

# Setting the Standard for Dosimetry

Thermo Scientific Harshaw 3500 TLD Reader



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Designed for reliability and accuracy, the Thermo Scientific™ Harshaw™ 3500 TLD Reader is built for reading unmounted dosimeters utilizing a planchet heating method. Ideal for medical physics, health physics, material research, food irradiation and industrial applications, the Harshaw 3500 reads **quickly** and **accurately** with **precise** temperature control.

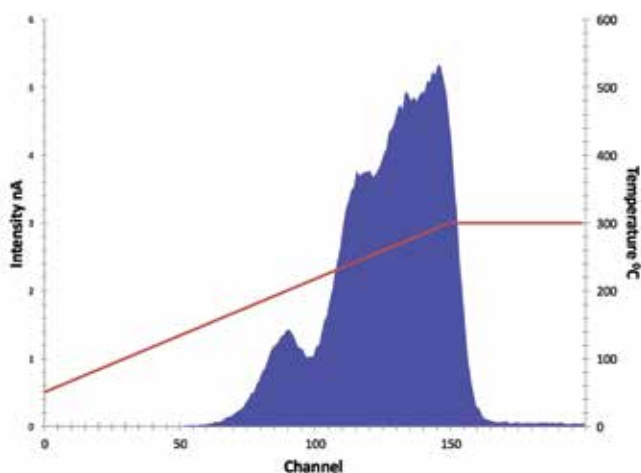
The Harshaw 3500 is designed to handle a wide range of material in a number of different formats (ribbons, chips, rods, micro cubes and powder) and sizes.

## Peace of Mind

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



The Harshaw 3500 includes a sample drawer for a single element TLD dosimeter, a linear, programmable and precisely controlled heating system and a cooled photomultiplier tube to measure the TL light output.

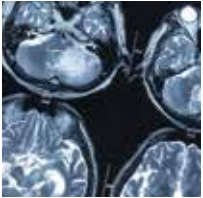


## Improved Read Quality

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

Individual TLD elements made from the highest quality tissue equivalent material available in the form of 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

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



## Materials

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

## Accessories

- M3500 Planchet, Chip Type, 1/4" x 1/4"
- M3500 Planchet, Chip Type, 1/8" x 1/8"
- M3500 Planchet, Rod Type
- M3500 Planchet, Disk Type, 0.62" dia., Requires High Temperature (600 °C) 3500 TLD Reader
- Neutral Density Filters (1:1, 10:1, 100:1, 1000:1, 10000:1)
- Powder Dispenser Kit-incl. Powder Dispenser (15 mg charge), Stand & Vacuum
- Nitrogen Gas Flow Meter/Regulator
- Nitrogen Generator with Integrated Compressor
- Model 2210 Table Top <sup>90</sup>Sr/Y Irradiator with 0.5 mCi/18.5 MBq Source.
- 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

## Harshaw 3500 Ordering Information

Part Number	Description
<b>3500TLDREADER</b>	Model 3500 with Heating Temperature Capability to 400°C
<b>3500TLDREADERHT</b>	Model 3500 with Heating Temperature Capability to 600°C

## Harshaw 3500 Specifications

<b>Range</b>	Seven decades
<b>Warm-up time</b>	30 minutes
<b>Photonics Linearity</b>	Less than 1% deviation.
<b>Stability</b>	Better than 1.0 µGy, based on one standard deviation of ten consecutive measurements
<b>Repeatability</b>	Less than 2% variation (based on 1 standard deviation of 10 sequential measurements at 1 mGy (100mrad) <sup>137</sup> Cs)
<b>Readout time (based on standard LiF: Mg, Ti)</b>	35 sec/dosimeter
<b>Dark Current</b>	Less than 5 µGy, <sup>137</sup> Cs equivalent
<b>Electrical</b>	110 or 120 VAC ±10%, 60 Hz. 220 or 240 VAC ±10%, 50Hz.
<b>Operating Temp range</b>	15° C to 40° C
<b>Storage Temp range</b>	-10° C to 60° C
<b>Shock resistance</b>	Will withstand a 1cm drop onto a concrete surface
<b>Humidity tolerance</b>	Functions within specification after 24-hour exposure to 90% humidity and subsequent 6-hour recovery with use of the nitrogen supply.
<b>Light exposure</b>	Tested to withstand a minimum of 1,000 W/m <sup>2</sup>
<b>Weight</b>	25kg (56 pound)
<b>Height x Width x Depth</b>	31 cm (12.2 inches), 32 cm (12.5 inches), 47 cm (18.5 inches)



## Spare Parts

Looking for spare parts for this instrument?

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