



B-10 Lined Proportional Neutron Detectors

Radiation Measurement and Monitoring

Sustainable Neutron Detection Technology

Reuter-Stokes offers a line of Boron-10 (^{10}B) lined proportional neutron detectors that are highly customizable based on customer application:

- Body shell material, wall thickness, diameter, length and connector type
- Custom designed gas mixes based on application
- Coating based on application

With a rich history dating back to 1956, Reuter-Stokes is an industry leader in the research, design and manufacturing of quality detectors for a variety of radiation monitoring applications. With over 100,000 detectors in service around the world supporting instrumentation ranging from reactor monitoring and security applications to neutron research and oil exploration, Reuter-Stokes is your

partner of choice for cost-effective, customized radiation detection solutions from an experienced partner.

Reuter-Stokes has developed a line of ^{10}B lined proportional neutron detector for use in systems and instruments that have previously used Boron trifluoride (BF_3) or low pressure Helium-3 (^3He) gas-filled detectors.

Operation of the ^{10}B lined detectors is very similar to that of the existing ^3He technology. Neutrons are captured in the ^{10}B layer lining the inner wall of the detector, rather than the gas volume in the ^3He detector. ^{10}B and ^3He detectors use similar electronics and methods of gamma discrimination.

Reuter-Stokes' line of ^{10}B detectors

is available in both stainless steel and aluminum designs, in diameters ranging from 0.5 inch to 1.125 inches, and for active lengths up to 71 inches. Aluminum detectors provide a lower gamma response, while stainless steel detectors have a lower alpha background. The ^{10}B coating thickness can be varied to optimize performance in some systems and Reuter-Stokes engineers will work with you to tailor a solution for your specific application.

Specifications

Mechanical

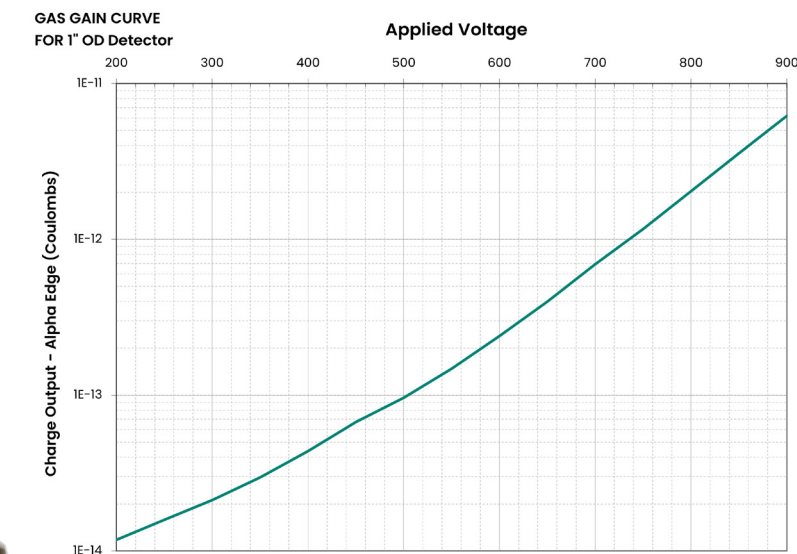
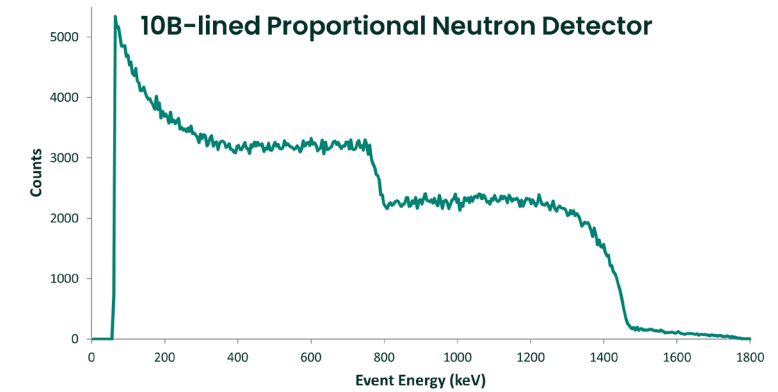
- Stainless steel (lower material background) or aluminum (lower gamma sensitivity) detector body
- Alumina ceramic insulators
- Inner wall coated with enriched ^{10}B
- Lengths up to 71 inches
- Pressure: Less than 1 atmosphere (typical)

Electrical

- Connectors:
 - HN (Standard for detectors one inch diameter and greater)
 - MHV, SHV (Standard for detectors with less than one inch diameter)
 - Flying lead wire
- Operating voltage range: 500 - 1,000 VDC (typical)
- Capacitance: 7 - 15 pF (typical)
- Resistance: >1012 ohms

Environmental Ratings

- Temperature: -40 to +55° C
- Relative humidity: <60%



Features



Excellent Gamma Discrimination

Exceeds GARRn specification for radiation portal monitors.

Superior to ^3He gas-filled detectors.



Optimized ^{10}B Coating

Coating thickness and detector sensitivity are optimized based on customer application.



Low Voltage Operation

Operating voltage (<1000 VDC) less than a typical ^3He detector.



Custom Designs

Available in a variety of diameters, lengths, and materials to optimize performance for your specific application



Contact Us

Reuter-Stokes is dedicated to providing high quality, high reliability equipment to our customers. To support our products, we would be delighted to discuss your needs and provide any support necessary.

Please [contact us](#) on our website or speak to a representative by calling +1 330 425 3755.



Scan the QR code to be taken to the contact us form.