

# GR-100F, GW-100F, NR-F, NR-F-UHV, NW-F-UHV

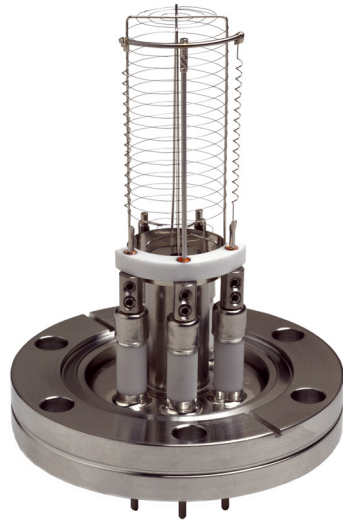
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# Bayard-Alpert Ionization Gauges

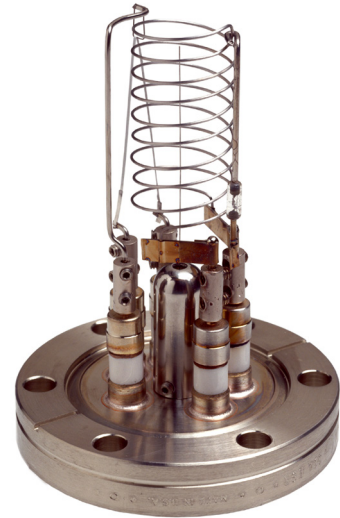
*SRS nude and glass tubulated ionization gauges*



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: ThO<sub>2</sub>/Ir or tungsten, single or dual
- 3) Note the SRS part number

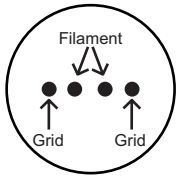
Once you have selected a gauge, choose the appropriate cable using the pin connector diagram.

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.

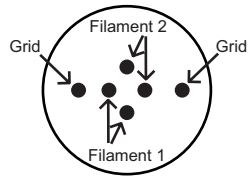
### Single and Dual Filaments

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.

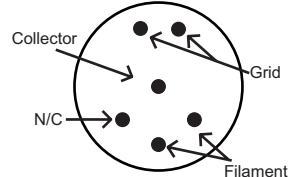
# Bayard-Alpert Gauge Specifications



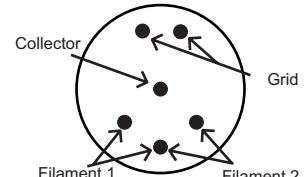
**Figure 1.**  
Glass-Tubulated Gauge  
Single ThO<sub>2</sub>/Ir Filament  
IGC100 Cable: **O100C1**



**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

	<b>Glass-Tubulated</b>	<b>Nude</b>	<b>Nude-UHV</b>
<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, 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 dual tungsten	Single ThO <sub>2</sub> /Ir <sup>[2]</sup> , replaceable	Dual ThO <sub>2</sub> /Ir or dual tungsten
Grid	Tungsten, bi-filar helix configuration	Tungsten, bi-filar helix configuration	Tantalum and Pt/Moly support, 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

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