

Harshaw 4500 Ordering Information

Part Number	Description
4500TLDREADER	MODEL 4500 TLD READER INSTRUMENT - Temperatures to 400 °C. Supplied with 1/4" x 1/4" planchet and external gun-style barcode scanner.

Harshaw 4500 Specifications

Range	Seven decades
Warm-up time	20 minutes
Photonics Linearity	Less than 1% deviation.
Stability	Better than 1.0 µGy, based on one standard deviation of ten consecutive measurements
Repeatability	Less than 2% variation (based on 1 standard deviation of 10 sequential measurements at 1 mGy (100mrad) <sup>137</sup> Cs)
Readout time (based on standard LiF: Mg, Ti)	Unmounted: 35 sec/dosimeter, 4 element TLD Card: 63 sec
Dark Current	Less than 1 µGy
Electrical	110 or 120 VAC ±10%, 60 Hz. 220 or 240 VAC ±10%, 50Hz.
Operating Temp range	15° C to 40° C
Storage Temp range	-10° C to 60° C
Shock resistance	Will withstand a 1cm drop onto a concrete surface
Humidity tolerance	Functions within specification after 24-hour exposure to 90% humidity and subsequent 6-hour recovery with use of the nitrogen supply.
Light exposure	Tested to withstand a minimum of 1,000 W/m <sup>2</sup>
Weight	35 kg (78 pounds)
Height x Width x Depth	37 cm (14.8 inches), 46 cm (18.3 inches), 50 cm (20.5 inches)



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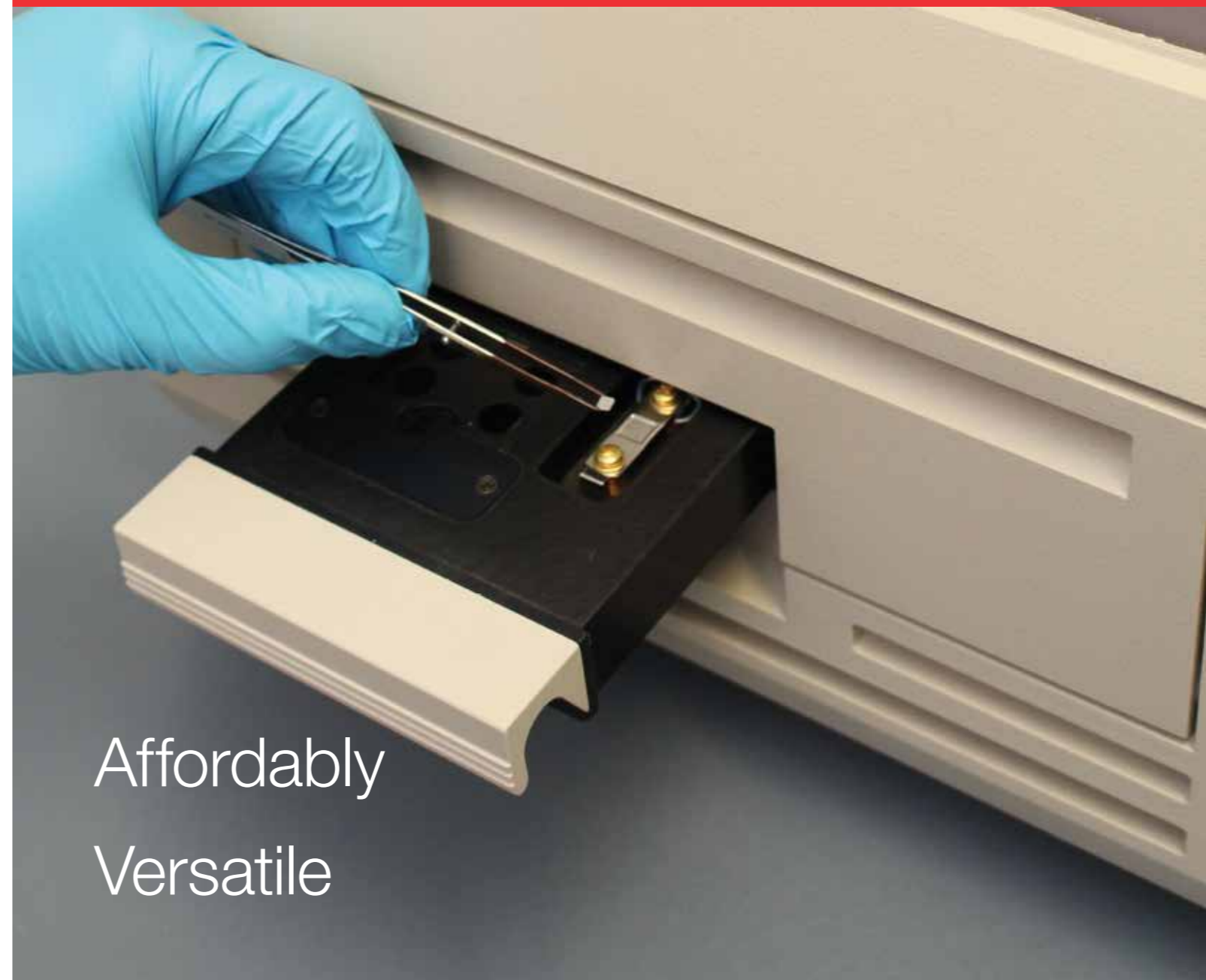
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Thermo Scientific Harshaw 4500 TLD Reader



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# Thermo Scientific Harshaw 4500 TLD Reader

The Thermo Scientific™ Harshaw™ 4500 TLD Reader is a **versatile** and **flexible** reader solution for research dosimetry in medical and industrial applications. By reading both loose material and mounted dosimeters, the Harshaw 4500 is a **cost effective solution** for facilities utilizing multiple dosimeter formats. The Harshaw 4500 also offers an ideal **affordable manual backup system** for dosimetry laboratories, as required by different accreditation authorities.

The Harshaw 4500 easily transitions from a planchet reader to a hot-gas reader capable of reading mounted TLD elements in two positions simultaneously. A simple shuttle mechanism enables the reader to automatically process a 4 element card, if necessary, to reduce errors in handling and improve productivity. The dual functionality and simple transition from planchet to hot-gas heating reduces material handling and increases operating efficiency.

## Peace of Mind

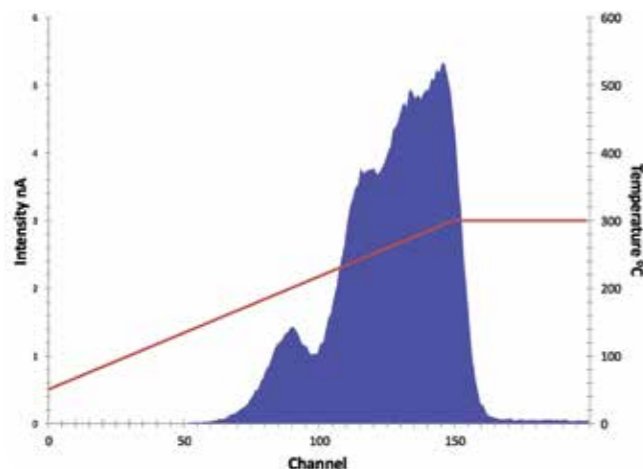
- Built in ISO 9001 certified factories for over 40 years
- Used in IEC, NVLAP, DOELAP, ANSI accredited facilities
- Cards guaranteed up to 500 reads
- Low maintenance requirements
- Long term factory support extends operational life and reduces total cost of ownership



The Harshaw 4500 is equipped with a planchet heating assembly used for unmounted dosimeters and a precisely controlled non-contact nitrogen gas heating system with dual cooled photomultiplier tubes for reading mounted TLD elements in the form of multi-element cards or extremity dosimeters.

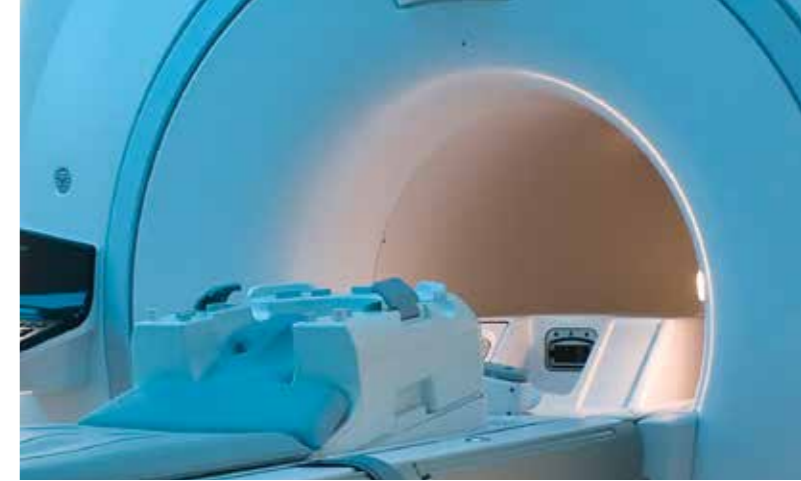
## Improved Read Quality

The unique glow curve and temperature heating profile provided by Harshaw TLD readers provides verification of read quality. The glow curve is independent of potential inaccuracies induced by environmental conditions in reading, storage and handling to provide trustworthy recordkeeping. In case of errors in reading or a faulty/damaged dosimeter, glow curve analysis could help determine validity of the reading and drive appropriate corrective or preventative actions.



# Applications

Dosimeters in the form of multi-element cards, or extremity monitors, and individual TLD elements available in ribbons, chips, rods, micro cubes and powders, are best suited for:



## Clinical/Research Dosimetry



- Total body irradiation dose verification
- Skin irradiation dose verification
- Critical organ dose verification
- Radiotherapy planning verification
- CT dose measurement
- Diagnostic dose studies
- Stereotactic beam output factor measurement

## Industrial Dosimetry



- Testing for irradiated food
- Radiocarbon dating
- Radiation hardening studies
- Environmental studies

## Personnel & Environmental Dosimetry



- Whole body dose monitoring
- Extremity dose monitoring
- Environmental dose monitoring
- Fast and Thermal Neutron dose monitoring



## Materials

Our materials have a linear useful range from 1µGy to 20 Gy. Lithium Fluoride based materials are **near tissue equivalent** and **not light sensitive** to provide confidence in handling the dosimeters and analyzing results. Calcium Fluoride materials are available for increased dose range.

## Accessories

- M4500 Planchet, Chip Type, 1/4" x 1/4"
- M4500 Planchet, Rod Type. Holds rods up to 6 mm in length.
- Neutral Density Filters (1:1, 10:1, 100:1, 1000:1)
- Nitrogen Gas Flow Meter/Regulator
- Nitrogen Generator with Integrated Compressor
- Model 2210 Table Top <sup>90</sup>Sr/<sup>90</sup>Y Irradiator with 0.5 mCi/18.5 MBq Source.
- TLD Card Dosimeter Carrier Disk. For use with the Model 2210 Irradiator.
- Programmable Annealing Furnace
- Stainless Steel Annealing Tray with Cover
- Dosimeter Storage/Transfer Case (Plexiglas) with Cover
- Aluminum Quench Block
- Mechanical Tweezers, Stainless Steel - Teflon Tipped
- Vacuum Tweezers - Includes vacuum tweezers, pump, tubing, filter, assorted metal and rubber tips