InstruTech®, Inc.

Series 101 Worker Bee™ Convection Vacuum Gauge

Wide measuring range **1 x 10^{-4} to 1,000 Torr** **1.3 x 10^{-4} to 1,333 mbar** **1.3 x 10^{-2} Pa to 133 kPa**	***A single vacuum gauge can monitor your vacuum system pump-down and venting***
Wider measuring range and better accuracy than thermocouple gauges	***Upgrade your vacuum system and process performance***
Also a lower cost, plug-compatible, direct drop-in replacement gauge for Granville-Phillips® Convectron® and gauges	***Significant savings for you*** ***No changes to your system*** ***Use your existing Convectron® controllers, cables, and modules***

The InstruTech CVG101 Sensor

The CVG101 *Worker Bee™* convection vacuum gauge sensor incorporates numerous design enhancements compared to other traditional convection vacuum gauges.

Temperature compensation has been moved out of the vacuum environment and placed around the outside of the vacuum gauge tube. This has eliminated a dozen or so unnecessary parts and welds, significantly increasing the reliability, providing optimal vacuum measurement while reducing cost. The improved mechanical strength results in a highly robust vacuum gauge less susceptible to mechanical shock and vibration.

Other design features include reduced internal volume and significant reduction of internal surface area resulting in faster pump-down and less outgassing. A fine mesh screen in the gauge inlet port helps prevent particulate contamination from entering the gauge. The gauge is shielded against RF interference.

These, and other, design features add up to a highly reliable vacuum gauge with significant cost savings that are passed on to the user.

Upgrade for thermocouple TC vacuum gauges

The CVG101 *Worker Bee* provides a wider measuring range than traditional thermocouple vacuum gauges - from 1 x 10^{-4} Torr to above atmosphere - so you can monitor your entire pump- down and vent cycle.

The CVG101 *Worker Bee* convection enhanced Pirani gauge is more accurate than a thermocouple gauge, especially at lower pressures.

Also a Low cost drop-in replacement for the Convectron® Gauge

The CVG101 *Worker Bee* can also directly replace the Granville-Phillips® Convectron® sensor, at significantly lower cost.

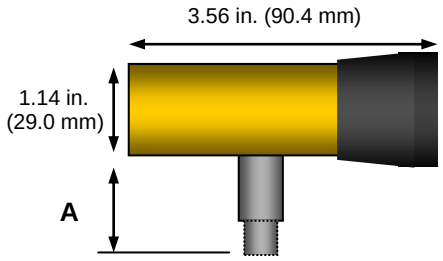
The InstruTech CVG101 *Worker Bee* convection vacuum gauge provides equivalent or better performance throughout the range of 1 x 10^{-4} to 1,000 Torr. Only the same, equivalent, or better materials are used in the vacuum environment. Clean assembly procedures assure compatibility with today's contamination-sensitive processes. All tooling that comes in contact with vacuum surfaces of the InstruTech gauge are of very low vapor pressure materials.

The sensor connector has the same pinouts and signal as the corresponding Convectron®. It is directly interchangeable with your existing Convectron® controllers, cables, so you don't need to change any wiring, hardware, or process recipes. With *Worker Bee's* performance, more robust design, longevity, and lower cost, your process will only improve.

Guided by our vast experience and vacuum measurement know how, InstruTech sensors are specifically designed for optimum reliability and performance. Whether you're looking to reduce costs or improve your process, the CVG101 Worker Bee offers a cost-effective solution for your vacuum gauging needs.

Specifications

measurement range	1 x 10^{-4} to 1,000 Torr 1.3 x 10^{-4} to 1,333 mbar 1.3 x 10^{-2} Pa to 133 kPa
accuracy - N_2 (typical)	1 x 10^{-4} to 1 x 10^{-3} Torr; 0.1 mTorr resolution 1 x 10^{-3} to 400 Torr; ± 10% of reading 400 to 1,000 Torr; ±2.5% of reading
repeatability - (typical)	± 2% of reading
operating temperature	0 to 50 °C
bakeout temperature	150 °C max, non-operating, with electronics cable detached
humidity	0 to 95% relative humidity, non-condensing
mounting orientation	horizontal recommended (orientation has no effect on measurements below 1 Torr)
materials exposed to vacuum	gold-plated tungsten, 304 & 316 stainless steel, glass, nickel, Teflon®
internal volume	1.589 in^3 (26 cm^3)
internal surface area	9.25 in^2 (59.7 cm^2)
leak integrity	< 1 x 10^{-9} atm cc/sec He
weight	3 oz. (85 g)
RF/EMI protection	CE compliant
environmental	RoHS compliant



fitting	dimension **A**
1/8 in. NPT male - 1/2 in. tube	1.00 in. (25.4 mm)
NW16KF	1.30 in. (33.0 mm)
NW25KF	1.30 in. (33.0 mm)
NW40KF	1.30 in. (33.0 mm)
1 1/3 in. Mini-Conflat®	1.08 in. (27.4 mm)
2 3/4 in. Conflat®	1.47 in. (37.3 mm)
1/4 in. Cajon® 4VCR®	1.86 in. (47.2 mm)
1/2 in. Cajon® 8VCR®	1.75 in. (44.5 mm)

Ordering Information

	InstruTech CVG101 P/N	*Equivalent Convectron® P/N*
Standard Gauges		
Combination 1/8 in. NPT male - 1/2 in. tube (use 1/8" NPT male or 1/2" O.D. O-ring compression)	CVG101GA	*275071*
NW16KF	CVG101GB	*275203*
NW25KF	CVG101GC	*275196*
NW40KF	CVG101GD	*275316*
1 1/3 in. Mini-CF / NW16CF Mini-Conflat®	CVG101GE	*275256*
2 3/4 in. CF / NW35CF Conflat®	CVG101GF	*275238*
1/4 in. Cajon® 4VCR® female	CVG101GG	*275185*
1/2 in. Cajon® 8VCR® female	CVG101GH	*275282*
Gauges for Mini-Convectron® Modules		
1/8 in. NPT male - 1/2 in. tube	CVG102GA	*275810*
NW16KF	CVG102GB	*275816*
NW25KF	CVG102GC	*275817*
NW40KF	CVG102GD	*275818*
1 1/3 in. Mini-CF / NW16CF Mini-Conflat®	CVG102GE	*275813*
2 3/4 in. CF / NW35CF Conflat®	CVG102GF	*275814*
1/4 in. Cajon®4VCR® female	CVG102GG	*275811*
1/2 in. Cajon®8VCR® female	CVG102GH	*275864*

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