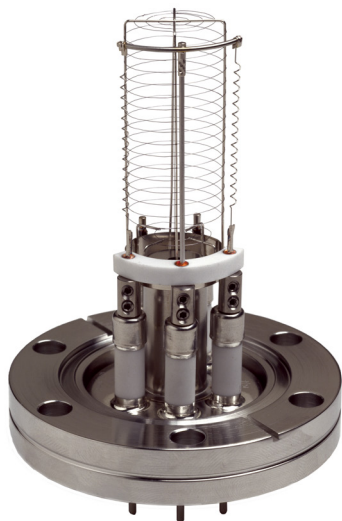


# Bayard-Alpert Ionization Gauges

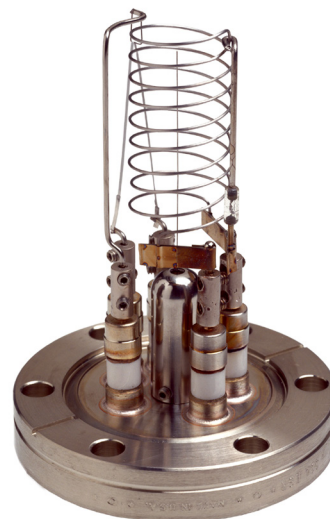
*SRS nude and glass tubulated ionization gauges*



**Nude-UHV Gauge**



**Glass Tubulated Gauge**



**Nude Gauge**

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## SRS Ion Gauges

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**To select the appropriate gauge, follow the steps below using the Model Numbers / Selection & Cross-Reference Table (next page).**

**1) Select the type of gauge: glass-tubulated, nude or nude-UHV**

**2) Select filament type:  $\text{ThO}_2/\text{Ir}$  or tungsten, single or dual**

**3) Note the SRS part number**

**Once you have selected a gauge, choose the appropriate cable using the pin connector diagram.**

SRS offers three types of gauges for the IGC100 Ion Gauge Controller: glass tubulated, nude, and nude-UHV Bayard-Alpert ionization gauges. We also supply convection-enhanced Pirani gauges.

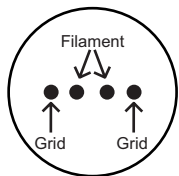
### Single and Dual Filaments

All single, hair-pin shaped filaments used in SRS gauges are spring tensioned to eliminate filament sag. This allows the user to mount the gauge in any orientation. Dual-filament assemblies provide security against filament burnout.

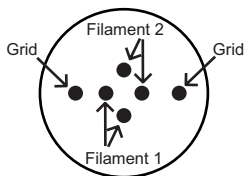


**Stanford Research Systems**

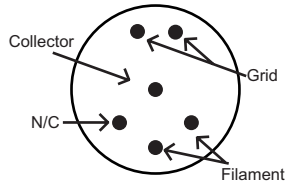
## Bayard-Alpert Gauge Specifications



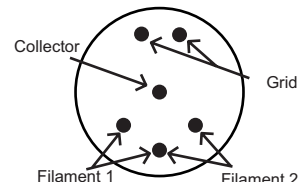
**Figure 1.**  
Glass-Tubulated Gauge  
Single ThO<sub>2</sub>/Ir Filament  
IGC100 Cable: **O100C1**



**Figure 2.**  
Glass-Tubulated Gauge  
Dual-Tungsten Filaments  
IGC100 Cable: **O100C2**



**Figure 3.**  
Nude Gauge  
Single ThO<sub>2</sub>/Ir Filament  
Bi-Filar Helical Anode Grid  
IGC100 Cable: **O100C3**



**Figure 4.**  
Nude Gauge  
Dual ThO<sub>2</sub>/Ir or W Filament  
Closed-End Anode Grid Cage  
IGC100 Cable: **O100C3**

### Bayard-Alpert Gauge Model Numbers / Selection and Cross-Reference Table

| Type            | Filament                      | Connection                   | Pin config. | SRS part #      | Helix  | ETI      | Duniway    | Kurt J. Lesker | Varian    |
|-----------------|-------------------------------|------------------------------|-------------|-----------------|--------|----------|------------|----------------|-----------|
| Glass-tubulated | ThO <sub>2</sub> /Ir (single) | 2.75" CF (1" dia. side tube) | Fig. 1      | <b>GR-100F</b>  | 274008 | 4336F/1  | I-CFF-275  | G100F          | K2471303  |
| Glass-tubulated | tungsten (dual)               | 2.75" CF (1" dia. side tube) | Fig. 2      | <b>GW-100F</b>  | 274018 | 4336TF/1 | T-CFF-275  | G100TF         | K7360307  |
| Nude            | ThO <sub>2</sub> /Ir (single) | 2.75" CF (bi-filar helix)    | Fig. 3      | <b>NR-F</b>     | 274028 | 8140     | I-NUDE-BAC | G8140          | L5150-302 |
| Nude UHV        | ThO <sub>2</sub> /Ir (dual)   | 2.75" CF (closed-end cage)   | Fig. 4      | <b>NR-F-UHV</b> | 274023 | 8130     | I-NUDE-F   | G8130          | 971-5007  |
| Nude UHV        | tungsten (dual)               | 2.75" CF (closed-end cage)   | Fig. 4      | <b>NW-F-UHV</b> | 274022 | 8130T    | T-NUDE-F   | G8130T         | 971-5008  |

|                                         | Glass-Tubulated                                                | Nude                                                        | Nude-UHV                                                    |
|-----------------------------------------|----------------------------------------------------------------|-------------------------------------------------------------|-------------------------------------------------------------|
| <b>Physical</b>                         |                                                                |                                                             |                                                             |
| Connection                              | Side tube or 2.75" CF flange                                   | 2.75" CF flange                                             | 2.75" CF flange                                             |
| Side tube diameter                      | 1"                                                             | N/A                                                         | N/A                                                         |
| Envelope                                | Nonex 7720 glass,<br>2.25" dia. × 5.25" long                   | Nude                                                        | Nude                                                        |
| Mounting position                       | Any, vertical preferred <sup>[1]</sup>                         | Any                                                         | Any                                                         |
| Collector                               | Tungsten, 0.05" dia.                                           | Tungsten, 0.05" dia.                                        | Tungsten, 0.05" dia.                                        |
| Filament                                | Single ThO <sub>2</sub> /Ir <sup>[2]</sup> or<br>dual tungsten | Single ThO <sub>2</sub> /Ir <sup>[2]</sup> ,<br>replaceable | Dual ThO <sub>2</sub> /Ir or dual tungsten                  |
| Grid                                    | Tungsten, bi-filar<br>helix configuration                      | Tungsten, bi-filar<br>helix configuration                   | Tantalum and Pt/Moly support,<br>closed-end "squirrel" cage |
| Overall length (max.)                   | 6.0"                                                           | 4.13"                                                       | 4.13"                                                       |
| Insertion length (max.)                 | N/A                                                            | 3.30"                                                       | 3.00"                                                       |
| <b>Operating</b>                        |                                                                |                                                             |                                                             |
| Operating pressure                      | $2 \times 10^{-10}$ to $1 \times 10^{-3}$ Torr                 | $4 \times 10^{-10}$ to $1 \times 10^{-3}$ Torr              | $2 \times 10^{-11}$ to $1 \times 10^{-3}$ Torr              |
| Sensitivity for N <sub>2</sub> , (nom.) | 10/Torr                                                        | 10/Torr                                                     | 25/Torr                                                     |
| X-Ray limit                             | $2 \times 10^{-10}$ Torr                                       | $4 \times 10^{-10}$ Torr                                    | $2 \times 10^{-11}$ Torr                                    |
| Degas power (@500 V)                    | 70 W (nom.), 100 W (max.)                                      | 70 W (nom.), 100 W (max.)                                   | 40 W (max.)                                                 |
| Resistance heated degas                 | 6.3 to 7.5 V @ 10 A                                            | 6.3 to 7.5 V @ 10 A                                         | N/A                                                         |
| Bakeout temperature                     | 250 °C                                                         | 450 °C                                                      | 450 °C                                                      |
| <b>Electrical</b> <sup>[3]</sup>        |                                                                |                                                             |                                                             |
| Anode grid bias voltage                 | 180 VDC                                                        | 180 VDC                                                     | 180 VDC                                                     |
| Collector bias voltage                  | 0 VDC                                                          | 0 VDC                                                       | 0 VDC                                                       |
| Filament bias voltage                   | 30 VDC                                                         | 30 VDC                                                      | 30 VDC                                                      |
| Filament supply current                 | 4 to 6 A                                                       | 4 to 6 A                                                    | 4 to 6 A                                                    |
| Filament supply voltage                 | 3 to 5 VDC                                                     | 3 to 5 VDC                                                  | 3 to 5 VDC                                                  |

[1] Vertical orientation provides strain relief for electrode structures, and increases long-term stability.

[2] Single filaments are hair-pin shaped and spring loaded to eliminate sagging.

[3] Direct current (DC) bias and supply voltages are recommended for all electrical connections.

## Ordering Information

GR-100F 2.75" CF, 1" side tube, single ThO<sub>2</sub>/Ir  
 GW-100F 2.75" CF, 1" side tube, dual tungsten  
 NR-F Nude, bi-filar, single ThO<sub>2</sub>/Ir  
 NR-F-UHV Nude, closed-cage grid, dual ThO<sub>2</sub>/Ir  
 NW-F-UHV Nude, closed-cage grid, dual tungsten