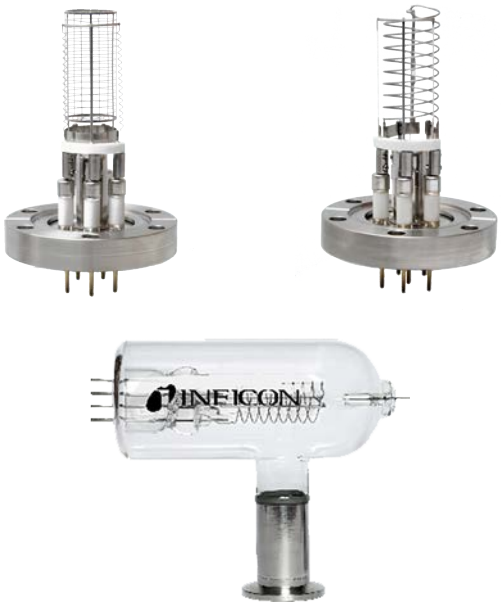
BAG050, BAG051, BAG052, BAG053

Bayard-Alpert Gauges - 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_2 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 2×10^{-11} mbar
- BAG051 is a resistive (I^2R) degas nude ionization vacuum gauge capable of pressure measurement as low as 5×10^{-10} mbar
- BAG052 and BAG053 are resistive (I^2R) degas glass enclosed ionization vacuum gauges capable of pressure measurement as low as 5×10^{-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 µA 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^2R)

APPLICATIONS

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

OPERATING UNITS

- Vacuum Gauge Controller VGC083 A/B

BAG050, BAG051, BAG052, BAG053

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**

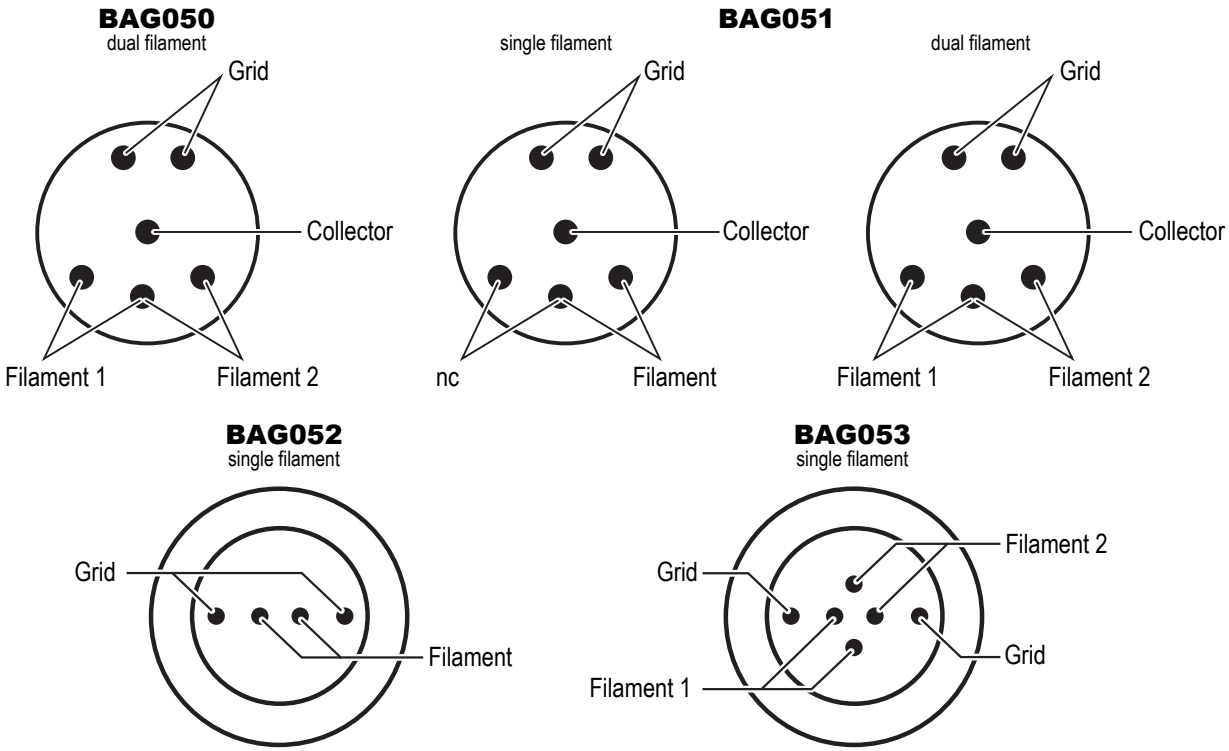
BAG051	
BA nude I²R, DN40CF, single iridium filament (Ir)	**399-725**
BA nude I²R, DN40CF, dual iridium filament (Ir)	**399-726**
BA nude I²R, DN40CF, dual tungsten filament (W)	**399-727**
Spare iridium filament (Ir)	**399-735**
Spare dual iridium filament (Ir)	**399-736**
Spare dual tungsten filament (W)	**399-737**

BAG052	
BA glass I²R, □'' Kovar metal inlet port, single iridium filament (Ir)	**399-740**
BA glass I²R, 1'' Kovar metal inlet port, single iridium filament (Ir)	**399-741**
BA glass I²R, □'' glass inlet port, single iridium filament (Ir)	**399-742**
BA glass I²R, 1'' glass inlet port, single iridium filament (Ir)	**399-743**
BA glass I²R, DN 25 ISO-KF, single iridium filament (Ir)	**399-744**
BA glass I²R, DN 40 ISO-KF, single iridium filament (Ir)	**399-745**
BA glass I²R, DN 16 CF, single iridium filament (Ir)	**399-746**
BA glass I²R, DN 40 CF, single iridium filament (Ir)	**399-747**

BAG053	
BA glass I²R, □'' Kovar metal inlet port, dual tungsten filament (W)	**399-750**
BA glass I²R, 1'' Kovar metal inlet port, dual tungsten filament (W)	**399-751**
BA glass I²R, □'' glass inlet port, dual tungsten filament (W)	**399-752**
BA glass I²R, 1'' glass inlet port, dual tungsten filament (W)	**399-753**
BA glass I²R, DN 25 ISO-KF, dual tungsten filament (W)	**399-754**
BA glass I²R, DN 40 ISO-KF, dual tungsten filament (W)	**399-755**
BA glass I²R, DN 16 CF, dual tungsten filament (W)	**399-756**
BA glass I²R, 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_2)	$2.7x10^{-11}$ … $1.3x10^{-3}$ mbar 2×10^{-11} … 1×10^{-3} Torr 2.7×10^{-9} … 1.3×10^{-1} Pa	5.3×10^{-10} … 1.3×10^{-3} mbar 4×10^{-10} … 1×10^{-3} Torr 5.3×10^{-8} … 1.3×10^{-1} Pa		
X-ray limit	2×10^{-11} Torr	4×10^{-10} Torr		
Sensitivity (N_2, typical)	25 $Torr^{-1}$	10 $Torr^{-1}$		
Accuracy (N_2, typical)	±20%			
Repeatability (N_2, typical)	±5%			
Mounting orientation	any			
Admissible temperature				
Bake-out	450 °C			

[1] $1.3x10^{-8}$ … $6.7x10^{-2}$ mbar ($1x10^{-8}$ … $5x10^{-2}$ Torr)

[2] Stainless steel

[3] 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
Degas				
Electron bombardment (EB)	≤40 W	70 W nominal, ≤100 W	≤100 W	≤100 W
Resistive I^2R [1]	□	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
Standard operating characteristics with VGC083 controller				
Cathode (filament)	2.5 … 3.5 A		4 … 6 A	
Heating current	3 … 5 V (dc)		3 … 5 V (dc)	
Heating voltage	+30 V (dc)		+30 V (dc)	
Potential	+180 V (dc)		+180 V (dc)	
Anode (grid) potential	0 V		0 V	
Collector potential				
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 [2] 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 [2]	SS AISI 304 [2]	glass Nonex 7720	glass Nonex 7720
Dimensions				
Overall length	4□ in.	4□ in.	6 in.	6 in.
Insertion length	3 in.	3 in.	-	-
Glass envelope	-	-	Ø2 □ in. × 5 in. long	Ø2 □ in. × 5 in. long
Compatible INFICON controller [3]	VGC083A (PN 399-700)		VGC083B (PN 399-701)	

[1] $1.3x10^{-8}$ … $6.7x10^{-2}$ mbar ($1x10^{-8}$ … $5x10^{-2}$ Torr)

[2] Stainless steel

[3] For corresponding cables to connect gauge with the VGC083x controller please check VGC083x Data Sheet tiba59e1 or VGC083x Operating Manual tinb29e1

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