

Cross-border cooperation to foster the resilience of clinical management in cancer patients by establishing best practices in personalized molecular-based diagnostics, treatment, and long-term care

RORS00040

An easy method for cells and tissue sterilization – CellRad+

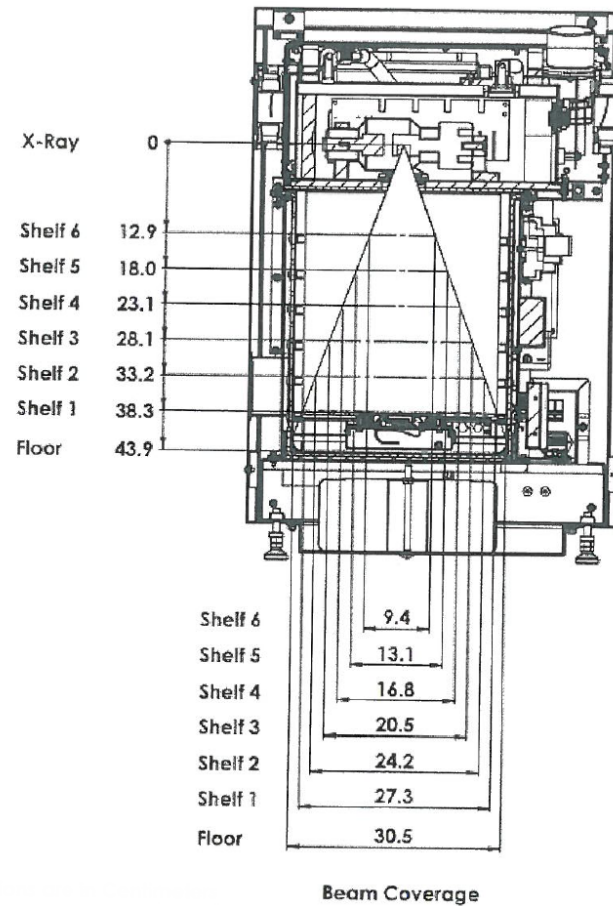
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General presentation



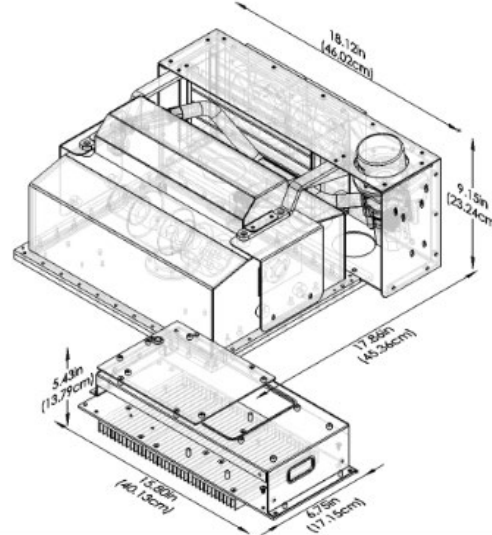
- Dimensions external: 77cm x 53cm x 61cm
- Dimensions internal: 37cm x 30cm x 32cm
- Weight: 220kg

Technical Specifications



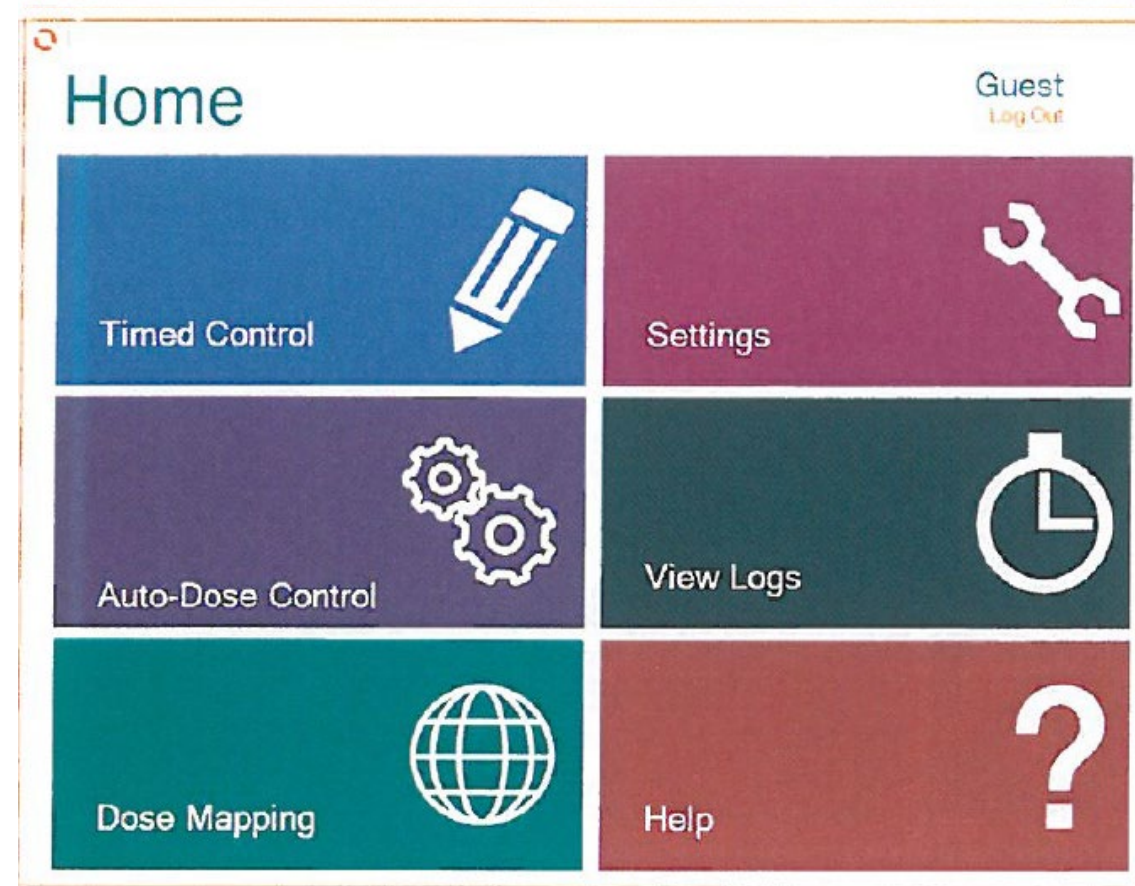
Modular X-ray Generators

XRS-160-6.25K-HE



Max kV	160kV
Max mA	6.25mA
Max Power	1kW
Duty Cycle	Continuous
Input Power	100-240VAC
Min Focal Spot	2.5mm
X-Ray Tube	Glass

Software operation



Overview of the X-ray technology

- Radiation sterilization, a product sterilization method known since the 1950s, is still gaining significant market share due to processing speed, parametric release, and cost competitiveness.
- X-ray sterilization combines the best characteristics of e-beam and gamma techniques, offering speedy turnaround times, good processing flexibility, pallet setup processing, and relatively low dose ratios.

•Mariusz Malinowski, Using X-ray Technology to Sterilize Medical Devices. Am J Biomed Sci & Res. 2021 - 12(3). AJBSR. MS.ID.001755. DOI:[10.34297/AJBSR.2021.12.001755](https://doi.org/10.34297/AJBSR.2021.12.001755).

Applications of X-rays

- Due to the penetrating properties of ionizing radiation and their ability to inactivate microorganisms, ionizing radiation is used for many different purposes including, virus inactivation for research laboratories, as well as to sterilize or reduce the microbial bioburden of many different types of products such as medical devices, packaging, cosmetics, foods, and agricultural products. It is also used to alter the properties of a wide variety of polymers through numerous chemical reactions.
- Ionizing radiation such as X-rays and gamma rays can easily penetrate most tissues, and kill bacteria by causing irreparable DNA damage. Many Gram negative bacteria such as *E. coli*, *Salmonella*, and *P. aeruginosa* can be effectively killed by X-rays. Results also showed that X-rays of lower energies were effective in inactivating bacterial spores.

•Mariusz Malinowski, Using X-ray Technology to Sterilize Medical Devices. Am J Biomed Sci & Res. 2021 - 12(3). AJBSR. MS.ID.001755. DOI:[10.34297/AJBSR.2021.12.001755](https://doi.org/10.34297/AJBSR.2021.12.001755).

Advantages of X-ray sterilization

- Excellent penetration and improved Dose Uniformity Ratio (DUR).
- Fast, efficient processing and flexibility.
- Environmental safety, no specialized chemicals or disposal concerns.
- Compatible with plastics, glassware and some biological materials

! Limitations

Not suitable for sterilizing *living* cells without affecting viability (sterilization kills cells).

The use of CellRad+ in research

- In the sterilization of tissues
- In the sterilization of culture media
- The inhibition of the growth and development of certain fungi
- The sterilization of various plastic materials

Thank You!