



250 to 1200°C

# Furnaces

## 3 Zone High Temperature

- Widest Operating Range
- Three Zone Control
- Long Plateau Length

Whilst heat pipe furnaces offer the ideal environment to melt and freeze ITS-90 Fixed Points the temperature range is limited by fluid that flows inside the pipe. Three zone furnaces can offer wider operating ranges and still meet the requirements for “Optimal Realization of the Defining Points of the ITS-90...” CCT/2000-13. In place of a heat pipe the Model 465 3 Zone High Temperature Furnace uses top and bottom guard heaters to minimise temperature gradients.

This more recent addition to our long-established range of metrology furnaces offers an alternative for those who prefer 3-Zone furnaces to heat pipe technology and need high temperature operation. The three zones create a controlled volume of constant temperature within the furnace in which High-Temperature Fixed Points such as Aluminium, Silver and Copper can be frozen and melted. Because High-Temperature thermometers can be easily contaminated by metallic vapors, great care has been taken to eliminate the use of metals throughout the calibration volume.

A ceramic equalizing block is available comprising a closed ended tube, alumina tubes to house the sensors being compared, and alumina powder to act as an equalizing media.

This 3-Zone Furnace can be used for the realizations of Zinc, Aluminium, Silver, Gold and Copper points, or with an optional equalizing block used for annealing or comparison calibration.

### New Features

The furnace has been upgraded to benefit from the latest technology. Fitted with a crystal clear colour display the furnace is now fully programmable. Programs can be created for the furnace to switch between set



*Long plateaus from Fixed Point Cells  
Self-Tuning controller optimizes each Fixed Points  
performance 3 zones controlled to compensate for  
end loss to give a perfect profile*

temperatures, for example to bring the furnace to the melt or freeze temperature at a desired time, or to lower the furnace temperature after a predetermined time. The PID control parameters are now dynamically optimised at different temperatures optimizing furnace stability. An Ethernet interface allows the furnace temperature to be monitored across a network whilst a USB Interface allows programs to be copied or for the furnace heat up and cool down history to be exported.

Model	465
Temperature Range	250°C to 1200°C
Uncertainty	<1 to 2mK (with cells)
Control	0.1°C Resolution. Gain Scheduling Action and Power Feedback
Interfaces	Ethernet and USB Host
Core Size	100mm x 500mm
Dimensions	Height - 960mm Width - 600mm Depth - 560mm Weight - 115kg

Power 3kW, 108-130 or 208-240Vac, 50/60Hz

### Accessories

- 465-04-00 Cell holder assembly
- 465-02-06 ceramic equalising block
- Four pockets 10mm ID

### How to order

465 3 Zone Metrological Furnace