



High Precision Differential Pressure Gauges

Series 300 2 3/4"



For test laboratory and production uses, this gauge gives accuracy and is compact in size. It is sensitive, yet rugged and low in cost. 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 150 psig.

STANDARD FEATURES

Size: 2 3/4" dial
Scale Length: 7" through one pointer revolution
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: 179 cc

Maximum case pressure: 150 psig

Maximum case leak rate: Will not exceed 0.64×10^{-5} std cc/sec or 0.0018 psi/hr

Case connection: 1/8" female NPT pressure and static connections. Each has a built-in stainless steel filter and is located on the back of the case.

STANDARD RANGES AND ORDERING NUMBERS

Series 300 2 3/4" Differential Pressure Gauge

Range and Calibration	Ordering Number	Graduation
0-10" water	62D-4C-0010	0.1"
0-20" water	62D-4C-0020	0.2"
0-40" water	62D-4C-0040	0.5"
0-60" water	62D-4C-0060	1.0"
0-100" water	62D-4C-0100	1.0"
0-200" water	62D-4C-0200	2.0"
0-300" water	62D-4C-0300	5.0"
0-400" water	62D-4C-0400	5.0"

Range and Calibration	Ordering Number	Graduation
0-15 psi	62D-4A-0015	0.2 psi
0-30 psi	62D-4A-0030	0.5 psi
0-60 psi	62D-4A-0060	1.0 psi
0-100 psi	62D-4A-0100	1.0 psi

Vacuum and Compound Ranges

Range	Ordering Number*	Graduation
-10" water to 0	62D-7C-0010	0.1"
-20" water to 0	62D-7C-0020	0.2"
-400" water to 0	62D-7C-0400	5.0"
-5 to 0 to 5" water	62D-6C-0010	0.1"
-10 to 0 to 10" water	62D-6C-002	0.2"
-20 to 0 to 20" water	62D-6C-0040	0.5"

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

STANDARD FEATURES (cont.)

Case construction: Anodized aluminum with tempered-glass dial cover. Flush mounted by four screws through bezel.

Materials exposed to measured gas:

Pressure element: 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, ethylene propylene rubber, Monel, soft solder, synthetic sapphire, 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 are available at extra cost.

Weight and shipping weight:

1 ¼ lb. and 3 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.

CONNECTION for DIFFERENT PRESSURE READOUTS

Gauge Pressure: pressure is applied to capsule (P), case (S) is open to atmosphere.

Differential Pressure: high pressure to capsule (P); low pressure to case (S).

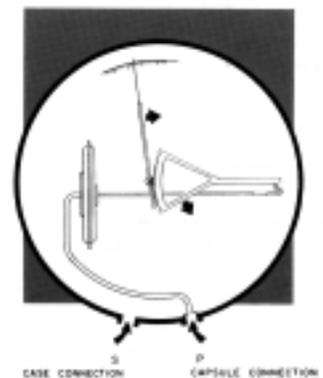
Absolute Pressure: pressure to capsule (P), case (S) held at full vacuum with a pump.

Vacuum: (clockwise pointer): capsule (P) open to atmosphere, vacuum to case (S).

Vacuum and Compound Gauges

Vacuum (counter-clockwise pointer movement): case (S) open to atmosphere, vacuum to capsule (P)

Compound: The pointer can move two ways from center zero. One way is towards the capsule connection, the other way is towards the case. When the pressure to the capsule is higher than the pressure to the case, the pointer will give a positive reading; whereas when the pressure to the capsule is lower than the pressure to the case, the pointer will give a negative reading.



Series 300 3/4" Differential Pressure Gauge

Convenience In the Low Pressure Ranges

Available in the low-pressure ranges (lowest is 0-10" 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.

Compact for Space Saving

The Series 300 has a dial only 2 3/4" in diameter and a scale 7" long. Thus the gauge is compact, yet offers adequate readability. It saves dollars in panel construction, makes for more compact consoles and easier handling in the laboratory.

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 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.

Sensitive But Rugged

A small, sensitive capsule responds to minute pressure changes. Low-inertia parts and a linkage containing flexures and jewel bearings mean high sensitivity. Yet the mechanism is rugged and resists damage by on-the-job handling.

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. Automatic shut-off valves are commercially available and should be installed in pressure leads, if there is any possibility of exceeding the maximum case pressure rating (150 psig).

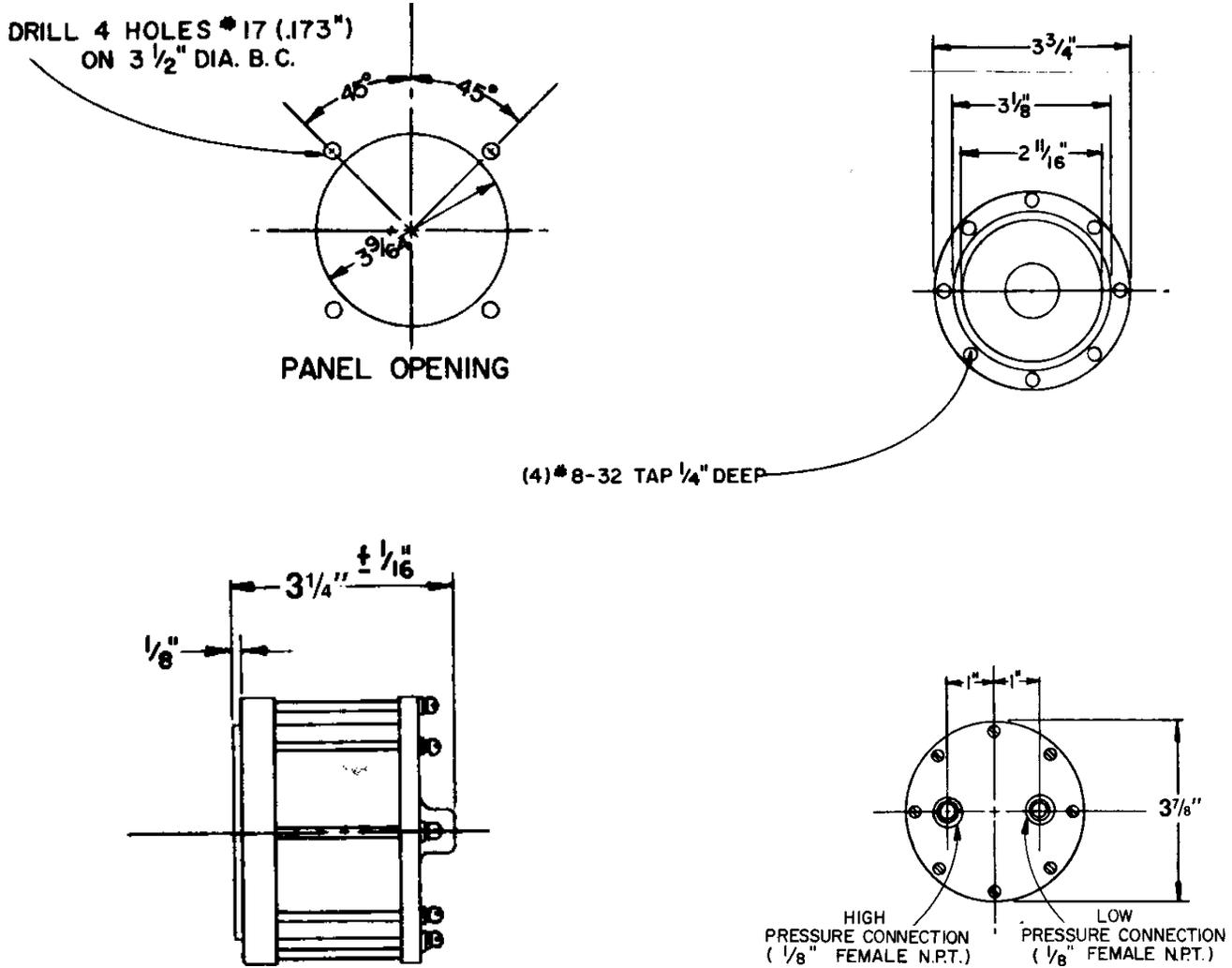
DESIGN and CONSTRUCTION (refer to next page for diagram)

W & T Differential Pressure Gauges contain sensitive capsules. These are small- volume beryllium copper or Ni-Span C pressure elements, which give excellent speed of response. They are heat treated to enhance repeatability and to minimize hysteresis and the effects of temperature change.

Pressure-element movement is amplified and transmitted to the pointer via a mechanical linkage. The linkage contains low inertia parts as well as flexures and jewel bearings for low friction. It is not lubricated. An anti-backlash device maintains uniform tension between the parts. There is no lost motion. The pointer and mechanism are carefully balanced to minimize pointer position error.

W & T Differential Gauges have calibration adjustments accessible through the back or front of the case, or both. Although sensitive, the mechanisms are not fragile. They resist damage by on-the-job handling.

Series 300 2 3/4" Gauge Differential Pressure Gauge



DESIGN and CONSTRUCTION

