

*Best*<sup>®</sup>  
Theratronics



**Gammacell<sup>®</sup> 40 Exactor**  
Low Dose-Rate Research Irradiator  
Unrivalled Precision and Versatility



## Unrivalled Precision and Versatility

The Gammacell<sup>®</sup> 40 Exactor, with its state-of-the-art control system, is engineered to give precise results. Timer settings can be chosen in increments of 1 second up to 100 hours, and the control system allows manual or automatic operation. Dose uniformity is ensured through the use of two Caesium-137 sources and an electric drive mechanism which provides accurate results regardless of where specimens are placed in the large sample container.

### A Research Tool by Design

Research environments demand execution of protocols to exacting standards and replication of work with unflinching accuracy. The Gammacell<sup>®</sup> 40 is designed and engineered to meet these research environment requirements.

The Gammacell<sup>®</sup> 40 has a wide range of applications in radioimmunology, radiosensitivity and cell biology. It is ideal for the irradiation of mitotically inactive cell culture media, mixed lymphocyte cultures and cellular blood components.

The Gammacell<sup>®</sup> 40 also has a large ventilated sample container which makes it an excellent research tool for the development of murine models for cancer therapy.

### Accessories

**Collimator** – Upper and lower lead shields reduce the central dose rate by approximately 95%. 6 holes of 3 cm diameter each are arranged in each shield to allow unattenuated beams of radiation to coincide at 6 points. **Attenuator** – A set of 3 attenuators can reduce the central dose rate by approximately 33%, 60% or 80% respectively.

### Advanced Design

- Redundant systems monitor the essential irradiation parameters, time and position of sources.
- Modular design makes parts replacement easy and maintenance hassle-free.
- Large volume chamber swings out from the unit, making it convenient to load and unload.
- Control system provides web browser (Ethernet) access to monitor system status and cycle history database.

### Dose Rate and Radiation Specifications:

- Central dose rate of approximately 1.10 Gy/minute (110 rad/minute)
- Each of the two special form Caesium-137 sources has a nominal activity of 61.1 TBq (1650 Ci). Together they produce a central dose rate of 1.10 Gy/minute (110 rad/minute) ±15% in the sample container.
- Typical dose uniformity is ±7% over a 260 mm (10.2 in. diameter and a 100 mm (3.9 in.) height.
- Best<sup>®</sup> Theratronics offers comprehensive dose mapping of the sample container upon request (see Figure 1).

### Specifications

Weight	2994 kg (6,600 lbs.)
Floor Loading	2715 kg/m <sup>2</sup> (540 lbs./sq. ft.)
Radiation Source	Caesium <sup>137</sup>
Unit Dimensions	Height 1496 mm (58.9 in.)
	Width 924 mm (36.4 in.)
	Depth 1229 mm (48.4 in.)
Initial Nominal Activity	3300 Ci
Central Dose Rate (±15% empty)	1.1 Gy/min
Canister Dimensions (internal)	Height 105 mm (4.1 in.)
	Diameter 312 mm (12.3 in.)
	Volume 8.0 L (488 cu. in.)
Utility Requirements	110/120 60 Hz
	100 or 230 V AC, 50/60 Hz with ground
Dose Uniformity (typical)	±7% over a 260 mm (10.14 in.) diameter and a 100 mm (3.9 in.) height
Battery Back-up	Yes

### Superior Performance

- Excellent dose uniformity  
Typical maximum to minimum ratio is 1.14 in a container 260 mm (10.2 in.) in diameter and 100 mm (3.9 in.) (in height). The central dose rate is 1.10 Gy/minute ±15%.

### Accurate Results

- Achieved with state-of-the-art microprocessor control and dependable electric drive.

### Safe to Use

- Safe in any conventional laboratory environment. Characteristic Best<sup>®</sup> Theratronics' measurements indicate 3 μSv/h (0.3 mrem/h) at 1 metre from the source and 50 μSv/h (5 mrem/h) at 5 cm from any surface of the unit.

### Easy to Operate

- Equipped with a multi-line display screen and user-friendly instructions. The control panel gives current status and guides initial set-up as well as offering varying levels of security based on operator identification and PIN access.

### Automatic Logging

- Irradiation cycle data is automatically logged in a database. This database can be viewed and saved via web browser access. Alternatively, a printer can be connected to record cycle data.

### Added Security

- Restricts access to the control system's programming function, with security passwords and a keypad controlled by a key lock.

### Battery Back-up

- Internal battery provides back-up in event of AC power failure.

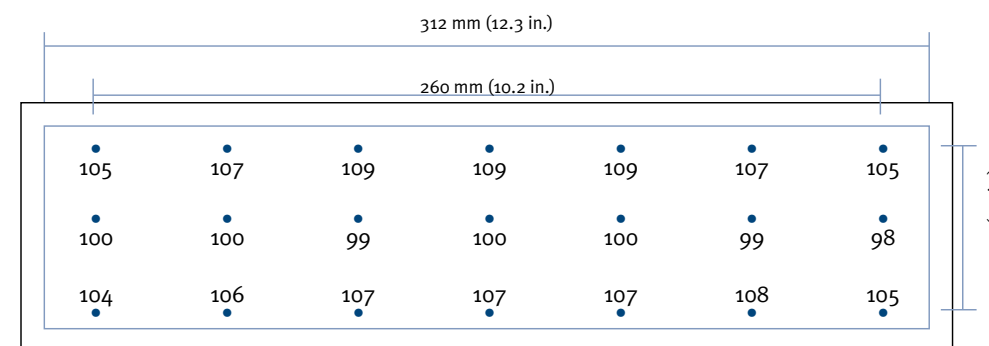


Figure 1: Typical Absorbed-Dose Distribution

(All values in percent are relative to the central dose)

# Healthcare For Everyone

With its accurate and reproducible performance, the Gammacell® 40 Extractor has been relied upon by researchers worldwide to advance their cancer and stem cell scientific studies.

“Our Team Best® companies are committed to making quality healthcare affordable and accessible globally.”

Krishnan Suthanthiran  
President, Best Medical International

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