

## BAG050, BAG051, BAG052, BAG053

### Bayard Alpert Vacuum Gauge Heads - Passive

The hot cathode ionization passive vacuum gauge heads BAG05x are nude (BAG050, BAG051) or glass tube (BAG052, BAG053) Bayard-Alpert sensors designed for use with the Vacuum Gauge Controller VGC083A/B. Yttrium oxide coated iridium filaments are offered for general vacuum applications where air and inert gases, such as N<sub>2</sub> and argon, are present. Tungsten filaments are offered for specific applications where yttrium oxide coated iridium filaments are not compatible. BAG05x gauges are largely compatible and may be operated with other user-selected compatible vacuum gauge controllers. The INFICON passive Bayard-Alpert ionization vacuum gauges (BAG05x) are offered in three different configurations:

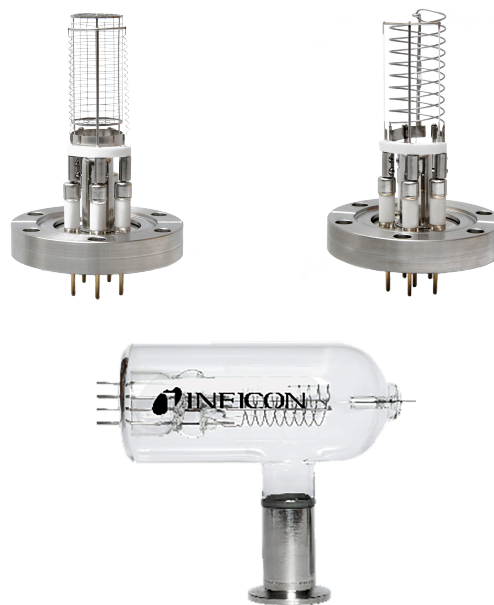
- BAG050 is an electron bombardment (EB) degas nude ionization vacuum gauge capable of UHV pressure measurement as low as  $2 \times 10^{-11}$  mbar
- BAG051 is a resistive (I<sup>2</sup>R) degas nude ionization vacuum gauge capable of pressure measurement as low as  $5 \times 10^{-10}$  mbar
- BAG052 and BAG053 are resistive (I<sup>2</sup>R) degas glass enclosed ionization vacuum gauges capable of pressure measurement as low as  $5 \times 10^{-10}$  mbar

#### ADVANTAGES

- Long standing, reliable and proven gauge head design
- Drop-in replacement for most nude hot ion gauge heads
- Wide range of emission currents (100  $\mu$ A to 10 mA)
- Available with single/dual yttria coated iridium and dual tungsten filament cathode assemblies
- Degas: all models can be degassed using EB (electron bombardment). BAG051, BAG052 and BAG053 can also be degassed using resistive degas (I<sup>2</sup>R)

#### APPLICATIONS

- General vacuum measurement and control in the low to ultra-high vacuum range
- Industrial and analytical applications



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### ORDERING INFORMATION

#### BAG050

BA nude EB-degas, DN 40 CF, dual iridium filament (Ir)	399-720
BA nude EB-degas, DN 40 CF, dual tungsten filament (W)	399-721
Spare dual iridium filament (Ir)	399-730
Spare dual tungsten filament (W)	399-731



#### BAG051

BA nude I <sup>2</sup> R, DN40CF, single iridium filament (Ir)	399-725
BA nude I <sup>2</sup> R, DN40CF, dual iridium filament (Ir)	399-726
BA nude I <sup>2</sup> R, DN40CF, dual tungsten filament (W)	399-727
Spare iridium filament (Ir)	399-735
Spare dual iridium filament (Ir)	399-736
Spare dual tungsten filament (W)	399-737



#### BAG052

BA glass I <sup>2</sup> R, 3/4" Kovar metal inlet port, single iridium filament (Ir)	399-740
BA glass I <sup>2</sup> R, 1" Kovar metal inlet port, single iridium filament (Ir)	399-741
BA glass I <sup>2</sup> R, 3/4" glass inlet port, single iridium filament (Ir)	399-742
BA glass I <sup>2</sup> R, 1" glass inlet port, single iridium filament (Ir)	399-743
BA glass I <sup>2</sup> R, DN 25 ISO-KF, single iridium filament (Ir)	399-744
BA glass I <sup>2</sup> R, DN 40 ISO-KF, single iridium filament (Ir)	399-745
BA glass I <sup>2</sup> R, DN 16 CF, single iridium filament (Ir)	399-746
BA glass I <sup>2</sup> R, DN 40 CF, single iridium filament (Ir)	399-747



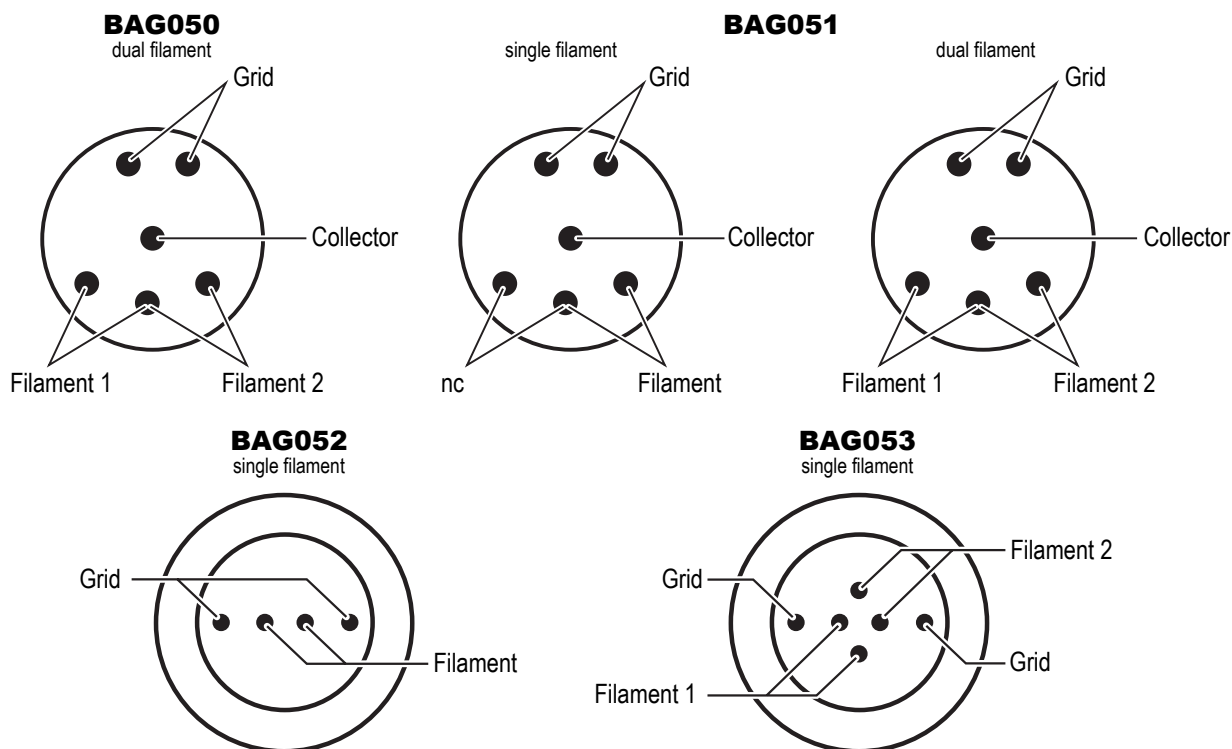
#### BAG053

BA glass I <sup>2</sup> R, 3/4" Kovar metal inlet port, dual tungsten filament (W)	399-750
BA glass I <sup>2</sup> R, 1" Kovar metal inlet port, dual tungsten filament (W)	399-751
BA glass I <sup>2</sup> R, 3/4" glass inlet port, dual tungsten filament (W)	399-752
BA glass I <sup>2</sup> R, 1" glass inlet port, dual tungsten filament (W)	399-753
BA glass I <sup>2</sup> R, DN 25 ISO-KF, dual tungsten filament (W)	399-754
BA glass I <sup>2</sup> R, DN 40 ISO-KF, dual tungsten filament (W)	399-755
BA glass I <sup>2</sup> R, DN 16 CF, dual tungsten filament (W)	399-756
BA glass I <sup>2</sup> R, DN 40 CF, dual tungsten filament (W)	399-757



# BAG050, BAG051, BAG052, BAG053

## ELECTRICAL CONNECTION



## SPECIFICATIONS

Type	BAG050	BAG051	BAG052	BAG053
Measurement system	hot cathode ionization			
Electrode system configuration	Bayard-Alpert			
Measurement range (N <sub>2</sub> )	2.7x10 <sup>-11</sup> ... 1.3x10 <sup>-3</sup> mbar 2 × 10 <sup>-11</sup> ... 1 × 10 <sup>-3</sup> Torr 2.7 × 10 <sup>-9</sup> ... 1.3 × 10 <sup>-1</sup> Pa		5.3 × 10 <sup>-10</sup> ... 1.3 × 10 <sup>-3</sup> mbar 4 × 10 <sup>-10</sup> ... 1 × 10 <sup>-3</sup> Torr 5.3 × 10 <sup>-8</sup> ... 1.3 × 10 <sup>-1</sup> Pa	
X-ray limit	2 × 10 <sup>-11</sup> Torr		4 × 10 <sup>-10</sup> Torr	
Sensitivity (N <sub>2</sub> , typical)	25 Torr <sup>-1</sup>		10 Torr <sup>-1</sup>	
Accuracy (N <sub>2</sub> , typical)		±20%		
Repeatability (N <sub>2</sub> , typical)		±5%		
Mounting orientation		any		
Admissible temperature				
Bake-out		450 °C		
Degas				
Electron bombardment (EB)	≤40 W	70 W nominal, ≤100 W	≤100 W	≤100 W
Resistive I <sup>2</sup> R <sup>1)</sup>	—	6.3 ... 7.5 V (ac) at 10 A	6.3 ... 7.5 V (ac) at 10 A	6.3 ... 7.5 V (ac) at 10 A

<sup>1)</sup> 1.3x10<sup>-8</sup> ... 6.7x10<sup>-2</sup> mbar ( 1x10<sup>-8</sup> ... 5x10<sup>-2</sup> Torr)

<sup>2)</sup> Stainless steel

<sup>3)</sup> For corresponding cables to connect gauge with the VGC083x controller please check VGC083x Data Sheet tiba59e1 or VGC083x Operating Manual tinb29e1

## BAG050, BAG051, BAG052, BAG053

Type	BAG050	BAG051	BAG052	BAG053
Standard operating characteristics with VGC083 controller				
Cathode (filament)				
Heating current	2.5 ... 3.5 A		4 ... 6 A	
Heating voltage	3 ... 5 V (dc)		3 ... 5 V (dc)	
Potential	+30 V (dc)		+30 V (dc)	
Anode (grid) potential	+180 V (dc)		+180 V (dc)	
Collector potential	0 V		0 V	
Materials exposed to vacuum				
Collector	tungsten (W), ø0.005"	tungsten (W), ø0.010"	tungsten (W), ø0.010"	tungsten (W), ø0.010"
Cathode (filament)	dual yttria coated Ir or dual W	single/dual yttria coated Ir or dual W	single hairpin type yttria coated Ir	dual W
Anode (grid)	photo etched closed end SS <sup>2)</sup> cage	non-sag double helical 0.025" tungsten	non-sag double helical 0.025" tungsten	non-sag double helical 0.025" tungsten
Insulator	ceramic	ceramic	glass to metal	glass to metal
Flange	SS AISI 304 <sup>2)</sup>	SS AISI 304 <sup>2)</sup>	glass Nonex 7720	glass Nonex 7720
Dimensions				
Overall length	4 1/8 in.	4 1/8 in.	6 in.	6 in.
Insertion length	3 in.	3 in.	-	-
Glass envelope	-	-	Ø2 1/4 in. × 5 in. long	Ø2 1/4 in. × 5 in. long
Compatible INFICON controller <sup>3)</sup>	VGC083A (PN 399-700)		VGC083B (PN 399-701)	

<sup>1)</sup> 1.3x10<sup>-8</sup> ... 6.7x10<sup>-2</sup> mbar ( 1x10<sup>-8</sup> ... 5x10<sup>-2</sup> Torr)

<sup>2)</sup> Stainless steel

<sup>3)</sup> For corresponding cables to connect gauge with the VGC083x controller please check VGC083x Data Sheet tiba59e1 or VGC083x Operating Manual tinb29e1