

# BAG050 / 051 / 052 / 053 / 055

## Bayard Alpert Vacuum Gauge Heads – Passive



BAG050



BAG051



BAG052  
BAG053



BAG055

The INFICON Bayard-Alpert passive vacuum gauge heads BAG050, BAG051, BAG052, BAG053 and BAG055 are designed for use with the INFICON Vacuum Gauge Controller VGC083A & VGC083B. Yttria coated iridium filaments are offered for general vacuum applications in air and inert gases such as  $N_2$  and argon. Select tungsten filaments for gases that are not compatible with yttria coated iridium filaments. BAG05x gauges may also be operated with compatible vacuum gauge controllers from other manufacturers. The INFICON passive Bayard-Alpert ionization vacuum gauges (BAG05x) are offered in three different configurations: BAG050 is a EB-degas UHV nude ionization vacuum gauge capable of pressure measurement as low as  $2 \times 10^{-11}$  Torr. BAG051 is a resistive degas ( $I^2R$ ) nude ionization vacuum gauge capable of pressure measurement as low as  $4 \times 10^{-10}$  Torr. BAG052 and BAG053 are resistive degas ( $I^2R$ ) glass enclosed ionization vacuum gauges capable of pressure measurement as low as  $4 \times 10^{-10}$  Torr. BAG055 is a EB-degas UHV nude ionization vacuum gauge capable of pressure measurement as low as  $1 \times 10^{-9}$  Torr.

### ADVANTAGES

- Reliable and proven gauge head design
- Drop in 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 degased using EB (electron bombardment).  
BAG051, BAG052 and BAG053 can also be degased using resistive degas ( $I^2R$ )

## ORDERING INFORMATION

### BAG050

|   |                |
|---|----------------|
| BA nude EB-degas, DN40CF, <b>dual iridium</b> filament (Ir) | <b>399-720</b> |
| BA nude EB-degas, DN40CF, <b>dual tungsten</b> filament (W) | <b>399-721</b> |
| Spare <b>dual iridium</b> filament (Ir)                     | <b>399-730</b> |
| Spare <b>dual tungsten</b> filament (W)                     | <b>399-731</b> |



### BAG051

|   |                |
|---|----------------|
| BA nude I <sup>2</sup> R, DN 40 ISO-CF, <b>single iridium</b> filament (Ir) | <b>399-725</b> |
| BA nude I <sup>2</sup> R, DN 40 ISO-CF, <b>dual iridium</b> filament (Ir)   | <b>399-726</b> |
| BA nude I <sup>2</sup> R, DN 40 ISO-CF, <b>dual tungsten</b> filament (W)   | <b>399-727</b> |
| Spare <b>V-iridium</b> filament (Ir)  | <b>399-735</b> |
| Spare <b>dual iridium</b> filament (Ir)                                     | <b>399-736</b> |
| Spare <b>dual tungsten</b> filament (W)                                     | <b>399-737</b> |



### BAG052

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



### BAG053

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



**BAG055**

|   |                |
|---|----------------|
| BA EB-degas, <b>3/4" tube</b> , Yt <sub>2</sub> O <sub>3</sub> coated dual iridium filament (Ir)    | <b>399-760</b> |
| BA EB-degas, <b>DN 16 ISO-KF</b> , Yt <sub>2</sub> O <sub>3</sub> coated dual iridium filament (Ir) | <b>399-761</b> |
| BA EB-degas, <b>DN 25 ISO-KF</b> , Yt <sub>2</sub> O <sub>3</sub> coated dual iridium filament (Ir) | <b>399-762</b> |
| BA EB-degas, <b>DN 40 ISO-KF</b> , Yt <sub>2</sub> O <sub>3</sub> coated dual iridium filament (Ir) | <b>399-763</b> |
| BA EB-degas, <b>DN 16 CF-R</b> , Yt <sub>2</sub> O <sub>3</sub> coated dual iridium filament (Ir)   | <b>399-764</b> |
| BA EB-degas, <b>DN 40 CF-R</b> , Yt <sub>2</sub> O <sub>3</sub> coated dual iridium filament (Ir)   | <b>399-765</b> |
| BA EB-degas, <b>8 VCR female</b> , Yt <sub>2</sub> O <sub>3</sub> coated dual iridium filament (Ir) | <b>399-766</b> |

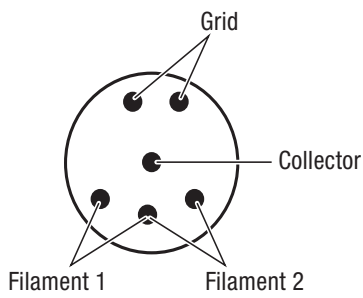


BAG055

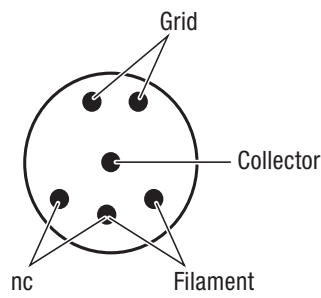
**ELECTRICAL CONNECTION**

**BAG050**

dual filament

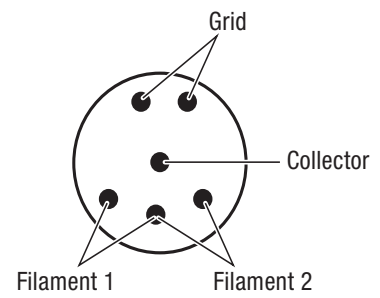


single filament



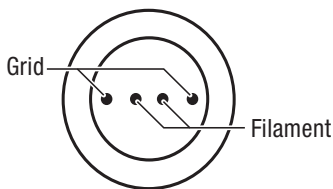
**BAG051**

dual filament



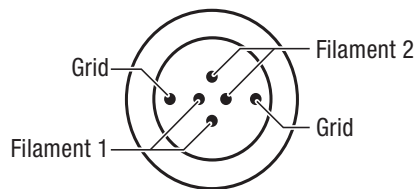
**BAG052**

single filament








**BAG053**

dual filament



## SPECIFICATIONS

| Type  |                    | BAG050  | BAG051  | BAG052  | BAG053  | BAG055  |
|---|--------------------|---|---|---|---|---|
|   |                    |    |  |   |  |    |
| Measurement range                             | mbar<br>Torr<br>Pa | $2.7 \times 10^{-11} \dots 1.3 \times 10^{-3}$<br>$2 \times 10^{-11} \dots 1 \times 10^{-3}$<br>$2.7 \times 10^{-9} \dots 1.3 \times 10^{-1}$ |   | $5.3 \times 10^{-10} \dots 1.3 \times 10^{-3}$<br>$4 \times 10^{-10} \dots 1 \times 10^{-3}$<br>$5.3 \times 10^{-8} \dots 1.3 \times 10^{-1}$ |   | $1.3 \times 10^{-9} \dots 6.7 \times 10^{-2}$<br>$1 \times 10^{-9} \dots 5 \times 10^{-2}$<br>$1.3 \times 10^{-7} \dots 6.7 \times 10^{-2}$ |
| Accuracy (N <sub>2</sub> ) <sup>1)</sup>      | %                  | ±20   |   | ±20   |   | ±15 <sup>2)</sup>   |
| Repeatability (N <sub>2</sub> ) <sup>1)</sup> | %                  | ±5  |   | ±5  |   | ±5 <sup>2)</sup>  |
| X-ray limit                                   | Torr               | $2 \times 10^{-11}$   |   | $4 \times 10^{-10}$   |   | $5 \times 10^{-10}$   |
| Sensitivity (N <sub>2</sub> )                 | Torr               | 25 <sup>-1</sup>  |   | 10 <sup>-1</sup>  |   | 10 <sup>-1</sup> nominal  |
| Degas   |                    |   |   |   |   |   |
| EB <sup>1)</sup>                              | W                  | ≤40   | 70 nominal, ≤100  | ≤100  | ≤100  | ≤3  |
| I <sup>2</sup> R <sup>2)</sup>                | V (ac)             | –   |   | 6.3 ... 7.5 at 10 A   |   | –   |
| Filament                                      |                    |   |   |   |   |   |
| Current                                       | A                  | 2.5 ... 3.5   |   | 4 ... 6   |   | 2 ... 2.5   |
| Voltage                                       | V (dc)             | 3 ... 5   |   | 3 ... 5   |   | 1.5 ... 2   |
| Potential                                     | V (dc)             | +30   |   | +30   |   | +30   |
| Grid potential                                | V (dc)             |   |   | +180  |   |   |
| Collector potential                           | V                  |   |   | 0   |   |   |
| Bakeout temperature                           | °C                 | 450   |   | 450   |   | 200   |
| Collector                                     |                    | tungsten (W), Ø0.005"   |   | tungsten (W), Ø0.010"   |   | tungsten (W), Ø0.010"   |
| Filament                                      |                    | dual yttria coated iridium<br>or<br>dual tungsten   | single/dual hairpin type yttria coated iridium<br>or<br>dual tungsten             | single hairpin type yttria coated iridium   | dual tungsten   | dual yttria coated iridium  |
| Grid  |                    | photo etched closed end SS <sup>3)</sup> cage grid  | non-sag double helical, 0.025" tungsten grid                                      |   |   | etched SS <sup>3)</sup>   |
| Insulator                                     |                    | ceramic   | ceramic   | glass to metal  | glass to metal  | glass   |
| Glass envelope                                |                    | –   | –   | Ø2 ¼" × 5" long   | Ø2 ¼" × 5" long   | –   |
| Mounting orientation                          |                    | any   |   |   |   |   |
| Length  |                    |   |   |   |   |   |
| Overall                                       | in.                | 4 1/8   | 4 1/8   | 6   | 6   | 2.7 ... 3.8 <sup>4)</sup>   |
| Insertion                                     | in.                | 3   | 3   | –   | –   | –   |
| Flange material                               |                    | SS 304 <sup>3)</sup>  | SS 304 <sup>3)</sup>  | glass Nonex 7720  | glass Nonex 7720  | SS 304 <sup>3)</sup>  |
| Compatible INFICON controller <sup>5)</sup>   |                    | VGC083A<br>(PN 399-700)   | VGC083B<br>(PN 399-701)   | VGC083B<br>(PN 399-701)   | VGC083B<br>(PN 399-701)   | VGC083A<br>(PN 399-700)   |

1) Typical

2)  $1.3 \times 10^{-8} \dots 6.7 \times 10^{-2}$  mbar ( $1 \times 10^{-8} \dots 5 \times 10^{-2}$  Torr)

3) Stainless steel

4) Depending on flange

5) For corresponding cables to connect gauge heads with the VGC083x controller please check VGC083x Data Sheet tiba59e1 or VGC083x Operating Manual tinb29e1.



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Due to our continuing program of product improvements, specifications are subject to change without notice.

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