

Cascade TESLA200 Power Semiconductor Probing System

This guide defines the facility requirements for operation of your FormFactor TESLA200 probe station. Specifications apply to both semi-automated and fully-automated systems where not specifically differentiated.

Facility requirements for thermal systems are listed separately. See the Facility Planning Guide specific to your thermal system for details.





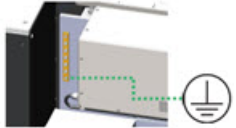
DANGER

The safety enclosure interlock must be installed prior to use of this equipment. The interlock must be active whenever high voltage is present. Customers are responsible for ensuring proper connection and that the safety interlock is active before use.


Probe Station Requirements

Clean Dry Air (CDA)	CDA requirements vary depending on the system configuration and the temperature range in which the system will operate. CDA for General use purposes is always required, and is used for basic system functions like base table damping and platen cooling. CDA for the MicroChamber probing environment (PURGE) is additionally required for all -M and -AP shielded systems in order to keep a clean, dry environment for high performance triaxial probing, and moisture and ice free probing at temperatures below ambient. CDA requirements for the thermal system (if applicable) are listed separately and are in addition to system requirements. See your thermal system Facility Planning Guide for details.		
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Clean Dry Air (CDA) (cont'd)	 <p>WARNING</p> <p>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.</p> <p>NOTE</p>  <p>Note that the combined values for independent general use and MicroChamber purge flow are not equal to the value for simultaneous general use and MicroChamber purge flow. Modification of the manifold plumbing is required if you are using N₂. See the Summit User Guide for details.</p>	
Vacuum	<ul style="list-style-type: none"> • Wafer hold on chuck and positioners: <ul style="list-style-type: none"> – Required: < 500 mbar (14.8 inHg) absolute, -510 mbar (-15.0 inHg) gage, at up to 3.4 l/min (0.12 CFM) at SATP* – Recommended: < 400 mbar (11.8 inHg) absolute, -610 mbar (-18.0 inHg) gage, at up to 5 l/min (0.18 CFM) at SATP* – 8 mm OD push-in tube connection (3 m max tube length) • Wafer hold only (while under test to ensure measurement performance): <ul style="list-style-type: none"> – Vacuum pressure stability: ± 10 mbar (0.3 inHg) 	
Power	Fully-automated probe station	<p>(Includes station controller, monitors, eVue microscope, wafer handler, 2 load ports)</p> <ul style="list-style-type: none"> • Single phase: 100-240 V ±10%, 50/60 Hz • Maximum 500 VA • Main connector: <ul style="list-style-type: none"> – Grounded IEC appliance inlet C14, according to IEC 60320, UL 498, CSA C22.2 no. 42 (for cold conditions) pin-temperature 70°C, 10 A, protection class I. A region dependent power cord connects IEC C14 to common local power plug (1 phase, grounded). • Facility power line fuse: <ul style="list-style-type: none"> – Minimum 15A
	Semi-automated probe station	<p>(Includes station controller, monitors, eVue microscope)</p> <ul style="list-style-type: none"> • Single phase: 100-240 V ±10%, 50/60 Hz • Maximum 500 VA • Main connector: <ul style="list-style-type: none"> – Grounded IEC appliance inlet C14, according to IEC 60320, UL 498, CSA C22.2 no. 42 (for cold conditions) pin-temperature 70°C, 10 A, protection class I. A region dependent power cord connects IEC C14 to common local power plug (1 phase, grounded). • Facility power line fuse: <ul style="list-style-type: none"> – Minimum 15A • Separate ground connection (PE): <ul style="list-style-type: none"> – Fixed wiring between probe station ground rail and facility PE terminal with ring cable lug/screw terminals – Wire according to IEC60332 / UL2556 – AWG12 / 4 mm²; isolation color: gn/ye – Length ≤5 m (17 ft.) 
	Protection class	<ul style="list-style-type: none"> • I (IEC 61140)
	Transient overvoltage	<ul style="list-style-type: none"> • Overvoltage category II (IEC 60364-4-443)
	Circuit breaker	<ul style="list-style-type: none"> • Minimum rating: 10,000 AIC
For information on other optional components, refer to the data sheet for the particular item.		

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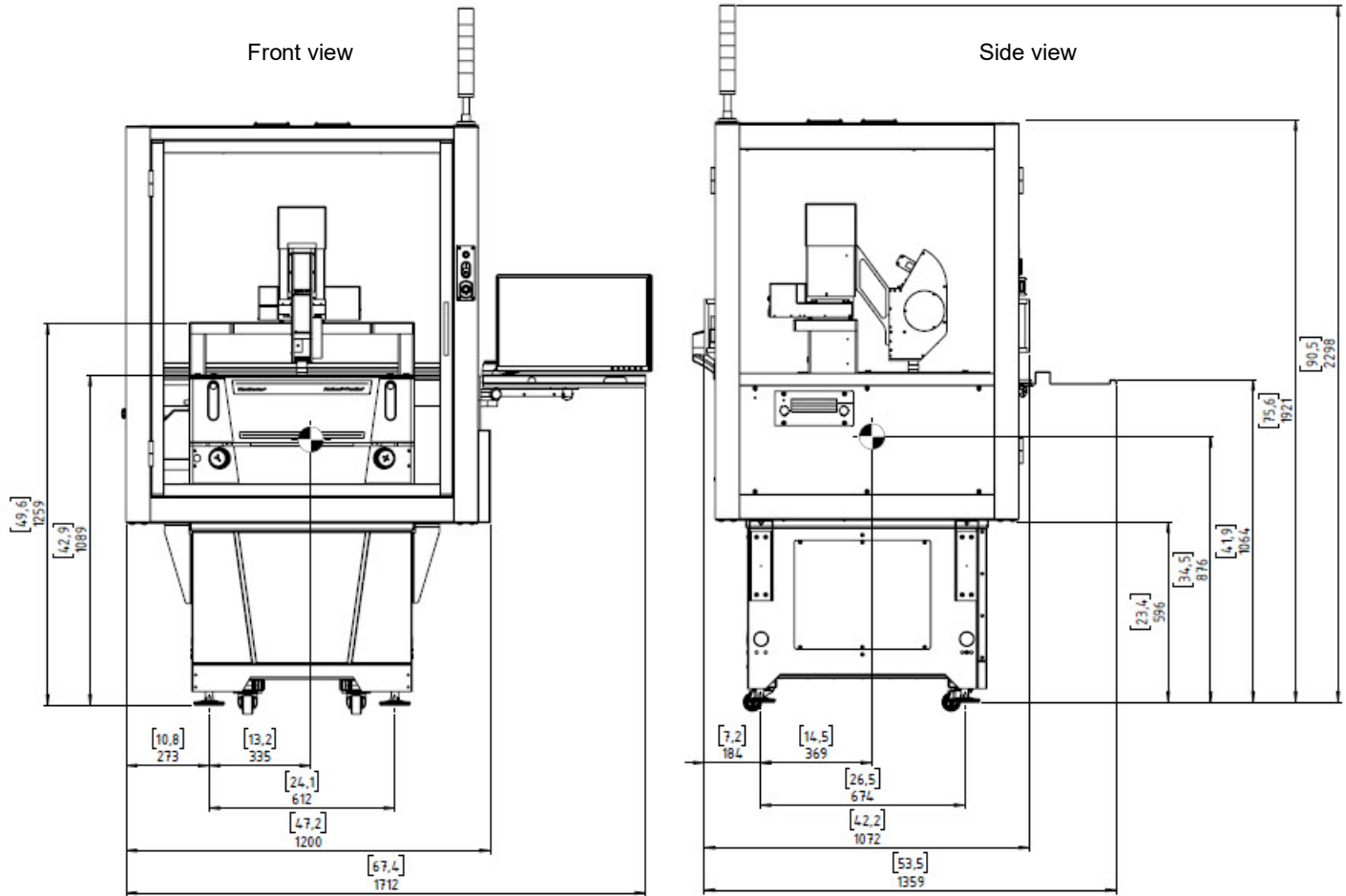
Thermal Systems	<p>Refer to the facility preparation guide for your thermal system. Note that the standard low temperature range is adjusted to -55°C due to complexity of the high voltage chuck.</p> <p> NOTE <i>Optional seismic restraints are available for ATT thermal systems which include a chiller.</i></p>														
Environmental Conditions	<table border="0"> <tr> <td data-bbox="300 405 487 506">Operating</td> <td data-bbox="487 405 1521 506"> <ul style="list-style-type: none"> Indoors only Altitude up to 1000 m Main supply voltage fluctuations not to exceed $\pm 10\%$ of the nominal voltage </td> </tr> <tr> <td data-bbox="300 506 487 546">Temperature</td> <td data-bbox="487 506 1521 546"> <ul style="list-style-type: none"> +17°C to +23°C </td> </tr> <tr> <td data-bbox="300 546 487 585">Relative humidity</td> <td data-bbox="487 546 1521 585"> <ul style="list-style-type: none"> 20% to 60% </td> </tr> <tr> <td data-bbox="300 585 487 716">Ambient vibration (including floor)</td> <td data-bbox="487 585 1521 716"> <p>The TESLA200 with integrated vibration isolation (active or passive versions) is intended for use in an environment having background vibrations at or below the ISO Operating Theatre level:</p> <ul style="list-style-type: none"> Maximum level 4000 micro-in./sec (72 dB), measured using the 1/3-octave-band velocity spectra method </td> </tr> <tr> <td data-bbox="300 716 487 779">Seismic restraints</td> <td data-bbox="487 716 1521 779"> <p>Installation of seismic restraints is required to safely restrain the probe station during a seismic event and to meet the safety requirements as outlined by SEMI-S2.</p> </td> </tr> </table>	Operating	<ul style="list-style-type: none"> Indoors only Altitude up to 1000 m Main supply voltage fluctuations not to exceed $\pm 10\%$ of the nominal voltage 	Temperature	<ul style="list-style-type: none"> +17°C to +23°C 	Relative humidity	<ul style="list-style-type: none"> 20% to 60% 	Ambient vibration (including floor)	<p>The TESLA200 with integrated vibration isolation (active or passive versions) is intended for use in an environment having background vibrations at or below the ISO Operating Theatre level:</p> <ul style="list-style-type: none"> Maximum level 4000 micro-in./sec (72 dB), measured using the 1/3-octave-band velocity spectra method 	Seismic restraints	<p>Installation of seismic restraints is required to safely restrain the probe station during a seismic event and to meet the safety requirements as outlined by SEMI-S2.</p>				
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* Standard Ambient Temperature And Pressure (SATP)

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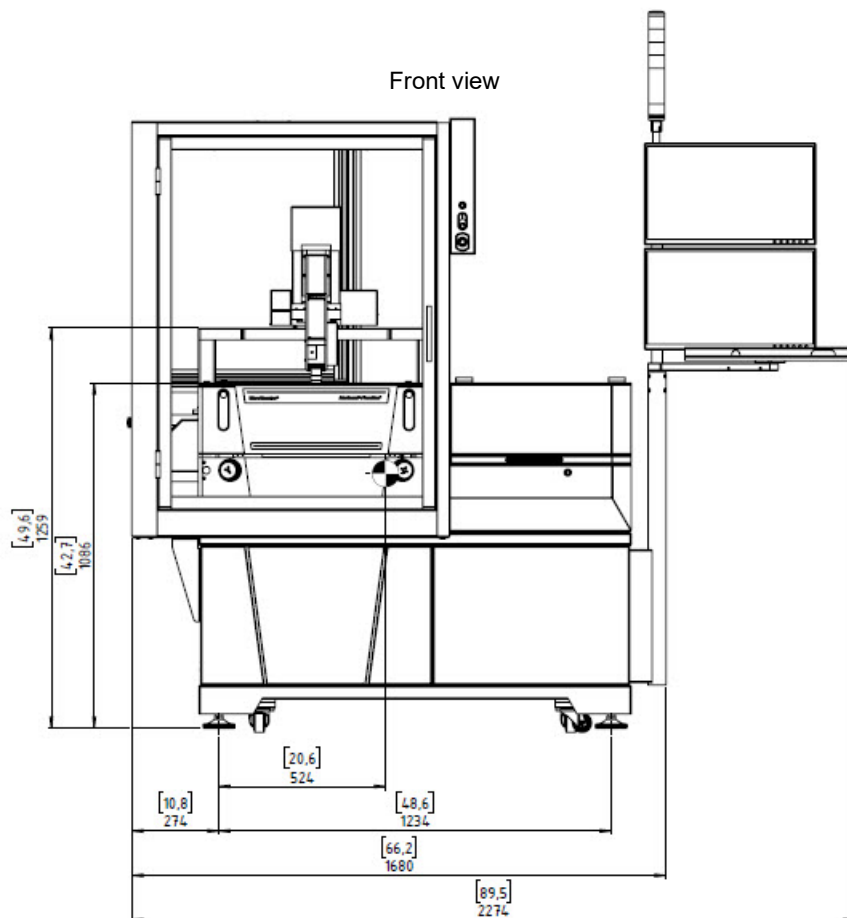
Dimensions (mm [in.])

Semi-automated System

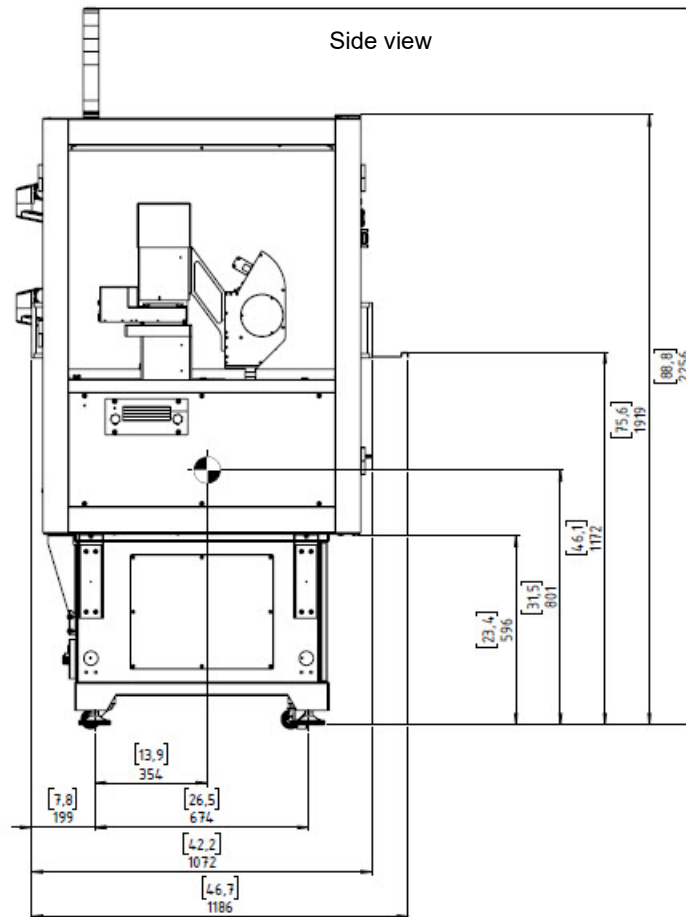


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Fully-automated System



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