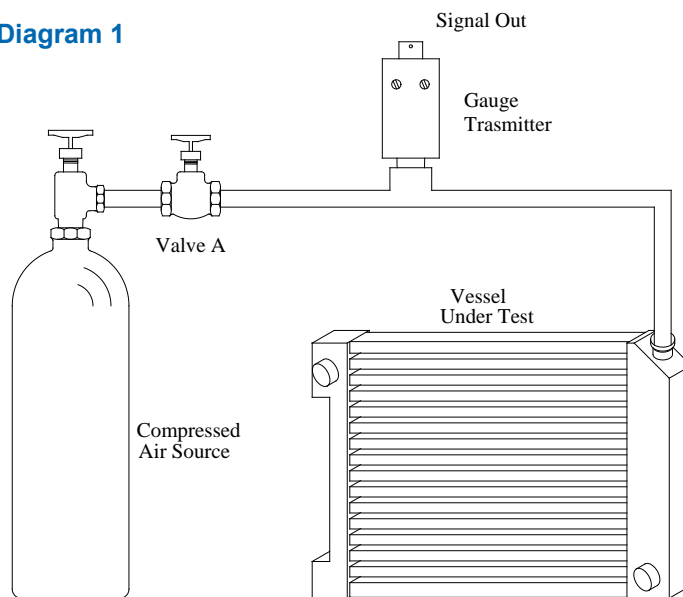
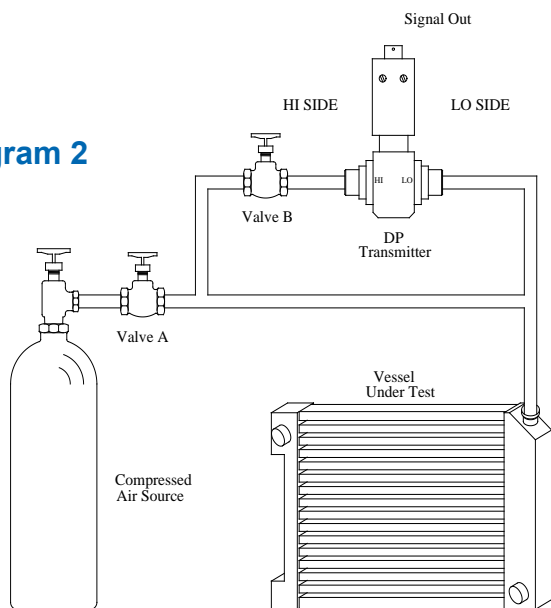


Diagram 2



Setup 2: (Differential Pressure)

Diagram 2 shows a container being tested utilizing a Differential Pressure Transmitter.

In this example the container and system is pressurized to 150 PSI with all valves open but now we utilize a 5 in WC Differential Pressure (DP) transmitter. Once the system is stabilized valve A is then closed. The DP transmitter will read Zero output because of a zero differential pressure. (150 PSI on both the Low & Hi sides)

Valve B is then closed. This isolates the 150 PSI in the vessel under test to the Low side of the DP. If a leak is present the Low side will sense this pressure decay as indicated by a drop in output from the DP transmitter.

Lets assume this 5" WC transmitter has a 1% FSO error spec like the gauge transmitter. The pressure drop or decay can then be accurately detected at 0.050" WC. (5" WC x 1% TTL Error Band = 0.05"WC)

As you can see from the first gauge pressure example, utilizing a differential pressure system produces more accurate and faster results. The decay measurement is more than 800 times better utilizing the DP transmitter.



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GAUGE OR SEALED PRESSURE REFERENCE FORMAT

Technical Note #3

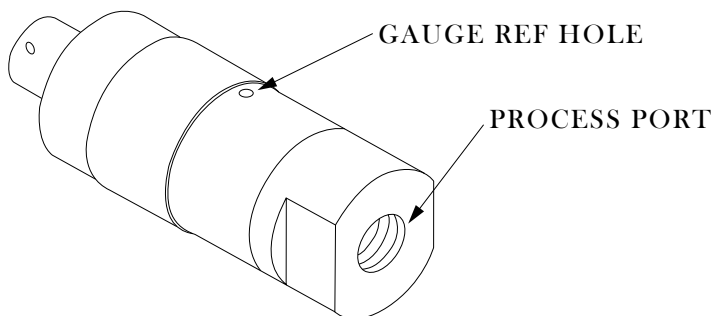
When selecting a pressure transmitter, the pressure reference format is critical so as to provide an accurate device. Pressure reference may be gauge, sealed gauge, vacuum, absolute or differential. Gauge and sealed gauge format are the most commonly supplied and what we address below.

A pressure sensor has both a reference and process side. The process side is where the media being measured is applied, typically a pipe, flanged or other threaded connection. The reference side or back side is not visible from the outside and is enclosed inside the transmitters housing. There are many parameters to consider when selecting gauge or sealed gauge format. Below we define and provide guidelines in selecting these formats.

Gauge Pressure (PSIG)

Gauge pressure transducers provide a vent path to the reference or backside of the sensor. As shown in Fig 1, gauge format is typically provided for by adding a vent hole in the housing of the device. This provides an atmospheric reference to the reference of the sensor.

Fig. 1



This vent hole insures both sides of the sensor are exposed to the local altitude and barometric pressure. This gauge reference hole equalizes these pressures and provides a stable zero reading regardless of barometric pressure or altitude. Therefore true gauge format provides a pressure measurement relative to local altitude and atmospheric conditions.

Gauge reference is very critical in ranges <300 PSI. It can affect ranges above or equal to 300 PSI but depending on accuracy required may or may not be a consideration. This is explained below under the Sealed gauge definition.

Sealed Gauge (PSIS or PSISG)

Sealed gauge transducers on the other hand, do not provide a vent hole to the sensors reference side. This reference or backside of the sensor is sealed from atmosphere at the factory.

Blue Ribbon Corp offers two sealed gauge formats designated as hermetic and non-hermetic, option codes 6 & 7 respectfully. A hermetically sealed gauge (6) device has the reference side of the sensor evacuated and sealed via a special header. This hermetic header helps reduces the effects of temperature due to internal air expansion trapped in the housing assembly. The unit is then zeroed to 1 atmosphere or approximately 14.7 PSIA.

The non-hermetic version (7) does not provide a hermetic header. The sensors reference side is sealed inside the housing at local atmospheric pressure. This non-hermetic version typically isn't a factor in higher ranges, typically 1,000 PSI or higher, or where ambient temperature changes can be minimized.



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GAUGE OR SEALED PRESSURE REFERENCE FORMAT

Technical Note #3

Affect of Local Pressure:

CHART A

FT	in Hg	PSI
0	29.921	14.7
500	29.38	14.43
1,000	28.86	14.18
1,500	28.33	13.9
2,000	27.82	13.67
2,500	27.31	13.41
3,000	26.81	13.19
3,500	26.32	12.92
4,000	25.84	12.7
4,500	25.36	12.45
5,000	24.89	12.23
10,000	20.58	10.1
15,000	16.88	8.28
20,000	13.75	6.75
30,000	8.88	4.36

Sealed gauge readings can be drastically affected by barometric pressure and altitude changes depending on the sensor range. Chart A shows the relationship between altitude and absolute pressure. The altitude at which the transmitter is installed can greatly affect the zero reading.

For example, sealed gauge units are calibrated at the factory at 591 ft above Sea level or ~29.40 in. Hg. Calgary, Canada is at 3,533FT or ~26.30 in. Hg, a 3.1 in. Hg difference or 1.52 PSI. This translates to a -0.51% difference on a 300 PSI sensor or a zero reading drop as much as -0.081 mA. On a 100 PSI sensor this is a -1.52% change which could potentially produce a zero reading of 3.856 mA or lower depending on the initial zero setting called Zero balance.

On this same 100 PSI transmitter, if the standard zero balance spec is +/-1% FSO, the zero could potentially be as low as 3.84mA (16mA span +/-1% = +/-0.16mA) compounded with the additional -1.52 PSI altitude change, a 2.52 PSI or -2.5% lower zero could result. Barometric effects can lower the zero even further.

Barometric pressure also affects the zero reading. Barometric pressure could potentially swing as much as 1 PSI, (typical high -30.6 in. Hg to typical low -28.5 in. Hg) depending on weather conditions. For example a 1.02 in. Hg drop in barometric pressure would result in a 0.48% zero offset error on a 100-PSI sensor.

As mentioned above, gauge pressure format negates effects from changes in local atmospheric pressure and altitude.

All these effects need to be considered when selecting what format you require. Finally, consider the ambient conditions where the transmitter is being installed. Wet, oily, dirty, harsh environments may require a sealed gauge format to reduce the chances of contamination. To provide gauge format in these harsh environments an optional vented cable is offered to remotely vent the reference side away from the potential contaminated area.

Selecting the correct pressure format, either gauge or sealed gauge will provide you the best, most accurate pressure solution for your application.



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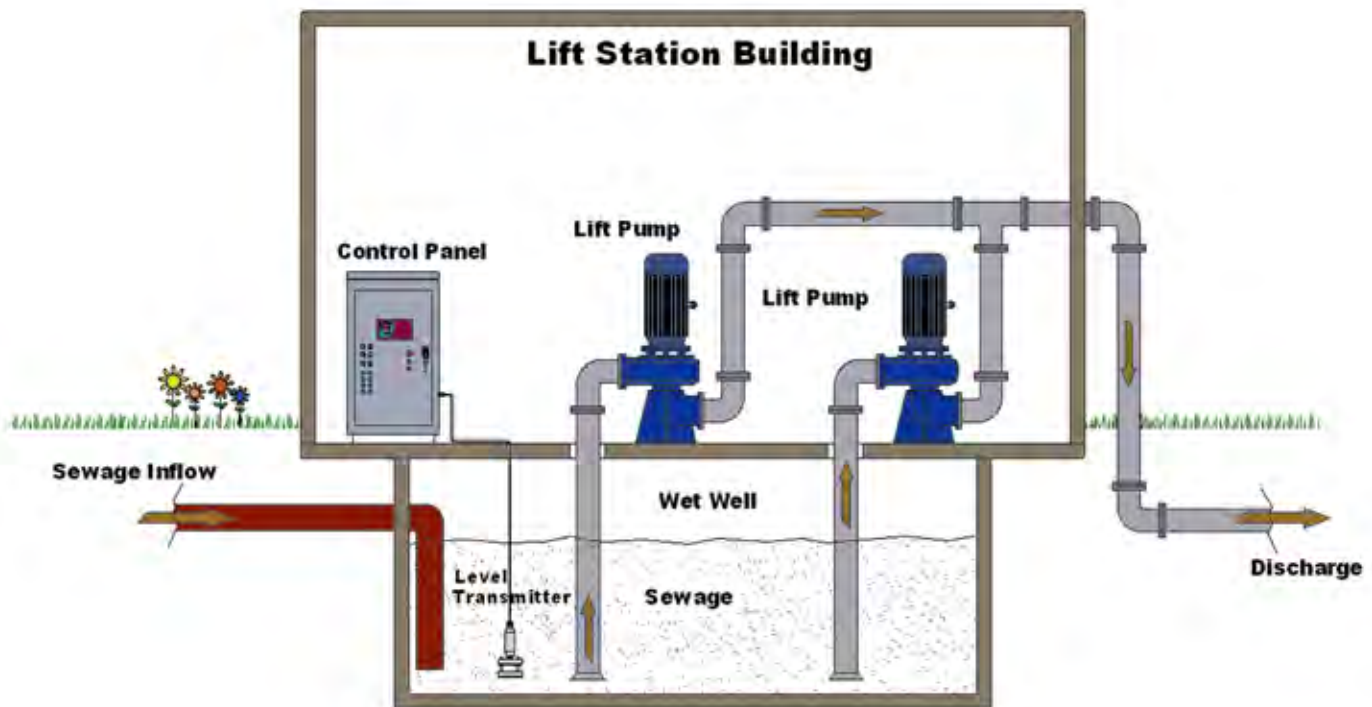
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PUMPING OR LIFT STATION LEVEL CONTROL

Application Note #1

The purpose of a lift station is to raise or lift the sewage to a higher elevation where it can then flow downhill via gravity to the wastewater treatment plant. Raw sewage flows by gravity to the lift station into what is called a wet well. This wet well acts as a holding tank for the raw sewage. When a set level in the wet well is reached, a pump will automatically start to pump down the well to a consistent level. If the first pump cannot maintain the set level a second pump will start and run until a low level set point is reached. Some pump stations have as many as 4 pumps to maintain level. With millions of lift or pump stations throughout the US a reliable, accurate level transmitter is required to avoid overflow.

A typical sewage lift station layout is shown here.



The purpose of the level transmitter is to provide feedback to the pump allowing them to turn on and off when the level reaches a set height. Floats, bubbler systems, radar and ultrasonic are all ways to indicate level. However these methods can have installation difficulties, maintenance issues, high costs or reliability issues due to the environment.

Blue Ribbon Corp has developed the Model BC001, a submersible, hydrostatic level transmitter that can withstand the environmental conditions and provide a reliable, accurate level control. The large diameter sensing element is designed to resist clogging which is critical due to the level of fats, oil and grease found in the wet well. This design provides low maintenance, installation and initial purchase cost.

The Model BC001 provides a heavy duty baffle plate, some times known as a Birdcage® design, to protect the sensing element from installation issues or debris found floating in the effluent. The transmitters construction provides a weighted advantage to keep the transmitter in place at the bottom of the wet well. The all stainless steel body provides a corrosion resistant design with an integral Polyurethane or Tefzel cable to resist compatibility issues. The cable also provides an integral breather tube that allows for barometric reference.



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PUMPING OR LIFT STATION LEVEL CONTROL

Application Note #1

Installation is simple due to the transmitters design. The transmitter is inserted in the wet well from the top and lowered to the bottom of the well. The reinforced cable doesn't require additional support, but in severe applications or for ease of retrieving the cable if dropped into the wet well an external support cable is recommended.

Typically the transmitter is terminated in a control panel where the signal is feed into a pump controller. Blue Ribbon Corp also provides a 2 or 4 channel pump controller that provides programmable pump rotation, level indication, alarms, seal leakage indication and other features required for pump station control.

Model BC001

Features

- Non-Clogging 3-1/2" Diameter sensor face
- All 316 Stainless Steel construction to resist corrosion
- 1/2" NPT Male electrical conduit connection for rigid installation support
- Integral lightning protection
- ~6lbs in weight to limit cavitation and movement

Critical Specification Overview:

(see data sheet for full specs)

Pressure Ranges: 0-30" WC thru 0-300 PSI

Accuracy: $\pm 0.5\%$ FSO ($\pm 0.25\%$ FSO available)

Output: 4-20mA (0-5 VDC available)

Wetted Materials: 316 Stainless Steel, Polyurethane & Neoprene.

Temperature compensated: 0-140 °F

Please contact Blue Ribbon Corp:

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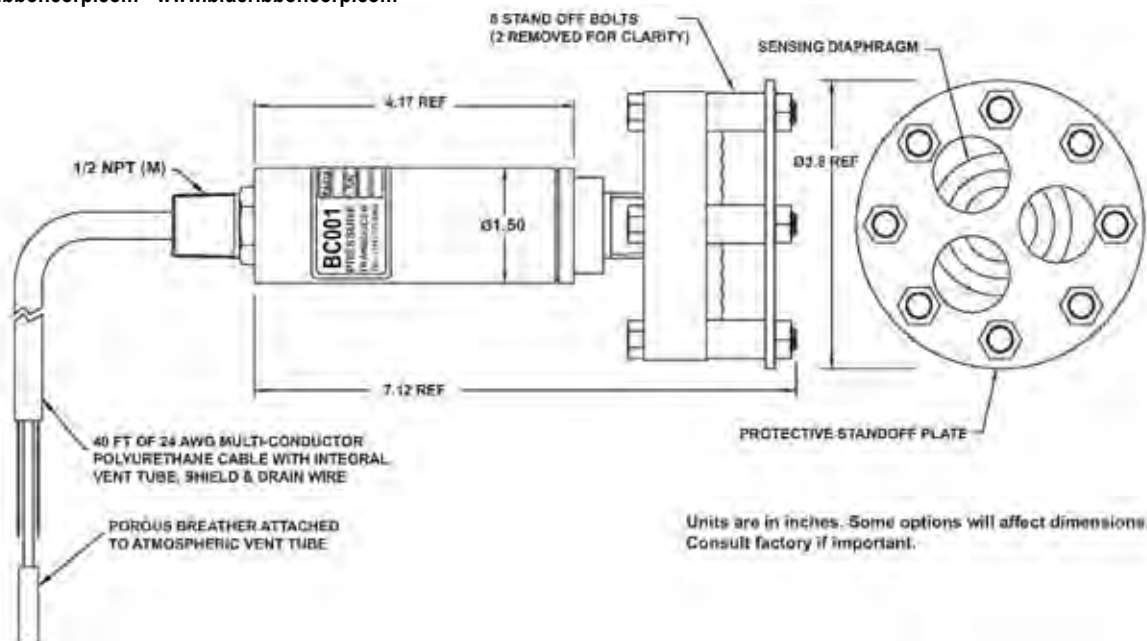
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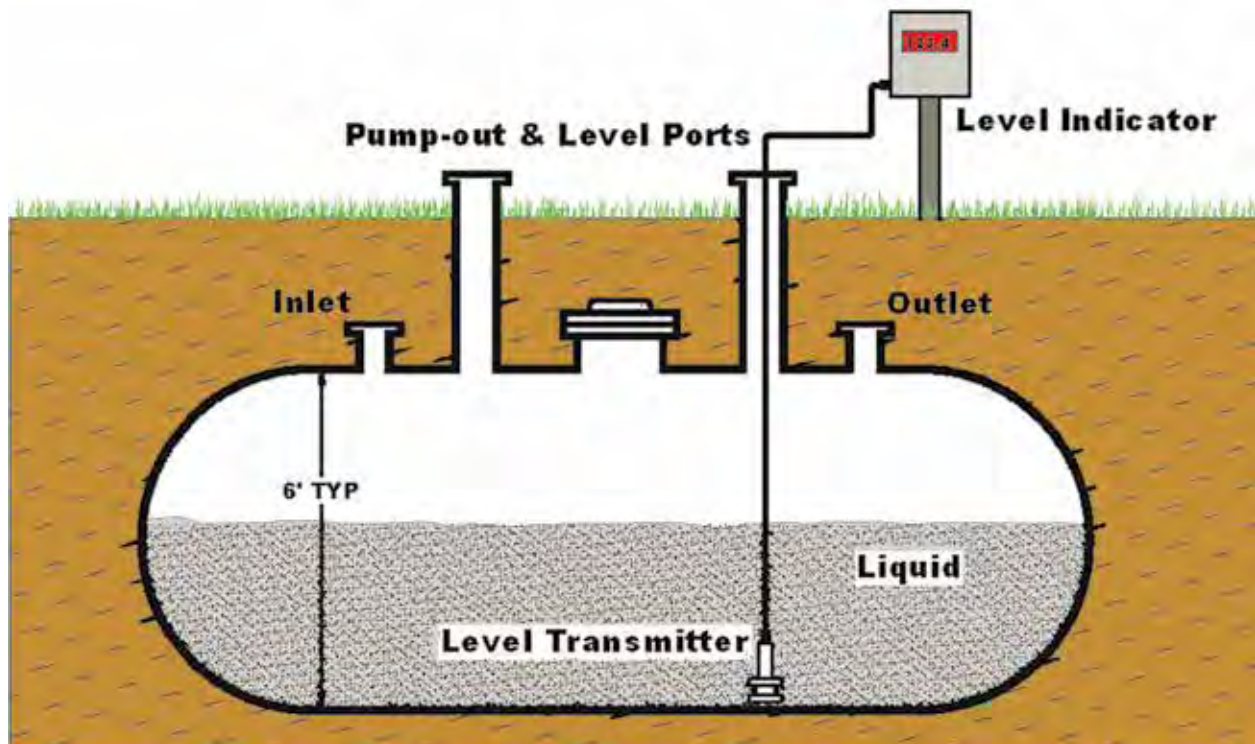
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FLARE KNOCKOUT TANK

Application Note #2

A Flare Knockout Tank is typically a horizontal vessel for trapping hydrocarbon liquids in a gas flare system. Separating the liquids out of the gas stream prevents possible damage further down the process.

The fluid in knockout tanks is mostly water mixed with some hydrocarbon. In areas where above ground tanks are prone to freezing these knockout tanks are often buried underground below the frost line.



As these tanks fill with the hydrocarbon condensate, a reliable level indication is required to indicate when the tank reaches a predetermined level.

The simplest way to access the water level in this tank is through a stilling well or access port that is installed in the tank and is accessible above ground. Because the tanks are installed underground, this access port is the only viable means of installing a level device.

Many different level instruments have been used with varying success. Mechanical floats were used but the coating tendencies of the hydrocarbon and water mix required regular maintenance. Guided wave radar is another option, but requires long rigid probes making it difficult to install, ship and handle. Ultrasonic devices are yet another option but require precise setup, are susceptible to errors in level due to foaming and can be costly.

A Blue Ribbon Model BC001 which works on a hydrostatic level principle, avoids these limitations. It simply is installed through the access port or stilling well, allowed to settle to the bottom and then interfaced to the existing SCADA system. The 3 inch sensing element eliminated the clogging issues found with other contact devices, is easy to install, and is impervious to foaming or other pitfalls found setting up radar level systems. The Model BC001 successfully prevents tank overflow which maintained plant safety and reduced unnecessary pump out cost by not emptying the tank sooner than is required.

TECHNICAL/APPLICATION NOTES



Blue Ribbon Corp.

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WARRANTY

Blue Ribbon Corp. (BRC) warrants its products to the original customer/purchaser against defects in material and workmanship for a period of one (1) year from the date of sale by BRC, as shown in its shipping documents. For further details about our warranty statement, visit our website at:

<https://blueribboncorp.com/products/warranty/>

REPAIRS

Blue Ribbon Corp. offers a comprehensive service program with qualified technicians that evaluate our products. If you are experiencing trouble with a Blue Ribbon product, please contact our Sales Department at (716) 773-9300.

If you wish to return any equipment to Blue Ribbon Corporation, you must contact our Sales Department at (716) 773-9300 to obtain a Return Goods Authorization (RGA) number.

In order to service you better, items being returned to Blue Ribbon should be labeled with the RGA number on the outside of the package. Please include as much of the following information as possible on the packing slip:

Original Purchase Order Number, Invoice Number, Return Address, Contact Name and Telephone Numbers. Specify failures and the reason for return on the packing slip.

DUE TO THE CONTAMINANTS THAT ARE PRESENT IN WASTE WATER APPLICATIONS, UNITS BEING RETURNED FOR REPAIR MUST BE SANITIZED PRIOR TO SHIPMENT TO BLUE RIBBON. UNITS WILL BE RETURNED TO THE SENDER AND NOT REPAIRED IF FOUND UNSAFE FOR HANDLING.

See complete Repair Policy details online at:

<https://blueribboncorp.com/resources/repairs-returns-rma/>



Model BC001 - Birdcage®

Invented, patented and trademark by the founder of Blue Ribbon Corp., the Birdcage® has become the industry standard for reliable, lift-station level transmitters.



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