BX3-BR Irradiator

Overview

The BX3-BR produces a beam of varying strengths for irradiating biological specimens or other materials inside a fully shielded enclosure. With its fail safe design, easy-to-use control system, and wide range of accessories, the BX3-BR offers proven design with flexible options that allow customization to meet your needs.

Advantages

- Very simple to setup and use.
- Long useful life with cesium source.
- Low exterior dose rates.
- Uniform dose field with turntable.
- Fully self-contained.

Physical Dimensions

The overall system is approximately 60 inches tall by 60 inches wide by 30 inches deep, with a total weight of 8000 lbs. The interior size of the chamber is approximately 24 inches tall x 31 inches wide x 16 inches deep. An optional motorized turntable rotates the specimens at the rate of 4 RPM. The front door provides full access to the chamber allowing sample placement at a distance appropriate to the desired dose rate. When the exposure chamber door is closed exposure rates on the exterior surface are less than 2 mR/hr at 12 inches from the surface of the irradiator. This low rate allows it to be placed in close vicinity of working technicians.

Source Containment

The source is a doubly encapsulated, hermetically sealed, special form source which is housed in a stainless steel holder. A stainless steel and tungsten rod holds the source in the irradiator. Tungsten used above and below the source limits radiation along the axis of the source rod. The source is moved to the shielded and exposed position by a pneumatic air cylinder with attached sensors to indicate source position. Source transit time is approximately 1 second. The shield is a steel encased lead cylinder 12 inches diameter and 30 inches long.

Model BX3-BR Biological Research Irradiator

Accessories

- Attenuators are available to provide a wide range of dose rates with one source.
- Collimators can be provided with a custom sized opening to irradiate a smaller portion or slice of the chamber.
- Turntables of different diameters can be provided to improve dose uniformity.
- Jigs and fixtures are available for a variety of sample holders.

Dose Rates and Activities

Source (Cs-137)	Distance cm (max - min)	Dose Rate R/hr (max-min)
200 Ci	7 to 90	13,000 to 75
450 Ci	7 to 90	29,000 to 170
1200 Ci	7 to 90	79,000 to 470
2200 Ci	7 to 90	144,000 to 850

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