

SOLFRUNT® Pressure Gauges and Other Products for the Process Industries

AMETEK's line of high quality process gauges are specifically designed to meet the demanding needs of the chemical and petroleum processing industries, and are also widely used in industries such as fossil fuel and nuclear power generation, aerospace and marine. The gauge's design and materials of construction provide reliable service in applications where corrosive atmospheres, corrosive media, pressure pulsation, vibration, and wide variations in ambient temperatures are present. SOLFRUNT gauge cases feature an integral wall between the measuring element and the window, and a pressure relieving back for increased safety¹. They are available in various

styles, case materials, and mounting arrangements, and wetted parts are available in bronze, stainless steel, alloy steel, and MONEL®. Recalibration adjustments can be made from the rear of the case without removing the internals. On the 1900 Series the pointer is adjusted by removing the ring and front window. Most SOLFRUNT gauges are factory stock and are readily available through your U.S. Gauge Distributor.

Visit our Web site for a list of local stocking distributors:
www.ametekusg.com/products/distributors.cfm

¹ It is recommended that users of gauges become familiar with American National Standard ASME B40.100-1998 entitled "Pressure Gauges and Gauge Attachments." This specification is available from the American Society of Mechanical Engineers, United Engineering Center, 345 East 47th Street, New York, New York 10017.





Process Gauges

New!

SOLFRUNT® 4-1/2" Model 1981 and Model 1981 Advantage

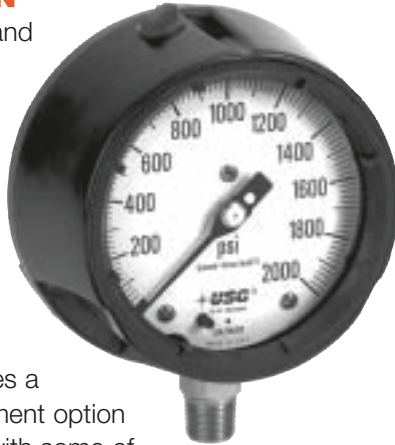
DESCRIPTION

The Model 1981 and 1981 Advantage 4-1/2" Process Gauges have all 316L stainless steel wetted surfaces with a seamless bourdon tube.

The 1981 Advantage includes a dampened movement option to provide users with some of the benefits of liquid filling. These gauges have a PET turret style case for chemical and petrochemical processing applications. The PET material gives this case superior impact strength and a broad spectrum of chemical resistance. They are available dry, with a dampened movement, or liquid filled from the factory or your local stocking distributor, liquid fill kit, or the E-Z Fill design to facilitate filling in the field without special tools.

The Model 1981 and 1981 Advantage 4-1/2" SOLFRUNT gauges are supplied in 30 vacuum, compound, and pressure ranges from 30" Hg vacuum through 11,600 psi. The low-connected PET turret case can be easily liquid filled in the field using the appropriate conversion kit.

Span adjustments can be accomplished from rear of case without disturbing the gauge internals. Pointer adjustments are easily made by removing ring and window.



SPECIFICATIONS

DIAL SIZE: 4-1/2"

CASE AND RING:

For Stem or Wall Mounting:

PET TURRET CASE (black) with glass-filled polypropylene threaded ring and pressure-relieving back

WINDOW: High temperature acrylic, other options available

POINTER: Anodized aluminum, micro-adjustable with black finish

DIAL: Aluminum with baked white background and black markings

MOVEMENT: Geared movement with components of corrosion-resistant 300 series stainless steel. Optional dampened movement available

BOURDON TUBE: 316L stainless steel/TIG welded

CONNECTION: 316L stainless steel, 1/2-14 ANPT standard (1/4-18 ANPT, optional)

ACCURACY: $\pm 0.5\%$ of span (Grade 2A), except where stainless steel bourdon tubes are used in following ranges: Type 316L from 10,000 to 11,600 psi; accuracy is $\pm 0.5\%$ on ascending pressure and $\pm 1.0\%$ on descending pressure

LIQUID FILLING: The Model 1981 is also available in liquid filled or field fillable configurations. Please reference Spec Number Selection Chart on page A3



**Model 1981
Advantage**

Please see the **MODEL SELECTION CHART** on page **A11**

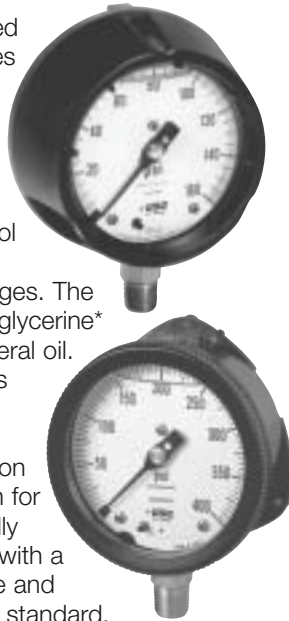


Process Gauges

SOLFRUNT® 4-1/2" Liquid Filled Gauges

DESCRIPTION

4-1/2" PET or aluminum cased SOLFRUNT liquid filled gauges are designed to extend service life wherever corrosive atmosphere and/or severe operating conditions (such as compressors, pulsating pumps, machine tool applications, etc.) affect the performance of standard gauges. The liquid fill may be a mixture of glycerine* and water, silicone oil, or mineral oil. The liquid effectively dampens mechanism and pointer oscillation and vibration while providing continuous lubrication and protection from corrosion for the gauge internals. A specially designed rear blowout panel with a vent for atmospheric pressure and temperature compensation is standard. U.S. Gauge liquid filled gauges are available in three optional configurations: liquid filled at factory; dry with liquid fill kit sold separately; E-Z Fill® (PET case only) design to facilitate filling in the field without special tools or fixtures.



* NOTE: Glycerin not suitable for use with alloy steel or 403 stainless steel sockets.

SPECIFICATIONS

DIAL SIZE: 4-1/2"

CASE AND RING:

For Wall Mounting Only:

PET TURRET CASE with threaded polypropylene ring, black finish; BUNA-N® O-ring sealed, pressure-relieving back. Externally vented or internal diaphragm case available for temperature/ atmospheric compensation (Model 1980L, 1981L, 1982L and 1986L)

For Stem or Wall Mounting:

CAST ALUMINUM, BACK-FLANGED CASE with aluminum bayonet ring, black finish; BUNA-N O-ring sealed, pressure-relieving back. Externally vented case or internal diaphragm case available for temperature/atmospheric compensation (Model 1901L, 1911L, and 1931L)

WINDOW: High temperature acrylic, other options available
POINTER: Anodized aluminum with black finish

DIAL: Aluminum with baked white background and black markings

MOVEMENT: Geared movement with components of corrosion-resistant 300 series stainless steel

BOURDON TUBE: Phosphor bronze/silver brazed; 316L stainless steel/TIG welded; or K MONEL®, MONEL®/micro-brazed

CONNECTION: Brass, alloy steel, 316L stainless steel or MONEL. 1/2-14 ANPT, standard (1/4-18 ANPT, optional)

ACCURACY: ±0.5% of span (Grade 2A), except where stainless steel bourdon tubes are used in following ranges: Type 316L from 10,000 to 11,600 psi; accuracy is ±0.5% on ascending pressure and ±1.0% on descending pressure

RANGES: See Standard Dial Ranges charts on page A11

DIMENSIONS: See drawings on page A4 for PET turret case and page A7 cast aluminum case

MODEL SELECTION CHART

MODEL NUMBER	MOUNTING	CASE	RING	BOURDON TUBE	SOCKET	CONNECTION*
1901L	Stem/Wall	Aluminum Back Flange	Aluminum Bayonet	Phosphor Bronze	Brass	1/2-14 ANPT LM
1911L	Stem/Wall	Aluminum Back Flange	Aluminum Bayonet	316L Stainless Steel	Alloy Steel	1/2-14 ANPT LM
1931L	Stem/Wall	Aluminum Back Flange	Aluminum Bayonet	316L Stainless Steel	316L Stainless Steel	1/2-14 ANPT LM
1980L	Stem/Wall	PET turret	Threaded Polypropylene	Phosphor Bronze	Brass	1/2-14 ANPT LM
1981L	Stem/Wall	PET turret	Threaded Polypropylene	316L Stainless Steel	316L Stainless Steel	1/2-14 ANPT LM
1982L	Stem/Wall	PET turret	Threaded Polypropylene	316L Stainless Steel	Alloy Steel	1/2-14 ANPT LM
1986L	Stem/Wall	PET turret	Threaded Polypropylene	MONEL	MONEL	1/2-14 ANPT LM

* 1/4-18 ANPT optional

Liquid Fill Conversion Kits

U.S. Gauge offers two liquid fill kits; one provides a hermetically sealed case incorporating a pressure equalizing diaphragm, the other contains a vent for temperature/pressure compensation. These kits, complete with easy-to-follow instructions, enable the user to quickly and conveniently fill dry gauges without special tools or fixtures.

For hermetically sealed gauges the kit contains: window and socket O-rings, an elastomeric diaphragm with integral O-ring, a stainless steel

back cover with screws and a special window retaining ring. Kits available for both PET and aluminum case styles.

Vented case kits contain: window, socket and back cover O-rings, a rubber vent plug with metal vent pin, stainless steel back cover with screws and a special window retaining ring. Kits available for both PET and aluminum case styles.



Process Gauges

SOLFRUNT® 4-1/2" Standard Gauge Summary

This information applies for all 4-1/2" Process Gauges:

Models 1981, 1981 Advantage, 1980, 1982, 1986, 1901, 1931, 1911, 1903, 1933, and 1913

STANDARD DIAL RANGES

PRESSURE RANGES

(psi)

MAXIMUM INDICATIONS	FIGURE INTERVALS	INTERMEDIATE GRADUATIONS	MINOR GRADUATIONS
15	1	0.5	0.1
30	5	1	0.2
60	5	1	0.5
100	10	5	1
160	20	5	1
200	20	10	2
300	30	10	2
400	50	25	5
600	50	25	5
800	100	50	10
1,000	100	50	10
1,500	300	50	10
2,000	2,000	100	20
2,300	500	100	20
3,000	500	100	20
3,500	500	100	50
5,000	500	100	50
6,000	1,000	200	50
10,000	1,000	500	100
11,600	2,000	500	100

STANDARD DIAL RANGES

COMPOUND & VACUUM RANGES

(In. Hg-0-psi)

RANGE	FIGURE INTERVALS	INTERMEDIATE GRADUATIONS	MINOR GRADUATIONS
30-0-15	5	3	1
30-0-30	10	5	1
30-0-60	10	10	5
30-0-100	30	10	5
30-0-150	30	25	10
30-0-200	30	20	10
30-0-300	30	30	10
30-0	5	1	0.2

BOURDON ASSEMBLIES

Bourdon and connection assemblies are stamped with the following codes plus the bourdon tube pressure range:

BOURDON TUBE MATERIAL	MATERIAL CODE	CONNECTION MATERIAL	MATERIAL CODE
Phosphor Bronze	C51000	Brass	C36000
316L Stainless Steel	S31600	316L Stainless Steel	S31600
K MONEL®	N05500	Alloy Steel	G10180
—	—	MONEL®	N04405

MODEL SELECTION CHART

MODEL NUMBER	MOUNTING	CASE	RING	BOURDON TUBE	SOCKET	CONNECTION*
1980	Stem/Wall	PET Turret	Threaded Polypropylene	Phosphor Bronze	Brass	1/2-14 ANPT LM
1981	Stem/Wall	PET Turret	Threaded Polypropylene	316L Stainless Steel	316L Stainless Steel	1/2-14 ANPT LM
1981 Advantage	Stem/Wall	PET Turret	Threaded Polypropylene	316L Stainless Steel	316L Stainless Steel	1/2-14 ANPT LM
1982	Stem/Wall	PET Turret	Threaded Polypropylene	316L Stainless Steel	Alloy Steel	1/2-14 ANPT LM
1986	Stem/Wall	PET Turret	Threaded Polypropylene	K-MONEL / MONEL	K-MONEL / MONEL	1/2-14 ANPT LM
1901	Stem/Wall	Aluminum Back Flange	Aluminum Bayonet	Phosphor Bronze	Brass	1/2-14 ANPT LM
1931	Stem/Wall	Aluminum Back Flange	Aluminum Bayonet	316L Stainless Steel	316L Stainless Steel	1/2-14 ANPT LM
1911	Stem/Wall	Aluminum Back Flange	Aluminum Bayonet	316L Stainless Steel	Alloy Steel	1/2-14 ANPT LM
1903	Flush Panel	Cast Aluminum	Hinged Steel	Phosphor Bronze	Brass	1/2-14 ANPT LBM
1933	Flush Panel	Cast Aluminum	Hinged Steel	316L Stainless Steel	316L Stainless Steel	1/2-14 ANPT LBM
1913	Flush Panel	Cast Aluminum	Hinged Steel	316L Stainless Steel	Alloy Steel	1/2-14 ANPT LBM

* 1/4-18 ANPT optional



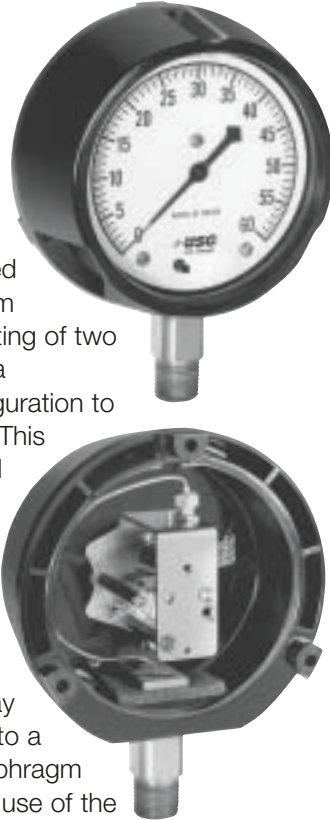
Process Gauges

SOLFRUNT® 4-1/2" Low Pressure Gauges

DESCRIPTION

Designed for pressure measurements as low as a few inches of water, these gauges, in spans from 30" H₂O to 10 psi utilize a unique sensing element. It is composed of a stack of diaphragm capsules, each consisting of two plates contoured into a convex/concave configuration to nest into one another. This results in a low internal volume element developing large forces to drive the mechanism in extremely low pressure ranges. The measuring element may be filled and attached to a Mansfield & Green diaphragm seal (Type L) to permit use of the gauge with corrosive or viscous fluids.

Calibration adjustments (scale shape and linearity) are made from rear of case without removing internals. The pointer is adjusted by removing the front ring and window.



SPECIFICATIONS

DIAL SIZE: 4-1/2"

CASE AND RING:

For Stem or Wall Mounting:

PET TURRET CASE (black) with glass-filled, threaded, polypropylene ring and plastic pressure-relieving back

WINDOW: Acrylic

POINTER: Knife-edged, micrometer adjustable, black finish

DIAL: Aluminum with white background and black markings

MOVEMENT: Heavy brass U-frame construction with nickel silver rocker arm on stainless steel pivots. Brass sector and nickel silver pinion operate on brass bearings. Minimum and maximum stops prevent segment and pinion disengagement

DIAPHRAGM:

1919: NiSpan C, silver brazed

1929: 316L stainless steel, heli-arc welded

CONNECTION: 1919: brass; 1929: 316L stainless steel; 1/2-14 ANPT standard (1/4-18 ANPT optional)

ACCURACY: ±1% of span (Grade 1A)

STANDARD DIAL RANGES

MAXIMUM INDICATION	FIGURE INTERVALS	INTERMEDIATE GRADUATIONS	MINOR GRADUATIONS
0-30" H ₂ O VAC	5	1	0.2
0-60" H ₂ O VAC	5	1	0.5
15"-0-15" H ₂ O	3	1	0.2
30"-0-30" H ₂ O	5	1	0.5
60"-0-60" H ₂ O	10	5	1
0-30" H ₂ O	5	1	0.2
0-60" H ₂ O	5	1	0.5
0-100" H ₂ O	10	5	1
0-200" H ₂ O	20	10	2
0-3 psi	0.5	0.1	0.02
0-5 psi	1	0.25	0.05
0-10 psi	1	0.5	0.1

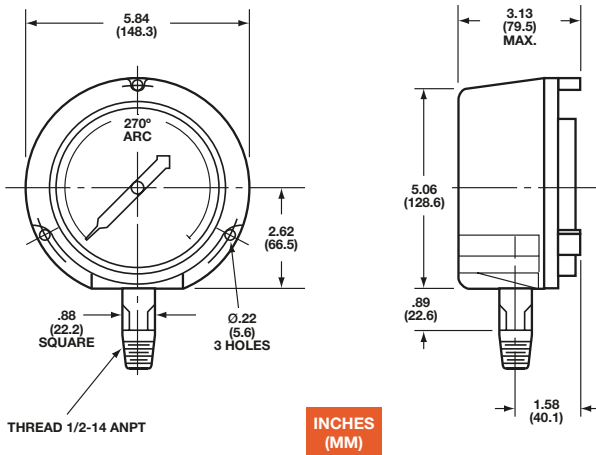
Process Gauges

SOLFRUNT® 4-1/2" Low Pressure Gauges

MODEL SELECTION CHART

MODEL NUMBER	MOUNTING	CASE	RING	BOURDON	SOCKET	CONNECTION*
1919	Stem/Wall	PET Turret	Threaded Polypropylene	NI-SPAN C	Brass	1/2-14 ANPT LM
1929	Stem/Wall	PET Turret	Threaded Polypropylene	316L Stainless Steel	316L Stainless Steel	1/2-14 ANPT LM

* 1/4-18 ANPT optional



SPEC NUMBER SELECTION CHART

SOLFRUNT 4-1/2" Low Pressure Gauges

Model Number	1919	1929
Capsule	Ni-Span C	316L Stainless Steel
Socket	Brass	316L Stainless Steel
Size	4-1/2"	4-1/2"
Range*	Spec No.	Spec No.
0-30" H ₂ O VAC	132779	132789
0-60" H ₂ O VAC	132780	132790
15"-0-15" H ₂ O	130298	132872
30"-0-30" H ₂ O	132777	132787
60"-0-60" H ₂ O	132778	132788
0-30" H ₂ O	132774	132784
0-60" H ₂ O	132775	132785
0-100" H ₂ O	132776	132786
0-200" H ₂ O	132794	132795
0-3 psi	132781	132791
0-5 psi	132782	132792
0-10 psi	132783	132793

* Metric and dual scale dials are available. Please call Customer Service at (863) 534-1504 for more information.

1/4-18 ANPT available – use 133XXX when ordering



Process Gauges

SOLFRUNT® 6" Gauges

DESCRIPTION

Series 1900 6" SOLFRUNT gauges are used where the distance between operator and gauge requires expanded dial graduations for increased readability. Panel or stem mounted, these gauges offer the same rugged construction, accuracy and calibration features as the 4-1/2" series.



SPECIFICATIONS

SIZE: 6"

CASE AND RING:

For Stem or Wall Mounting:
CAST ALUMINUM, BACK FLANGED CASE with threaded ring, black finish, and BUNA-N® pressure-relieving back (Model 1901, 1931)

For Panel Mounting:

CAST ALUMINUM, FRONT FLANGED CASE with steel hinged ring with black finish and BUNA-N pressure-relieving back (Model 1903)

WINDOW: Acrylic

POINTER: Aluminum, micrometer adjustable with black finish

DIAL: Aluminum, white background and black markings

MOVEMENT: Geared ARC-LOC® with components of corrosion resistant 300 series stainless steel. Movement can be removed for examination and cleaning without disturbing span and scale shape adjustments

BOURDON TUBE: Phosphor bronze/silver brazed; 316L stainless steel/heli-arc welded

CONNECTION: Brass, alloy steel, or 316L stainless steel, 1/2-14 ANPT standard (1/4-18 ANPT optional). Tube, tip, and socket assemblies coded per chart on page A15

RANGES: 30" Hg VAC 0-15, 30, 60, 100, 160, 200, 300, 400, 600, 1000, 1500, 2300, 3500, 6000. For figure intervals and graduations, see the Standard Dial Ranges charts on page A11

ACCURACY: ±0.5% of span (Grade 2A)

MODEL SELECTION CHART

MODEL NUMBER	MOUNTING	CASE	RING	BOURDON TUBE	SOCKET	CONNECTION
1901	Stem/Wall	Aluminum Back Flanged	Threaded Aluminum	Phosphor Bronze	Brass	1/2-14 ANPT LM
1931	Stem/Wall	Aluminum Back Flanged	Threaded Aluminum	316L Stainless Steel	316L Stainless Steel	1/2-14 ANPT LM
1903	Flush Panel	Aluminum Front Flanged	Hinged Steel	Phosphor Bronze	Brass	1/2-14 ANPT LBM

* 1/4-18 ANPT optional

