

CALIBRATION SYSTEMS

Gemini specialize in the supply of Secondary Standard Dosimetry Systems. We have designed, manufactured and commissioned a significant number of Gamma, Neutron, and X-ray Calibration Systems. As well as numerous upgrades, to both mechanical and control systems.

GAMMA CALIBRATION SYSTEM



Control Unit

The Exposure unit is controlled via a Windows based GammaCal™ software system, its main features include:

- Full control of X, Y, Z and rotational axes.
- Full shutter lift control of Gamma shutter and Americium shutter unit.
- Full control of rotary gamma source cassette.
- Certificate issued for each instrument calibrated.
- In-cell control of video equipment and screen grab display of camera in top corner of monitor.
- Radiological status supplied on monitor screen; full control of warning lights, audible alarm and e-stops.

Track & Trolley unit

- Al Alloy construction using channel, angle and ground plate.
- Precision linear guides + encoders used on X, Y and Z axes.
- The rotational axis is driven via a precision rotary table.
- Energy chain used on X and Y axes for tidy/stress free transportation of cables.
- Lengths, widths and heights can be modified to meet the requirements of the customer.

Gamma Exposure unit

- Lead shielded steel casing and heavy-duty steel pedestal.
- Tungsten fail-safe gamma shutter unit.
- Multi-ring Tungsten/lead collimator.
- Multi-source cassette with motor driven spindle assembly.
- Optional Americium exposure unit.
- Size of exposure unit can be re-calculated to meet the source requirements of the customer.



NEUTRON CALIBRATION SYSTEM



Exposure unit

The function of the unit is to calibrate instruments placed onto the trolley instrument table using the radioactive sources installed in the heavily shielded exposure unit. The machine can be driven in two axes (x & z). There is a source cassette located at the bottom of the shielding for automatically selecting the different sizes of source for the source exposure mechanism. The source exposure mechanism is fail-safe and will automatically drop and return to a safe position if the power is lost or one of the safety interlocks is activated.

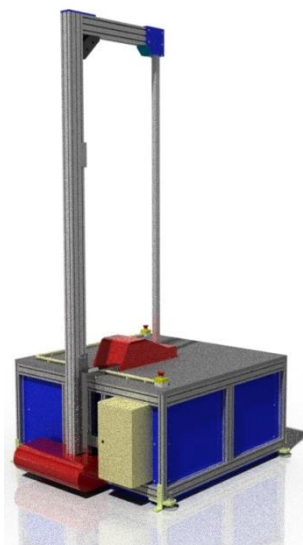
Track & Trolley unit

- Al Alloy construction using channel, angle and ground plate.
- Precision linear guides + encoders used on X, Y and Z axes.
- The rotational axis is driven via a precision rotary table.
- Energy chain used on X and Y axes for tidy/stress free transportation of cables.
- Lengths, widths and heights can be modified to meet the requirements of the customer.

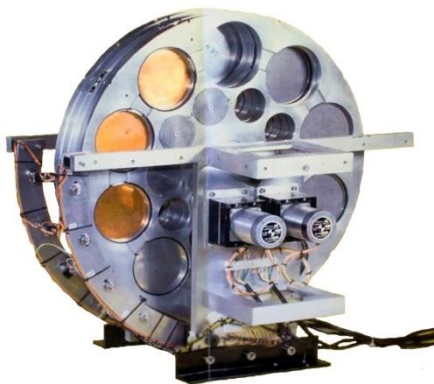
Control Unit

The Exposure unit is controlled via a Windows based software system, its main features include:

- Full control of X, Y, Z and rotational axes.
- Full control of rotary neutron source cassette.
- Certificate issued for each instrument calibrated.
- In-cell control of video equipment and screen grab display of camera in top corner of monitor.
- Radiological status supplied on monitor screen; full control of warning lights, audible alarm and e-stops.



X-RAY CALIBRATION SYSTEM



Track & Trolley unit

- Al Alloy construction using channel, angle and ground plate.
- Precision linear guides + encoders used on X, Y and Z axes.
- Z axis raised and lowered via a screw jack using a stepper motor/gearbox arrangement.
- The rotational axis is driven via a precision rotary table.
- Energy chain used on X and Y axes for tidy/stress free transportation of cables.
- Lengths, widths and heights can be modified to meet the requirements of the customer.

X-Ray Exposure unit

The X-ray set is made up of a shielded enclosure, containing, an X-ray tube, Filter wheel, and X-ray shutter. The X-ray tube produces a beam of X-rays centred along the X axis. The filter wheel is located within the shielding for automatically selecting the different strengths of exposure. The X-ray shutter mechanism is fail-safe and will automatically drop and return to a safe position if the power is lost or one of the safety interlocks is activated.

