

PR330 Series Multi-zone Temperature Calibration Furnace

PANRAN

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- The full-scale 100mm axial temperature field is better than 0.6 °C
- The working temperature range: 100°C~1300°C
- Temperature fluctuation is better than 0.15°C/10min

The verification furnace / calibration furnace is an important part of the medium and high temperature traceability system. In general, the traditional verification furnace / calibration furnace is a horizontal electric furnace with simple structure. The temperature uniformity of the effective working area of the furnace can not be well controlled, and the temperature uniformity of the furnace is prone to deviation after the furnace has been used for a long time. Even if the temperature uniformity of the furnace is improved to a certain extent by adding metal isothermal block, its overall technical performance is still not ideal, which is the main source of uncertainty in the process of thermocouple verification and calibration. Therefore, the traditional verification furnace / calibration furnace cannot meet the requirements of high-precision temperature traceability in terms of structure. The PR330 series multi-zone temperature calibration furnace adopts a subversive design scheme from the internal structure to the control method, and has made a qualitative leap in key technical parameters.

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PR330 series Multi-zone Temperature Calibration Furnaces adopt innovative technologies such as multi-zone control, DC heating, automatic heat dissipation to extend its working temperature to 100°C~1300°C. and it has excellent temperature field uniformity and temperature fluctuation covering the full temperature range, which greatly reduces the uncertainty in the process of temperature traceability. In addition, the PR330 series multi-zone temperature calibration furnace has rich human-computer interaction functions, communication functions, and many user-friendly designs including front and rear dual display screens and hidden scales.

I. Features

■ Wide Temperature Field Characteristics Covering the Full Temperature Ranges

Adopting multi-zone heating technology, the power distribution ratio of different parts of the furnace heating cavity can be calculated in real time according to the current set temperature and heat dissipation conditions, and the ideal temperature field can be achieved at any temperature point without using a isothermal block.

■ Wider Working Temperature Range

With many new designs in the furnace structure and materials, the working temperature range of the calibration furnace is extended to 100 °C ~ 1300 °C. The calibration furnace can be operated at 1300°C for a short time or 1250°C for a long time. The minimum control temperature can be as low as 100 °C, which further widens the temperature calibration range of thermocouples.

■ The Temperature Stability is Better than 0.15°C / 10min

Integrated Panran's new generation PR2601 master controller,with 0.01-level electrical measurement accuracy, and according to the control requirements of the calibration furnace,targeted optimizations has been made in terms of measurement speed, reading noise, control logic, its full-scale temperature stability is better than 0.15°C/10min.

■ High Security

The power components of the PR330 series calibration furnace are driven by full DC,which avoids the disturbance caused by electric leakage at high temperature and other high-voltage

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safety hazards from the source. The shell has an independent heat dissipation air duct, which can effectively reduce the temperature of the furnace surface during high temperature operation and avoid scalding caused by misoperation.

Rich Software and Hardware Functions

The front touch screen can display general measurement and control parameters, and can perform operations such as timing switch, temperature fluctuation setting, and WIFI setting. In order to facilitate the observation of real-time temperature from multiple angles, a secondary display with stability indication is also installed at the rear of the calibration furnace.

II. Other Functions

| Other Functions | |
|--|---|
| <ul style="list-style-type: none"> ■ Temperature control sensor multi-temperature point correction ■ Adaptive temperature control parameters ■ Real-time temperature, power curve display ■ Built-in reference junction compensation | <ul style="list-style-type: none"> ■ Custom temperature fluctuation calculation ■ Custom alarm temperature upper and lower limits ■ Bluetooth, WIFI expandable ■ Optional units °C, °F, K |

III. Technical Parameters

Temperature Technical Parameters (100°C~1300°C)

| Item\Model | PR330B | Remarks |
|---|---|---|
| Working Temperature Range | 100°C~1300°C | The upper limit of temperature is 1250 °C during continuous operation |
| Temperature Fluctuation | ≤0.15°C/10min | / |
| Temperature Control Accuracy | 0.5°C, when ≤500°C 0.1%RD, when >500°C | Geometric center point temperature of the furnace cavity |
| Radial Temperature Field Uniformity | ≤0.25°C | Furnace geometric center |
| 60mm Axial Temperature Field Uniformity | ≤0.5°C | Furnace cavity geometric center ±30mm |
| 100mm Axial Temperature Field Uniformity* | ≤1.0°C | Furnace cavity geometric center ±50mm |

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| | | |
|---|--|--|
| 200mm Axial Temperature Field Uniformity* | $\leq 3.0^{\circ}\text{C}$ | Furnace cavity geometric center $\pm 100\text{mm}$ |
| 60mm Axial Temperature Gradient* | $\leq 0.2^{\circ}\text{C}/10\text{mm}$ | Furnace cavity geometric center $\pm 30\text{mm}$ |
| 100mm Axial Temperature Gradient* | $\leq 0.3^{\circ}\text{C}/10\text{mm}$ | Furnace cavity geometric center $\pm 50\text{mm}$ |
| Note: The parameters marked with * are valid within the temperature range of 100°C to 1200°C. | | |

■ General technical parameters

| Item | Parameters |
|--------------------------|--|
| Furnace Cavity Dimension | $\phi 40\text{mm} \times 600\text{mm}$ |
| Dimensions | 720×373×500mm (L×W×H) |
| Weight | 58kg |
| Rated Power | 3kW |
| Power Supply | 220VAC±10% |
| Working Environment | -5~35°C, 0~80%RH, Non-condensing |
| Storage Environment | -20~70°C, 0~80%RH, Non-condensing |

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