



# High Precision

# Differential Pressure Gauges

## Series 1000 6" Dial



Series 1000 Gauges have capsule-type pressure elements and pressure and static connections. High differential pressure is applied to the capsule; low pressure, to the case. Available in 22 standard ranges, they combine aneroid convenience with liquid-column accuracy. They are compact for efficient panels and consoles, yet readability is excellent.

### STANDARD FEATURES

- Size:** 6" dial
- Scale Length:** Approx. 30" through 2 pointer revolutions
- Range:** To 150 psi
- Accuracy:** 0.1% of full scale
- Repeatability:** 0.03% of full scale
  
- Sensitivity:** 0.01% of full scale
  
- Hysteresis:** 0.1% of full scale for all ranges except 150 psi or equivalent, which is 0.2% of full scale
  
- Maximum temperature effect:** 0.1% of full scale per 10°C/50°F change from 23°C/73.4°F
  
- Pressure element volume:** 6.9 cc with pointer at zero; 8.6 cc at full scale. For the range 0-125" water only: 6.3 cc with pointer at zero; 8.0 cc at full scale
  
- Case volume:** 1775 cc, with overpressure relief valve built into the back of the case
  
- Maximum case pressure:** 35 psig

### STANDARD RANGES AND ORDERING NUMBERS

#### Series 1000 6" Differential Pressure Gauge

| Range and Calibration | Ordering Number | Graduation |
|-----------------------|-----------------|------------|
| 0-4.5 psi             | 62B-4A-0005     | 0.01 psi   |
| 0-10 psi              | 62B-4A-0010     | 0.02 psi   |
| 0-15.5 psi            | 62B-4A-0015     | 0.02 psi   |
| 0-20 psi              | 62B-4A-0020     | 0.05psi    |
| 0-30 psi              | 62B-4A-0030     | 0.05 psi   |
| 0-45 psi              | 62B-4A-0045     | 0.1 psi    |
| 0-60 psi              | 62B-4A-0060     | 0.1 psi    |
| 0-100 psi             | 62B-4A-0100     | 0.2 psi    |
| 0-150 psi             | 62B-4A-0150     | 0.2 psi    |

| Range and Calibration | Ordering Number | Graduation |
|-----------------------|-----------------|------------|
| 0-125" water          | 62B-4C-0125     | 0.2"       |
| 0-280" water          | 62B-4C-0280     | 0.5"       |
| 0-800 mm Hg           | 62B-4D-0800     | 1.0 mm     |
| 0-31.5" Hg            | 62B-4B-0031     | 0.05"      |
| 0-60" Hg              | 62B-4B-0060     | 0.1"       |
| 0-120" Hg             | 62B-4B-0120     | 0.2"       |
| 0-200" Hg             | 62B-4B-0200     | 0.5"       |
| 0-300" Hg             | 62B-4B-0300     | 0.5"       |

#### Vacuum and Compound Ranges

| Range and Calibration | Ordering Number | Graduation |
|-----------------------|-----------------|------------|
| -30" Hg to 0          | 62B-7B-0030*    | 0.05"      |
| -15" to 0 to 15" Hg   | 62B-6B-0030*    | 0.05"      |
| -30" to 0 to 30" Hg   | 62B-6B-0060*    | 0.1"       |
| -30" to 0 to 90" Hg   | 62B-6B-0120*    | 0.2"       |
| -30" to 0 to 270" Hg  | 62B-6B-0300*    | 0.5"       |

\*Can be calibrated as shown, or in any other standard pressure unit at no extra cost. Specify if other than in Hg.

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## STANDARD FEATURES (cont.)

### Maximum case

**leak rate:** Will not exceed  $6.34 \times 10^{-5}$  std cc/sec 0.0018 psi/hr.

### Case

**connections:** 1/8" female NPT pressure and static connections. Stainless steel filters are mounted in the orifice of both units and are located in the bottom of the case.

### Case

**construction:** Cast aluminum with tempered-glass dial cover. The bezel has no screw holes; the case has special clips for easy flush mounting.

### Materials exposed to measured

**gas:** Capsule system: Ni-Span C®, soft solder, brass, 303 stainless steel, and silver solder. 303 stainless steel tubing, adapter, and silver solder at pressure connection are optional instead of brass and soft solder.

Case: Ni-span C®, brass, beryllium copper, magnesium, aluminum, ABS, nylon, Elgiloy, soft solder, Buna N, Hypalon, 303 stainless steel, silver solder, synthetic sapphire, white paint, epoxy cement, nickel silver, nickel plating, drawing ink, Duco lacquer.

**Options:** Calibration in most metric units available at no extra cost. Other calibration units at extra cost. Also available is a compact (12 3/4" H, 12" W, 8 1/16" D), suitcase-type carrying case with the gauge in a shock-mounted panel. The cover is easily removed and pressure connections can be made without removing the gauge from the case.

### Weight and shipping weight:

5 1/2 lb. and 7 lb.

### Ordering

**information:** When ordering, please specify ordering number, range, and mounting angle (Extra cost if mounting angle is other than vertical.).

**Note:** This gauge should not be used for corrosive gases or for liquids of any kind.

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## Series 1000 6" *High Precision* Differential Pressure Gauge

### **High Accuracy and Compact Size**

Accuracy is 0.1% of full scale; dial diameter is only 6". This combination of high accuracy and compact size makes for smaller and more efficient test stands, such as consoles for ground support equipment. The 6" size saves dollars in panel construction: It saves 36% in panel space over single-revolution gauges, which have 10 ½" diameter dials.

### **Excellent Readability**

The pointer covers full scale in two revolutions permitting a scale 30" long. This is more than twice as long as same-size single revolution gages. It permits up to 900 scale graduations with a minimum of 1/32" of white space between them. This and a knife-edge pointer allow readings to better than 0.03% of full scale.

### **Performs Better than the Rated Accuracy**

Excellent readability, 0.03% repeatability, custom dial calibration, and individual matching and adjustment of each mechanism to its dial add up to an accuracy of 0.1% and a sensitivity of 0.01% of full scale. These figures are the minimum, which can be expected. After rigorous testing, any W&T Gauge which fails to better the rated accuracy is rejected.

### **Calibration Sheet**

A computer-generated calibration sheet is supplied with each gauge. It shows that the gauge has performed as well as or better than the advertised accuracy.

### **Accurate Readout at a Glance**

Compact size makes readout convenient as well as accurate. The operator takes readings from one position, which is not possible with larger diameter gauges. This cuts fatigue and errors. A revolution indicator is included and a mirror ring eliminates parallax errors. The graduations are easily seen; bold numbers are horizontally placed.

### **Calibration is Traceable to National Institute of Standards and Technology**

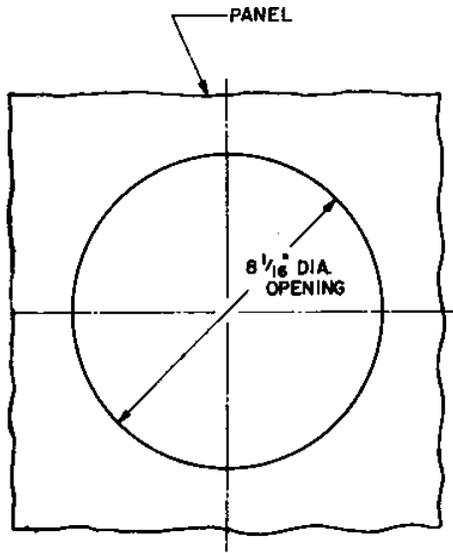
A computer-assisted plotter marks calibration points and the graduations between them on each dial. This produces a scale, which precisely matches the characteristics of its own mechanism and pressure element. Calibration may be with any of several precision mercury manometers or primary-standard pneumatic piston gauges. These are certified traceable to NIST. Wallace & Tiernan's calibration system conforms to MIL-STD-45662.

### **Rugged Design**

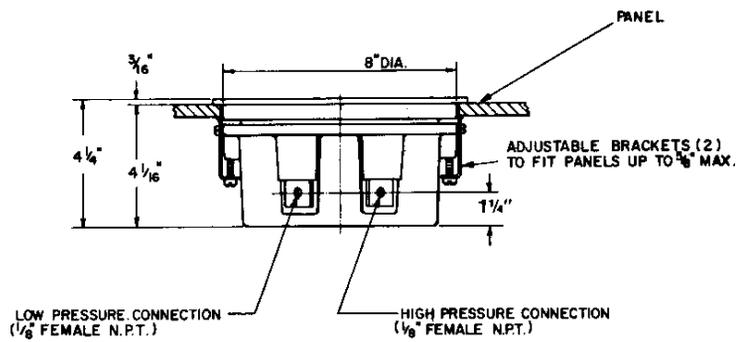
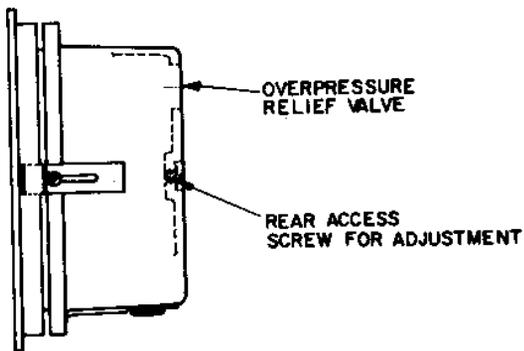
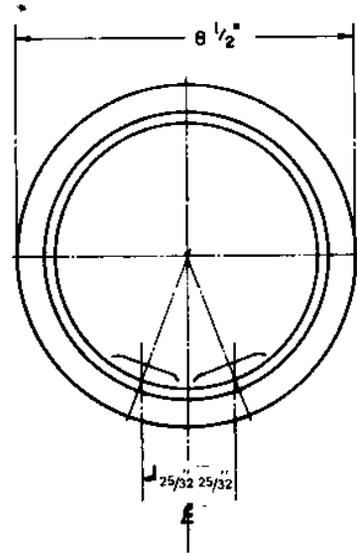
The case is heavy cast aluminum with a tempered-glass dial cover. A heavy aluminum dial plate, with only a 1/16-inch opening for the pointer, isolates the capsule. Over-pressuring the instrument up to 25% above its full-scale range will not damage the mechanism nor affect accuracy. A built-in relief valve has a dumping capacity, which protects the case from applied pressure up to 60 times the maximum pressure.

*This valve is an emergency-protective device only. Systems must be designed to operate at pressures no higher than 25% above full-scale range.*

Series 1000 6" Differential Pressure Gauge



PANEL OPENING





# High Precision

# Differential Pressure Gauges

## Series 300 6" Dial



For routine test and production uses, this capsule-type gauge offers an acceptable balance among size, readability, accuracy, and price. Available in 18 standard ranges (including vacuum and compound ranges), the Series 300 is convenient to use. High differential pressure is applied to the capsule; low pressure to the case. Maximum static (case) pressure is 15 psig. A built-in overpressure relief valve protects the case.

### STANDARD FEATURES

- Size:** 6" dial
- Scale length:** 16"
- Range:** To 100 psi
- Accuracy:** 0.33% of full scale
- Sensitivity:** 0.2% of full scale
- Pressure element volume:** 2.5 cc for the range 0-10" water; 2.0 cc for all other ranges.
- Case volume:** 1890 cc, with overpressure relief valve on the case
- Maximum case pressure:** 15 psig
- Maximum case leak rate:** Will not exceed  $6.34 \times 10^{-5}$  std cc/sec or 0.0018 psi/hr
- Case connection:** 1/8" female NPT pressure and static connections. Both have built-in stainless steel filters and are located in the bottom of the case.

### STANDARD RANGES AND ORDERING NUMBERS

Series 300 6" Dial Differential Pressure Gauge

| Range and Calibration | Ordering Number | Graduation |
|-----------------------|-----------------|------------|
| 0-10" water           | 62C-4C-0010     | 0.05"      |
| 0-20" water           | 62C-4C-0020     | 0.1"       |
| 0-40" water           | 62C-4C-0040     | 0.2"       |
| 0-60" water           | 62C-4C-0060     | 0.5"       |
| 0-100" water          | 62C-4C-0100     | 0.5"       |
| 0-200" water          | 62C-4C-0200     | 1.0"       |
| 0-300" water          | 62C-4C-0300     | 2.0"       |
| 0-400" water          | 62C-4C-0400     | 2.0"       |

| Range and Calibration | Ordering Number | Graduation |
|-----------------------|-----------------|------------|
| 0-15 psi              | 62C-4A-0015     | 0.1 psi    |
| 0-30 psi              | 62C-4A-0030     | 0.2 psi    |
| 0-60 psi              | 62C-4A-0060     | 0.5 psi    |
| 0-100 psi             | 62C-4A-0100     | 0.5 psi    |

#### Vacuum and Compound Ranges

| Range                 | Ordering Number* | Graduation |
|-----------------------|------------------|------------|
| -10" water to 0       | 62C-7C-0010      | 0.05"      |
| -20" water to 0       | 62C-7C-0020      | 0.1"       |
| -400" water to 0      | 62C-7C-0400      | 2.0"       |
| -5 to 0 to 5" water   | 62C-6C-0010      | 0.05"      |
| -10 to -10" water     | 62C-6C-0020      | 0.1"       |
| -20 to 0 to 20" water | 62C-6C-0040      | 0.2"       |

\* Can be calibrated as shown, or in any other standard pressure unit at no extra cost.

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## STANDARD FEATURES (cont.)

**Case construction:** Cast aluminum with tempered-glass dial cover. Flush mounted by three screws through the bezel.

**Materials exposed to measured gas:**

Pressure elements: beryllium copper, brass, soft solder in ranges to 100" water; silver and soft solder in ranges above 100" water.

Case: aluminum, beryllium copper, brass, stainless steel, nylon, Hypalon, Monel, soft solder, synthetic sapphire, TFE, white paint, drawing ink, Duco lacquer. Ranges above 100" water have silver solder also.

**Options:** Calibration in most metric units is available at no extra cost. Other units of calibration and two sets of graduations on the same dial are available at extra cost.

**Weight and shipping weight:**

4 lb. and 6 lb.

**Ordering information:**

When ordering, please specify ordering number, range, and mounting angle (Extra cost if mounting angle is other than vertical). Options as listed above.

**Note:** This gauge should not be used for corrosive gases or for liquids of any kind.

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## Series 300 6" High Precision Differential Pressure Gauge

### Convenience in the Low Pressure Ranges

Available in the low-pressure ranges (lowest is 0-10 in. water). The Series 300 is a reliable mechanical indicator, which reads out differential pressure directly. It is less expensive, more convenient, and easier to use than most electronic transducers and lab-type liquid columns.

### Excellent Readability

With a 16-inch scale, the Series 300 offers excellent readability. (In the lowest range, 0 to 10" water, the minimum graduation represents 0.05-in. water.) Graduations have ample white space between them. This and a knife-edge pointer read out to be better than 0.1% of full scale. Numbers on the dial are horizontally placed and a mirror ring eliminates parallax errors.

### Calibration is Traceable to National Institute of Standards and Technology

A computer-assisted plotter marks calibration points and the graduations between them on each dial. This produces a scale, which precisely matches the characteristics of its own pressure capsule and mechanism. Calibration is against precision mercury manometers or sonar manometers, which are certified traceable to NIST. Wallace & Tiernan's calibration system conforms to MIL-STD-45662.

### Performs Better than the Rated Accuracy of 0.33 % of Full Scale

A readable scale, individually matched dials and mechanisms, excellent repeatability, and a precision mechanism add up to an accuracy of 0.33% and a sensitivity of 0.2% of full scale. These figures are the minimum performance, which can be expected. After rigorous testing, any Series 300 Gauge, which fails to better the rated accuracy, is rejected.

### Rugged Design

The heavy aluminum case has tempered-glass dial cover. Overpressuring the instrument up to 25% above its full scale range will not damage the mechanism nor affect accuracy. A built-in relief valve has a dumping capacity, which protects the case from applied pressure up to 10 times the maximum case pressure. (Optional relief valve U-18073, with higher dumping capacity, protects against applied pressure up to 40 times the maximum case pressure.)

*This valve is an emergency-protective device only. Systems must be designed to operate at pressures no higher than 25% above full-scale range.*

Series 300 6" Differential Pressure Gauge

