## Specifications

**HIGH TEMPERATURE & HUMIDITY CHAMBER**

### Model

<table>
<thead>
<tr>
<th>Model</th>
<th>PR−1J</th>
<th>PR−2J</th>
<th>PR−3J</th>
<th>PR−4J</th>
<th>PHP−2J</th>
<th>PHP−3J</th>
<th>PHP−4J</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>System</strong></td>
<td>Balanced Temperature and Humidity Control system (BTHC system)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Temp. &amp; humidity range</strong></td>
<td>−20 to +100°C/20 to 98%rh</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Temp. &amp; humidity fluctuation</strong></td>
<td>±0.3°C/±2.5%rh</td>
<td></td>
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</tr>
<tr>
<td><strong>Performance</strong></td>
<td></td>
<td></td>
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<td></td>
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<td></td>
</tr>
<tr>
<td><strong>Temp. &amp; humidity range</strong></td>
<td>Refer to diagram of temperature &amp; humidity controllable range on this page.</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td><strong>Temp. &amp; humidity fluctuation</strong></td>
<td>Refer to diagram of temperature &amp; humidity controllable range on this page.</td>
<td></td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td><strong>Temperature variation in space</strong></td>
<td>1.5°C</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Temperature rate of change</strong></td>
<td>Heat up rate: 3.0°C/min. Pull down rate: 2.0°C/min.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td><strong>Temperature extremes</strong></td>
<td>Heat up time: from +20 to +100°C 30 min. Pull down time: from +20 to −20°C 40 min.</td>
<td></td>
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</tr>
<tr>
<td><strong>Allowable heat load</strong></td>
<td>800 W 1100 W 1250 W 300 W 600 W</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Allowable ambient conditions</strong></td>
<td>0 to +40°C/65%rh</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Exterior material</strong></td>
<td>Stainless steel plate: 18 Cr stainless steel plate, hairline finish</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Test area material</strong></td>
<td>Stainless steel plate: 18−8 Cr−Ni stainless steel plate, 2B polish</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Heater</strong></td>
<td>Nichrome strip wire heater</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Humidifier</strong></td>
<td>18−12−2.5 Cr−Ni−Mo stainless steel sheathed heater (surface evaporating system)</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Cooler (dehumidifier)</strong></td>
<td>Plate fin cooler</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Air circulator</strong></td>
<td>Cross flow fan</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Water supply</strong></td>
<td>Supply system</td>
<td>Pump out system</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Water tank</strong></td>
<td>16 L</td>
<td>32 L</td>
<td>16 L</td>
<td>32 L</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Refrigeration unit</strong></td>
<td>Mechanical type single-stage compression cooling</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Compressor</strong></td>
<td>Rotary compressor (R404A)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Refrigerator capacity</strong></td>
<td>0.65 kW</td>
<td>1.2 kW</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Expansion mechanism</strong></td>
<td>Electronic expansion valve</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Capacity</strong></td>
<td>120 L</td>
<td>225 L</td>
<td>408 L</td>
<td>800 L</td>
<td>219 L</td>
<td>398 L</td>
<td>784 L</td>
</tr>
<tr>
<td><strong>Chamber total load resistance</strong></td>
<td>100 kg</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Dimensions</strong></td>
<td>Inside dimensions (W x H x D mm)</td>
<td>500 x 600 x 400</td>
<td>500 x 750 x 600</td>
<td>600 x 850 x 800</td>
<td>1000 x 1000 x 800</td>
<td>500 x 730 x 600</td>
<td>600 x 830 x 800</td>
</tr>
<tr>
<td><strong>Outside dimensions (W x H x D mm)</strong></td>
<td>910 x 1440 x 873</td>
<td>910 x 1590 x 1073</td>
<td>1010 x 1690 x 1273</td>
<td>1410 x 1840 (1970) x 1273</td>
<td>910 x 1590 x 1073</td>
<td>1010 x 1690 x 1273</td>
<td>1410 x 1840 (1970) x 1273</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>260 kg</td>
<td>305 kg</td>
<td>365 kg</td>
<td>480 kg</td>
<td>275 kg</td>
<td>335 kg</td>
<td>490 kg</td>
</tr>
</tbody>
</table>

*1 The performance values are based on IEC60068-3-5:2001 and IEC60068-3-6:2001;
Performance figures are given for a +23°C ambient temperature, relative humidity of 65±20%rh, rated voltage, and no specimen inside the test area.

*2 Lowest attainable temperature in an ambient temperature of 0 to +30°C

*3 When temperature in chamber is +20°C

*4 Excluding protrusions. Dimension indicated in ( ) includes protrusion.

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**TEMPERATURE & HUMIDITY CONTROL RANGE PR**

- **Frost-free range (Estimate range)**

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**TEMPERATURE & HUMIDITY CONTROL RANGE PHP**

- **At ambient temperature at +23°C**
  - At ambient temperature at +30°C
  - At ambient temperature at +40°C

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* With no specimen and under ambient temperature at +23°C.

* Restrictions on continuous humidity operation at +40°C or lower because of frost on the cooler.

* With no specimen.
## Specifications

### ULTRA LOW TEMPERATURE & HUMIDITY CHAMBER

#### Model

<table>
<thead>
<tr>
<th>Model</th>
<th>PL−1J</th>
<th>PL−2J</th>
<th>PL−3J</th>
<th>PL−4J</th>
<th>PSL−2J</th>
<th>PSL−4J</th>
</tr>
</thead>
<tbody>
<tr>
<td>System</td>
<td>Balanced Temperature and Humidity Control system (BTHC system)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Temp. &amp; humidity range*2</td>
<td>−40 to +100°C/20 to 98%rh</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Temp. &amp; humidity fluctuation</td>
<td>±0.3°C/±2.5%rh</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Temperature variation in space</td>
<td>1.5°C</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Performance*1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Temp. &amp; humidity range*2</td>
<td>−70 to +100°C/20 to 98%rh</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Temp. &amp; humidity fluctuation</td>
<td>±0.3°C/±2.5%rh</td>
<td></td>
<td></td>
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<td>1.5°C</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Temperature rate of change</td>
<td>Heat up rate: 3.0°C/min.</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Pull down rate: 2.0°C/min.</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Temperature extremes</td>
<td>Heat up time: from +20 to +100°C 30 min.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pull down time: from +20 to −40°C 45 min.</td>
<td></td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>Allowable heat load*3</td>
<td>850 W 1400 W 1500 W 2850 W 700 W 2200 W</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Allowable ambient conditions</td>
<td>0 to +40°C/up to 75%rh</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Construction

#### Exterior material

- Stainless steel plate: 18 Cr stainless steel plate, hairline finish

#### Test area material

- Stainless steel plate: 18−8 Cr−Ni stainless steel plate, 2B polish

#### Heater

- Nichrome strip wire heater

#### Humidifier

- 18−12−2.5 Cr−Ni−Mo stainless steel sheathed heater (surface evaporating system)

#### Cooler (dehumidifier)

- Plate fin cooler
- Plate fin cooler, stainless steel tube cooler
- Plate fin cooler (Doubles as dehumidifier), stainless steel tube cooler

#### Air circulator

- Cross flow fan
- Sirocco fan

#### Water supply

- Supply system
- Pump out system

#### Refrigeration unit

<table>
<thead>
<tr>
<th>Capacity</th>
<th>120 L</th>
<th>225 L</th>
<th>408 L</th>
<th>800 L</th>
<th>306 L</th>
<th>800 L</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chamber total load resistance</td>
<td>100 kg</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Dimensions*4

<table>
<thead>
<tr>
<th>Inside dimensions (W x H x D mm)</th>
<th>500 x 600 x 400</th>
<th>500 x 750 x 600</th>
<th>600 x 850 x 800</th>
<th>1000 x 1000 x 800</th>
<th>600 x 850 x 600</th>
<th>1000 x 1000 x 800</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outside dimensions (W x H x D mm)</td>
<td>910 x 1440 x 873</td>
<td>910 x 1590 x 1073</td>
<td>1010 x 1690 x 1273</td>
<td>1410 x 1840 (1970) x 1273</td>
<td>1010 x 1690 x 1273</td>
<td>1410 x 1853 (1963) x 1593</td>
</tr>
<tr>
<td>Weight</td>
<td>270 kg</td>
<td>340 kg</td>
<td>420 kg</td>
<td>610 kg</td>
<td>470 kg</td>
<td>705 kg</td>
</tr>
</tbody>
</table>

*1 The performance values are based on IEC60068-3-5:2001 and IEC60068-3-6:2001; Performance figures are given for a +23°C ambient temperature, relative humidity of 65±20%rh, rated voltage, and no specimen inside the test area.

*2 Lowest attainable temperature in an ambient temperature of 0 to +30°C

*3 When temperature in chamber is +20°C

*4 Excluding protrusions. Dimension indicated in ( ) includes protrusion.

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**TEMPERATURE & HUMIDITY CONTROL RANGE**

- Frost-free range (Estimate range)

* With no specimen and under ambient temperature at +23°C.
* Restrictions on continuous humidity operation at +40°C or lower because of frost on the cooler.
### Specifications

#### LOW HUMIDITY TYPE (LOW) TEMPERATURE & HUMIDITY CHAMBER

<table>
<thead>
<tr>
<th>Model</th>
<th>PDR-3J</th>
<th>PDR-4J</th>
<th>PDL-3J</th>
<th>PDL-4J</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>System</strong></td>
<td>Balanced Temperature and Humidity Control system (BTHC system)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Temp. &amp; humidity range</strong></td>
<td>-20 to +100°C/5 to 98%rh</td>
<td>-40 to +100°C/5 to 98%rh</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Temp. &amp; humidity fluctuation</strong></td>
<td>±0.3ºC/±2.5%rh</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Temperature variation in space</strong></td>
<td>1.5ºC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Temperature rate of change</strong></td>
<td>Heat up rate: 3.0ºC/min. Pull down rate: 2.0ºC/min.</td>
<td>Heat up rate: 3.0ºC/min. Pull down rate: 1.0ºC/min.</td>
<td>Heat up rate: 3.0ºC/min. Pull down rate: 2.0ºC/min.</td>
<td></td>
</tr>
<tr>
<td><strong>Temperature extremes achievement time</strong></td>
<td>Heat up time: from +20 to +100°C 30 min. Pull down time: from +20 to −20°C 40 min.</td>
<td>Heat up time: from +20 to +100°C 30 min. Pull down time: from +20 to −40°C 50 min.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Allowable heat load</strong></td>
<td>1100 W</td>
<td>1250 W</td>
<td>1500 W</td>
<td>2850 W</td>
</tr>
</tbody>
</table>

**Allowable ambient conditions**

- Standard temperature and humidity region running: 0 to +40°C Up to 75% relative humidity
- Low temperature and humidity region running: +5 to +32°C Absolute humidity no greater than 23g/kg

**Construction**

| Exterior material | Stainless steel plate: 18 Cr stainless steel plate, hairline finish |
| Test area material | Stainless steel plate: 18–8 Cr–Ni stainless steel plate, 2B polish |
| Heater | Nichrome strip wire heater |
| Humidifier | 18-12-2.5 Cr–Ni–Mo stainless steel sheathed heater (surface evaporating system) |
| Cooler | Plate fin cooler (Doubles as dehumidifier) |
| Air circulator | Sirocco fan |
| Water supply | Supply system: Pump out system |
| Water tank | 16 L | 32 L | 16 L | 32 L |
| Refrigeration unit | System: Mechanical type single-stage compression cooling |
| Compressor | Rotary compressor (R404A) | Rotary compressor (R404A), Reciprocating compressor (R134a) |
| Refrigerator capacity | 0.65 kW | 1.2 kW | 1.5 kW + 0.4 kW | 3.0 kW + 0.4 kW |
| Expansion mechanism | Electronic expansion valve | Electronic expansion valve, capillary tube |
| Dehumidifier | System: Rotary recovery (adsorption) dehumidification |
| Refrigerator system | Mechanical single-stage refrigeration system |
| Compressor | Rotary compressor (R404A), Reciprocating compressor (R134a) |
| Expansion mechanism | Temperature regulated automatic expansion valve |
| Capacity | 408 L | 800 L | 408 L | 800 L |
| Chamber total load resistance | 100 kg |

**Dimensions**

| Inside dimensions (W x H x D mm) | 600 x 850 x 800 | 1000 x 1000 x 800 | 600 x 850 x 800 | 1000 x 1000 x 800 |
| Outside dimensions (W x H x D mm) | 1885 x 1690 (1820) x 1273 | 2285 x 1840(1970) x 1273 | 1885 x 1690 (1820) x 1273 | 2285 x 1840 (1970) x 1273 |
| Weight | 680 kg | 800 kg | 735 kg | 930 kg |

*1 The performance values are based on IEC60068-3-5:2001 and IEC60068-3-6:2001; Performance figures are given for a +23°C ambient temperature, relative humidity of 65±20%rh, rated voltage, and no specimen inside the test area.

*2 Lowest attainable temperature in an ambient temperature of 0 to +30°C

**Notes**

- With no specimen and under ambient temperature at +23°C.
- Restrictions on continuous humidity operation at +40°C or lower because of frost on the cooler.
- Low Humidity Region Operation Precautions
  - Operation in the low humidity region is not possible from a high temperature above +60°C. Perform transition from temperatures below +60°C.
  - Gradient programs cannot be used in the low humidity region.
  - Programs that require humidifier switching cannot be used.
  - Programs that transition from outside the low humidity region to the low humidity region cannot be used. However, transitioning from the low humidity region to another region is allowed.

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**TEMPERATURE & HUMIDITY CONTROL RANGE**

- Frost-free range (Estimate range)
- Standard temperature and humidity control range
- Low humidity control range
- Low temperature & humidity control range

*3 When temperature in chamber is +20°C

*4 Excluding protrusions. Dimension indicated in ( ) includes protrusion.

*5 Total weight (temperature & humidity chamber and dehumidifier)
Specifications

CLEAN TEMPERATURE & HUMIDITY CHAMBER

Model | PCR−3J
--- | ---
System | Balanced Temperature and Humidity Control system (BTHC system)

**Performance**

| Temp. & humidity range *2 | −20 to +100°C/30 to 90%rh  
| Temp. & humidity fluctuation | ±0.5°C±2.5%rh  
| Temperature variation in space | 5.0°C  
| Temperature rate of change | Heat up rate: 1.5°C/min.  
| | Pull down rate: 1.0°C/min.  
| Temperature extremes achievement time | Heat up time: from +20 to +100°C 55 min.  
| | Pull down time: from +20 to −20°C 45 min.  
| Cleanliness *3 | Class5 (Particle diameter: 0.5μm)

**Allowable ambient conditions** | +5 to +35°C/up to 75%rh

**Construction**

| Exterior material | Stainless steel plate: 18 Cr stainless steel plate, hairline finish  
| Test area material | Stainless steel plate: 18−8 Cr−Ni stainless steel plate, 2B polish  
| Heater | Nichrome strip wire heater  
| Humidifier | 18-12−2.5 Cr−Ni−Mo stainless steel sheathed heater (surface evaporating system)  
| Cooler (dehumidifier) | Plate fin cooler (Doubles as dehumidifier)  
| Air circulator | Sirocco fan  
| Water supply | Supply system  
| | Pump out system  
| Water tank | 16 L  
| Refrigeration unit | System  
| | Mechanical type single-stage compression cooling  
| Compressor | Rotary compressor (R404A)  
| | Reciprocating compressor (R404A)  
| Refrigerator capacity | 1.5 kW + 0.4 kW  
| Expansion mechanism | Electronic expansion valve, capillary tube  

**Required exhaust equipment** | Exhaust flow rate: 16m³/min. (50Hz);18m³/min. (60Hz); Chamber connection port: ø123mm

**Capacity** | 312 L

**Chamber total load resistance** | 100 kg

**Dimensions**

| Inside dimensions (W x H x D mm) | 600 x 650 x 800
| Outside dimensions (W x H x D mm) | 1010 x 1880 x 1273

**Weight** | 445 kg

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*1 The performance values are based on IEC60068-3-5:2001 and IEC60068-3-6:2001; Performance figures are given for a +23°C ambient temperature, relative humidity of 65±20%rh, rated voltage, and no specimen inside the test area.

*2 Lowest attainable temperature in an ambient temperature of 0 to +30°C

*3 When temperature is stable, the cleanliness is according to JIS B9920:2002 (equivalent to FED-STD-209D Class 100).

The Class 5 cleanliness cannot be maintained when the door is open.

Do not open the door when operating at temperatures below 0°C

*4 Excluding protrusions.

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* With no specimen and under ambient temperature at +23°C.

* Restrictions on continuous humidity operation at +40°C or lower because of frost on the cooler.
## Specification

### ULTRA LOW TEMPERATURE CHAMBER

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>System</strong></td>
<td>Balanced Temperature Control system (BTC system)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Temperature range</strong></td>
<td>−40 to +100°C</td>
<td>−40 to +100°C</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Temperature fluctuation</strong></td>
<td>± 0.3°C</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Temperature variation in space</strong></td>
<td>1.5°C</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Performance</strong></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td><strong>Temperature rate of change</strong></td>
<td>Heat up rate: 3.0°C/min. Pull down rate: 2.0°C/min.</td>
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<td>Heat up rate: 5.0°C/min. Pull down rate: 1.0°C/min.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Temperature extremes achievement time</strong></td>
<td>Heat up time: from +20 to +100°C 30 min. Pull down time: from +20 to −40°C 45 min.</td>
<td>Heat up time: from +20 to +100°C 30 min. Pull down time: from +20 to −70°C 65 min.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Allowable heat load</strong></td>
<td>850 W</td>
<td>1400 W</td>
<td>1500 W</td>
<td>2850 W</td>
<td>700 W</td>
<td>2200 W</td>
</tr>
<tr>
<td><strong>Allowable ambient conditions</strong></td>
<td>0 to +40°C/ up to 75%rh</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Exterior material</strong></td>
<td>Stainless steel plate: 18 Cr stainless steel plate, hairline finish</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Test area material</strong></td>
<td>Stainless steel plate: 18–8 Cr–Ni stainless steel plate, 2B polish</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Heater</strong></td>
<td>Nichrome strip wire heater</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Cooler (dehumidifier)</strong></td>
<td>Plate fin cooler</td>
<td>Plate fin cooler, stainless steel tube cooler</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Air circulator</strong></td>
<td>Cross flow fan</td>
<td>Sirocco fan</td>
<td>Cross flow fan</td>
<td>Sirocco fan</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Refrigeration unit</strong></td>
<td>Mechanical type single-stage compression cooling</td>
<td>Mechanical cascade refrigerator system</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Compressor</strong></td>
<td>Rotary compressor (R404A)</td>
<td>Rotary compressor (R404A)</td>
<td>Reciprocating compressor (R404A)</td>
<td>Scroll compressor (R404A)</td>
<td>Rotary compressor (R404A, R508A)</td>
<td>Scroll compressor (R404A, R508A)</td>
</tr>
<tr>
<td><strong>Refrigerator capacity</strong></td>
<td>1.2 kW</td>
<td>1.5 kW + 0.4 kW</td>
<td>3.0 kW + 0.4 kW</td>
<td>1.5 kW + 1.5 kW + 0.4 kW</td>
<td>3.0 kW x 3.0 kW + 0.4 kW</td>
<td></td>
</tr>
<tr>
<td><strong>Expansion mechanism</strong></td>
<td>Electronic expansion valve</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Chamber total load resistance</strong></td>
<td>120 L</td>
<td>225 L</td>
<td>408 L</td>
<td>800 L</td>
<td>306 L</td>
<td>800 L</td>
</tr>
<tr>
<td><strong>Dimensions</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Inside dimensions</strong></td>
<td>(W x H x D mm)</td>
<td>500 x 600 x 400</td>
<td>500 x 750 x 600</td>
<td>600 x 850 x 800</td>
<td>1000 x 1000 x 800</td>
<td>600 x 850 x 600</td>
</tr>
<tr>
<td><strong>Outside dimensions</strong></td>
<td>(W x H x D mm)</td>
<td>910 x 1440 x 873</td>
<td>910 x 1590 x 1073</td>
<td>1010 x 1690 x 1273</td>
<td>1410 x 1840 (1970) x 1273</td>
<td>1010 x 1690 x 1273</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>260 kg</td>
<td>330 kg</td>
<td>410 kg</td>
<td>600 kg</td>
<td>460 kg</td>
<td>695 kg</td>
</tr>
</tbody>
</table>

*1 The performance values are based on IEC60068-3-5:2001 under the conditions of a +23°C ambient temperature, relative humidity of 65±20%rh, rated voltage, and no specimen inside the test area.

*2 Lowest attainable temperature in an ambient temperature of 0 to +30°C

*3 When temperature in chamber is +20°C

*4 Excluding protrusions. Dimension indicated in ( ) includes protrusion.
### INSTALLATION REQUIREMENTS

#### Maximum current (A)

<table>
<thead>
<tr>
<th>Model</th>
<th>PR</th>
<th>PHP</th>
<th>PL</th>
<th>PSL</th>
<th>PDR</th>
<th>PDL</th>
<th>PCR</th>
<th>PU</th>
<th>PG</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>200V AC 3ø 50/60 Hz *</td>
<td>8.5</td>
<td>20.0</td>
<td>22.0</td>
<td>34.0</td>
<td>17.0</td>
<td>17.8</td>
<td>26.4</td>
<td>22.5</td>
<td>23.0</td>
</tr>
<tr>
<td>220V AC 3ø 60 Hz *</td>
<td>17.5</td>
<td>20.0</td>
<td>20.5</td>
<td>31.5</td>
<td>16.1</td>
<td>16.3</td>
<td>24.1</td>
<td>21.0</td>
<td>22.0</td>
</tr>
<tr>
<td>380V AC 3ø 50 Hz *</td>
<td>8.5</td>
<td>10.0</td>
<td>19.5</td>
<td>8.6</td>
<td>15.4</td>
<td>10.0</td>
<td>11.0</td>
<td>22.0</td>
<td>18.0</td>
</tr>
<tr>
<td>400V AC 3ø 50 Hz *</td>
<td>8.0</td>
<td>9.5</td>
<td>19.0</td>
<td>8.3</td>
<td>14.7</td>
<td>9.4</td>
<td>10.4</td>
<td>21.0</td>
<td>17.1</td>
</tr>
</tbody>
</table>

#### Humidifier water supply

Use pure water with a conductivity of 0.1 to 10 μS/cm supplied from the tank.

#### Drainage

Drain ports are positioned at the bottom of the rear panel (150 mm above the floor).
Prepare 1 drain hose for temperature and humidity use and 1 drain hose for continuous water supply use (option).
Hose outer diameter: 18 mm, inner diameter: 12 mm
Length: approximately 1 m

#### Installation space

<table>
<thead>
<tr>
<th>Model</th>
<th>PR, PL, PU</th>
<th>PSL, PG</th>
<th>PHP</th>
<th>PDR, PDL</th>
<th>PCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Side: A</td>
<td>Space to manipulate the cable port and adjuster feet, to connect the power supply and the water supply and drain pipes, and to perform maintenance is required. (We recommend 30 cm or more.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Front: B (cm)</td>
<td>70</td>
<td>80</td>
<td>120</td>
<td>80</td>
<td>120</td>
</tr>
<tr>
<td>Rear: C</td>
<td>Space to pass the water drain hose through and to perform maintenance in is required. (We recommend 60 cm or more.) This is not required if the chamber will be pulled out when maintenance is performed.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Top</td>
<td>60 cm or more</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Compliance with CE Marking
### FITTINGS

- Drain hose (approx. 1 m) ................................. 1
- Condenser filter ........................................... 1
- Cable port (I.D. ø50 mm on the left-side) ............ 1
- Chamber lamp (bulb-type fluorescent light) ......... 1
- Casters (free rolling type with leveling feet) ....... 4
- Time signal terminal ..................................... 2 contacts
- Specimen power supply control terminal .......... 1
- Ethernet port (LAN port) ................................. 1
- USB memory port .......................................... 1
- Viewing window ........................................... 1

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 to 3</td>
<td>W180 x H260 mm</td>
</tr>
<tr>
<td>4</td>
<td>W295 x H380 mm</td>
</tr>
</tbody>
</table>

- Clean meter (PCR only)
- Duct meter (PCR only)

### ACCESSORIES

- Glass fuse (7A)
- Cable port rubber plug (ø50 mm) .................. 1
- Door key .................................................. 2
- Breaker handle stopper ............................... 1
- Energy saving slit cover (PHP) ..................... 1
- Fine wicks (except PU/PQ) ......................... 1 box (24 wicks)
- Cloth wicks (PDR/PDL) ............................... 1 bag (20 wicks)
- Connection duct (PDR/PDL) ......................... 2
- Hose band (PDR/PDL) ................................... 1
- Operation Manual (DVD) ............................. 1 set

* Shelves, shelf brackets, and power cables are not included.
Utility

Power cable

- 2.5 m
- 5 m
- 10 m

* If this option is not specified, the chamber does not come with a power cable.

Continuous water supply

A water circuit to supply pure water continuously to the chamber.
- Water supply coupling (with ion exchanger)
- Pure water coupling with pressure-reducing valve
- Pure water coupling without pressure-reducing valve

<table>
<thead>
<tr>
<th>Water Supply Coupling (With Ion Exchanger)</th>
<th>Pure Water Coupling With Pressure-Reducing Valve</th>
<th>Pure Water Coupling Without Pressure-Reducing Valve</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water pressure</td>
<td>0.05 to 0.50 MPa (Gauge)</td>
<td>0.03 MPa (Gauge)</td>
</tr>
<tr>
<td>Flow rate</td>
<td>1.3 L/minute or more</td>
<td></td>
</tr>
<tr>
<td>Conductivity</td>
<td>—</td>
<td>0.1 to 10 μS/cm</td>
</tr>
<tr>
<td>Location</td>
<td>Lower left rear side</td>
<td>Upper left rear side</td>
</tr>
<tr>
<td>Connectable items</td>
<td>Only a steel pipe (or a PVC pipe) can be connected.</td>
<td>Only a hose can be connected.</td>
</tr>
</tbody>
</table>

* Connection of the chamber to the water supply equipment shall be performed by the user.

* The ion exchanger must be replaced periodically.

Power plug

4P Plug

* 200V AC only.

Power socket

- 100 V 3 A
- 100 V 15 A (excluding Type1)

Power outlets: 2

Location: Right-side

* 200V AC only.

Water purifier (reverse osmosis)

Use to continuously supply pure water.
- WS-1
  - Power: AC100V 50/60Hz 0.4A
  - AC200V 50/60Hz 0.2A
  - AC220V 50/60Hz 0.2A
  - AC230V 50/60Hz 0.2A

Produced water capacity: 12 L/h
(Water temperature: 25°C)
Size: W400 × H400 × D280 mm
Produced water (pure water) supply:
  One or two couplings
Location: Chamber ceiling

Water-cooled refrigeration

To reduce the effect of exhaust heat, this option changes the refrigeration system to a water-cooled condenser.

Fittings:
- Compressor cooling fan
- Water supply and drain ports
- Water suspension relay

*To prevent damage in the event of water leakage when installing the following optional products, a dew tray (page 17) and other preventive measures can be prepared.
- Continuous water supply
- Water purifier
- Water-cooled refrigeration

Additional water supply tank

The additional water supply tank complements the water volume of the standard-equipped tank, to allow continuous operations for long periods.

Effective water volume: Approximately 13L

* When the tank is attached, the chamber height increases by 215mm

Water tank

For supplying water to the chamber’s fixed tank.
- Tank with screw tap (stand included)
  - Capacity: 10 L x 3
  - Stand size: W600 x H920 x D348 mm
- Tank with nozzle
  - Capacity: 10 L x 1

* Tank with screw tap (stand included)
Options

Observation

Wide-view door

Almost the entire surface of the door is made of glass for test area inspection, even when testing is on process.

Effective view:
- Type 2: W470 x H720 mm
- Type 3: W570 x H820 mm
- Type 4: W970 x H970 mm

* Standard performance may not be met under certain conditions. Inquire for details.
* These doors cannot be locked.

Wide-view door with hand-in ports

This option features hand-in ports on a standard door, to manipulate the specimen even during testing.

Hand-in ports’ inner diameter: 130mm
Number of hand-in ports: One or two pairs
Accessory: Rubber gloves

* Standard performance may not be met under certain conditions. Inquire for details.

Roller blind for wide-view window

Spring screen that can be attached to obscure the view of the inside of the chamber from the viewing window.
Shade grade 1 (black)

Electrochromic viewing window

Switching opacity to transparent state by chamber lamp. The test area can be observed while lamp is on.

Door with hand-in ports

This option features hand-in ports on a standard door, to manipulate the specimen even during testing.

Number of hand-in ports:
- Type 2: One pair
- Type 3: One pair
- Type 4: One pair or two pairs

Hand-in ports’ inner diameter: 130 mm
Accessory: Rubber gloves

Door without viewing window

Plain door ideal to test specimens affected by light.
* There is no lamp installed in the test area with this option.

Almost the entire surface of the door is made of glass for test area inspection, even when testing is on process.
A glass door is provided between the test area and the chamber door to observe specimens. Select hand-in ports and chamber door viewing window.

Hand-in ports’ inner diameter: 130 mm

* With radial rubber seal
* Inner glass door with hand-in ports cannot be installed on the PCR model.
* Whether wipers are equipped differs depending on the specifications.
* Wipers not provided with temperature types.
* When the inner door is attached, the lock release mechanism normally equipped as standard on the Type 4 is removed.
* Standard performance may not be met under certain conditions. Inquire for details.

### Model Options

<table>
<thead>
<tr>
<th>Model</th>
<th>Inner Door</th>
<th>Wipers</th>
<th>Hand-in Ports</th>
</tr>
</thead>
<tbody>
<tr>
<td>Types 1 to 3</td>
<td>Single door</td>
<td>1</td>
<td>1 pair</td>
</tr>
<tr>
<td>Type 4</td>
<td>Hinged double doors</td>
<td>2</td>
<td>2 pairs</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>4 pairs</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>6 pairs</td>
</tr>
</tbody>
</table>

Accessory: Rubber gloves

* Inner glass door with a wiper (Type 1)
* Inner glass door with wipers (Type 4)

[Images of inner glass door with two pairs of hand-in ports and inner glass door with six pairs of hand-in ports]
**Specimen setting**

**Shelf/shelf bracket**

Used to place the specimen inside the chamber.

- **<Shelf>**
  - 18-8Cr-Ni Stainless steel
  - Resin-coated
  - Upper limit temperature: +100°C
  - PU and PG only

**Dimensions (weight):**
- For Type 1: 350 x 467 mm (1.0kg)
- For Type 2: 550 x 467 mm (1.5kg)
- For Type 3: 750 x 567 mm (2.2kg)
- For Type 4: 750 x 967 mm (6.6kg)
- For PSL/PG2: 550 x 567 mm (1.6kg)

**Load capacity for the standard shelf:**
- Type 1 to 3: 10 kg
- Type 4: 30 kg

**Specimen basket**

For small specimens that cannot be placed directly on the shelf.

- **Material:** Stainless steel (4 mesh)
  - Large
    - Dimensions: W750 x H35 x D450 mm
    - Load capacity: 5 kg (equally distributed load)
    - Baskets per shelf: Type 3: 1
      - Type 4: 2
  - Small
    - Dimensions: W350 x H35 x D270 mm
    - Load capacity: 3 kg (equally distributed load)
    - Baskets per shelf: Type 1: 1
      - Type 2: 2
      - Type 3: 4
      - Type 4: 6

- * Place the specimen baskets on the shelf.
- * Do not use when exceeding the shelf load capacity.
- * Tests may not satisfy standard performance if the air flow is blocked, so ensure sufficient space around the specimen baskets.

**Heavy-duty shelf**

Used to hold heavy specimens exceeding the load capacity of the standard shelf.

- To install heavy-duty shelves from 50 kg, reinforcement of the chamber structure is necessary.

**Floor reinforcement**

To enhance the floor load capacity inside the chamber.
- Up to 100 kg
- Up to 200 kg
- Up to 300 kg

Remarks: Standard specification: up to 70 kg

**Precision inner chamber**

Placing an aluminum box inside the chamber allow to reduce the air velocity and maintain the required temperature and humidity distribution.

- **Velocity:** 0.5 m/sec. or lower
- **Temperature & humidity fluctuation:** ±0.5°C/±2.5%rh
- **Temperature & humidity distribution:** ±0.75°C/±5.0%rh

Effective cross section (Max. load weight):
- Type 1 W335 x H285 mm (20kg)
- Type 2 W335 x H435 mm (20kg)
- Type 3 W435 x H585 mm (30kg)
- Type 4 W835 x H685 mm (30kg)

Accessories: Shelves and shelf brackets (2 sets)

* Standard performance may not be met under certain conditions. Inquire for details.

<table>
<thead>
<tr>
<th>Load Capacity per Shelf</th>
<th>Support Strength</th>
<th>Floor Load Capacity</th>
<th>Chamber Load Total Weight</th>
<th>Shelf Weight (Per Shelf)</th>
</tr>
</thead>
</table>
| 30 kg (Except PDL/PDR/PCR) | 90 kg | 70 kg | 100 kg | Type 1: 1.8 kg
|                           |                 |                     |                           | Type 2: 2.9 kg
|                           |                 |                     |                           | Type 3: 4.3 kg
|                           |                 |                     |                           | PSL/PG2: 3.4 kg |
| 50 kg (Except PDL/PDR/PCR) | 100 kg | 70 kg | 100 kg | Type 1: 2.3 kg
|                           |                 |                     |                           | Type 2: 3.4 kg
|                           |                 |                     |                           | Type 3: 5.1 kg
|                           |                 |                     |                           | Type 4: 12.1 kg
|                           |                 |                     |                           | PSL/PG2: 4.0 kg |
| 80 kg (For only Type 4 150°C specification except PDL/PDR/PHP) | 100 kg | 70 kg | 100 kg | 9.3 kg |
| 100 kg (5-shelf set) (For only Type 4 except PDL/PDR) | A special rack is installed in the test area to accommodate 5 shelves. (Rack weight: 56kg)
|                           | Max allowable load capacity per chamber is up to 500kg including the rack shelves and loads. | | 13 kg |

* Shelf weight + weight of specimen on shelf + floor area loading weight
## Specimen setting

### Additional cable port

Provided in addition/replacement of the standard cable port (left side). Comes with a cap and a rubber plug.
- ø25 mm
- ø50 mm
- ø70 mm
- ø100 mm
- ø150 mm
- Flat cable port

* When installed on the right side, an external drip pan is also included.

### Cable port rubber plug

Comes with the cable port.
- ø25 mm
- ø50 mm
- ø100 mm
- Spiral-wrapped plug (5 x 50 x 2000 mm)
- For the flat cable port

### Cable port dew tray (for left side)

Catches dew that comes out of the cable port.

**Location:** Left-side

<table>
<thead>
<tr>
<th>Model</th>
<th>Size (W x D mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type 1</td>
<td>300 x 50</td>
</tr>
<tr>
<td>Type 2</td>
<td>510 x 50</td>
</tr>
<tr>
<td>Type 3</td>
<td>700 x 50</td>
</tr>
<tr>
<td>PDR/PDL</td>
<td>600 x 50</td>
</tr>
</tbody>
</table>

### Table: Additional cable port

<table>
<thead>
<tr>
<th>Port type</th>
<th>Model</th>
<th>PR</th>
<th>PHP</th>
<th>PL</th>
<th>PSL</th>
<th>PDR</th>
<th>PDL</th>
<th>PCR</th>
<th>PU</th>
<th>PG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Right</td>
<td>ø50 mm</td>
<td></td>
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<td></td>
<td>ø50 mm Electrical compartment</td>
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<td></td>
<td>ø100 mm</td>
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<td></td>
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<tr>
<td></td>
<td>ø100 mm Electrical compartment</td>
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<tr>
<td>Left</td>
<td>ø25 mm</td>
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<td></td>
<td>ø50 mm</td>
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<tr>
<td></td>
<td>ø70 mm</td>
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<tr>
<td></td>
<td>ø100 mm</td>
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<td></td>
<td>ø150 mm</td>
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<tr>
<td>Flat cable port</td>
<td>ø25 mm</td>
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<td>ø50 mm</td>
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<td>ø70 mm</td>
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<td>ø100 mm</td>
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</tr>
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- Retrofit is not available.
- Retrofit is available.
Options

Specimen setting

**EZ connect cable port plug for power supply**

Cable port plug w/ embedded terminals for power supply.

Cable port plug with embedded terminals (inside and outside) to ease specimen connection to an external device.

Spec.: AC 6 to 24V 0.1 to 3A
DC 1.5 to 60V 0.1 to 3A

Connector Type: Block 10P

Enclosure: Magnetized box with isolator

Temperature/humidity range:

\[-70^\circ C \leq T \leq +180^\circ C\] / \[20 \text{ to } 98\% \text{rh}\]

* Based on cable port \( \Phi 25\text{mm} \) and \( \Phi 50\text{mm} \).

**Specimen temperature control**

Sensors are attached to the specimen to allow exposure tests that provide accurate temperature stress to the specimen.

- Insulated type
- Non-insulated type

**Electrostatic capacitance-type humidity sensor control**

This humidity sensor can be attached in place of the wet bulb wick.

Measurement range: 0 to 100\%rh

Accuracy: \( \pm 2\% \text{rh} \)

\((-20 \text{ to } +40^\circ C, \text{ and } 0 \text{ to } 90\% \text{rh})\)

**Time up output**

This option enables turning the power to the specimen ON or OFF with contact signal output when the time is up by using the timer function on the temperature (humidity) controller.
Options

Performance

Time signal terminal

Add additional terminals to the standard time signal terminals.

DC inverter refrigeration

Can reduce power consumption when operating at low temperatures of 0°C or below as well as shorten temperature pull-down time.
- 100°C Specification
- 150°C Specification
- 200V AC only

Upper limit modification

Enables tests over 100°C.
- Upper limit temperature +150°C
- Upper limit temperature +180°C (except PSL-4, PG-4)
* +120°C for the wide-view door
* Not applicable in the case of wide-view door with hand-in ports.
* Standard performance may not be met under certain conditions. Inquire for details.

Lower temperature & humidity range

Testing can be performed at low temperature and humidity (+5°C/5%rh) where static electricity tends to be generated.

Frost-free circuit

Prevents frost from accumulating on the refrigeration circuit to allow long-term continuous operation.
Operation temp. range: Approx. +10°C to +40°C
* Except the PR-1/PL-1/PU-1/PHP

Defrost circuit

Defrosts the refrigeration circuit.

Airflow adjuster

Used when tests require low airflow velocity or a constant velocity.
Setting value range: 4 levels

Temp. & humid. SP attainment output

When the temperature (humidity) in the chamber reaches the set values, the chamber sends out a contact signal.
Use it to synchronize the power supply to the specimen, the timing for measurements or to prevent dew from condensing on the specimens.

Applying DC power supply

Capable of applying voltage to the specimen, used for bias testing. The DC power supply unit synchronizes with constant and program operations, and can be set for each temperature and humidity program step.

Frost relief valve

To reduce frosting on the evaporator during continuous operation at room temperature (25°C) or at a low temperature.

Options

Rated voltage 5V 12V 15V 24V 48V
Rated current 60A 27A 22A 14A 7A
Voltage setting range 1.0 to 5.5V 2.4 to 13.2V 3.0 to 16.5V 4.8 to 26.4V 9.6 to 52.8V

* Except the PR-1/PL-1/PHP
* Not applicable in the case of wide-view door with hand-in ports.
* Standard performance may not be met under certain conditions. Inquire for details.

DC inverter refrigeration

Can reduce power consumption when operating at low temperatures of 0°C or below as well as shorten temperature pull-down time.
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Operation temp. range: Approx. +10°C to +40°C
* Except the PR-1/PL-1/PU-1/PHP

Defrost circuit

Defrosts the refrigeration circuit.

Airflow adjuster

Used when tests require low airflow velocity or a constant velocity.
Setting value range: 4 levels

* Except the PR-1/PL-1/PHP, and PDL/ PDR chamber refrigeration circuit.
### Options

#### Measurement

**I/O Interface**
Communication ports to connect the chamber to a PC and a device and using communication commands.
- RS-485* (D-sub 9-pin×2)
- RS-232 C (D-sub 9-pin×1)
- GPIB* (IEEE488)
* Up to 16 chambers can be connected to a single PC.

**Communication cables**
- RS-485: 5 m / 10 m / 30 m
- RS-232 C: 1.5 m / 3 m / 6 m
- GPIB: 2 m / 4 m

**Temperature (humidity) recorder wiring**
Preparation of a power cable, temperature sensor, relative humidity signal and a grounding wire for additional installation in the future.

**Paperless recorder**
Records the temperature and humidity of each section such as the temperature inside the chamber.
Data saving cycle: 5 sec.
Internal recording media: Flash memory 8MB
External recording media:
- CF memory card port
  (includes a 256 MB CF card)
- USB memory port
No. of inputs:
- < Temperature & humidity type >
  Temperature 1, Humidity 1
  (4 more channels can be turned ON)
- < Temperature type >
  Temperature 1
  (5 more channels can be turned ON)

**Temperature (humidity) recorder**
Records the temperature and humidity of each section such as the temperature inside the chamber.
Recording method: Dot
Recording paper: Effective width 100 mm
No. of inputs:
- < Temperature & humidity type >
  Temperature 5, Humidity 1
  -50 to +100°C/0 to 100%rh
  -50 to +150°C/0 to 100%rh
  -100 to +100°C/0 to 100%rh
  -100 to +150°C/0 to 100%rh
  -100 to +200°C/0 to 100%rh
- < Temperature type >
  Temperature 6
  -50 to +100°C
  -100 to +100°C
  -100 to +200°C

**Recorder output terminal**
- Temperature, humidity, and heater output
  This terminal outputs the temperature and relative humidity in the test area.
- Dry [wet] bulb temperature
  Terminal board for dry-bulb/wet-bulb sensors in the chamber.

**Wet bulb wick**
This option contains replacement wicks.
- Fine wicks (non-woven fabric)
  FW-5 (for the PR, PL, PSL, and PHP): 24 wicks
  FW-6 (for the PDR, PDL, and PCR): 24 wicks
- Included: 1 dropper

**Power meter**
This option displays the integral power consumption of the chamber.
Display range: 0 to 9999.99 kWh
External memory: SD memory card
Location: Instrumentation panel
* The SD memory card is not included.

**Folding table**
A folding table is equipped on the right side of the chamber.
The table can be used when a measuring instrument, PC, or other device is connected.
Table dimensions: W410 × D300 mm
Load capacity: 20 kg
Additional overheat protector

Additional preventive measures can be taken for excessive temperature rise in the chamber, in addition to the standard equipped overheat protector.

Alarm output terminal

If the safety device of the chamber is activated, external alarm terminal will notify it to a remote point.

Operation:
When connecting with N.O. contact (normally open contact), output “close” contact.
When connecting with N.C. contact (normally close contact), output “open” contact.
Current-carrying capacity: 250 V AC, 3 A
Accessory: Plug
Location: Right side or within the control board (retrofit is not available)
* The user must connect the alarm circuit.
* This option can also be installed inside the electrical compartment.
Contact ESPEC CORP. for details.

Door opening signal output terminal

Equips the chamber with a terminal that outputs the door open status. Capable of controlling an external device that operates along with door operation and records the temperature disturbance history.

Status indicator light

Select light color, lighting, and blinking or buzzer sound.
- 1 level, light: 1 color, height: 533 mm
- 2 levels, light: 2 colors, height: 575 mm
- 3 levels, light: 3 colors, height: 616 mm
- 4 levels, light: 4 colors, height: 657 mm
Pole length: 287 mm
* The pole can be shortened in units of 10 mm to a minimum height of 47 mm.

Rotating signal light

The rotating signal lights up when an error occurs.
Color of the signal:
- Red
- Yellow

Trouble buzzer

Buzzer notification when an error occurs.

Emergency stop pushbutton

Stops the chamber immediately.

Power key switch

Used to manage/restrict the chamber usage.

Power indicator

The operator can verify if the breaker is ON or OFF from the chamber front.

Main power switch

The main power switch allows turning the power ON and OFF from the chamber front.

External device alarm input terminal

Equips the chamber with a terminal that is used to stop the operation of the chamber in the event that an external device to which the chamber is linked malfunctions.
**Options**

### Safety

**Pressure relief vent**

To reduce an explosive force by releasing pressure when the chamber pressure suddenly goes up.

Pressure relief vent: W300 × D300 mm

Outside dimension: 200 mm higher than the standard height.

* The pressure relief port is not intended to guarantee safety against explosion.

---

**Anchoring fixtures**

Used to fix the chamber to the floor.

* Anchoring fixtures when installing the dew tray are also available.

---

**Chamber dew tray**

A chamber dew tray is installed below the chamber in the unlikely case there would be water leakage.

---

**Dew drip prevention**

To prevent dew that has formed on the chamber ceiling from dripping onto specimens.

* The height is 20 mm smaller than the standard inside dimensions.

* With this option, the temperature rate of change and temperature extremes achievement time change.

For details, please refer to specifications.

---

**Safety door lock**

- Dial combination safety door lock
  
  The dial mechanism gives more secure door locking.

- Lever handle safety door lock
  
  The rotation mechanism with levers gives more secure door locking.

  * In case of Type 4, unlocking device is not equipped.

---

**Operation panel cover**

A cover for the operation panel. (Plastic)

---

**Evaporator frost check window**

This window is installed in the test area and is used to check whether frost has accumulated on the cooler.

Diameter: 55 mm
Options

Test area low-silicone

Reduces the production of silicone gas (siloxane) in the test area.

Brake oil protection

Changes resin parts (water tank front cover, door dew tray, chamber dew tray) to stainless steel.

Finned sheathed heater

Changes the heater to a sheathed heater with fins to lower the surface temperature of the heater, decrease corrosion, and reduce defective insulation.

Stainless steel evaporator

Changes the plate fin cooler (also used as a dehumidifier) to stainless steel, which improves the corrosion resistance.
* Standard performance may not be met under certain conditions. Inquire for details.

Air circulator removed for move-in

To prevent damage caused by height restrictions, the air circulator for type 4 chambers is not mounted on the chamber during shipment.
* The air circulator must be installed separately.

Documents

Operation manual

- DVD
- Booklet

Reports & certificates

- Testing and inspection report
- Test data
- Temperature (& humidity) uniformity measurement
- Calibration report
- Calibration certificate
- Traceability certificate
- Traceability system chart

Safety precautions

● Do not use specimens which are explosive or inflammable, or which contain such substances. To do so could be hazardous, as this may lead to fire or explosion.
● Do not place corrosive substances in the chamber. If corrosive substances are generated by the specimen, the life of the chamber may be significantly shortened specifically because of the corrosion of stainless steel and copper and because of the deterioration of resin and silicon. An optional corrosion-resistant cooler, which is designed to improve the corrosion resistance of the chamber, is available.
● Do not place life forms or substances that exceed allowable heat generation.
● Be sure to read the operation manual before operation.
## Platinous J Series Option

You can select the check boxes of the model and options you want, and submit this information for a request for quotation.

### Type:

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*1 Applicable only to 200V AC.  
*2 Type 3 and 4 only.  
*3 Excluding Type 1.  
*4 If the chamber has been reinforced, equipment can be added.  
*5 Type 4 only.  
*6 Excluding Type 4.
<table>
<thead>
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<th>Type: Platinous J Series Option</th>
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You can select the check boxes of the model and options you want, and submit this information for a request for quotation.

- **Retrofit is not available.**
- **Retrofit is available.**

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*1 Excluding Type 1.
*2 Applicable only to 200V AC.
*3 Type 3 and 4 only.
*4 Applicable only to 380 V/400 V AC.
*5 Type 4 only.