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# Temperature Chambers

**MEC2700 Retraction rails allow fore-aft movement of the cabinet into and out of the test space**

**Mec2700+ESK+SSR mounted on OmniTest-50**

## Description

A Temperature Chamber (or Thermal Cabinet) for mounting on twin-column OmniTest Materials Testing frames to allow for specimens to be tested in a temperature-controlled space from -80°C to +280°C. The chamber is ideal for running tests conforming to plastics and rubber standards ISO 527, ASTM D638 and ISO 37.

The cabinet features a double-sleeve body design with a polished and brushed exterior casing and 2 mm gauge stainless steel interior. Air circulation is achieved by a centric blower mixing fan, optimized for even heat distribution within the chamber.

A powerful 2.3 kW heating element ensures a rapid heating time of 15°C/min controlled by feedback to a standard PT100 sensor via a self-optimising 0.1°C Omron E5AC digital temperature controller. Other controller options are available.

The cabinet door features four glass panes, to facilitate viewing of the specimen during testing, and enabling the use of non-contacting video extensometry. The inner panes are fitted with heating coils to eliminate frosting at low temperatures and the chamber may be fitted with optional door and interior lights.

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The chamber is mounted on a universal fore/aft rail to allow the cabinet to be moved rearwards, away from the test space, to enable the machine to be used for normal ambient condition testing. The standard MecRail1200 is 1200 mm in length; 1500 and 2000 mm versions are available. Optionally, it can be fitted with upper and lower removable wedge port inserts, so the chamber can be moved without the need to remove the grips and fixtures.

The top and bottom fixture apertures of the chamber are lined with Teflon and V2A stainless steel guides to ensure smooth adjustment and a secure, close fit for the extension rods between the test frame and the grips.

Cooling is achieved by LN2 liquid nitrogen, supplied from an external Dewar Flask and fed into the chamber through a magnetic valve adjusted via the temperature controller at the rear of the cabinet.


**Mec2700 with axis-aligned grips and pull-rod ready to perform a materials test**

# Applications

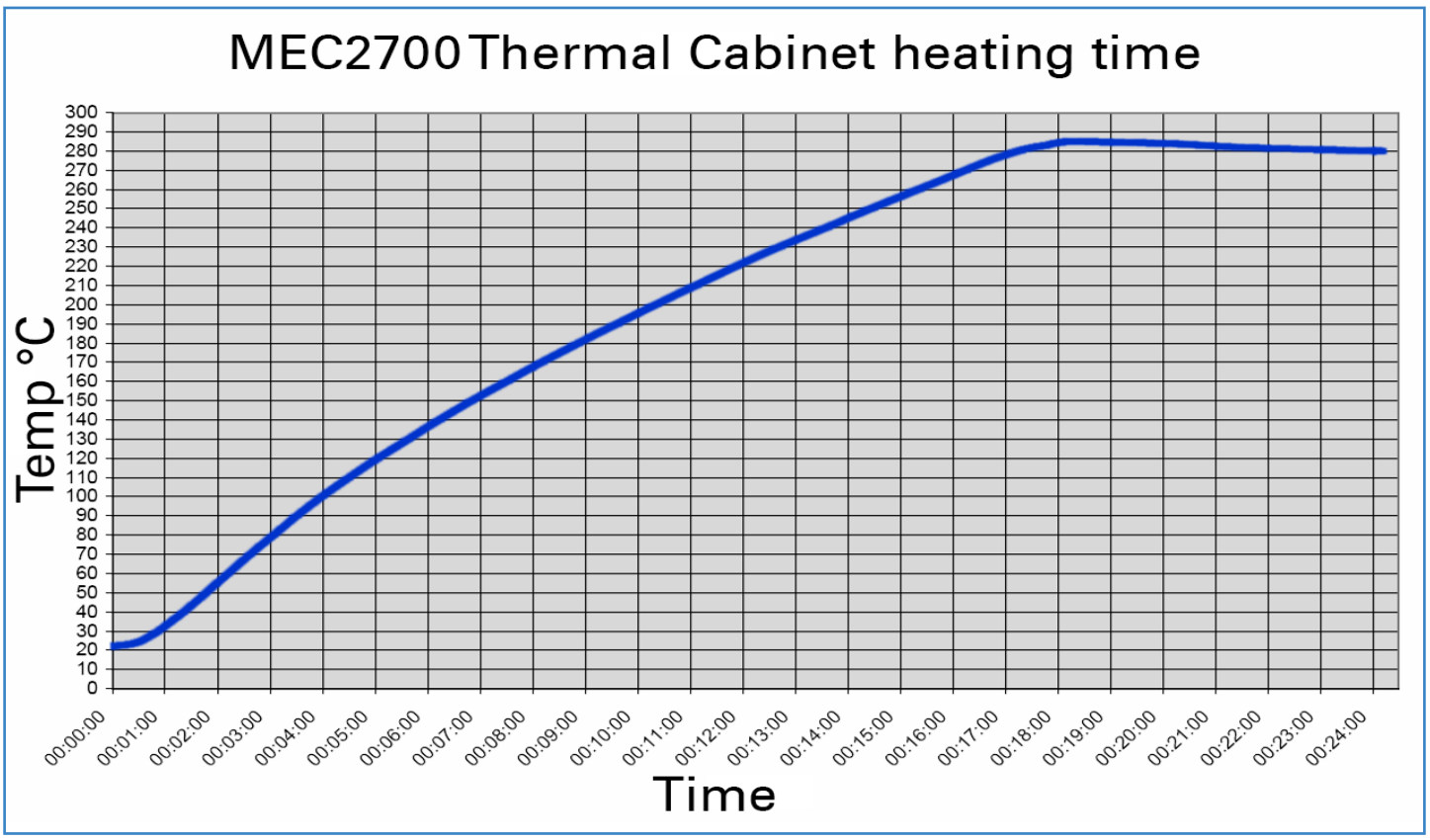
- Materials testing to standards specifying a test atmosphere at low or elevated temperatures.
- Product tests where climatic conditions are significant.

# Specifications

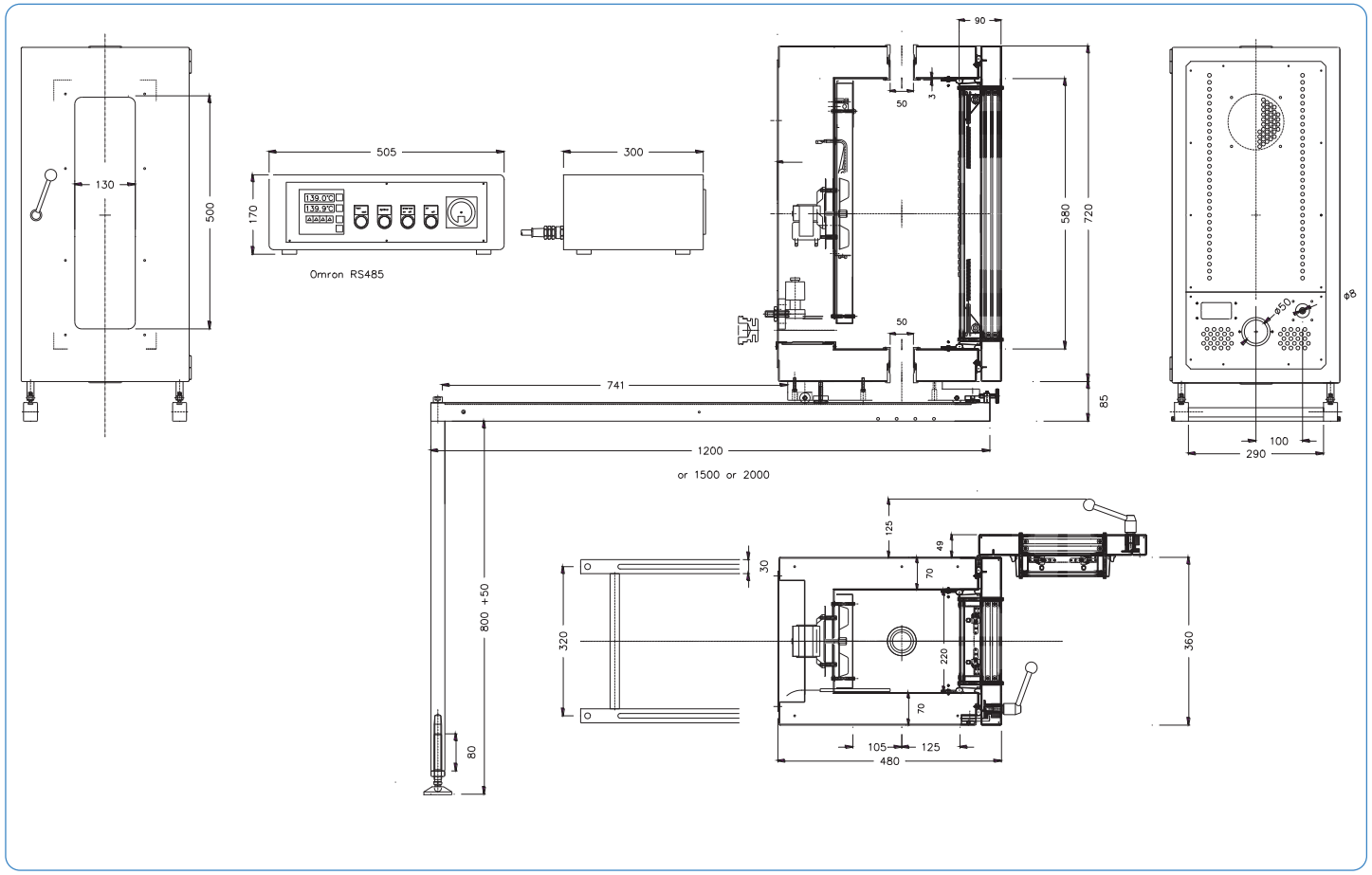
| Model | Dimensions (WxDxH) | | | Heating and cooling | | | |
|---|---|---|---|---|---|---|---|
| | Exterior | Interior | Height (on rail) | Energy Consumption (w/o grips) | | LN2 Consumption | |
| MEC2700+SSR* | 360 x 480 x 766 mm | 220 x 220 x 580 mm | 805 mm | 100°C | 0.11 kwh/h | From 0 to -70°C | 4 kg |
| | | | | 200°C | 0.24 kwh/h | Maintain -70°C | 3 kg/ hr |
| | | | | 300°C | 0.38 kwh/h | | |
| MECRAIL1200 | 350 x 1200 x 850 mm | Height adjustment up to 930 mm | - | - | - | - | - |
| MECRAIL1500 | 350 x 1500 x 850 mm | | | | | | |
| MECRAIL2000 | 350 x 2000 x 850 mm | | | | | | |

*SSR indicated standard special hinge for ease of retraction.

Omron E5AC Temperature Controller mounted externally in a 19" rack (WxDxH: 505 x 300 x170 mm) with 4 m cable. Other controllers are available on request.



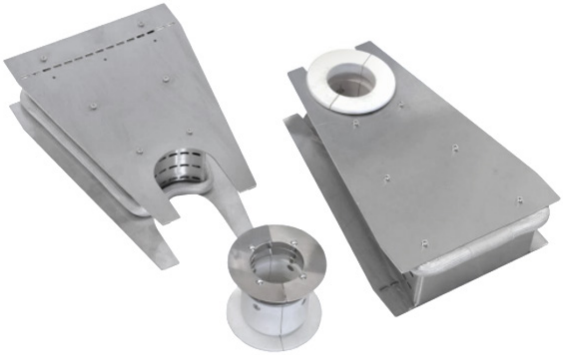

# Dimensions in mm



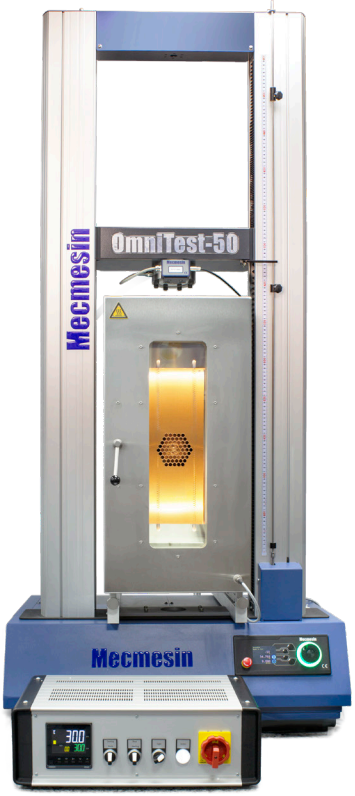
# Features and options

We have available a full range of Temperature Chambers to suit all materials testing applications, part numbers and prices upon request and dependent on application.

▲ ▸ Retraction rails allow fore-aft movement of the cabinet into and out of the test space

▲ Optional wedge inserts are available with optional bushes and temperature specifications




▲ MEC2700 Thermal Cabinet shown with rack-mount Temperature Controller

▸ Insert bushes are available with optional bore and temperature specifications

# Grips and fixtures

These example accessories are suitable for use with the thermal cabinet. A range of high-temperature grips, adapters and connectors, extension rods (pull rods, push rods) and Telfon tubes for pneumatic operation are available. POA: please contact us with your specific requirements.

| MEC175 Pneumatic Wedge | 10 kN | 20 kN | 50 kN |
|---|---|---|---|
| Grip height (w/o coupling) | 91 | 129 | 175 |
| Width (diameter) | 90 | 135 | 196 |
| Pyramid Jaw opening | 0-6 | 0-8 | 0-12 |
| | 6-12 | 5-14 | 10-22 |
| | 10-16 | 12-20 | 20-32 |
| | - | - | 30-42 |
| V-Jaw opening | - | 3-8 | 5-12 |
| | | 8-15 | 12-22 |
| | | 13-20 | 22-32 |
| | | | 32-42 |
| Total travel (excl. specimen) | 340 | 340 | 180 |

▲ ▸ MEC175 (and MECS321) Pneumatic Wedge Grips

| MEC7-X-A4 Eccentric Roller | 1 kN | 5 kN | 10 kN |
|---|---|---|---|
| Grip height (body) | 80 | 96 | 150 |
| Total travel (excl. specimen) | 90 | 135 | 196 |



▸ MEC7-1-A4

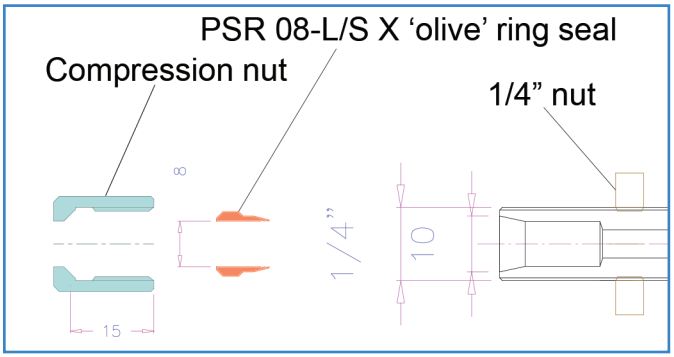
| MEC243-X+TK Lever-action Wedge | 20 kN | 50 kN |
|---|---|---|
| Height single | 95 | 100 |
| Pyramid Jaw opening | 0-13 | 0-13 |
| | 4-16 | 4-16 |
| V-Jaw opening | 3-13 | 3-13 |
| | 4-16 | 4-16 |
| | 0-20 | 0-20 |
| Total travel (excl. specimen) | 390 | 380 |

All dimensions in mm

▸ MEC243-20+TK with options and pull-rods

# Auxiliary equipment

We can also supply liquid nitrogen (LN2) equipment to enable lowered temperature testing environments.


**LN2 coolers are connected by compression nut and ‘olive’ ring seal enable stable low-temperature tests to be performed with the MEC2700**

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