

AIG Ionisation Gauge & Lead

UHV Bayard-Alpert Ion Gaugeheads, leads & filaments



The AML AIG nude ionization gauge is a high-sensitivity UHV Bayard-Alpert gauge covering the vacuum range of 1×10^{-3} to 3×10^{-11} mbar and is intended for electron-bombardment degas. It has an NW35CF flange with individual glass compression seals, closed-end grid and a choice of filament materials.

- Individual glass compression seal around each feedthrough pin are more economical and robust than ceramic, resulting in a less expensive and more rugged gaugehead, with the central collector pin inherently guarded against leakage currents by the grounded bulk of the flange.
- Replaceable twin Tungsten filaments are fitted as standard with Thoria or Ytria-coated Iridium as an option.
- The molybdenum grid has a closed-end, light, rigid structure, resulting in high sensitivity. The X-Ray-induced electron desorption current at the collector is minimised by geometry and screening.
- Connector pins are gold-plated, shrouded and polarized. Gold plating ensures that oxidation on the air-side cannot occur even after repeated bakeouts.
- Maximum bakeout temperature 250°C . Sensitivity 19 per millibar for nitrogen. X-Ray asymptote 3×10^{-11} millibar.

Recommended Operating Conditions

	Emission	Degas
Collector	+0V	+0V
Grid	+200V	+500V
Filament bias	+50V	+0V
Max. emission	10mA	10mA W, 60mA Ir

Sensitivity, S mbar⁻¹

H ₂ O	19	N ₂	19
O ₂	19	CO	20
H ₂	9	CO ₂	27
He	3	Ne	6
Ar	24	CH ₄	27

Divide S by 100 for Pa⁻¹. Multiply S by 1.33 for Torr⁻¹



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AIGL Gauge Lead.

The AIGL is a 250°C-bakeable lead for use with AIG and similar ionisation gauges connected to AML controllers. They are available in 3, 6 and 9 metre versions or custom lengths to order. AML use gold-plated connectors exclusively: these are essential for reliable long-term measurement of the ion current after baking.

The cable is rated for the worst-case operating conditions of 50 watt degas with a new tungsten filament during a 200°C bake. This product incorporates a fully screened and guarded collector with $>1 \times 10^{15} \Omega$ insulation. The connector housing is machined from PEEK and the cable clamp is anodized aluminium.

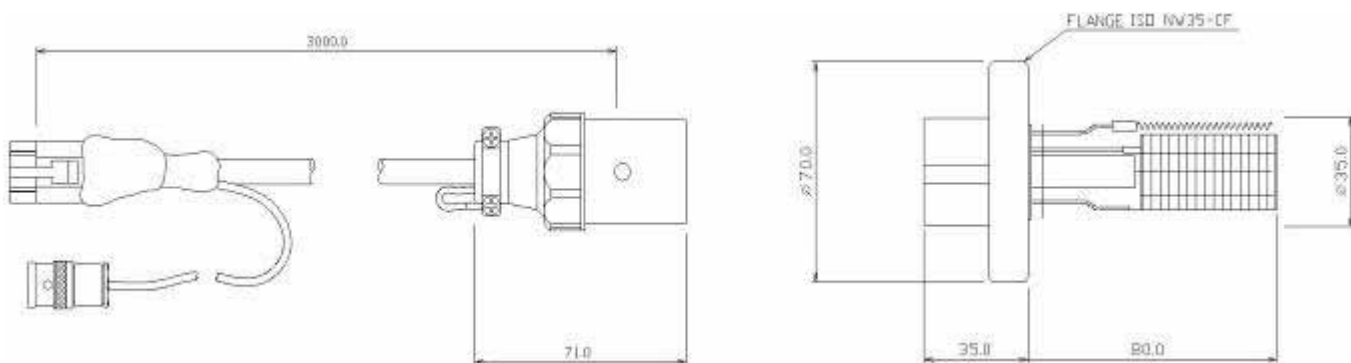
Replacement Filaments

Replacement filament assemblies are available in tungsten, thoria and Yttria-coated iridium. The assembly is held by Allen set screws in socket receptacles and a key and replacement screws are provided.

Filament Types.

Filament power varies over the useful life of a filament, due to gradual erosion of bare tungsten or loss of the oxide coating. In general, Thoria-coated iridium filaments require about one quarter the power of tungsten at mid-life. Yttria has similar properties and runs less than 50°C hotter in normal emission. Yttria also has better adhesion and consequently longer life. Oxide-coated filaments absorb water in storage and may require more power initially to evaporate it.

The filament power supply must be capable of providing high currents to develop adequate power in the low resistance of a cold filament and sufficient voltage to compensate for drops in a long, hot cable. A power-limited supply of 40 watts capable of providing up to 12 volts and up to 4 amps will drive any AIG17G gauge operating under any conditions, (including degassing during bakeout at 250°C) with an AIGL9 lead. AML BA gauge controllers exceed these requirements and include comprehensive filament protection features.



Ordering Information:

AIG17G	UHV Bayard-Alpert gauge. Twin tungsten filaments
AIG18G	UHV Bayard-Alpert gauge. Twin thoria-coated iridium filaments
AIG19G	UHV Bayard-Alpert gauge. Twin yttria-coated iridium filaments
AIGL3, (6), (9)	3, (6), (9) metre, screened, bakeable Ion Gauge Cable.
FIL17	Replacement filament assembly. Twin tungsten
FIL18	Replacement filament assembly. Twin thoria-coated iridium
FIL19	Replacement filament assembly. Twin yttria-coated iridium



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AML pursues a policy of continuous product improvement and reserves the right to make detail changes to specifications without consultation. Unless otherwise stated all specifications are typical and at 25° Celsius, after 1 hour operation. E and OE.



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