



Easy to read, rugged digital display.

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.

- 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

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.



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, CO.

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

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.

Pirani Gauge; 1-2000 mT

Pressure Range: 1 to 2000 milliTorr.

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.

Tube Internal Volume: 0.79 cc (1/8 NPT).

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.

Pirani Gauge; 0.01-20 Torr

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.

Tube Internal Volume: 0.79 cc (1/8 NPT).

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.

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.....\$794

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

1/4 in. NPT, P/N: 912022.....\$550

VCR-8 FEM, P/N: 902050.....\$719

VCR-4 FEM, P/N: 912219.....\$698

NW-16 Flange, P/N: 912151.....\$619

NW-25 Flange, P/N: 912117.....\$619

1.33 in. Conflat®, P/N: 912191.....\$619

1/2 in. OD Tube, P/N: 912210.....\$619

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.....\$347

1/2 in. OD Tube, P/N: 912211.....\$401

NW-16 Flange, P/N: 912023.....\$401

NW-25 Flange, P/N: 912119.....\$401

1.33 in. Conflat® Flange, non-rotatable, P/N: 912026.....\$401

VCR-4 Fitting, P/N: 912025.....\$448

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 \$61

Gauge and gauge tube accessories. See pages 35, 36, 37 & 39.

Calibrator for 1500 T instruments, See page 33.

Dust Baffles see page 36.

Spare battery charger 100 to 240 V, 50-60 Hz input, 15 VDC @ 1.0 A output. Wallmount style with adapter plugs for US, UK, Europe, Australia.

P/N: V104124.....\$77

1 to 2000 mTorr Battery Powered Portable Digital Indicator; Reads 1 to 1500 Torr with 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.....\$830

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.....\$115

1/4" SAE 45° Flare, Male, P/N: 912284.....\$169

NW-16 Flange, P/N: 912005.....\$169

NW-25 Flange, P/N: 912202.....\$169

1.33 in. Conflat® Flange, non-rotatable,

P/N: 912067.....\$169

VCR-4 FEM Fitting, P/N: 912068.....\$216

15 mm Diameter Tube, P/N: 912102.....\$160

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 \$61

Gauge and gauge tube accessories for the 2000 mT & 20 Torr Pirani Gauges. See pages 35, 36, 37 & 39.

Calibrators.....see page 33.

Dust Baffles.....see page 36.

Spare battery charger 100 to 240 V, 50-60 Hz input, 15 VDC @ 1.0 A output. Wallmount style with adapter plugs for US, UK, Europe, Australia.

P/N: V104124.....\$74

.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.....\$794

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.....\$121

1/4" SAE 45° Flare, Male, P/N: 912285.....\$169



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

NW-16 Flange, P/N: 912072.....\$174

NW-25 Flange, P/N: 912204.....\$174

1.33 in. Conflat® Flange, non-rotatable,

P/N: 912073.....\$174

VCR-4 FEM Fitting, P/N: 912074.....\$222

15 mm Diameter Tube, P/N: 912103.....\$156

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 \$61