

ORDELA MODEL 8208A LARGE-AREA IONIZATION CHAMBER

DESCRIPTION

The ORDELA Model 8208A is a Frisch-grid chamber designed and manufactured by ORDELA, Inc. to screen #8-inch-diameter silicon wafers, or similar samples, for alpha contamination by rapid, low-background, direct alpha spectrometry. The energy resolution for surface contamination is ~50 keV FWHM for ^{230}Th (4.688 MeV). The samples may be counted directly without preparation. The counter efficiency for alphas is ~45%. The chamber walls are nickel plated for low alpha-background. An electrostatic shield combined with a low-capacitance anode enable the reduction of background counts to <1 alpha per hour per MeV in the range from 3 to 10 MeV. Owing to the excellent energy resolution, the actual background under each alpha peak in the energy spectrum is considerably less than the overall background count rate.

P-10 counting gas (Ar-CH_4) at 100 kPa gauge pressure is used in the Frisch-grid chamber. All gas management valves, a low-noise preamplifier, and a high-voltage filtering and bias network are integral parts of the instrument. A spectroscopy grade amplifier and high voltage bias supply (0 to +3000 volts) are required accessories. We recommend the ORDELA Model 8208A-AMP/HV for optimum performance. Additional equipment necessary for proper operation are a regulated gas supply, gas tubing, a vacuum pump, and a multi-channel pulse-height analyzer (MCA).

SPECIFICATIONS:

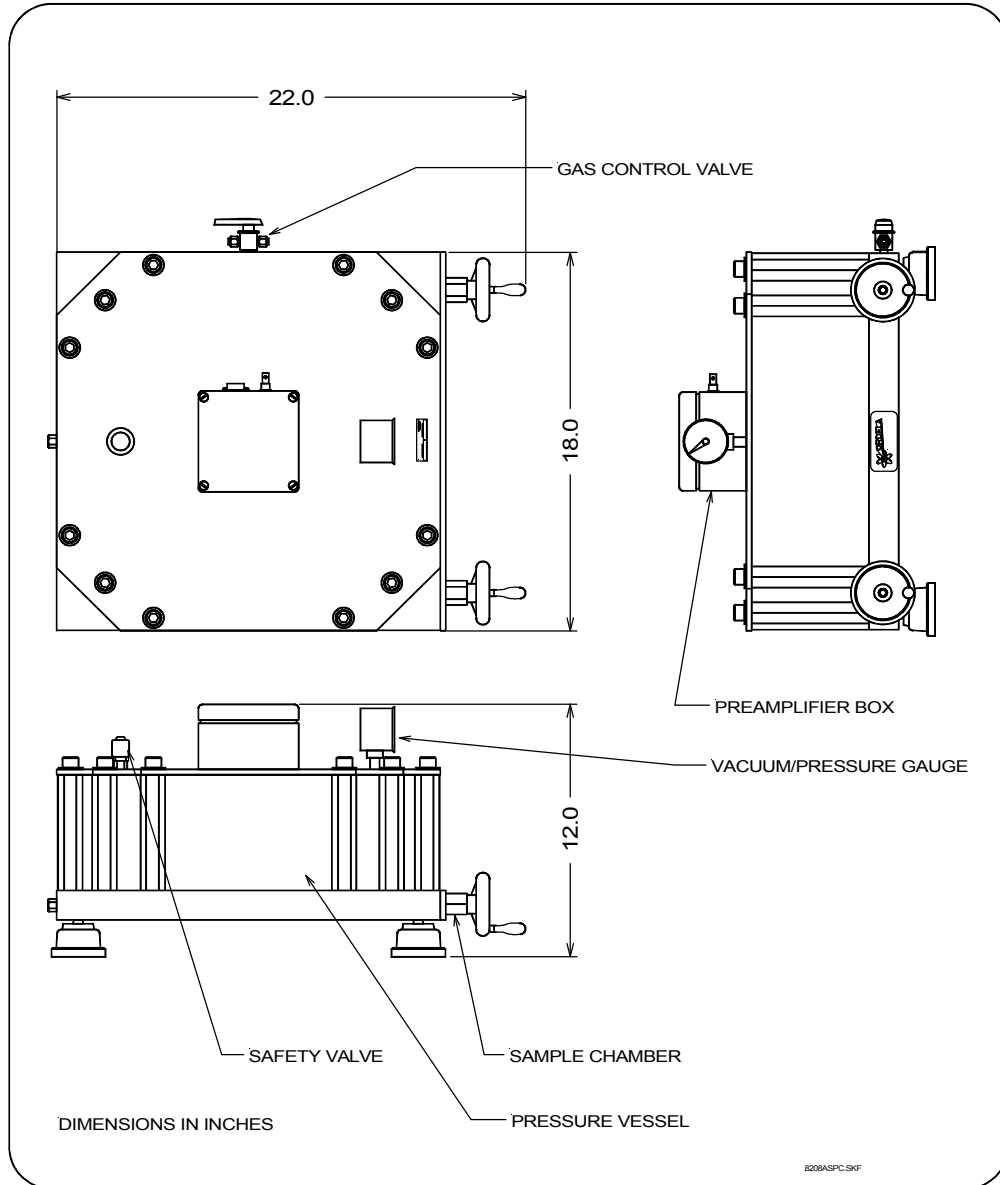
ACTIVE SAMPLE AREA:	325 cm ²
ENERGY RESOLUTION:	<50 keV FWHM, for a ^{230}Th surface source
THERMAL NOISE:	40 keV FWHM
ALPHA EFFICIENCY:	>45% for a weightless, 20.5 cm diameter sample
BACKGROUND:	<1 alpha per hour per MeV (from 3 to 10 MeV)
COUNTING GAS:	Ar-CH_4 (P-10), at 100 kPa gauge pressure
BIAS VOLTAGE:	1.5 kV at 100 μA ; SHV-type connector
PREAMPLIFIER POWER:	+12 V at 20 ma

COUNTER CONSTRUCTION:

BODY MATERIAL:	nickel plated steel
COUNTER VOLUME:	Approximately 12.5 l
OVERALL DIMENSIONS:	25 cm. diameter, 30 cm. high
SHIPPING WEIGHT:	30 kg

ACCESSORIES (Optional):

ORDELA Model 8208A-AMP/HV rack-mount or stand-alone spectroscopy grade amplifier and high-voltage power supply for the Frisch-grid. High Voltage Disable Pressure Switch - prevents damage to the preamplifier FET by disabling high voltage when chamber is under vacuum.



ORDELA MODEL 8208A OUTLINE AND DIMENSIONS

WARRANTY

ORDELA, Inc. warrants its products to be free from defects in materials and workmanship for 12 months after shipment. No other warranty is included. Specifically, no warranty of merchantability or fitness for a particular purpose is implied. ORDELA's liability under this warranty is limited to repairing or replacing the product at ORDELA's option. This warranty is void if the product is operated improperly, disassembled, or modified other than in the ORDELA laboratory.