



Display is visible with optional water-resistant carry case fully closed.

- **4 Models of Diaphragm and Pirani Gauges**
 - 1 to 1500 Torr Diaphragm**
 - 30 in. Hg To 200 PSI Gauge**
 - 1 to 2000 mTorr Pirani**
 - .01 to 20.00 Torr Pirani**
- **Available in Torr, Microns, Pascal, in. Hg, or mbar**
- **2000 mTorr Pirani Also Reads DV-6 Tubes**
- **Rugged Digital Display; No Fragile Meters!**
- **Long Life Batteries and Built-in Charger**
- **Water Resistant Case; Neck Strap & Belt Loops**
- **Read & Operate Gauge With Case Fully Closed**

These battery powered Pirani and diaphragm gauges were designed for reliable vacuum measurement on applications such as over-the-road cryogenic trailers. The easy to read digital display eliminates the fragile meter movements used in old style instruments. Our gauge tube stem and cup are all stainless steel and are strong enough to stand on and resist the corrosive effects of rain and road salt.

Lower operating temperatures in our Pirani gauge tubes are half that of thermopile gauges. This enhances stability as does a unique temperature compensation network. Gauge tubes are matched so they can be replaced without recalibration and they can withstand working pressures to 300 psi, tested to 1200 psi. Gauge tubes are available with 1/8 NPT male thread (fit into quick connects sized for 1/8 inch pipe (0.405" dia.). NW flanges, VCR-4 fittings, 15 mm diameter tube, and Mini Conflat® flanges are also available.



Battery gauge shown in optional carry case.

Optional Water Resistant Carry Case

Heavy duty canvas carry case includes neck strap and belt loops, inside of case has soft lining. The battery powered gauge can be fully operated without removing it from the case. On/off button can be pressed through case material, plastic viewing window is located on the top of case for easy reading of the display. The coiled gauge tube cable attaches to Velcro loop on the carry case when not in use. P/N: 912028\$53.

Gauge Pressure vs. Absolute Pressure

Most of the instruments in this catalog are built to measure pressure in "Absolute" units such as Torr, Microns, and mbar. But "Gauge" pressure units such as inches Hg are also available. "Gauge" pressure means that atmospheric pressure is used as the reference for zero and 29.92 in. Hg (or some other unit of measure) designates high vacuum. "Gauge" pressure measurement can be useful in certain applications such as determining if a vacuum chamber is actually at atmospheric pressure so that the door can be opened safely. But, because the zero of "Gauge" measurements changes with atmospheric pressure the entire scale also changes. For example, if you are reading 28.00 inches Hg and the next day your instrument reads 28.39 inches Hg it may be that your pump is working better or it may be that a storm moved into your area and atmospheric pressure dropped. Changes in altitude also affect the readings of "Gauge" pressure instruments. There is a difference of 5 inches Hg (127 Torr) between sea level and Denver, Colorado.

For most vacuum measurements we recommend "Absolute" measurement systems, but if "Gauge" pressure is preferred add the suffix "Gauge" and the unit of measure to the part number. For most units of measure there is no additional charge.

Common Specifications

Battery Life: Approximately 150 readings of 1 minute each can be made without recharging. Gauge automatically turns off after 1 minute.
Battery Charger: Built-in and completely regulated against over-charge. 115VAC is standard. 230 VAC available at extra cost.
Battery Recharge Time: Approximately 10 hours. **Recharge Power:** Less than 5 Watts. **Display:** Easy to read 3 1/2 digit LCD
Line Voltage for Recharger Power Supply: 115 VAC, 50/60 Hz is standard; 230 VAC, 50 Hz optional for an additional cost.
Dimensions: 4.25 in. W x 6.5 in. H x 2.5 in. D (108 mm W x 165 mm H x 63 mm D)
Gauge Tube Cable: 5 ft. coil cord (1.5M) attached. **Line Cord For Recharger:** 3 wire, 65 inch (170 cm), socket provided.
Net Weight Including Case: 1 lb., 2 oz. (0.5 kg) **Shipping Weight Including Case:** 2 lbs., 8 oz. (1.1 kg)

Model Specifications

Diaphragm Gauge; 1 to 1500 Torr	Pirani Gauge; 1 to 2000 mT	Pirani Gauge; .01 to 20 Torr
<p>Pressure Range: 1 to 1500 Torr; ± 1 Torr (± 0.1 Torr resolution available at extra cost). Alternate Range: 30" Hg to 200 PSI Gauge. Calibration: Any gas, liquid or vacuum compatible with sensor materials. Accuracy: 1% of reading or 2 Torr. Response Time: Less than 400 msec. for response to a step change. Linearity: $\pm 0.15\%$ Full Scale. Sensitivity: ± 1 Torr. Transducer: See "ordering information" below. Materials: Parts in contact with process are 316, 304 SS, silicone & silicon. Sensor Internal Volume: 1.25 ml for SS; 0.5 ml for Silicon. Temperature Effects: When changes occur in ambient temperature between 0 °C and 50 °C, reading will change no more than $\pm 0.02\%$ per °C. Bakeout Temperature: Gauge tube can be baked to 100 °C (212 °F) in air or vacuum.</p>	<p>Pressure Range: 1 to 2000 milli Torr. Calibration: Air or Nitrogen. Accuracy: Better than 5% of value or ± 0.03 Torr, whichever is larger. Response Time: 0.3 second time constant. Gauge Tube: Standard gauge tubes have a 1/8 NPT male thread or fit into quick connects sized for 1/8 inch pipe (0.405" dia.) NW, VCR and Mini Conflat® available. Materials: Parts in contact with the process are 304 SS platinum alloy or Ni plated Kovar. Temperature Effects: Changes in ambient temperature between 0 °C and 50 °C change the reading less than 0.2 mT per °C at 50 mT; less than 4 mT per °C at 900 mT. Bakeout Temperature: Standard tube can be baked to 100 °C (212 °F) in air or vacuum. Tubes for 250 °C (482 °F) bakeout available.</p>	<p>Pressure Range: 0.01 to 20 Torr. Calibration: Air or Nitrogen. Accuracy: Better than 5% of value or ± 0.03 Torr, whichever is larger. Response Time: 0.3 second time constant. Gauge Tube: Standard gauge tubes have 1/8 NPT male thread or fit into quick connects sized for 1/8 inch pipe (0.405" dia.) NW, VCR and Mini Conflat® available. Materials: Parts in contact with the process are 304 SS platinum alloy or Ni plated Kovar. Temperature Effects: Changes in ambient temperature between 0 °C and 50 °C change the reading less than 0.01 Torr per °C. Bakeout Temperature: Gauge tube can be baked to 100 °C (212 °F) in air or vacuum. Tubes for 250 °C (482 °F) bakeout available.</p>

Ordering Information Specify 115 or 230 V, 50/60 Hz Power for Battery Charger When Ordering

Buy Now! Go to www.vacuumresearch.com to order online

1 to 1500 Torr Battery Powered

Portable Digital Indicator; Reads 1 to 1500 Torr with Vacuum Research gauge tubes. Gauge tubes and carry case must be ordered separately. Battery charger for 115V 50/60 Hz included. Charger for 220V, 50/60 Hz must be purchased separately. P/N: 902014 \$525.

Transducer with Stainless Steel Diaphragm wetted parts 316 SS. Max. bake-out temp. 125 °C.

1/4 in. NPT, P/N: 912022 \$388.

VCR-8 FEM, P/N: 902050 \$493.

VCR-4 FEM, P/N: 912219 \$438.

NW-16 Flange, P/N: 912151 \$438.

NW-25 Flange, P/N: 912117 \$438.

1.33 in. Conflat®, P/N: 912191 \$438.

1/2 in. OD Tube, P/N: 912210 \$438.

Transducer with Silicon Diaphragm body is 304 SS, connector pins are nickel plated Kovar. Maximum bake-out temperature 125 °C.

1/8 in. NPT Male Thread, P/N: 912091 . . . \$244.

1/2 in. OD Tube, P/N: 912211 \$282.

NW-16 Flange, P/N: 912023 \$282.

NW-25 Flange, P/N: 912119 \$282.

1.33 in. Conflat® Flange, non-rotatable,

P/N: 912026 \$282.

VCR-4 Fitting, P/N: 912025 \$316.

Diaphragm Transducers with All Stainless External Parts for outdoor applications or wherever the use of 304 SS is appropriate. All external parts and connector pins are 304 SS. Add SS suffix to tube P/N and to standard tube price . . . add \$42.

Gauge and gauge tube accessories. See pages 39, 40, 41 and 43.

Calibrator for 1500 T instruments, See page 37.

Dust Baffle see page 40.

Spare battery charger 115 VAC in, 12 VDC out, P/N: V104106 \$14.

Spare battery charger 220 VAC in, 12 VDC out, P/N: V104124 \$51.

1 to 2000 mTorr Battery Powered

Portable Digital Indicator, Reads 1 to 2000 mTorr with VRC Pirani gauge tubes, and 1 to 200 mTorr with Teledyne-Hastings DV6R, KJL-6000 and VRC-6 T/C tubes. Gauge tubes and carry case must be ordered separately. Battery charger for 115V 50/60 Hz included. Charger for 220V, 50/60 Hz must be purchased separately. P/N: 902017. \$549.

Standard Gauge Tube For 1 to 2000 mT Instruments Gauge tube body is 304 SS, connector pins are nickel plated Kovar.

1/8 in. NPT Male Thread, P/N: 912001 . . \$80.

1/4 in. SAE 45° Flare, Male, P/N: 912284 \$118.

NW-16 Flange, P/N: 912005 \$118.

NW-25 Flange, P/N: 912202 \$118.

1.33 in. Conflat® Flange, non-rotatable,

P/N: 912067 \$118.

VCR-4 FEM Fitting, P/N: 912068 \$152.

15 mm Diameter Tube, P/N: 912102 . . \$110.

All Stainless Steel Gauge Tubes For Outdoor Applications Or Wherever The Use Of 304 SS Is Appropriate. All wetted parts as well as all external parts and connector pins are 304 SS.

1/8 in. NPT, NW-16, Conflat®, VCR-4 and special flanges can be provided. Add "SS" suffix to any tube P/N and to standard tube price: add \$42.

Gauge and gauge tube accessories for the 2000 mT & 20 Torr Pirani Gauges. See pages 39, 40, 41, and 43.

Calibrators see page 37.

Dust Baffles see page 40.

Spare battery charger 115 VAC in, 12 VDC out, P/N: V104106 \$14.

Spare battery charger 220 VAC in, 12 VDC out, P/N: V104124 \$51.

.01 to 20 Torr Battery Powered

Portable Digital Indicator Reads .01 to 20 Torr with Vacuum Research gauge tubes. Gauge tubes and carry case must be ordered separately. Battery charger for 115V 50/60 Hz included. Charger for 220V, 50/60 Hz must be purchased separately. P/N: 902011 \$525.

Standard Gauge Tube For .01 to 20 Torr Instruments Gauge tube body is 304 SS, connector pins are nickel plated Kovar.

1/8 in. NPT Male Thread, P/N: 912011 . . . \$84.

1/4 in. SAE 45° Flare, Male, P/N: 912285 . \$118.



New! 1/4 inch SAE 45° Flare tube available for mTorr, Torr and micron Pirani gauges

NW-16 Flange, P/N: 912072 \$122.

NW-25 Flange, P/N: 912204 \$122.

1.33 in. Conflat® Flange, non-rotatable,

P/N: 912073 \$122.

VCR-4 FEM Fitting, P/N: 912074 \$155.

15 mm Diameter Tube, P/N: 912103 . . . \$108.

All Stainless Steel Gauge Tubes For Outdoor Applications Or Wherever The Use Of 304 SS Is Appropriate. All wetted parts as well as all external parts and connector pins are 304 SS.

1/8 in. NPT, NW-16, Conflat®, VCR-4 and special flanges can be provided. Add "SS" suffix to any tube P/N and to standard tube price: . . . add \$42.