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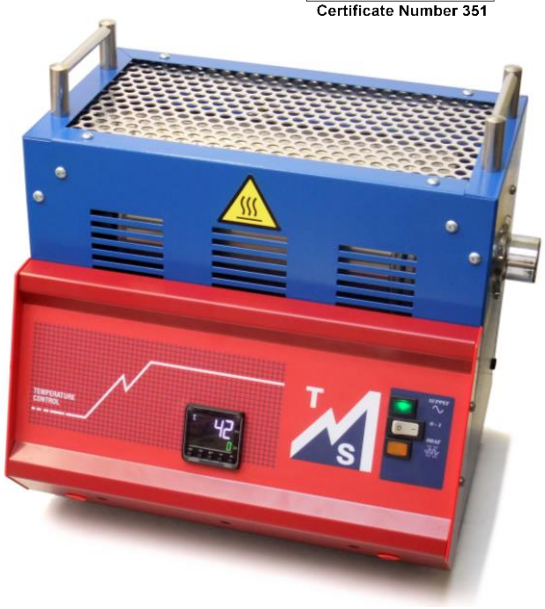
Certificate Number 351

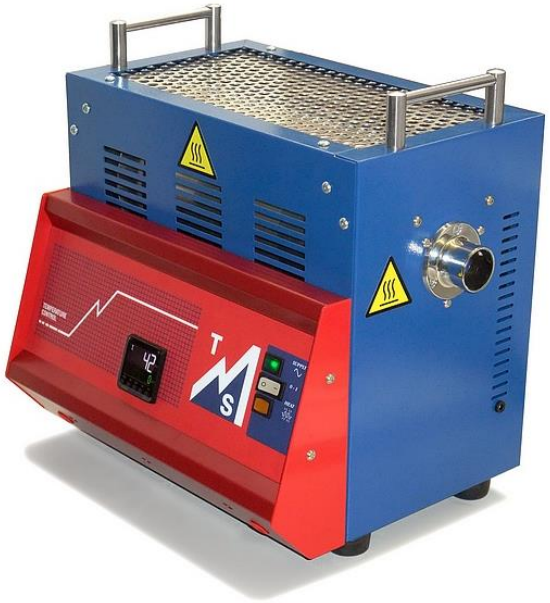
Thermal Cal 1 (MkII)

Portable Thermocouple Calibration Furnace



The Thermal Cal 1 is a portable single-ended horizontal tube furnace for checking and calibrating thermocouple temperature sensors, whether on-site or in the laboratory.

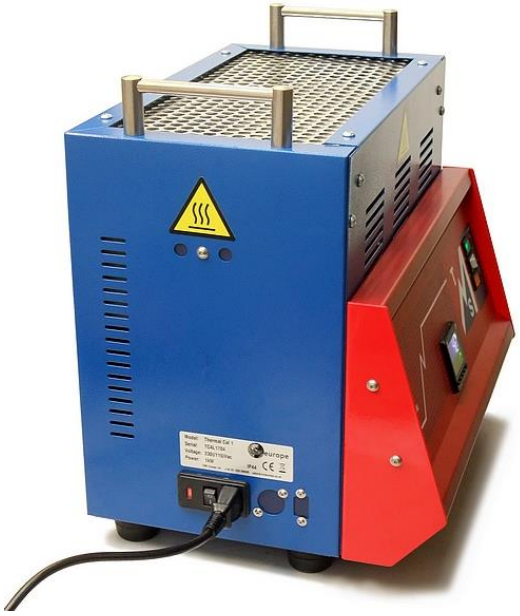
It is a highly stable heat source with a maximum operating temperature of 1100°C, designed to take thermocouples up to 14mm in diameter. The element and work tube's special design results in a temperature uniformity not normally associated with a furnace of this size. Rapid heating up and stabilisation makes it ideal for checking thermocouples in-situ, avoiding costly downtime.



The unit can be configured by the user to operate on either 240V or 110V, saving some users from having to carry a heavy transformer around the factory.

The built-in digital PID temperature controller displays the measured temperature and setpoint. The controller can perform a basic timed program operation; a rise to the set temperature, followed a timed dwell period at temperature. It can also have heating and/or cooling setpoint ramp rates defined (applicable to both timed and normal operation).

The unit includes over-temperature protection as standard, provided by an independent self-resetting electronic device and sensor which prevents the heating element exceeding a safe temperature. Additionally, self-resetting thermostats monitor the case body and internal temperatures. This helps users comply with Health and Safety legislation if the unit is to be left operating unattended (e.g. overnight).



An external lead with clip is provided for earthing when calibrating metal-sheathed or mineral insulated thermocouples. This is for operator safety and also reduces EMF interference being induced into the thermocouple(s) under test.

A UKAS (ISO 17025) calibration certificate including thermal survey is optional at extra cost, either at our standard points or customer specified points; please contact us for a price.

Other options, customisations and accessories are also available at extra cost, including; calibrated indicator with probe, 8 segment timed program, digital communications and recording/data logging.

Specification

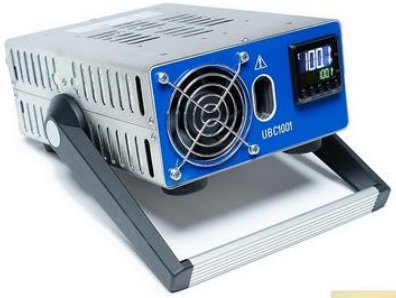
Range	400 - 1100°C	
Maximum Short Duration Temperature	1100°C	
Maximum Continuous Temperature	1050°C	
Cavity Diameter	22.5mm	
Cavity Length	180mm (300mm minimum recommended probe length)	
Heated Length of Immersion	140mm	
Uniformity (at end/bottom)	400 – 600°C	Better than 6°C (‘±3°C’) over 40mm
	600 – 800°C	Better than 8°C (‘±4°C’) over 40mm
	800 – 1000°C	Better than 10°C (‘±5°C’) over 60mm
	1000 – 1100°C	Better than 14°C (‘±7°C’) over 60mm
Display Stability	±0.5°C	
Display Accuracy	±5°C	
Heating Time	45 minutes to 1100°C	
	60 minutes to any temperature including stabilisation time	
Cooling Time	1 hour 1100 to 700°C, 2 hours 700°C to 400°C	
Size (WxDxH, without leads)	410mm x 300mm x 390mm	
Weight	13.5Kg	
Operating ambient temperature	5 to 35°C	
Power Supply	220 - 240Vac or 110 - 120Vac (user changeable†), 50/60Hz, 1.1KW, via an IEC C13 inlet, supplied with a UK power lead, others also available.	
Certification	UKAS (ISO17025) calibration and thermal survey optional at extra cost.	

This datasheet applies to the current model, for information on units purchased previously please contact us.
* Based on a single 3mm MI probe in the work tube without the addition of any insulation fibre in the tube entrance.
† The AC operating voltage can easily be changed, by a competent person, by removal and reorientation of the fuse holder/voltage selector.

Whilst the outside has a rugged appearance, the unit contains fragile ceramics and although designed to mitigate against bumps and knocks in normal use, care must be taken when handling the unit. Equally, ceramics can fracture if subjected to thermal shocks (e.g. putting a cold probe in too fast when the unit is at high temperature). The unit’s fuses offer some protection against the unit being connected to the wrong supply voltage, but damage to element may occur if this mistake is made by the operator. Should the inner ceramics be damaged the replacement parts (ordered separately at additional cost) can normally fitted by a competent user. In the event the outer ceramic or element is damaged, the unit must be returned to factory for repair.

UKAS CALIBRATION 0461

TMS Europe Ltd is a UKAS accredited calibration laboratory No. 0461. We are accredited for calibration on site and in our laboratory. See our Schedule Of Accreditation for full details of the extents of our ISO 17025 accredited calibration services. www.tmseurope.co.uk/soa



Part of a range of calibration solutions from TMS Europe