

AT-01

ELECTRONIC-MECHANICAL CALIBRATION BENCH

Ionizing radiation metrology

Automation, efficiency and quality of calibrations and verifications in the field of x-ray and gamma radiation dosimetry

Features

- Cooperation with two radiators placed in two opposite bench sides
- Hand and remote positioning modes
- Remote platform positioning in absolute and relative coordinates, related with irradiators
- Programmable fluent platform acceleration and halt (acceleration and halt time is approximately 1.5 s)
- Safe limitation of platform moving speed
- Safe operational platform acceleration and halt
- Safe emergency platform halt ("side halt")
- Safe halted platform state when there is control of moving
- Managing of the range of platform moving
- Automatic plugging-off of managing unit from AC mains when leakage current exceeds tolerated value
- Operability control using calibration scales
- Remote operability control
- Hand platform positioning
- Possibility to place water phantom
- Turnkey bench



Application

- Laboratories to research, adjust and serialize dosimetry equipment
- Metrology laboratories to calibrate and verify dosimetry equipment
- Second standard dosimetry laboratory (SSDL)



Calibration bench AT-01 provides remote and hand positioning of moving platform in radiation bin along ionizing radiation beam axis. Remote positioning is performed from operator's working place, which may be at the distance up to 30 meters from the radiation bin. Positioning coordinates are displayed on digital indication device and can be read from calibration scales along bench foundation. Positioning is realized with platform moving speed of 20 cm/s, 4.5 cm/s, 1 cm/s, 2.2 mm/s, 0.36 mm/s, and an increment of 0.045 mm.



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INSTRUMENTS AND TECHNOLOGIES FOR
NUCLEAR MEASUREMENTS AND RADIATION MONITORING

The platform with V-shaped bearing supports moves on cylinder-shaped guides fixed on bench foundation. There is working table moving perpendicularly radiation beam axis on moving platform and supports or lifting table could be placed on it. The platform has TV monitoring system of dosimeters' readings. The bench could be completed with a support to mount level and laser device. In this case calibration scale is mounted on bin wall along radiation beam axis.

The bench could cooperate with different irradiators types (UPGD, KIS-NRD, AGAT-S etc.) meeting ISO 4037 requirements.

Specification

The range of operational distances between irradiator and detector centers	0.4 - 10 m
Absolute positioning error	not more than 0.0015 R
where R is operational distance between irradiator and detector centers, mm	
The increment of operational distance indication	0.01 mm
Positioning increment (resolution) does not exceed	not more than 0.045 mm
Platform dimensions	1000×1000×510 mm
Platform table dimensions	500×600 mm
Moving range of lifting table	300 mm
The weight of placed on the table equipment	up to 60 kg
The length of connective cables between platform and operator's working place	up to 50 m
Power requirements - three phase AC mains	
rated	(380 ± 38)/ (220 ± 22) V
rated	(50 ± 2) Hz
Power required	not more that 250 VA
Power required for optional placed on the platform equipment	not more that 500 VÅ
Continuous operation time	24 h
Operating temperature range	+15°Ñ ÷ +35 °Ñ
Bench weight , not more than:	
managing unit with keyboard	16 kg
digital indication device	6 kg
platform.....	100 kg
foundation	200 kg
Average mean-time-between-failures	not less than 10000 h
Average original life	not less than 10000 h
Average service life	not less than 10 years

Complete set: foundation, moving platform with operation moving table and small tables, managing unit, keyboard, digital indication device, set of cables, set of spare parts and accessories and Manual. Transversal platform for irradiators, irradiators with sources ¹³⁷Cs (up to 5 R/h on 1 m), device for laser adjustment, TV monitoring system of instruments' readings, safety TV monitoring system, gamma radiation alarm dosimeter AT2327 and dosimeter AT5350 are options and they are supplied **on additional order**.

Calibration bench configuration is performed according to the customer requirements.

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