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POWER PLANTS



CALIBRATION
LABORATORIES



RESEARCH
CENTRES

BC-03, BC-03G PERSONAL DOSIMETER CALIBRATOR



MAIN ADVANTAGES

- Ionizing radiation source standards used are directly traceable to primary national standards including the relevant beam flattening filters
- Standardized phantoms
- Electronic dosimeter reader integrated
- Calibration of electronic dosimeters in fully automatic high throughput mode
- Automatic correction for ambient temperature, pressure and relative humidity
- Connection to the DARS Data and Control System of the calibration laboratory

PURPOSE

The BC-03 and BC-03G Personal Dosimeter Calibrators are designed for the comfortable and safe calibration of dosimeters measuring Hp(0.07) and Hp(10) in accordance with ISO 6980.

Their main functional parts are:

- Three reference sources emitting pure beta radiation (BC-03) or beta and gamma radiation (BC-03G)
- Beam flattening filters matching the appropriate reference source
- Set of standardized phantoms (human body simulation)
- Electronic dosimeter reader
- Control unit
- Rotating table
- DARS Data and control software
- Environmental sensors (temperature, pressure, humidity)
- Safety interlocks interfaces

To prepare dosimeters for calibration, each dosimeter is inserted into one of the 12 designated calibration positions on the rotary table. The table is then incrementally rotated to align each dosimeters with the sources and they are automatically irradiated with a defined dose.

The measurement responses are automatically read from the dosimeters and the results stored and automatically evaluated by the DARS software. The calibration data is then archived for long-term record retention.

BC-03, BC-3G characteristics:

- Electronic dosimeter reader, operated via DARS software, which performs: dosimeter identification, initial zeroing, and reading the measured calibration dose from each dosimeter after irradiation
- Capability to perform repeated measurements of the dose and automatic statistical data processing
- All measured data are processed, evaluated and archived in DARS database
- The calibration measurement process is automatic
- Dosimeter types, which can be calibrated: Thermo EPD, Mirion DMC-2000 and DMC-3000 series, DIS-1, others on request.



Protective shielding screen

SPECIFICATION

Number of sources	3
BC-03 sources nominal activity	
¹⁴⁷ Pm	3,7 GBq
⁸⁵ Kr	3,7 GBq
⁹⁰ Sr	460 MBq
BC-03G sources nominal activity	
²⁴¹ Am	11,1 GBq
¹³⁷ Cs	0,97 GBq
⁹⁰ Sr	74 MBq
Placement of sources nests	by 90 °
Number of dosimeter nests	12
Rotation of the dosimeter in one position	max. 7 s
Dimensions (W × L × D)	
BC-03	1160 × 1060 × 1390 mm
BC-03G	1070 × 1170 × 1600 mm
Phantom dimensions	300 × 300 × 150 mm
Weight	
BC-03	110 kg
BC-03G	210 kg
Power supply	230 V 50Hz / 6 A – TN-S
Temperature range	from 5 to 35°C
Humidity range	max. 80 %
Pressure	from 86 to 106 kPa
Communication with host system	Ethernet

OPTIONAL ACCESSORIES

Protective shielding screen (for beta radiation) with mains power switch-off emergency button and warning lights

Door sensor and door lock of the protective shielding screen entry door and PIR motion sensors

Visual monitoring system of the workplace

Area radiation monitoring system

Fixtures for various types of dosimeters



BC-03 calibrator



BC-03G calibrator