



# PLC50 Cryogenic Probe System

This guide contains information to help prepare your facility for the arrival of your PLC50 probe system.

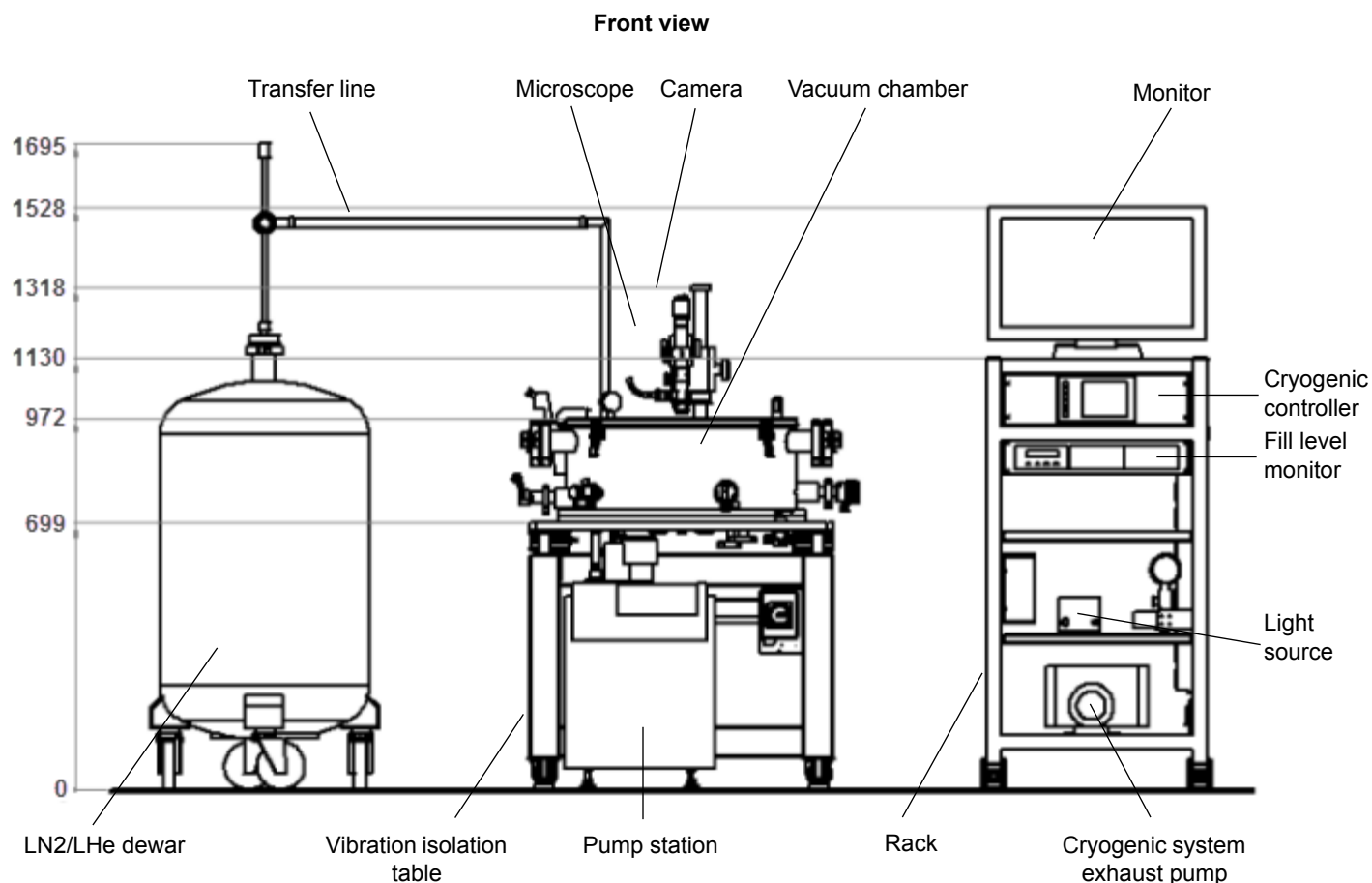
## Probe System Requirements

<b>Utilities</b>	Compressed dry air	<ul style="list-style-type: none"> <li>• Filtered, dry and oil-free</li> <li>• Minimum 5 bar to 6 bar maximum</li> <li>• Flow rate insignificant</li> <li>• 8 mm OD hose (US: 5/16-inch)</li> </ul>
	Nitrogen gas, (probe station)	<ul style="list-style-type: none"> <li>• Class 4.5 (Purity 99.995%) or better</li> <li>• 4 bar</li> <li>• 70 l per purging cycle</li> <li>• 8 mm OD hose</li> </ul>
	Nitrogen gas, (dewar) option, only required for LN2 dewar	<ul style="list-style-type: none"> <li>• Class 4.5 (Purity 99.995%) or better</li> <li>• 1.5 bar (precision pressure regulator suitable for low-flow condition is required)</li> <li>• Flow rate insignificant</li> <li>• 6 mm OD hose</li> </ul>
	Helium gas (dewar) option, only required for LHe dewar	<ul style="list-style-type: none"> <li>• Class 4.5 (Purity 99.995%) or better</li> <li>• 1.2 bar (precision pressure regulator suitable for low-flow condition is required)</li> <li>• Flow rate insignificant</li> <li>• 6 mm OD hose</li> </ul>
	Liquid gas (LHe or LN2)	One dewar with liquid gas (LHe or LN2, depending on probing temperature) is required to operate the PLC50. Contact a Cascade Microtech representative to verify ability for pressurizing the dewar and interface to transfer tube when using customer-owned or rented dewars.
<b>Power</b>	Station	<ul style="list-style-type: none"> <li>• 3-Phase 400 V 50/60 Hz, or</li> <li>• 3-Phase 208 V 50/60 Hz</li> </ul>
	Connection	<ul style="list-style-type: none"> <li>• IEC 60309 16 A 3P+N+E (CEE plug 16 A), or</li> <li>• NEMA L21-20P (20 A plug), or</li> <li>• Direct connection without plug</li> </ul>
	Facility power line	Cross section 5 x 4 mm <sup>2</sup> 5x AWG#12)
	Fuse	• Lead in fuse 3 x 20 A (time delayed)
	Protection class	• I (IEC 61140)
	Transient overvoltage	• Overvoltage category II (IEC 60364-4-443)
<b>Environmental Conditions</b>	Humidity	• Tool area: 25% to 60%
	Temperature	<ul style="list-style-type: none"> <li>• Operating range: 19° C to 24° C</li> <li>• Target temperature: 22° C</li> </ul>
	Heat Output	• 1000W (typical value)
	Pollution level	• 1 (IEC 60664-1)
	Vibrations	The facility should be free of vibrations caused by other equipment.
	 <p><b>WARNING</b></p> <p><i>Release of nitrogen or helium gas imposes a potential danger due to oxygen depletion in the working environment. An oxygen-deficient atmosphere can lead to rapid asphyxiation, causing loss of consciousness and potentially resulting in serious injury or death.</i></p> <p><i>Consult your safety and facilities departments to ensure that the venting in your working environment is adequate to dissipate any nitrogen or helium build-up.</i></p> <p><i>The use of an oxygen sensor with an alarm is recommended.</i></p>	
<b>Exhaust</b>	Cryogenic system	• 3/4-inch hose (connection point: rack)
	Vacuum system	• 3/4-inch hose (connection point: pump station)

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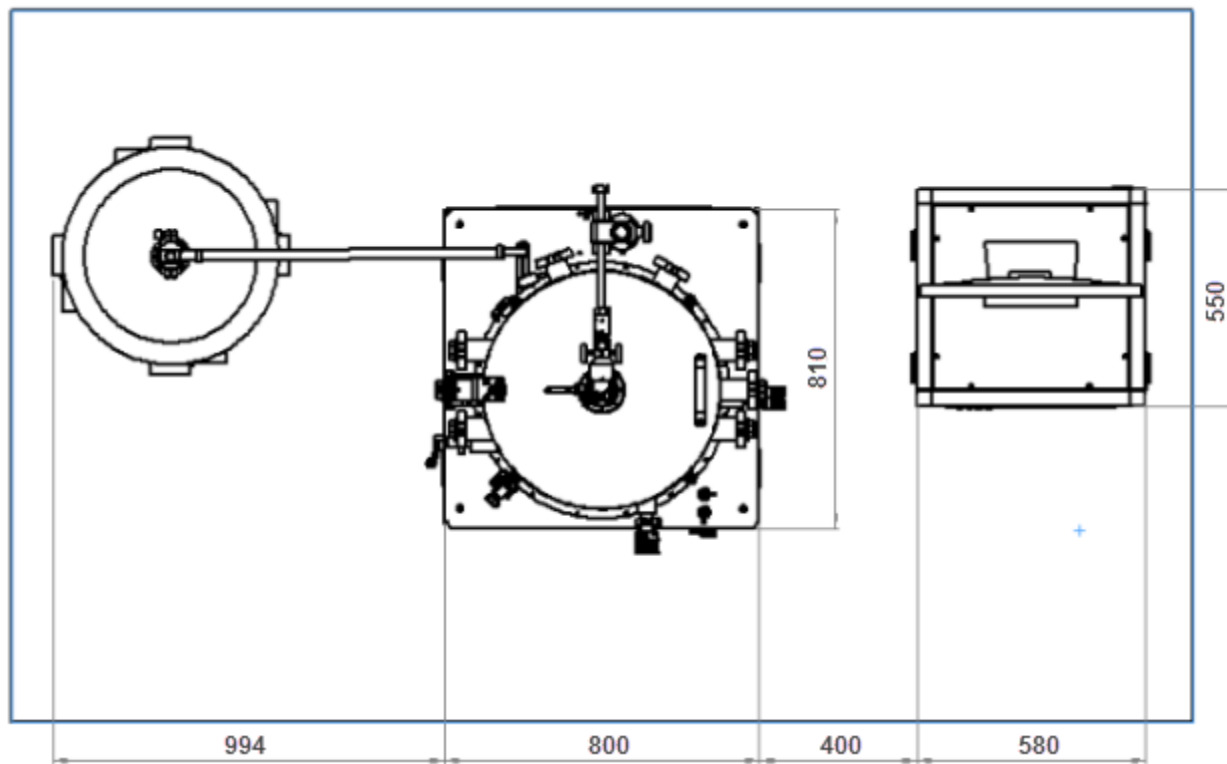
<b>Dimensions</b>	Probe station	<ul style="list-style-type: none"> <li>• Station: 800 mm (W) x 810 mm (D) x 972 mm (H)</li> <li>• Station with microscope: 1318 mm (H)</li> </ul>	
	Pump station	<ul style="list-style-type: none"> <li>• 392 mm (W) x 400 mm (D) x 492 mm (H)</li> </ul>	
	Rack	<ul style="list-style-type: none"> <li>• 580 mm (W) x 550 mm (D) x 1130 mm (H)</li> </ul>	
	Dewar (typical data)	<ul style="list-style-type: none"> <li>• 120 l LN2 storage dewar: 1250 mm x 550 mm (H x Ø)</li> <li>• 120 l LHe transport dewar: 1450 mm x 700 mm (H x Ø)</li> </ul>	
<b>Weight</b>	Probe station	<ul style="list-style-type: none"> <li>• 230 kg</li> </ul>	
	Pump station	<ul style="list-style-type: none"> <li>• 36 kg</li> </ul>	
	Rack	<ul style="list-style-type: none"> <li>• 100 kg</li> </ul>	
	Dewar (typical data)	<ul style="list-style-type: none"> <li>• 120 l LN2 storage dewar: 70 kg (empty)/170 kg (filled)</li> <li>• 120 l LHe transport dewar: 145 kg (empty)/160 kg (filled)</li> </ul>	
<b>Shipping Dimensions and Weight</b>	 <b>NOTE</b> <i>A forklift with 1 m (minimum) forks is required to move the station.</i>	Probe station	<ul style="list-style-type: none"> <li>• Dimensions: 1430 mm (W) x 1310 mm (D) x 1830 mm (H)</li> <li>• Weight: 400 kg</li> </ul>
		Accessories (typical data)	<ul style="list-style-type: none"> <li>• Dimensions: 1300 mm (W) x 1300 mm (D) x 1800 mm (H)</li> <li>• Weight: 300 kg</li> </ul>

## Dimensions (in mm)



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Top view



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