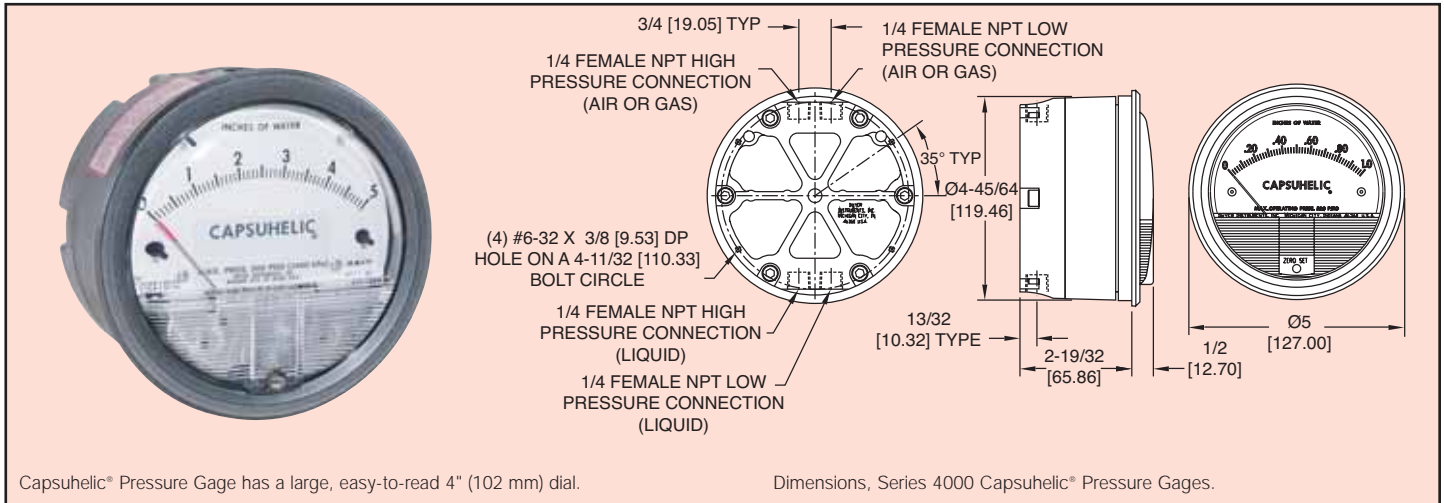




Series
4000

Capsuhelic® Differential Pressure Gages

Measures Pressure, Vacuum or Differential, Suitable for Internal Pressures to 500 psig



Capsuhelic® Pressure Gage has a large, easy-to-read 4" (102 mm) dial.

Dimensions, Series 4000 Capsuhelic® Pressure Gages.

The **Capsuhelic® gage** is designed to give fast, accurate indication of differential pressures. The gage may be used as a read-out device when measuring flowing fluids, pressure drop across filters, liquid levels in storage tanks and many other applications involving pressure, vacuum or differential pressure.

Using the basic design of Dwyer's time-proven Magnehelic® gage, the Capsuhelic® gage contains a simple, frictionless movement that permits full scale readings as low as 0.5 inch water column. The pressure being measured is held within a capsule which is an integral part of the gage. This containment of the pressure permits the use of the gage on system pressures of up to 500 psig, even when differentials to be read are less than 0.1 inch w.c.

The diaphragm-actuated Capsuhelic® gage requires no filling liquid which might limit its outdoor applications. Zero and range adjustments are made from outside the gage, and there is no need to disassemble the gage in normal service.

Note: May be used with hydrogen where pressures are less than 35 psi.

SPECIFICATIONS

Service: Aluminum Case: Air and compatible gases and oil based liquids. Brass Case: Air and compatible gases and water based liquids.

Wetted Materials: Consult factory.

Housing: Die cast aluminum with impregnated hard coating, standard. Optional forged brass housing is required for water or water based fluids. Special material diaphragms available, contact factory.

Accuracy: ±3% of full scale at 70°F (21.1°C). (±2% on 4000S models, ±4% on 4200, 4210, 4215, 4220, 4300, 4400, and 4500).

Pressure Limits: -20" Hg to 500 psig. (-0.677 bar to 34.4 bar).

Temperature Limits: 20 to 200°F (-6.67 to 93.3°C).

Size: 4" (101.6 mm) diameter dial face.

Mounting Orientation: Diaphragm in vertical position. Consult factory for other position orientations.

Process Connections: 1/4" female NPT high and low pressure taps, duplicated - one pair top for air and gas, and one pair bottom for liquids.

Weight: 3 lb, 3 oz (1.45 kg) aluminum case; 7 lb, 13 oz (3.54 kg) brass case.

Standard Accessories: Two 1/4" NPT plugs for duplicate pressure taps, four flush mounting adapters with screws and four surface mounting screws.

MOUNTING

Capsuhelic® gages may be flush mounted in a panel or surface mounted. Hardware is included for either. For flush mounting, a 4 1/8" diameter cutout in panel is required. Where high shock or vibration are problems, order optional A-496 Heavy Duty flush mount bracket. Optional A-610 kit provides simple means of attaching gage to 1 1/2"-2" horizontal or vertical pipe. Installation is same as Magnehelic® gage shown on page 4. All standard models are calibrated for vertical mounting. Gages with ranges above 5 in. w.c. can be factory calibrated for horizontal or inclined mounting on special order.



Flush mounted in panel.



Back view shows flush mounting adapters.



Back view for surface mounting.

OPTIONS AND ACCESSORIES



Adjustable Signal Flag — Integral with plastic gage cover; has external reset screw. May be ordered factory installed on gage or separately for field installation. Specify ASF suffix after model number.



A-314 Bleed Fitting — For easier, safer purging of trapped air when using gage with liquids. Also useful for draining condensate when installed in lower ports. To open, simply loosen hex nut. Solid brass.



Forged Brass Case — For applications involving water or water based liquids. To order, add suffix "B" after model number. Example: 4205B.



Transparent Scale Overlays — Available in bright red, green or yellow to accent critical pressure zones. Specify which color and portion of scale to be covered with each.

A-471 Portable Kit — Includes plastic case, mounting bracket, A-309 3-way manifold valve, (2) A-230 high pressure hoses and all necessary fittings. Assembly required. Gage not included.

Straightforward design assures maintenance-free performance

Top low pressure connection (for Air or Gas) connects to chamber in back of diaphragm. High pressure air or gas port (cut away; not shown) connects with chamber in front of diaphragm through passageways in case.

Precision made case is offered in two materials. Standard is die cast aluminum coated inside for resistance to most oils and similar fluids. Optional forged brass case is recommended when using water or water based liquids. One case size for all pressure ranges — can be either surface or flush mounted.

Silicone rubber diaphragm with integrally molded O-ring is sealed between the case and backplate. Diaphragm motion is restricted to prevent damage due to over-pressure.

Diaphragm support plate of stainless steel minimizes position or attitude sensitivity.

Calibrated range spring is a flat leaf of nickel plated spring steel. Small amplitude of motion assures consistency and long life. It reacts to pressure on diaphragm. Live length factory adjusted for calibration.

Bottom high pressure connection (for Liquids) connects to chamber in front of diaphragm. Low pressure liquid connection (not visible) connects with chamber in back of diaphragm through passageways in case.

Range spring calibration is set by custom camlock. Rate adjust and rate adjust lock are coaxial and are factory set and sealed.

Bezel provides flange for flush mounting in panel.

O-ring seal for cover assures dust tight integrity of case.

Clear plastic front cover is highly resistant to breakage. Provides undistorted viewing of pointer and scale.

Precision scale, screen printed on aluminum, is accurate and easy to read.

Samarium cobalt magnet mounted at end of range spring rotates helix without mechanical linkages.

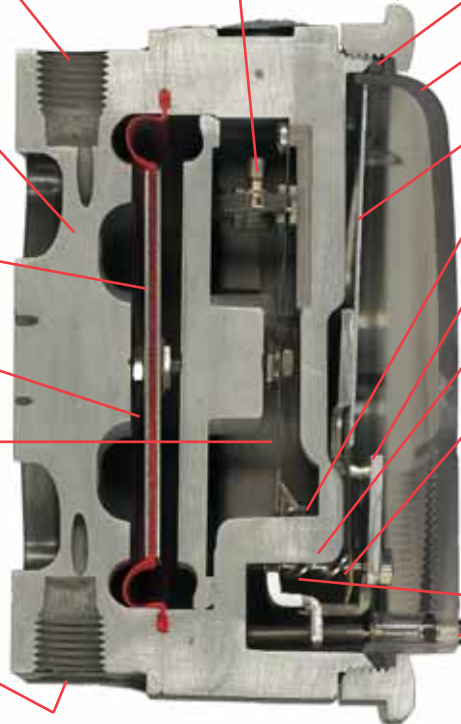
"Wishbone" assembly provides mounting for helix, helix bearings and pointer shaft.

Thin wall magnetic "window" is well braced and of minimum area for maximum pressure capability.

Jeweled bearings for helix are shock resistant mounted. They provide virtually friction-free rotation for helix. Rotation is damped with high viscosity silicone fluid.

Helix is precision milled from an alloy of high magnetic permeability, mounted in jeweled bearings, and rotates to align with magnetic field of magnet and transmit pressure indication to pointer.

Zero adjustment screw is conveniently located in plastic cover, accessible without removing cover. "O" ring seal provides dust seal.



Patent Nos. 4,011,759
4,030,365

SERIES 4000 CAPSUHELIC® GAGE

Scales reading directly in flow, heights, etc., are also available.

| Model Number | Range, Inches of Water | Model Number | Range Zero Center Inches of Water | Model Number | Range MM of Water | Model Number | Range, CM of Water | Model Number | Range, Pascals |
|---------------------------------------|------------------------|-----------------------------------|-----------------------------------|---|---|---------------------------|----------------------|--------------------------|----------------|
| *4000-0 | 0-50 | *4302 | 1-0-1 | *4000-25MM | 0-25 | 4000-15CM | 0-15 | *4000-125PA | 0-125 |
| *4001 | 0-1.0 | *4304 | 2-0-2 | *4000-50MM | 0-50 | 4000-20CM | 0-20 | *4000-250PA | 0-250 |
| *4002 | 0-2.0 | 4310 | 5-0-5 | *4000-80MM | 0-80 | 4000-25CM | 0-25 | *4000-500PA | 0-500 |
| *4003 | 0-3.0 | 4320 | 10-0-10 | *4000-100MM | 0-100 | 4000-40CM | 0-40 | *4000-750PA | 0-750 |
| *4004 | 0-4.0 | 4330 | 15-0-15 | Special Purpose Ranges Scale No. 4401 Square Root Specify Range Scale No. 4402 Blank Scale Specify Range | | | | Zero Center Ranges | |
| *4005 | 0-5.0 | Model Number Range PSI | | | | | | Zero Center Ranges | |
| 4006 | 0-6.0 | 4201 | 0-1 | | | | | Zero Center Ranges | |
| 4008 | 0-8.0 | 4202 | 0-2 | | | | | Zero Center Ranges | |
| 4010 | 0-10 | 4203 | 0-3 | | | | | Zero Center Ranges | |
| 4015 | 0-15 | 4204 | 0-4 | | | | | Zero Center Ranges | |
| 4020 | 0-20 | 4205 | 0-5 | | | | | Zero Center Ranges | |
| 4025 | 0-25 | 4210 | 0-10 | | | | | Zero Center Ranges | |
| 4030 | 0-30 | 4215 | 0-15 | | | | | Zero Center Ranges | |
| 4040 | 0-40 | 4220 | 0-20 | | | | | Zero Center Ranges | |
| 4050 | 0-50 | †4230S | 0-30 | | | | | Zero Center Ranges | |
| 4060 | 0-60 | †4240S | 0-40 | | | | | Zero Center Ranges | |
| 4080 | 0-80 | †4260S | 0-60 | | | | | Zero Center Ranges | |
| 4100 | 0-100 | †4280S | 0-80 | | | | | Zero Center Ranges | |
| 4150 | 0-150 | †42100S | 0-100 | | | | | Zero Center Ranges | |
| 4200 | 0-200 | †42200S | 0-200 | Zero Center Ranges | | | | | |
| 4300 | 0-300 | †42300S | 0-300 | Zero Center Ranges | | | | | |
| 4400 | 0-400 | | | Zero Center Ranges | | | | | |
| 4500 | 0-500 | | | Zero Center Ranges | | | | | |
| Model Number Range Feet of Water | | Accessories | | | Options | | | Zero Center Ranges | |
| 4616B 0-16 | | A-298 Flat Flush Mounting Bracket | | | Add Options as Suffix, Example 4001-ASF | | | *4300-1KPA 0-1 | |
| 4635B 0-35 | | A-309 3-way Manifold Valve | | | -ASF (Adjustable Signal Flag) | | | 4000-2KPA 0-2 | |
| Available with brass case only | | A-314 Bleed Fitting | | | B (Brass Case) | | | 4000-3KPA 0-3 | |
| | | A-370 Mounting Bracket | | | Scale Overlays - Red, Green, Mirrored or combination. Specify Locations | | | 4000-4KPA 0-4 | |
| | | A-471 Portable Kit | | | | | 4000-5KPA 0-5 | | |
| | | A-496 Flush Mount Bracket | | | | | 4000-8KPA 0-8 | | |
| | | A-610 Pipe Mount Kit | | | | | 4000-10KPA 0-10 | | |
| | | | | | | 4000-15KPA 0-15 | | 4000-20KPA 0-20 | |
| | | | | | | 4000-25KPA 0-25 | | 4000-30KPA 0-30 | |
| | | | | | | 4000-30KPA 0-30 | | *4300-1KPA 0-1 | |
| | | | | | | *4300-3KPA 1.5-0-1.5 | | 4300-3KPA 1.5-0-1.5 | |

*These ranges available for vertical scale position only.

†These ranges use Spirahelic® gage movement.