

# Advanced Temperature Test (ATT) Systems

C40s Thermal System: -40°C to +300°C

This guide defines the facility requirements for operation of your ATT Systems thermal system. The thermal system discussed here is compatible with 200 and 300 mm systems.



**NOTE**

Operation at negative temperatures requires a shielded system.

## Thermal System Requirements

Clean Dry Air (CDA)



**WARNING**

Operating the system without sufficient air pressure or flow can cause significant component damage. The control unit and the chiller must be connected to common ground.



FormFactor does not endorse or recommend using nitrogen instead of CDA for thermal system operation with any FormFactor system due to the risk of oxygen depletion in the working environment. If your testing configuration requires the use of nitrogen instead of CDA for MicroChamber purge, time in Quick Purge mode should be controlled. Discuss your setup with your safety and facilities departments to ensure that the oxygen flow in your working environment is adequate to dissipate any nitrogen build up. The use of oxygen sensor alarms is also recommended. For MicroChamber purge requirements, refer to your probe station Facility Planning Guide.

Chiller	Cooling medium	<ul style="list-style-type: none"> <li>• ISO 8573.1 Class 1.1.1 (-70°C dew point, oil less than 0.01 mg/m<sup>3</sup>)</li> </ul>
	Temperature	<ul style="list-style-type: none"> <li>• Minimum: 5°C</li> <li>• Maximum: 30°C</li> </ul>
	300 mm	<ul style="list-style-type: none"> <li>• Standard mode: 250 l/min (8.8 CFM) at SATP* supplied at 6-8 bar (87 - 116 psi) gage</li> <li>• Power mode: 350 l/min (12.4 CFM) at SATP* supplied at 6-8 bar (87 - 116 psi) gage</li> </ul>
	200 mm	<ul style="list-style-type: none"> <li>• Standard mode: 160 l/min (5.6 CFM) at SATP* supplied at 6-8 bar (87 - 116 psi) gage</li> <li>• Power mode: 260 l/min (9.1 CFM) at SATP* supplied at 6-8 bar (87 - 116 psi) gage</li> </ul>
	Connection	<ul style="list-style-type: none"> <li>• 10 mm OD push-in tube</li> </ul>
Air dryer (optional)	Cooling medium	<ul style="list-style-type: none"> <li>• ISO 8573.1 Class 1.3.1 (-20°C dew point, oil less than 0.01 mg/m<sup>3</sup>)</li> </ul>
	Temperature	<ul style="list-style-type: none"> <li>• Minimum: 5°C</li> <li>• Maximum: 30°C</li> </ul>
	200/300 mm	<ul style="list-style-type: none"> <li>• 150 l/min (5.3 CFM) at SATP* supplied at 6 bar (87 psi) gage</li> <li>• Only usable with chiller in standard mode</li> </ul>

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<b>Power</b>	Controller	<ul style="list-style-type: none"> <li>• Single phase: 100-127 VAC, 50/60 Hz: 1600 VA / 12 A</li> <li>– or –</li> <li>(200) 208-240 VAC, 50/60 Hz: 2200 VA / 10 A Source: <ul style="list-style-type: none"> <li>– North American: NEMA L6-15 for 208-240 VAC</li> <li>– Europe: CEE VII (Schuko)</li> <li>– Other: consult factory</li> </ul> </li> </ul>
	Chiller	<ul style="list-style-type: none"> <li>• Dedicated versions: <ul style="list-style-type: none"> <li>– Single phase: 208-230 VAC at 50Hz and 220-230 VAC at 60Hz; 1500 VA</li> <li>– Single phase: 208-230 VAC at 60Hz; 1700 VA</li> </ul> </li> <li>• Source: <ul style="list-style-type: none"> <li>– North American: NEMA L6-20 for 208-220 VAC</li> <li>– Europe: CEE VII (Schuko)</li> <li>– Other: consult factory</li> </ul> </li> </ul>
<b>Environmental Conditions</b>	Site requirements	<ul style="list-style-type: none"> <li>• For indoor use only</li> <li>• Installation site <math>\leq</math>2000 m altitude</li> <li>• Installed on a level, even with surface</li> <li>• For air-cooled units, maintain 200 mm clearance above and around the unit to allow air circulation. Allow 400 mm clearance around the front and back sides of the chiller.</li> <li>• The unit should be located so as not to restrict access to the mains power switch</li> <li>• Mains voltage should be <math>\pm</math>10% of the rated value</li> </ul>
	Ambient temperature	<ul style="list-style-type: none"> <li>• +18°C to +28°C</li> </ul>
	Relative humidity	<ul style="list-style-type: none"> <li>• 20% to 60%</li> </ul>
	Seismic restraints	Optional seismic restraints are available for ATT thermal systems which include a chiller. To use the seismic restraints, 3 anchor bolts must be embedded in the floor at the customer site for seismic restraint use. See your ATT user documentation for details on placement.
<b>Communications</b>	RS-232	
<b>Dimensions (WxDxH)</b>	Controller	See <a href="#">Controller</a> on page 3.
	Chiller	See <a href="#">Chiller C40s</a> on page 3.
	Air dryer	See <a href="#">Chiller C40s with Optional Air Dryer</a> on page 4.
<b>Weight</b>	Controller	<ul style="list-style-type: none"> <li>• 11 kg (24 pounds)</li> </ul>
	Chiller	<ul style="list-style-type: none"> <li>• 82 kg (181 pounds)</li> <li>• Two people are required to roll the chiller from the crate.</li> </ul>
	Air dryer	<ul style="list-style-type: none"> <li>• 18 kg (40 pounds)</li> </ul>
<b>Shipping Dimensions (WxDxH)</b>	Chiller crate	• 1000 x 820 x 1150 mm (39 x 32 x 45 in.)
	Controller box	• 550 x 500 x 300 mm (22 x 22 x 11 in.)
<b>Shipping weight</b>	Chiller and crate	• 160 kg (353 pounds)
	Controller and box	• 18 kg (40 pounds)

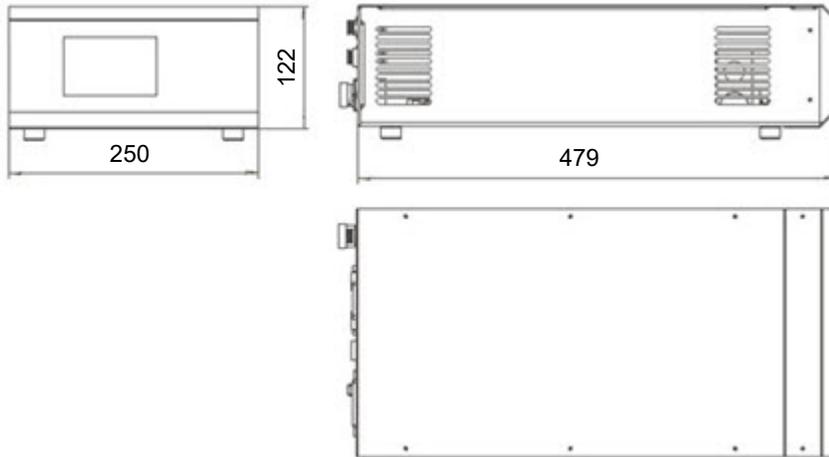
\* Standard Ambient Temperature And Pressure (SATP)

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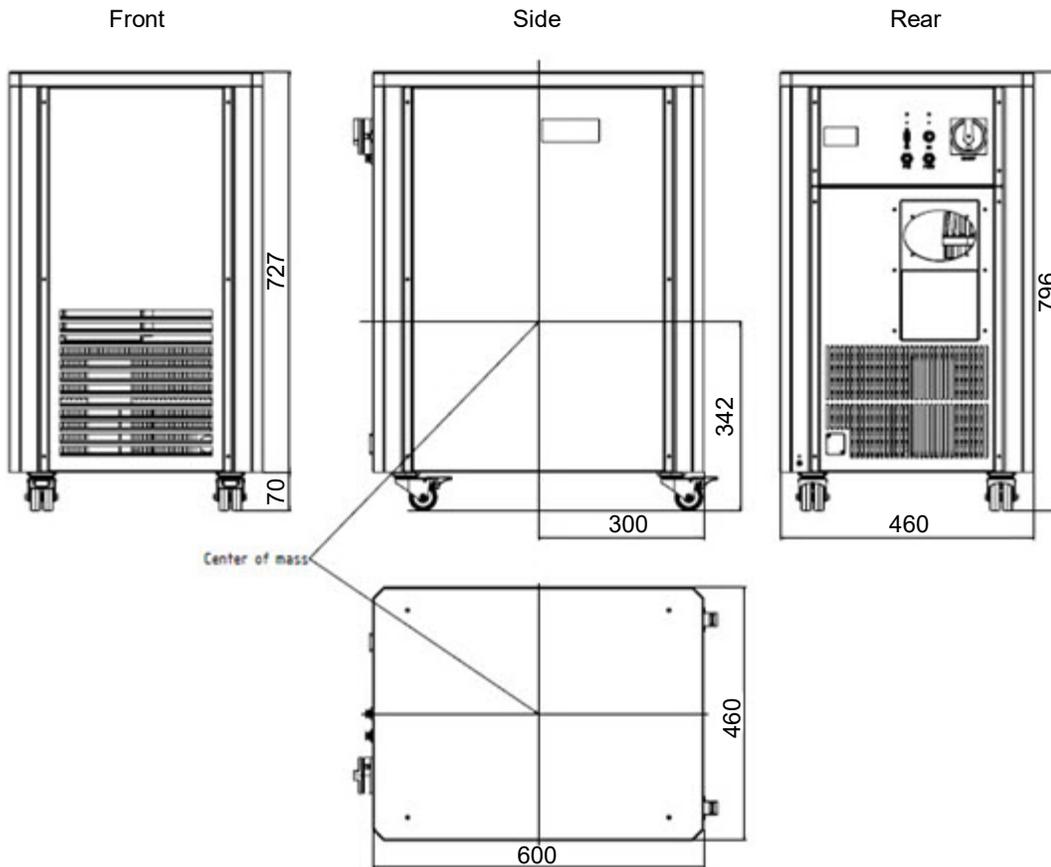
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## Dimensions (in mm)

### Controller



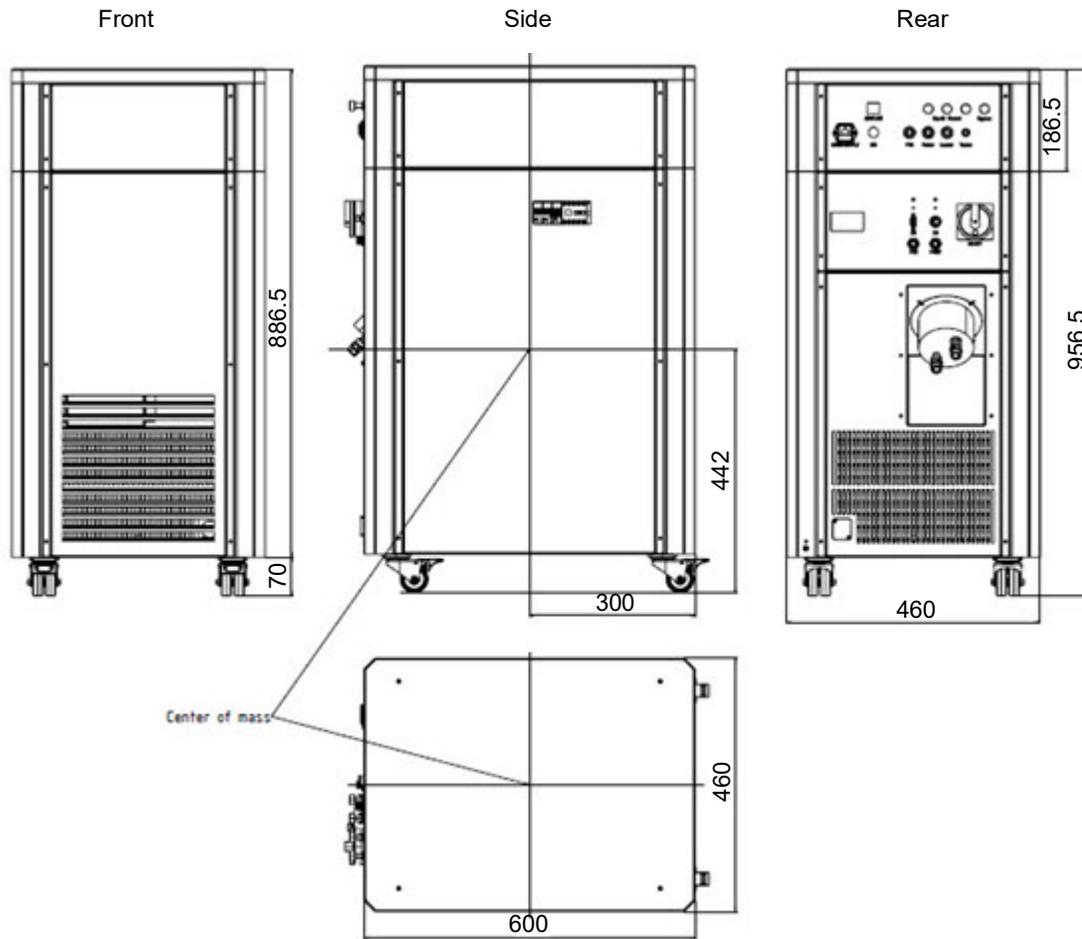
### Chiller C40s



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## Chiller C40s with Optional Air Dryer



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### Corporate Headquarters

7005 Southfront Road  
Livermore, CA 94551  
Phone: 925-290-4000  
[www.formfactor.com](http://www.formfactor.com)

