

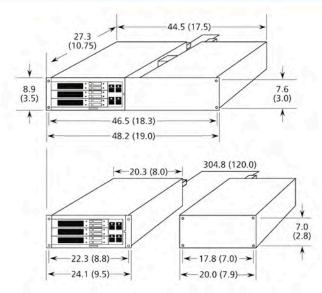
Granville-Phillips[®] Series 370 Stabil-Ion[®] Vacuum Gauge and Controller

Advanced Vacuum Measurement Solutions

VACUUM PRODUCTS



Dimensions



Dimensions are shown in millimeters (inches)





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CRITICAL COMPONENTS GROUP

Granville-Phillips[®] Series 370 Stabil-Ion[®] Vacuum Gauge and Controller

Advanced Vacuum Measurement Solutions

VACUUM PRODUCTS

Benefits

- All-metal, rack-mount controller for Stabil-Ion and Convectron® vacuum gauges is noise-immune and CE compliant
- The latest ionization gauge technology provides accurate vacuum pressure measurement from the 10⁻¹¹ Torr range (10⁻¹¹ mbar, 10⁻⁹ Pa)
- Convectron Gauge
 option extends pressure
 measurement to atmosphere
- Flexible design allows for optional setpoint relays and digital interfaces
- Three-digit display of
 pressure measurements
- Stabil-lon Gauge with memory module of calibration data
- Ultra-clean gauge construction allows rapid response during pumpdown
- Dual filaments increase
 equipment uptime

The stability, accuracy, and reliability of the Stabil-Ion[®] Gauge are the results of many years of testing and design. Stabil-Ion Gauges are the only high vacuum process control gauges that are designed to maintain calibration over time. Due to the design and technology of older style ionization gauges, the physical relationship between the grid and the filament is always changing. As a result, pressure readings are often inaccurate by 30% to 40% - sometimes even more. A patented precise design and advanced manufacturing techniques ensure that the Stabil Ion Gauge's components do not shift, so you can count on accurate pressure measurements for the life of the gauge.

If the Stabil-Ion Gauge and memory module are replaced, processing results are much more likely to remain the same. If you need vacuum measurements that are accurate and repeatable over time, the Stabil-Ion Gauge and Controller is your answer. Every Stabil-Ion Gauge is individually calibrated at 15 pressure values and supplied with a memory module matched to its own calibration data. This provides gauge-to-gauge reproducibility which is essential for process replication.

Stabil-Ion Vacuum Gauge Controller

The Granville-Phillips Stabil-Ion Vacuum Gauge and Controller combine the latest technology in ionization gauges and control electronics, giving you the most reliable and accurate vacuum pressure measurements for your systems and research. Bright LEDs display the pressures read by the Stabil-Ion and Convectron Gauges. The flexible, modular design offers a range of computer interfaces, setpoint control relays, dual Convectron Gauge operation, and digital

display in Torr, Millibar, or Pascal to meet your specific requirements. Other features include analog output, selectable emission current, degas timer, and selectable N₂/ Ar gas for Convectron.



Granville-Phillips® Series 370 Stabil-Ion® Vacuum Gauge and Controller

Stabil-Ion Controller Features and Benefits

Wide Measurement Range: Designed specifically for the Stabil-Ion and Convectron Gauges, the Stabil-Ion Controller monitors vacuum system performance continuously from $2x10^{-11}$ Torr to 999 Torr.

Simple Modular Design: Allows you to add just the functions you want to control your vacuum measurement system. Field replaceable option boards allow for easy upgrading as your needs change.

Process Control Options: Up to six process control setpoint relays are available to control other vacuum equipment such as valves, pumps, timers, and safety interlocks. Settings are adjustable and are stored in non-volatile memory.

Computer Interface Options:

RS-232, RS-485 or IEEE-488 interface allows easy integration with computer-controlled systems.

3-Line Digital Display:

Bright, easy-to-read, flickerfree, green LED displays allow the user to monitor the Stabil-Ion Gauge and both Convectron Gauge pressure readings at a single glance. **Memory Module for the Stabil-Ion Gauge:** Each Stabil-Ion Gauge is individually calibrated and supplied with a memory module matched to its own calibration data. If you replace a Stabil-Ion Gauge on your system, you also replace the memory module supplied with the new gauge to achieve immediate system callibration.

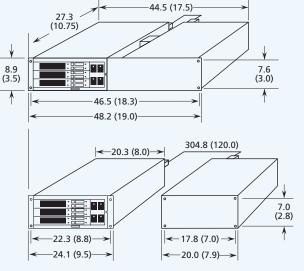
Digital Electrometer with Liquid Crystal Display for Setup: Permits easy programming of operating parameters and calibration data, and displays the parameter value readouts.

> **CE Compliant:** The rugged extruded aluminum case makes the controller extremely durable for a long lifetime in the most demanding environments and provides a high level of immunity to RF noise.

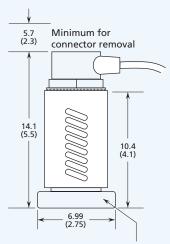
UL Listed: Stabil-Ion Systems are listed by Underwriters Laboratories Inc. (UL) and meet the applicable UL Standards for Safety.



Dimensions



Dimensions are shown in millimeters (inches)



ConFlat[®] flange

Stabil-Ion Gauge Features and Benefits

Precision-Wound, Stress-Relieved Anode: Retains its original shape even after high-temperature degassing, thus reduces measurement errors. No movement of any of the internal components means no variations of actual pressure indication.

Rugged Stainless Steel Construction: Prevents grid and filament damage during mounting, and eliminates the risk of glass breakage.

Tensioned Dual Filaments: Stay precisely positioned to maintain stability and calibration.

Vacuum-Fired Components: Are never touched by bare hands during assembly. All manufacturing, assembly and testing are performed in a cleanroom environment, thereby preventing contamination and speeding vacuum system pumpdown.

Calibration Memory: The Stabil-Ion Gauge is the first ionization gauge with sufficient long-term stability to justify storing calibration data in memory. Each Stabil-Ion Gauge is provided with a memory module containing the calibration data based on 15 individually calibrated pressure values.

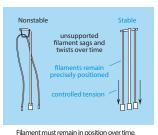
Choice of Measuring Range: The Stabil-Ion Gauge is available for use in high vacuum or ultra-high vacuum ranges. See the Technical Specifications for measurement ranges.



Long-term, accurate measurement is assured by the unique design and careful manufacturing of the Stabil-Ion Gauges. Here are the more important problems with older BA gauge designs that we removed in order to achieve accuracy over time and gauge-to-gauge. Sophisticated computer simulations of electron and ion trajectories helped

greatly in identifying the causes

of nonstable behavior.



nanges in electrical

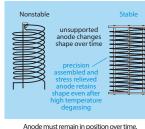
Electrical environment must not change

1000

Nonstable

Nonstable

Oper



conducting film buildup on glass

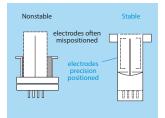
changes enclosure potential

Nonstable

equinotential

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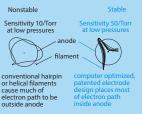
Stable



Electrode position relative to wall must not vary gauge to gauge.



Ion space charge at high pressure must be minimized



Axial electric fields must be minimized.

dversely affect h paths

Electron emission must be limited to central region of anode

Electrical environment must not change

filament is

too long relative to anoc

Electron trajectories must be controlled.

Technical Specifications

Controller measuring range for 1% or mir teek Nores 1,2 and 2, below! Verif Subil-Boags Hobb Convectors Pa A 10 1 ¹¹ to 133 10 ¹⁰ hobr Pa 3 10 1 ¹¹ to 133 10 ¹⁰ hobr Pa 3 10 1 ¹⁰ to 133 10 ¹⁰ hobr Pa 3 10 1 ¹⁰ to 133 10 ¹⁰ hobr Pa 4 3 10 1 ¹⁰ to 133 10 ¹⁰ hobr Pa 4 3 10 1 ¹⁰ to 133 10 ¹⁰ hobr Pa 4 3 10 1 ¹⁰ to 13 10 ¹⁰ hobr Pa 5 4 3 of randing from 1 x 10 ⁴ for rank 10 ⁴	Controllor managering range for N. or	in loss Netre 1 2 and 2 helped
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EMC directive89/38/EEC; EN 50081-2, EN 50082-2Low voltage directive73/24/EEC; EN 51010 (UL 6230)Display3 digits, plus exponent, green LED: Torr, mbar, or PaDigital interface optionsRS-222, RS-485 or IEEC-488Convectron gauge optionOperates 2 gaugesAnalog output1 volt/decade, logarithmic, 0 to 7 VdcSatpoint options2 relays for Stabil-lon gauge or 6 relays (2 per channel)ConfugurationSingle pole, double throw (SPDT)Contact rating5 A at 250 Vac, 5 A at 30 Vac, resistive loadStabil-lon gauge*********************************	Case materials	Aluminum extrusion, steel, plastic
EMC directive89/38/EEC; EN 50081-2, EN 50082-2Low voltage directive73/24/EEC; EN 51010 (UL 6230)Display3 digits, plus exponent, green LED: Torr, mbar, or PaDigital interface optionsRS-222, RS-485 or IEEC-488Convectron gauge optionOperates 2 gaugesAnalog output1 volt/decade, logarithmic, 0 to 7 VdcSatpoint options2 relays for Stabil-lon gauge or 6 relays (2 per channel)ConfugurationSingle pole, double throw (SPDT)Contact rating5 A at 250 Vac, 5 A at 30 Vac, resistive loadStabil-lon gauge*********************************	CE compliance	
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Gauge bakeout temperature150 °C maximum, non-operating, cable disconnectedCable bakeout temperature105 °C maximum	Internal volume	33 cm ³ (2.14 inch ³)
Cable bakeout temperature 105 °C maximum	Gauge operating temperature	0 °C to 50 °C ambient, non-condensing
	Gauge bakeout temperature	150 °C maximum, non-operating, cable disconnected
Maximum gauge cable length 152 meters (500 feet)	Cable bakeout temperature	105 °C maximum
	Maximum gauge cable length	152 meters (500 feet)

1. Measurements will change with different gases and mixtures.

2. Stabil-Ion and Convectron Gauges are not intended for use with flammable or explosive gases.

3. Atmospheric value is based on calibration at time of use.

4. Accuracy for extended range gauge (the difference between the gauge reading and a calibrated reference standard) is determined statistically and includes the combined performance of the gauge and electronics.

5. Repeatability for extended range gauge refers to the ability of the same module to read the same pressure at different times.

6. The x-ray limit is the absolute lowest indication from the gauge. It is not practical to make repeatable measurements near the x-ray limit.

Ordering Information

To specify a Series 370 Stabil-Ion Vacuum Measurement System, select:

Stabil-Ion Gauges

Convectron Gauges

• Stabil-Ion Gauge cables

• Convectron Gauge cable

- A Stabil-Ion Controller
- Rack-mount configuration
- Up to three option cards
- Measurement units display option
- · Power cord option

Stabil-Ion Vacuum Gauge Controller

Select the desired configurations and options to create your catalog number.

Series 370 Stabil-Ion Controller		370 ### - # # #
Configuration options		$\uparrow \uparrow \uparrow \uparrow \uparrow$
controller and power supply, 19-inch rack	501	
half-rack mount with remote power supply	502	
Interface options (Slot X) *		
None	0	
RS-232	A	
RS-485	<u>B</u>	
IEEE-488	C	
Gauge options (Slot Y) *		
None	0	
Dual Convectron Gauge	1	
Setpoint options (Slot Z) *		
None	0	
2 setpoint relays for Stabil-Ion Gauge	Α	
6 setpoint relays, 2 per channel	В	
Display options - Measurement units		
Torr	т	
mbar	M	
Pa	Р	
Power cord options		
North America 115 Vac & Japan 100 Vac	1	
North America 240 Vac	2	
Universal Europe 220 Vac	3	
United Kingdom 240 Vac	4	

* Option cards: Select up to three option cards - one for each slot. The controller will be assembled with the option cards installed. Option cards can also be ordered separately for field installation. Contact Customer Support for more details.

Ordering Example

To order a Series 370 Stabil-Ion Gauge Controller and power supply mounted side by side for 19-rack, IEEE-488 interface, dual Convectron Gauge operation, 6 setpoint relays, display in Torr, and North America 115 Vac power cord, select Catalog number: 370501-C1B-T1.







Stabil-Ion[®] Gauges and Cables



Convectron[®] Gauges and Cables





Stabil-Ion Vacuum Gauges with dual yttria-coated iridium filaments and Memory Module

Extended range gauge, 2.75 conflat flange	370120
UHV range gauge, 2.75 conflat flange	370121

Cables for Stabil-Ion Gauge, side-by-side mounting of controller and power supply

10 feet (3 meters)	360116-10
25 feet (7.6 meters)	360116-25
50 feet (15.2 meters)	360116-50
100 feet (30.5 meters)	360116-100
200 feet (61 meters)	360116-200

Cables for Stabil-Ion Gauge, remote mounting of power supply

10 feet (3 meters)	360117-10
25 feet (7.6 meters)	360117-25

Convectron Vacuum Gauges

Select the desired vacuum connection.

1/8 NPT / 1/2 inch tubulation	275071
1/4 inch 4VCR-type female	275185
1/2 inch 8VCR-type female	275282
NW16KF	275203
NW25KF	275196
NW40KF	275316
1.33 inch (NW16CF) ConFlat-type	275256
2.75 inch (NW35CF) ConFlat-type	275238
3/8 inch VCO-type male	275233

Dual Convectron Gauge Cables

Select the desired length. One cable assembly connects two gauges. A cable assembly has a single connection to the controller and two equal lengths of cable to the Convectron Gauges.

10 feet (3 meters)	303040-10
25 feet (7.6 meters)	303040-25
50 feet (15.2 meters)	303040-50
100 feet (30.5 meters)	303040-100
200 feet (61 meters)	303040-200

Backed by GUTS®

All Granville-Phillips products are backed by the GUTS (Guaranteed Uptime Support) rapid response network, our comprehensive customer support program. When you call the GUTS service center, you are guaranteed immediate, competent response and action by a vacuum expert from our worldwide technical support staff. We're at work for you 24 hours a day, 365 days a year. In the U.S., dial 1 before the phone number 1-800-FOR-GUTS (800-367-4887).

For more information, please contact your local Brooks Automation sales representative or visit www.brooks.com.



6450 Dry Creek Parkway • Longmont, CO 80503 U.S.A. • Tel: (303) 652-4400 • Fax: (303) 652-2844 • www.brooks.com