

PERSONAL DOSIMETER SYSTEMS

Gemini Technology specialize in the supply of Personal Dosimetry Systems. We have designed, manufactured and commissioned a wide range of Calibration systems as well as a number of automated TLD handling machines including; Unwrapping, Reception, Sorting, and Wrapping as well as Card Storage Jigs.



TLD / EPD HANDLING SYSTEMS

TLD Unwrapping Machine

The function of the TLD Unwrapping Machine is to remove TLD cards from their respective wrapper and carry them into an output cartridge to then be moved on to other areas. If the machine fails to cut or detects a bad barcode, the machine will then carry the card into a reject bin for inspection. The TLD machine is capable of unwrapping 600 cards per hour, or 2400 per day. The unit has an estimated working life in excess of 20 years. The Unwrapping machine is a multi stage mechanical function unit, housed within an aluminium frame console with Al Alloy & Perspex panels. The machine will not function unless the safety switch is made on the access guard and the cartridges are in position.

TLD Sorting Machine

The function of the Sorter is to move cards from an input cartridge to one of nine output cartridges under the control of an external computer.

TLD Reception Machine

The function of the TLD Reception Machine is to log wrapped dosimeters back into the system via the output cartridge. During this process the machine will also check for Radioactive contamination and bad barcode's. If there is either a bad code or bad dose detected then those particular packets are ejected into the relevant reject bins. The TLD machine is capable of unwrapping 600 cards per hour, or 2400 per day.



ROBOTIC EPD CALIBRATION SYSTEM

A high specification, fully automated, modular system for use at EPD manufacturing or servicing facilities. Guaranteeing a high throughput and comprehensive calibrations. The system offers 24 hour unmonitored operation, high speed EPD handling, all at an incredible degree of accuracy. The function of the unit is to calibrate EPD's placed into the source drawer using the radioactive sources installed in the heavily shielded source modules.



The transport system can be driven in 4 axes (x, y, z and rotational). The pick-up head attached to the Z Actuator grabs the platen holding the EPD and pick/places it within the Calibrator. The pick-up head attached to the Z Actuator grabs the platen holding the EPD and pick/places it within the Calibrator.



All cables connecting to the Transport system are housed in a plastic energy chain fastened to brackets and stainless steel troughs. The energy chain allows the cables to move freely without stress and to remain neat and tangle free when the trolley is moving in the transport system. The control unit is housed in a large steel cabinet located on the right hand side of the frame, which is powered by the mains isolation unit that is located next to the control unit in the frame. The control unit is connected to the operator's PC, which is positioned on the operator's desk in the control room.

TLD / EPD CALIBRATION SYSTEM

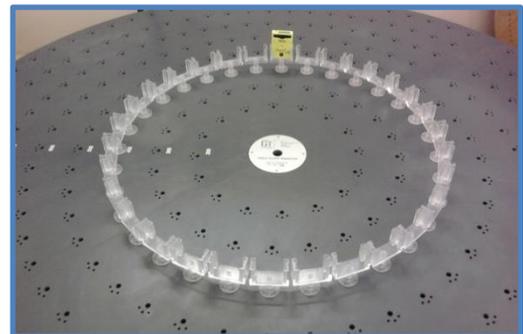
Single or Multiple Source exposure

Control System

The control unit provides switching and control to enable manual and automatic operation of the facility (CAT. 3). The source can only be exposed when the access key from the castell door lock is in the control unit. Windows control software to allow automatic control of the facility. Control computer and monitor.

Multi Source Exposure Assembly

Radioactive sources are housed in 4 lead shielded pots when in safe position. The source pots are fixed to a carousel driven by step motor. A source is selected, rotated to the expose position and is raised using a motor/rack arrangement and is held up in position using a solenoid. The source is moved up a shielded tube and is exposed through a beam collimator. The source will drop if the power to the system is lost (fail-safe).



Exposure Table & Framework

The circular exposure table has radially positioned holes 360° to accept acrylic dosimeter holders. The exposure table is mounted on an Al Alloy framework. The frame has panels on two sides and double doors on the other.