VF NUCLEAR

CALIBRATION LABORATORIES

NUCLEAR POWER PLANTS

RESEARCH CENTRES

GI-01L

GAMMA IRRADIATOR

KEY FEATURES

- Irradiator for one Cs-137 radionuclide source
- Homogeneous collimated beam with dose rate up to Gy/h
- Low dose rate on the irradiator surface
- Fully automated irradiation process
- Integrated safety system
- ISO 4037:2019 collimator compliant
- The source do not rotate during the vertical transport

PURPOSE

The GI-01L gamma irradiator, when fitted with appropriate radionuclide sources serves as a reference source of homogeneous collimated gamma ray beam ranging from some tenths of µGy/h to Gy/h. This type of equipment is normally used in metrology laboratories for the calibration of gamma dose rate and dose meters.

The GI-01L Gamma Irradiator consists of:

- a lead shielded container for one Cs-137 source,
- a beam collimator,
- a control unit,
- safety and alarm systems.

The irradiator and other components are fully remotely controlled from a host PC, which has the DARS control software installed.

When irradiation is commenced, the source is lifted to the collimator opening and the irradiation begins. The collimator meets the requirements of ISO 4037:2019.

Lead is used as standard material for the collimator. Optionally, tungsten can be used.

The irradiator is fitted with a safety system that ensures irradiation stops in the case of emergency. In case of a power failure the exposed source drops into the shielded position by gravity.

GI-01L irradiators can theoretically be used with attenuators, but without additional shielding all requirements of the ISO 4037-2019 standard would not be met. If the use of attenuators is required and all the requirements of the ISO 4037-2019 standard have to be met at the same time, a different model of irradiator must be chosen after consultation with the manufacturer.

SPECIFICATIONS

Number of sources	1
Max. source dimensions (ø × h) (bigger sources on order)	44 × 65 mm
Dose rate on the surface	see table of models
Standard height of the beam axis	1 500 mm
Accuracy of the source positioning	< ± 0,5 mm
Power supply	110 / 230 V AC
Communication interface	Ethernet

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MODELS

Type	Recommended maximum activity of one source*	Dose rate in the beam at 1 m**	Dose rate on the surface**	Dose rate at 30 cm from the surface**	Wgt [kg]	Dimensions H [mm]	W [mm]	L [mm]	D [mm]
K1769-01	^{137}Cs: 60 TBq (1 600 Ci)	4.1 Gy/h	8.5 μSv/h	1.8 μSv/h	725	1700	800	800	400
K1769-02	^{137}Cs: 2.2 TBq (60 Ci)	150 mGy/h	10 μSv/h	1.7 μSv/h	540	1700	800	800	400
K1769-04	^{137}Cs: 100 GBq (2,7 Ci)	7.2 mGy/h	10 μSv/h	1.7 μSv/h	475	1700	800	800	400

** Activities of the inserted sources may be higher than the maximum recommended activities if a higher dose rate in the vicinity of the irradiator is acceptable than is indicated in the table for the relevant type and source.*
*** Values of the dose rate in the beam and around the irradiator are approximate, in practice they may differ slightly depending on the specific radiation source used.*

OPTIONAL CONFIGURATIONS

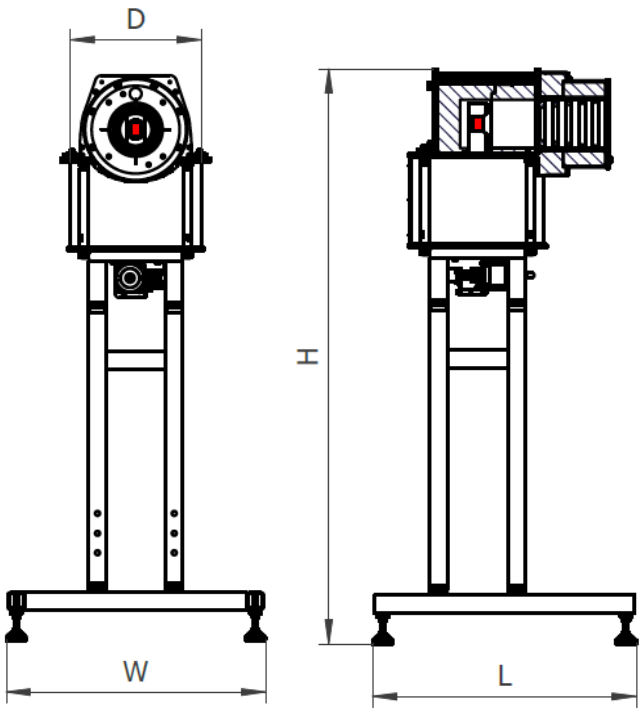
- Tungsten collimator
- Set of attenuators (with appropriate collimator)

OPTIONAL ACCESSORIES

- Laser system for beam axis definition

RELATED PRODUCTS

GI-01A	Gamma irradiator for one Cs-137 source for use with attenuators
GI-01H	Gamma irradiator for one Co-60 source
GI-03	Gamma irradiator for three sources
GI-07	Gamma irradiator for seven sources
CB-60	Calibration Bench
DARS	Control System for the Calibration Laboratory



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