

# High-Temperature Fixed Point Blackbody Furnace



## Model IR-R80 series

The IR-R80 is High-Temperature Fixed Point Blackbody Furnace utilizing metal-carbon eutectic fixed points developed by National Metrology Institute of Japan (NMIJ). What the IR-R80 has brought is high-temperature fixed point calibration at 2474°C for Radiation Thermometers, which was previously achieved until 1085°C (Copper).

It consists of furnace body, and exchangeable fixed point cells for enabling various fixed point calibrations.



### ■ FEATURES

- Realizing high-temperature fixed point calibration for radiation thermometers by utilizing metal-carbon eutectic fixed points.
- Enable to fixed point calibration of standard radiation thermometer (0.65μm) by blackbody cavity of aperture diameter of 3mm.
- Prepare 7 kinds of fixed point cells from 1100 to 2500°C (By exchangeable fixed point cells, single furnace has brought calibration of 7 fixed points.)
- Enable the power-saving feature by using cylindrical sheet heating element made of carbon-carbon fiber composite materials.
- Achieve long-term stability by employing fiber optic type radiation thermometer (0.9μm) as temperature control sensor.

### ■ MODELS

| Models | Item                                    |
|--------|---|
| IR-R80 | Furnace with temperature control system |

| Models  | Item              | Fixed Point Metals                |
|---------|-------------------|-----------------------------------|
| IR-80CU | Fixed Point Cells | Copper (Cu: 1085°C)               |
| IR-80FE |                   | Iron - Carbon (Fe-C: 1153°C)      |
| IR-80CO |                   | Cobalt - Carbon (Co-C: 1324°C)    |
| IR-80PD |                   | Palladium - Carbon (Pd-C: 1492°C) |
| IR-80PT |                   | Platinum - Carbon (Pt-C: 1738°C)  |
| IR-80RU |                   | Ruthenium - Carbon (Ru-C: 1953°C) |
| IR-80RE |                   | Rhenium - Carbon (Re-C: 2474°C)   |

## ■ SPECIFICATIONS

|                                 |   |
|---------------------------------|---|
| Specific Temperature Range      | 1000 to 2500°C  |
| Maximum Temperature             | 2800°C  |
| Longest Temperature Rising Time | Approx 1 hour upto 2500°C   |
| Fixed Point Cells               | High-purity Graphite (Effective inner volume: approx 4.2cm <sup>3</sup> ) |
| Emissivity of Cavity            | 0.9996  |
| Dimension of Cavity             | Φ 3 x 32mm  |
| Repeatability of Melting Point  | ±0.2°C or less  |
| Power Supply Voltage            | 200V AC, single phase   |
| Power Consumption               | Maximum 12KVA   |

- ◆ The furnace body is joint patent of NMIJ and Nagano Ltd.
- ◆ The fixed point cells is patent of NMIJ.

Specifications subject to change without notice.

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