High Precision
Series 300 2 ¾" Dial Absolute Pressure Gauges

For routine test, laboratory, and production uses, this gauge gives accuracy and compact size. Its mechanism is sensitive yet rugged. And it offers high accuracy at low cost. Available in ten standard ranges, the Series 300 is convenient to use. Absolute pressure is applied to the case and readout is direct, without barometric or temperature corrections. Readings are referenced to zero absolute.

STANDARD FEATURES

Size: 2 ¾" dial
Scale length: 7" through one pointer revolution
Range: To 100 psia
Accuracy: 0.33% of full scale
Sensitivity: 0.2% of full scale

Case pressure and volume: 150 psig, maximum, and 179 cc

Maximum case leak rate: Will not exceed 0.645 x 10^{-5} std cc/sec or 0.0019 psi/hr.

Case connection: 1/8" female NPT with built-in stainless steel filter.

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

STANDARD RANGES AND ORDERING NUMBERS

Series 300- 2¾" High Precision Gauge

Range and Calibration	Ordering Number	Graduation
0-50 mm Hg	61D-1D-0050	0.5 mm
0-100 mm Hg	61D-1D-0100	1.0 mm
0-200 mm Hg	61D-1D-0200	2.0 mm
0-410 mm Hg	61D-1D-0410	5.0 mm
0-800 mm Hg	61D-2D-0800	10.0 mm
390-800 mm Hg	61D-1D-0390	5.0 mm
0-15 psia	61D-1A-0015	0.2 psia
0-30 psia	61D-1A-0030	0.5 psia
0-60 psia	61D-1A-0060	1.0 psia
0-100 psia	61D-1A-0100	1.0 psia

STANDARD FEATURES (cont.)

Material exposed to measured gas: Aluminum, Beryllium copper, brass, stainless steel, nylon, Hypalon, Monel, lead, nickel-plated phosphor bronze, soft or silver solder, synthetic sapphire, paper, epoxy cement, TFE, nickel silver, nickel plating, drawing ink, Duco lacquer.

Options: Calibration in most metric units available at no extra cost. Other units of calibration and excess-pressure-relief valves for 2, 15, and 100 psig are available at extra cost.

Weight and shipping weight: 1 ¼ lb. and 3 lb.

Order 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.

Series 300 2 ¾" *High Precision* Absolute Pressure Gauge

Direct Readout, No Barometric Adjustments
Because applied pressure is referenced against an evacuated element, W&T Gauges read out true absolute pressure directly. No corrections or adjustments required.

Convenience In The Low Pressure Ranges
Available in the low-pressure ranges (lowest is 0-50 mm Hg). The Series 300 is a reliable mechanical indicator, which reads out absolute pressure directly. It is low in cost, practically maintenance free and easier and more convenient to use than most electronic transducers and lab-type liquid columns.

Compact For Space Saving
The Series 300 has a dial only 2 ¾" 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 the Rated Accuracy of 0.33% of Full Scale
A readable scale, dials individually matched to precision mechanisms, and excellent repeatability 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 perform better than the rated accuracy is rejected.

Sensitive Yet Rugged
A small, sensitive capsule responds to minute pressure changes. Low-inertia parts throughout and a linkage containing flexures and jewel bearings mean high sensitivity. Yet the mechanism is rugged and will not be damaged by on-the-job handling. This Series 300 Gauge has a heavy aluminum case with a tempered-glass dial cover. Ranges below 1 atmosphere will withstand 4 psig; ranges of 1 atmosphere and above will withstand overpressure up to 50% above full scale without damaging the mechanism nor affecting accuracy. An optional excess pressure relief valve in the line is designed to prevent exceeding maximum case pressure. Sub-atmospheric ranges have a check valve, which protects the mechanism from sudden release to atmosphere.

DESIGN and CONSTRUCTION (refer to next page for diagram)

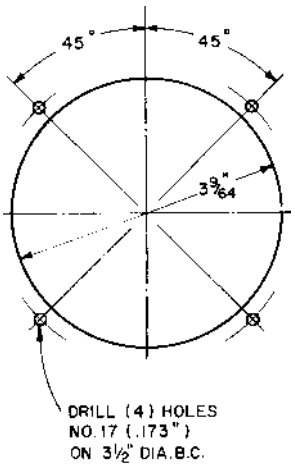
W&T Absolute Pressure Gauges contain capsules or Bourdon tubes. These are evacuated and sealed beryllium copper on Ni- span C pressure elements which give excellent speed of response. They are heat treated to enhance repeatability and to minimize hysteresis and the effect of temperature change.

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.

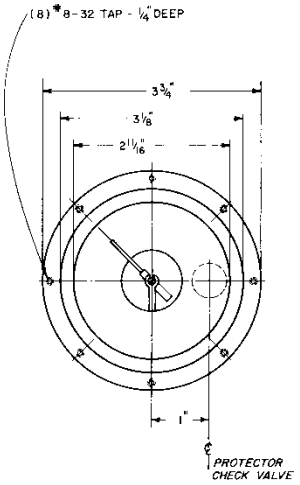
In Bourdon tube types the pressure and reference Bourdons are connected to the linkage by a special ratio linkage. It compensates for atmospheric pressure changes.

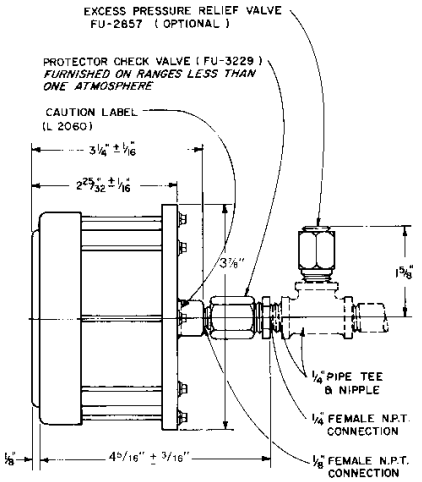
W&T Absolute Pressure Gauges have a calibration adjustment accessible through the back of the case. Although sensitive, the mechanisms are not fragile. On-the-job handling will not damage them.

Series 300 2¾" Absolute Pressure Gauge

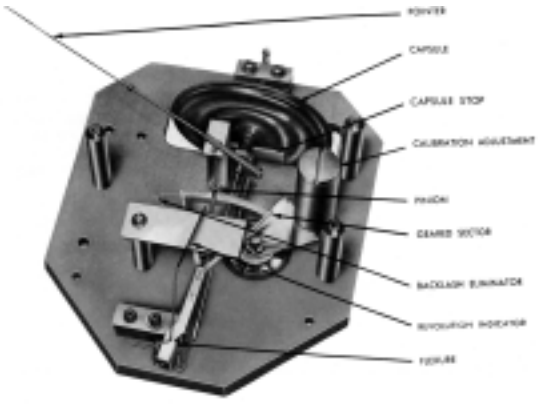


PANEL OPENING

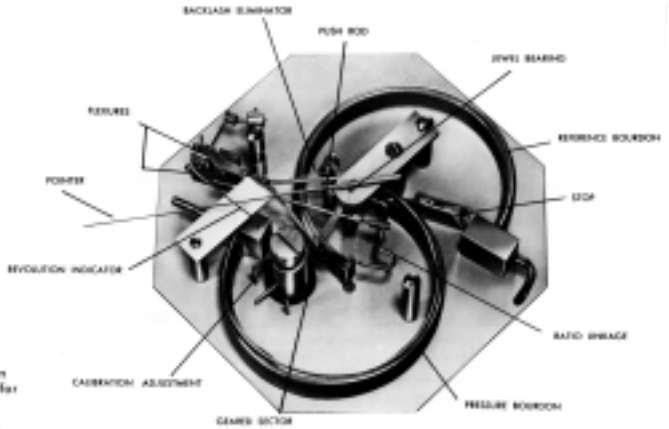




DESIGN and CONSTRUCTION



Typical Wallace & Tiernan capsule mechanism for absolute pressure.



Typical Wallace & Tiernan Bourdon tube mechanism for absolute pressure.