

# BIOBEAM

## Optimum Homogeneity for Blood Irradiation



BIOBEAM gamma irradiation devices are fully protected devices for comfortable, effective and precise irradiation in transfusion medicine and research.

### Maximum Throughput

The extra-high radiation volume enables irradiation of up to 20 blood bags in one single cycle and the use of a wide variety of special containers. With the BIOBEAM 8000, two positions are available for the beakers. The position for smaller beakers are closer to the source and receive a higher dose rate. Therefore the irradiation period can be halved, when irradiating smaller volumes.

### Optimum Homogeneity

The oscillation of the source provides an optimum dose distribution within the full irradiation volume. A dose difference of less than 10% can be realised by using special irradiation inserts.

### User Friendly

The entire BIOBEAM operation is carried out easily using a touchscreen which is connected to an in-built, high-performance industrial computer. This enables the direct selection of irradiation programs by the simplest possible means. At the same time, BIOBEAM identifies the beaker and checks the correspondence with the selected irradiation program.

### Radiation Surveillance

BIOBEAM blood irradiation systems are fully protected devices with less than 3  $\mu\text{Sv/h}$  surface dose rate. This means that no additional radiation protection measures are necessary. Also there is no radiation surveillance required for staff, e.g. your personnel has not to be equipped with dosimeters.

### Highest Safety

The safety functions of the BIOBEAM guarantee highest safety, e.g. the monitoring system, which controls the irradiation period, the oscillation of the source, the rotation of the irradiation load, the position of the rotary shielding and the irradiation beaker closure.

### Flexible Expansion

BIOBEAM provides a variety of optional expansions to match the customer's specific needs:

- Barcode reader and printer for comfortable irradiation documentation
- Integration of BIOBEAM in a blood bank software via an optional network connection
- Observation monitor (nurse station)
- Inserts for specific irradiation tasks

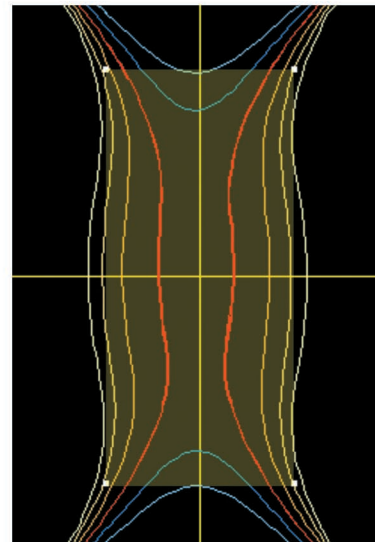
## Safety Features

- Operation with key switch and safety code
- Irradiation cycle in progress continues for up to 20 min, in case of power failure
- Removal of the irradiation load also in case of system failure
- Interdependent locking of loading hatch and irradiation chamber
- Monitoring and control of irradiation period, oscillation of source, rotation of the irradiation load, position of the rotary shielding, irradiation beaker closure
- Automatic recognition of used irradiation beaker
- Self-check of the irradiation unit before and during the irradiation procedure
- Integrated computer continually saves all data relevant to the irradiation process

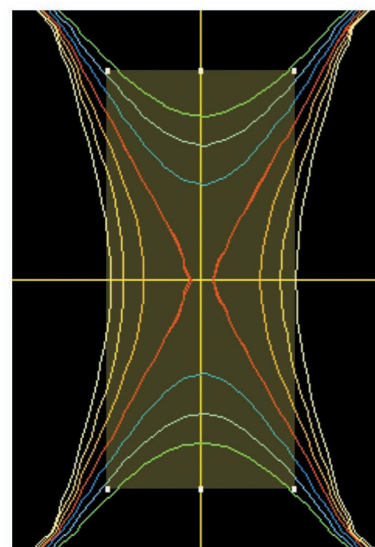
## Technical Data

Irradiation beakers	BIOBEAM 2000	BIOBEAM 8000		
Volume	2.8 l	1.3 l	5.1 l	7.5 l
Diameter	127 mm	94 mm	170 mm	190 mm
Height	220 mm	265 mm		
Dose rate at center of beaker (water equivalent)	2.8 Gy/min	5Gy/min	2.8Gy/min	2.6Gy/min
Rotation speed	unrestricted	unrestricted		
<b>Source</b>				
Radionuclide	Cs137	Cs137		
Number of sources	1	1		
Activity	44.4 TBq ± 20%	81.4 TBq ± 20%		
Special form certificate	yes	yes		
ISO-classification	E.63545	E.63545		
<b>Irradiation unit</b>				
External dimension (W x D x H)	660 x 670 x 1,645 mm	810 x 810 x 1,740 mm		
Weight	2,200 kg	2,900 kg		
Recommended room size	min. 2 x 2 m	min. 2 x 2 m		
Electrical supply	95–130 V/190 –260 V; 48–62 Hz	95–130 V/190 –260 V; 48–62 Hz		
Power consumption	300 VA	300 VA		
Room temperature	+ 5 to + 40°C	+ 5 to + 40°C		
Surface dose rate	< 3 µSv/h up to 60 TBq Cs137	< 3 µSv/h up to 99 TBq Cs137		

## Optimum Dose Distribution



■ BIOBEAM dose distribution



■ Typical dose distribution of other devices



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