



Environmental Chambers



Suitable for most twin screw materials testing machines, the Tinius Olsen Environmental Chamber provides a means for performing physical tests within a temperature range of $-70\text{ }^{\circ}\text{C}$ to $300\text{ }^{\circ}\text{C}$ ($-95\text{ }^{\circ}\text{F}$ to $570\text{ }^{\circ}\text{F}$).

An internal radial fan provides efficient air circulation which minimizes temperature gradients throughout the chamber. A digital controller ensures accurate temperature control. Optional sub-zero temperature testing is available via a self-pressurising liquid nitrogen Dewar.



The chamber door is fitted with a triple glazed window for viewing the test area and also scanning the sample for strain measurements when using the Tinius Olsen 500L laser Extensometer. When liquid nitrogen is used, a demisting facility is fitted.

The chamber is supported on a frame located between the columns of the testing machine. When the chamber is not in use, the chamber can be rolled back and parked clear of the operating area.

Technical Specifications

Operating Temperature Range	$^{\circ}\text{C}$	Ambient to 300
	$^{\circ}\text{F}$	Ambient to 570
Optional Temperature Range	$^{\circ}\text{C}$	-70 to 300
	$^{\circ}\text{F}$	-94 to 570
Temperature Gradient		$\pm 1\text{ }^{\circ}\text{C}$ after 30 minutes within 80% center volume of chamber
Temperature Stability		$\pm 1\text{ }^{\circ}\text{C}$ after 30 minutes
Internal Dimensions	mm	250x245x605 (WxDxH)
	in	9.8x9.6x23.8 (WxDxH)
External Dimensions	mm	355x650x750 (WxDxH)
	in	14x25.6x29.5 (WxDxH)
Window Dimensions	mm	320x140
	in	12.6x5.5
Power		110/220 VAC, 50/60 Hz, 3kW 1ph
Weight including controller	kg	62
	lb	137

Furnace and High Temperature Extensometer

The Tinius Olsen high temperature furnace provides a means for performing tensile tests within a temperature range of ambient to 1,200 °C (to 2,200 °F).

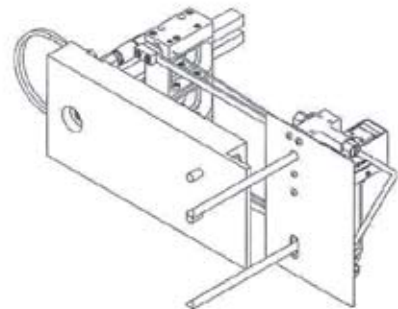
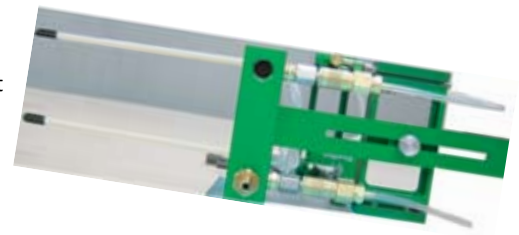
The furnace is supported on a frame post located behind the columns of the testing machine. When the furnace is not in use, it can be pushed aside and clear of the operating area.

The furnace has a high quality rigid stainless steel outer case with a polished finish. Rigidity is most important to prevent the insulation cracking in service and to allow high temperature extensometers to be mounted directly on the furnace case. Additionally, the furnace features water cooled mounting adaptors so that there is no heat transferred to the load-cell and adversely affect the operation and calibration of the loadcell measurements.

A control system based upon a Eurotherm 2408 digital temperature controller, providing 4-segment programmability, a single type 'K' thermocouple and all connecting cables. This is all housed in a standard 19" desktop console.

The three zone furnace is provided with the additional heating tiles and control capability to allow much improved thermal uniformity over the specimen gauge length.

Type of Furnace:	Vertical Three Zone Split Tube Furnace.
Furnace Bore:	The furnace end insulation discs will be bored out to 30mm diameter. The heating chamber has an internal diameter of approx. 90mm.
Heated Length:	300mm over three zones
Heating Elements:	Spiral wire coils embedded in vacuum formed ceramic fibre half cylinders.
Overall Ext. Dims:	480mm High x 255mm Diameter.
Temperature control:	Each zone controlled by a Tinius Olsen advanced set point programming temperature controller with 20 free-format segments. Scrolling text provides additional information of current status to the user. RS232 digital communications facility is included.
Temperature Sensors:	Type 'N' thermocouples.
Safety switch:	A safety switch cuts power to the elements when the furnace is opened.
Power Supply:	220-240 volts single phase.
Energy Rating:	2.5 kW (nominal)
Temperature uniformity:	+/- 5 °C or better over a length of 200mm at temperatures above 650 °C. Figures based on measurements taken with an empty heating chamber and all holes insulated.



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