

**The DOSIMETRIC IRRADIATOR T100** High Level Gamma Irradiator is primarily designed to serve at calibration laboratories.

The source  $^{60}\text{Co}$ , with very high activity up to 560 TBq (15,000 Ci), can be placed in the irradiator.

### MAIN ADVANTAGES

- A very high gamma activity source can be installed
- Proper safety shielding
- Safety remote control
- Provision of safety interlocks
- Integration into calibration system (optional)
- Precise optical positioning of the calibrated meter



### PURPOSE

The T100 High Level Gamma Irradiator represents a laboratory device which serves for applications where “hard” gamma radiation of  $^{60}\text{Co}$  (1.17 and 1.33 MeV) is used. Primarily, the irradiator is designed for calibration laboratory needs.

### DESCRIPTION

The Dosimetric Irradiator T100 architecture originates from parallel medicine facilities (destined for radiotherapy) and is adapted for usage in metrological laboratories.

One ionizing radiation source is placed in the irradiator; it generates a homogenous and collimated ionizing radiation beam at an axis height of 1.5 m as a standard (optionally adjusted). The collimator angle is 25 degrees (optionally decreased). In front of the collimator are auxiliary shielding doors.

The T100 High Gamma Irradiator consists of these main components and standard accessories:

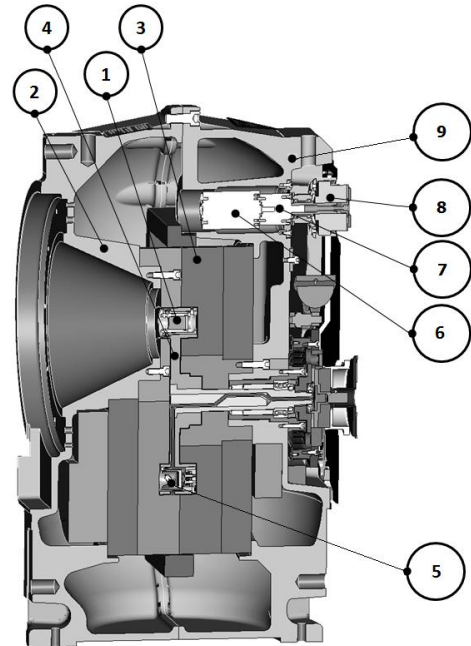
- Irradiator head with collimation system, shielded rotational shutter with cylindrical container for encapsulated cobalt source insertion and electro-mechanic motion equipment (commutation motor, electromagnetic coupling, step belt, end switches)
- Laser indicator of beam axis for the precise positioning of the calibrated meter
- Backup power supply allowing the undergoing irradiation to be completed
- Control software
- Auxiliary devices, safety interlocks



SPECIFICATION

<sup>60</sup> Co source	max. 560 TBq (15,000 Ci)
Dimensions (L x W x H)	1150 × 900 × 2000 mm (45¼ x 35½ x 78¾ in)
Axis of the beam	1.5 m (59 in) above ground
Weight (irradiation head)	app. 1850 kg (4100 lb)
Power supply	230 VAC, max. 8 A
Ambient temperature	+10 ~ 40 °C (50 ~ 104 °F)
Relative humidity	30% ~ 75%

Model	Description
K1500	DOSIMETRIC IRRADIATOR T100 High Level Gamma Irradiator
N/A	Ionizing radiation source
<b>Optional Accessories</b>	
▪	Safety system
▪	Radiation monitoring system
▪	Database and Control System
▪	Surveillance camera monitoring system



- 1 <sup>60</sup>Co source
- 2 Front frame
- 3 Shielding Pb-U-W
- 4 Shutter disc
- 5 Light source
- 6 Motor
- 7 Gearbox
- 8 Electromagnetic coupler
- 9 Back frame

DESCRIPTION

The sealed high gamma radionuclide source in its holder is placed in the irradiator head carousel. Proper shielding is used, corresponding to the high energy source: The shielding is a combination of lead, depleted uranium, tungsten, and steel housing. Ordinarily, loading the source in a special capsule into the irradiator was included in the scope of supply.

Operation of the Dosimetric Irradiator T100 is controlled by a PC, placed in the remote control cabinet. Control system communication is ensured via RS-232 or Ethernet interface.

If any failure occurs (power supply, communication, safety system), the shutter disc automatically turns the source into the non-exposure safe position (via electric motion or via retracting spring).

Several useful optional accessories and products can be provided with the irradiation unit within the scope of comprehensive installation:

- Calibration bench for calibrated detector accuracy positioning
- Safety interlocks (door open/close sensor and locker, PIR sensor, emergency STOP buttons, status light & acoustic signal unit)
- Centralized Database and Control System of the calibration laboratory (full irradiator control; database archiving; printable outputs; statistic evaluation of data measured: mean value, uncertainty, relative error, variation coefficient, dosimeter energy dependence, etc.)