

PR320 series Thermocouple Calibration Furnace

PANRAN TECHNOLOGY as a drafting unit of " JJF1184-2007 Testing Specification of Temperature Uniformity in the Thermocouple Calibration Furnaces" , PANRAN has long been committed to the research and production of thermocouple calibration furnace. Compared with KRJ series products, the PR320 series, as the latest generation calibration Furnace , has a wider temperature range and better long-term stability. Its core technology can ensure that the uniform temperature field width and other specifications exceed the relevant national verification regulations.

● Products model selection table

No.	Name	Model	Temperature range	Furnace size	Dimension (mm)	Net Weight (kg)	Power (KW)	Isothermal block
1	Thermocouple calibration furnace	PR320A	300~1200°C	Φ40*600	700*370*450	26.1	2.5	optional
2	Base metal thermocouple calibration furnace	PR320B	300~1200°C	Φ60*600		31.5	2.5	/
3	Sheathed thermocouple calibration furnace	PR320C	300~1200°C	Φ40*600		27.3	2.5	PR1142A
4	Thermocouple calibration furnace	PR320D	300~1300°C	Φ40*600		26.1	2.5	optional
5	Base metal thermocouple calibration furnace	PR320E	300~1200°C	Φ40*600		27.3	2.5	PR1145A
6	Short type	PR321A	300~1200°C	Φ40*300	310*255*290	11	3.0	Optional
7	Thermocouple calibration furnace	PR321C		Φ16*300		10.5		/
8		PR321E		Φ40*300		12.4		PR1146A
9	High temperature thermocouple calibration furnace	PR322A	300~1500°C	Φ25*600	620*330*460	45	3.0	/
10		PR322B	300~1600°C	Φ25*600		43		/
11	Thermocouple Annealing Furnace	PR323	300~1100°C	Φ40*1000	1010*260*360	29.4	2.5	/

● Detailed technical parameters of the products

1. PR320A/D Thermocouple Calibration Furnace



Model	PR320A	PR320D
Application	S,R standard thermocouple,working S,R precious and base-metal thermocouple calibration (need to add PR1145A Isothermal block)	
Temperature range	300~1200°C	300~1300°C
Furnace Size	Φ40mm*600mm	
Temperature field center	Deviate from the geometric center does not exceed 10mm	
Temperature field width	The temperature difference within 80mm ≤1°C	
Temperature field gradient	Add a coaxial cleaning porcelain tube of about 20mm shall be installed in the furnace,Not exceed 0.4°C/CM within ±20MM range of temperature field center	

2. PR320B Base metal thermocouple calibration furnace



Application	base-metal thermocouple calibration
Temperature range	300~1200°C
Furnace Size	Φ60mm*600mm
Temperature field center	Deviate from the geometric center does not exceed 10mm
Temperature field width	The temperature difference within 60mm ≤1°C

3. PR320C Sheathed Thermocouples Calibration Furnace



Temperature range	300~1200°C
Furnace Size	Φ40mm*600mm
Size of Isothermal block	Size Φ8mm*7pcs, depth 90mm
Temperature field indicators 1 (with Isothermal block)	From the bottom of Isothermal hole, the internal temperature difference is ≤0.5 °C in the axial direction of 30mm, and the absolute value of the temperature difference between any holes in the same section is ≤0.25 °C
Temperature field indicators 2 (without Isothermal block)	The deviation between the center of the maximum uniform temperature field and the geometric center of the furnace along the axis is ≤ 10mm;Within the range of a uniform temperature field with a length of ≥60mm and a radius of 14mm, the temperature field between any two points is ≤1°C
Temperature field indicators 3 (with Isothermal block, use a	The maximum temperature point in the furnace is ≤ 20mm away from the geometric center of the

coaxial cleaning porcelain tube of about 20mm)	furnace, and the maximum temperature $\pm 20\text{mm}$ has a uniform temperature field with the temperature change gradient $\leq 0.4^\circ\text{C}/10\text{mm}$
Implementation standard	《JJF 1262-2010》, 《JJG 141-2013》
Standard item	PR1142A Sheathed thermocouple calibration furnace Isothermal block
Optional item	Coaxial cleaning porcelain tube of $\Phi 20\text{mm}$

4. PR320E Thermocouple Calibration Furnace



Temperature range	300~1200°C
Furnace Size	$\Phi 40\text{mm} \times 600\text{mm}$
Size of Isothermal block	External $\Phi 38\text{mm}$, inner $\Phi 28\text{mm}$, depth 150mm
Temperature field indicators 1 (with Isothermal block)	Within the axial direction of the effective working area, the absolute value of the temperature difference between any two points is $\leq 0.5^\circ\text{C}$; Within the radial radius of $\geq 14\text{mm}$, the absolute value of temperature difference between any two points on the same section is $\leq 0.25^\circ\text{C}$
Temperature field indicators 2 (without Isothermal block)	The deviation between the center of the maximum uniform temperature field and the geometric center of the furnace along the axis is not exceed 10mm; Within the range of a uniform temperature field with a length of $\geq 60\text{mm}$ and a radius of 14mm, the temperature field between any two points is no more than 1°C
Temperature field indicators 3 (with Isothermal block, but add a coaxial cleaning porcelain tube of about 20mm)	The maximum temperature point in the furnace is $\leq 20\text{mm}$ away from the geometric center of the furnace, and the maximum temperature $\pm 20\text{mm}$ has a uniform temperature field with the temperature change gradient $\leq 0.4^\circ\text{C}/10\text{mm}$
Implementation standard	《JJF 1637-2017》, 《JJG 141-2013》
Standard item	PR1145A Sheathed thermocouple calibration furnace Isothermal block
Optional item	Coaxial cleaning porcelain tube of $\Phi 20\text{mm}$

5. PR321A Short Thermocouple Calibration Furnace

Model	PR321A	PR321C	PR321E
Temperature range	300~1200°C		
Furnace size	$\Phi 40\text{mm} \times 300\text{mm}$	$\Phi 16\text{mm} \times 300\text{mm}$	$\Phi 40\text{mm} \times 300\text{mm}$
Application	Short type TC	Short S,R type	Short base metal
Temperature field indicators	PR321A: The temperature difference within 40mm $\leq 1^\circ\text{C}$ PR321C: The maximum temperature deviation furnace axial geometric center shall $\leq 10\text{mm}$, in the test deviation		



	from the axial geometric center of 20mm, the axial temperature gradient shall $\leq 0.4^{\circ}\text{C}/\text{mm}$ PR321E: Including Isothermal block: the absolute value of the temperature difference between any two points shall $\leq 1^{\circ}\text{C}$, and the absolute value of the temperature difference between any two points on the same section of the hole bottom shall $\leq 0.5^{\circ}\text{C}$, calculated from the axial direction of the hole bottom within 30mm		
Implementation standard		JJG 668-1997	Short base metal TC calibration

6. PR322 Series High-temperature Thermocouple Calibration Furnace



Model	PR322A	PR322B
Temperature range	300~1500°C	300~1600°C
Furnace size	$\Phi 25\text{mm} \times 600\text{mm}$	$\Phi 25\text{mm} \times 600\text{mm}$
Heating material	Silicon molybdenum rod	Platinum rhodium 30
Cold resistance	About 0.1Ω	About 0.5Ω
Max current	50A	16A
Operating voltage	20~50V	50~180V
Control cabinet	PR351	PR352
Temperature field center	Deviate from the geometric center does not exceed 20mm	
Temperature field indicators	the maximum temperature $\pm 20\text{mm}$ has a uniform temperature field with the temperature change gradient $\leq 0.5^{\circ}\text{C}/10\text{mm}$	

The PR322 series is equipped with a special power control cabinet:

1. Adopts patented multiple over-current protection, and is provided with power-on soft start, heating current limitation, freewheeling protection, automatic stop and other functions.
2. No manual voltage gear shift or meter adjustment is required for power-on and heating process.
3. Equipped with RS485 and RS232 dual-communication connections.
4. Configured with ZRJ series calibration system software, the functions of start/stop, real-time recording, parameter query setting, etc. can be achieved.
5. While protecting the safety of the equipment, the manual operation is greatly simplified.

7. PR323 Thermocouple Annealing Furnace



Temperature range	300~1100°C
Furnace size	$\Phi 40\text{mm} \times 1000\text{mm}$
Temperature field center	One end of the temperature field is $< 100\text{mm}$ from the furnace
Temperature field width	within 40mm $\leq 20^{\circ}\text{C}$

(Please note seal test or open test when ordering)