

Vertical split tube furnace

Furnace

100°C to 1200°C
Vertical three-zone
split tube furnace

Compatible with
Tinius Olsen ST and SL
series of materials testing
systems

Type

+ 1200°C with type N
thermocouples



- + Accurate 3-zone temperature control using Eurotherm controllers.
- + Option to use furnace wall mounted or test specimen mounted thermocouples.
- + Option to define temperature set points from the controller or Horizon materials testing software.
- + Available in carousel configurations.

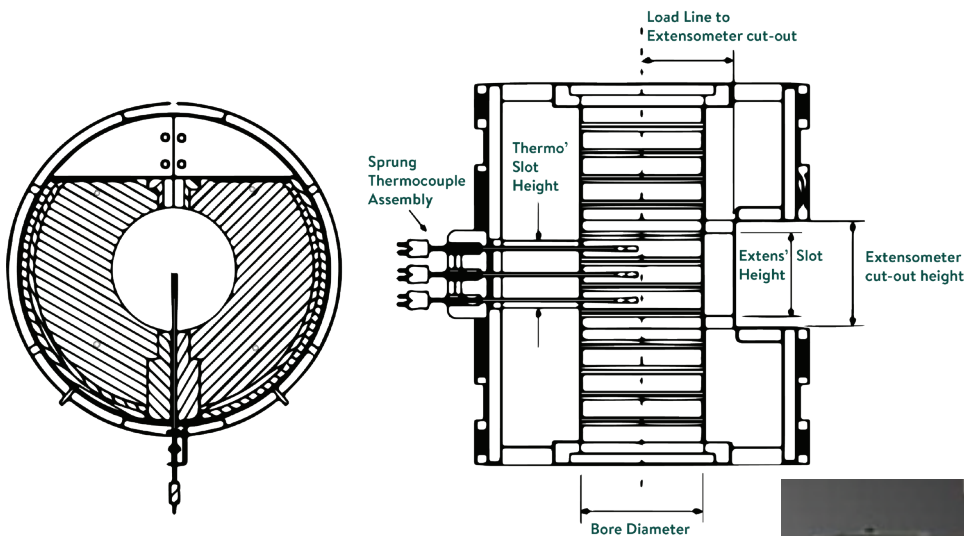
Vertical split tube furnace

The Tinius Olsen temperature furnace provides a means of performing tensile tests within a temperature range of 100°C to 1200°C (212-2192°F).

The furnace is a split wrap around the test specimen type featuring thick gauge resistance wire coils fitted within the split insulation shell formed from soluble non-RCF fiber insulation. This is backed by a split cylindrical brushed stainless-steel case with a brushed stainless-steel outer guard. This low thermal mass structure offers a number of advantages over 'traditional' split furnace systems fitted with a higher mass refractory tiles, including:

- + Increased operating temperature capabilities.
- + The achievement of relatively faster heating and cooling rates.
- + Improved thermal shock resistance (important if opening hot for specimen change causing rapid cooling).
- + Improved control performance at lower temperatures.

Temperature control is typically via type N thermocouples inserted into the hot zone through radial thermowells.



Additional features

Additionally, the furnace features a vertical slot on the front split line to enable the use of a contact type extensometer. Closing of the furnace around the test specimen and load train is achieved using the toggle clamps on the side of the furnace. The furnace is supported on an arm mounted off the testing frame and is easily moved into and out of the testing zone.

The temperature control system is based on a Eurotherm "Master" model 3508 controller located in the center of the furnace supported by two outer Eurotherm "Slaves" model 3216 with over temperature monitoring. The power to the heating elements is stopped when the furnace is opened. The thermocouples used maybe mounted in the furnace thermowell or specimen mounted as required by the test standard being used.

Optional temperature control from test settings within Tinius Olsen Horizon materials testing software can be used to improve test efficiency.



TO order numbers

20001107	Split-Type Tubular Furnace and Controller, 230V 50-60 Hz
20001108	Furnace Support and Stand for Split-Type Tubular Furnace
99-086-0050	Furnace 600-1200 deg. C (max test temperature 1100°C). Split type
99-1007727	Furnace, Vert. Split 3Zone, 300mm x Dia90mm, & slot, Max1200C - Side Mount
99-994-1003/1A	Extensometer 3448 for Furnace/Induction Heater for ST_SL Series

Specifications

Up to maximum furnace temperature	1200°C with type N thermocouple
Maximum specimen temperature	1200°C (assuming 25.4mm diameter tensile pullrods)
Minimum specimen temperature	100°C / 212°F
Overall furnace height	370mm / 14.6in
Hot zone height	325mm / 12.8in
Overall furnace diameter (incl. perforated guard)	322mm / 12.7in (excluding terminal box)
Furnace bore height	120mm / 4.7in
Number of hot controlled zones	3
Heating elements	Exposed resistance wire
Pull rod port diameter	35mm (Nom) top; 35mm & 80mm bottom
Case material	Brushed stainless steel, outer perforated guard
Temperature uniformity	+/-2°C or better over a 50mm specimen gauge length. Figure is based on measurements taken with all holes insulated
Extensometer slot size (front)	Machined to suit gage length requirements, 75x13mm (max)
Monitoring thermocouple slot (rear)	Machined to suit requirements, 65x5mm (max)
Thermowells	3 off, radial, to suit 1.5mm diameter thermocouples
Thermocouples (Control/alarm)	4 off type N, 1.5mm diameter with plugs mounted to furnace case
Mounting points	M6 off on 250mm PCD on each end of the furnace
Furnace power	3.13kW
Safety switch	A safety switch cuts power to the elements when the furnace is opened
Temperature controller configuration	Master and two slaves
Primary instrument	Eurotherm model 3508
Secondary instruments	Eurotherm model 3216

Specifications

Over temperature alarm	Eurotherm model 3216i
Communication link with PC and TO Horizon Software	RS232
Umbilical power and data signal link with furnace	Yes
Supply voltage	Single phase 230/240V via a suitable control system (2 halves wired in series)
Manufactured	In UK
Typical ROI	10 months when integrated into a Tinius Olsen systems
Component defect warranty	12 months

* Maximum test temperature achieved is dependent on the load train material and size, the test specimen.

** Time to achieve the desired test temperature is dependent on the target temperature, load train material and size, the test specimen.