

MODEL K23XR

Extended Range Primary Metrology Furnace

Pond Engineering designed this maintenance system for user-friendly calibrations using Tin, Zinc, Aluminum, Silver and Copper Metal Freeze Point Cells in a stable, uniform thermal environment. The optional removable comparison block enhances the system's outstanding control stability for comparison calibrations.

Multi-layer vacuum insulation surrounding both zones of the machined graphite core, a Pond Engineering exclusive, combines extraordinary gradient suppression with an unprecedented setpoint range.

All Pond Engineering primary level furnaces combine linear DC heater drive electronics with bifilar oriented heater elements (instead of the circular heater windings often found in other systems.) The bifilar oriented elements make only one turn around the core (rather than the usual tens or hundreds) to reduce the inductive coupling of the heater drive current to the thermometer, making this system the most electrically quiet available. Considering that the bridge measures SPRT resistance in nanovolts, any electric noise is significant.

Interactive controls on a sloping front panel increase usability in a stand-alone configuration. Optional remote interface (RS-232 or IEEE-488) allows users to integrate the K23 into an automated calibration system, dramatically increasing throughput and reducing the cost of primary-level calibrations.

Standard features include an integrated multi-zone control system with multiple control sensors providing completely redundant primary and secondary over-temperature cutout for unparalleled safety. Using PRTs with 20-bit AC excitation ratiometric signal conditioning (instead of thermocouples) for all temperature sensing provides unprecedented accuracy and control stability. Interactive internal system temperature sensor calibration functions allow users to maintain system performance over time.



SPECIFICATIONS

System Setpoint Range:	220°C to 1000°C (optional to 1100°C)
Control Stability:	Better than +/- 0.03°C (optional +/- 0.005°C)
Core Gradients:	Less than +/- 0.15°C in inner core
Setpoint Accuracy:	Better than +/- 0.5°C in inner core
Main Well:	Series 600 Inconel ≈ 2.05" (52 mm) I.D. ≈ 17.8" (45 cm) deep
Power Requirements:	120 / 240 Volts (Other input voltages available on special order) 8.0 Amps max. A.C. 47 - 63 Hz.
Cabinet Physical Dimensions:	≈ 18" (46 cm) wide ≈ 20" (51 cm) deep ≈ 36" (92 cm) high

TO ORDER, OR FOR MORE INFORMATION:

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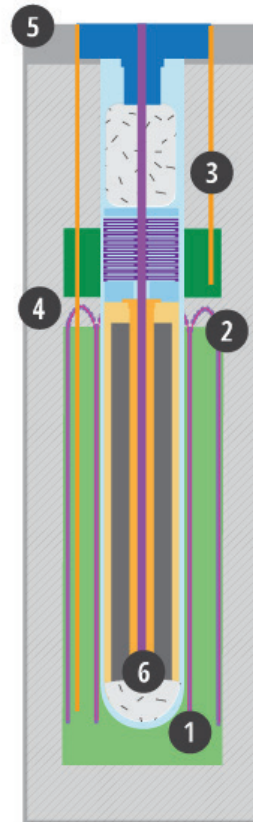
EMAIL – info@pondengineering.com

All specifications subject to change without notice.

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KEY TECHNICAL FEATURES

- 1 Machined graphite core, with approximately 10x the thermal conductivity of Nickel-Iron alloys, provides tremendous axial and circumferential gradient suppression, protecting cell from damage.
- 2 Linear D.C. heater drive electronics in conjunction with bifilar heater construction minimize electrical interference with precision thermometer resistance measurements.
- 3 High temperature 10 ohm PRT's with 20 bit ratiometric signal conditioning are used for all temperature sensing, eliminating thermocouple drift.
- 4 Two zone furnace geometry and integrated control system provides unsurpassed temperature stability, particularly important when performing comparison calibrations. Optional comparison blocks allow furnace to be used for comparison calibrations. With the ultra high stability control option, temperature stability within the comparison block is typically better than +/- 0.005 C over 15 minutes for unsurpassed high temperature comparisons.
- 5 Unique cell top and furnace design suspends the cell in the isothermal zone, providing for easy insertion, removal and inspection.
- 6 Over temperature protection (both primary and secondary) is ensured by an integrated microprocessor based controller with watchdog safety shutoff.



RANGE OF APPLICATION 220  1100

