

ORDELA MODEL 8250BH

GRIDDED IONIZATION CHAMBER BORE-HOLE ASSAY INSTRUMENT

DESCRIPTION

The ORDELA Model 8250BH is a large-area gridded ionization chamber designed for rapid, direct alpha spectrometry inside 12.7-cm-diameter (5") bore holes. This chamber uses a windowless counting volume and measures the in-situ surface contamination at the inside wall of the bore hole without sample extraction or preparation. Assay times are short owing to the large active surface area (. 800 cm²), the practically 2-B geometry, and the low background count-rate (<1 count per minute over a 3 to 10 MeV alpha energy range).

The 10.2-cm-diameter x 20-cm-high cylindrical spectrometer is made of stainless-steel for low-background environmental counting and ease of decontamination and cleaning. Its rugged construction makes it an ideal instrument for bore-hole alpha counting. The instrument package — containing preamplifier, bias circuits, and gas-distribution plumbing — can be lowered by a single cable into the bore hole to a depth of up to 3 m. Six spring-loaded guidance wheels keep the unit centered and prevent the measurement chamber from touching the walls while it is being lowered into the bore hole. Upon reaching the measurement station inside the bore hole, two pliable collars are inflated to seal the ionization chamber and allow introduction of the P-10 (Ar-CH₄) counting gas at up to 200 kPa absolute pressure.

The Model 8250BH includes a low-noise preamplifier, and a high voltage filtering and biasing circuit. In addition to valves and gauges for P-10 gas management, a spectroscopy grade NIM or stand-alone amplifier, high voltage bias supply capable of an output of +3000 volts at 100: A, and a Multichannel Analyzer are required for operation of the Model 8250BH. Completely integrated systems are available from ORDELA, Inc. These systems are optimized and calibrated at our factory in Oak Ridge, Tennessee in order to minimize installation time at the destination point.

SPECIFICATIONS

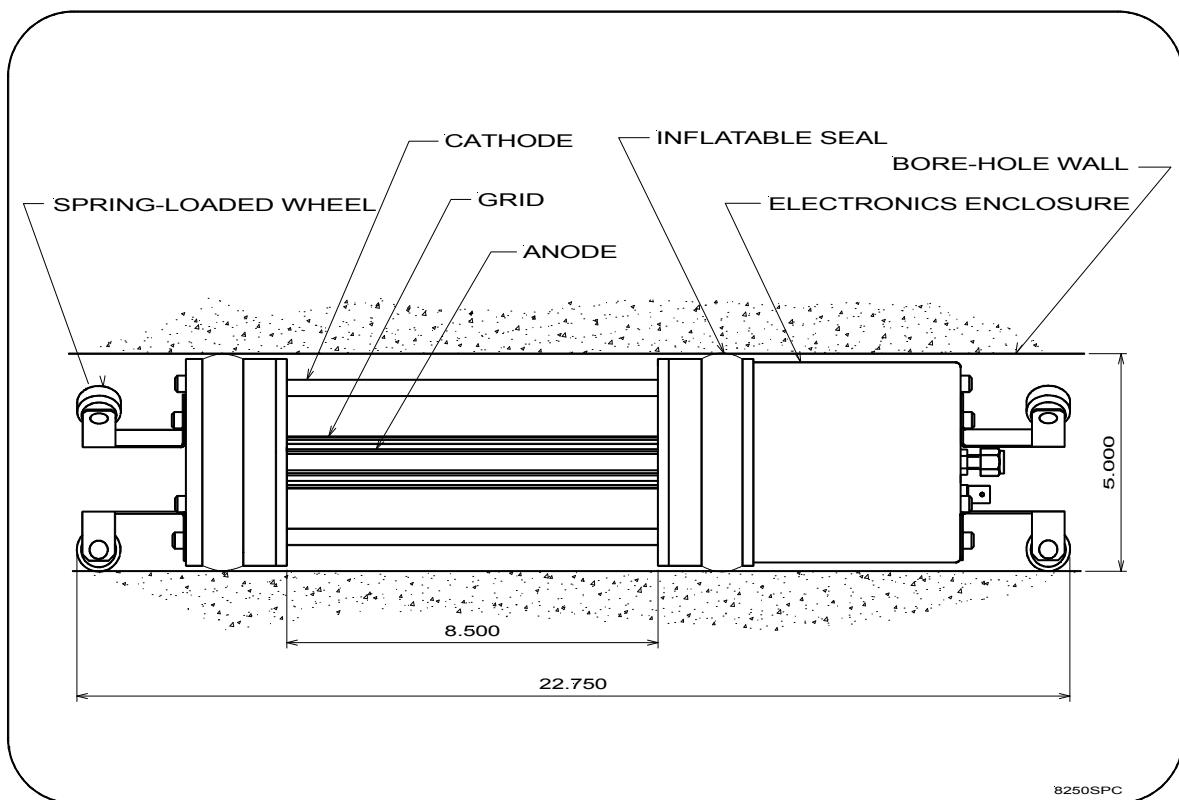
ACTIVE SAMPLE AREA:	12.7-cm-diameter x 20.3-cm-high cylinder
ENERGY RESOLUTION:	60 keV (fwhm) at 5 MeV alpha energy
THERMAL NOISE:	30 keV (fwhm)
DETECTION EFFICIENCY:	>45% for a mass-less, surface source on the inside wall of the bore hole
BACKGROUND COUNT-RATE:	<60 counts per hour (3 to 10 MeV alpha-energy range). Insensitive to beta and gamma radiation
COUNTING GAS:	Ar-CH ₄ (P-10), at <150 kPa absolute pressure
BIAS VOLTAGE:	<1.5 kV at 100 μA bias current
PREAMPLIFIER POWER:	+12 V at 20 mA

COUNTER CONSTRUCTION

BODY AND ELECTRODE MATERIAL:	Stainless steel
COUNTER VOLUME:	12.7 cm diameter, 20 cm high
OVERALL DIMENSIONS:	12.7 cm diameter, 58 cm high
WEIGHT:	15 kg (net), 30 kg (shipping)

ACCESSORIES

Standard accessories, delivered with the Model 8250BH at no extra cost are: (1) one low-noise preamplifier (ORDELA Model QS-11) and a high-voltage filter and distribution network installed and interconnected at the factory; (2) one 3-m-long (10 ft) cable assembly for interconnection of the Model 8250BH with a standard NIM Amplifier, the High-Voltage Power Supply, and the Gas Supplies; and (3) one aluminum cylinder (12.7 cm inner diameter x 35 cm long) for testing and shipping.



ORDELA MODEL 8250BH 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.

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