

Lab Requirements

System Installation Preparation: CryoCore™

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Applicable Systems: **CryoCore**

This document outlines the power and space requirements for the system and associated components.

1. PREPARING FOR SYSTEM INSTALLATION

As you prepare for your system to arrive, please ensure the necessary infrastructure requirements are in place.

1. Decide where the system and system components will be located. Refer to Section 2: Component Placement and Layout Plan.
2. Ensure the appropriate wall outlets are available near the corresponding equipment. Refer to Section 3: Wall Outlet and Power Requirements.
3. Review Section 4: Additional Requirements to ensure all recommended equipment is available.
4. Review Section 5: Shipping Weights and Dimensions to ensure your facility is properly equipped to receive the system.

2. COMPONENT PLACEMENT AND LAYOUT PLAN

Before installing the required wall power, it is recommended to pre-plan the placement of components in the lab space. Detailed dimensions are available online at the [CryoCore specifications page](#).

- For optimal performance the Cryostation (including the sample chamber) should be mounted to an optical table, but any flat, level and stable surface can be used. The main housing can typically be oriented at either 45° or 90° to the hole pattern in an optical table. Allow 60 cm clearance in the back of the unit for the helium and vacuum hoses.
- The compressor must remain upright and sits on the floor. Allow 100 cm clearance in the front of the unit for helium and water supply, and 60cm (24") on the back & both sides for maintenance
- The system control unit (4U) and vacuum control unit (6U) can be rack-mounted in a standard 19" rack unit (sold separately) or placed on a nearby shelf. Allow 8 cm minimum clearance from any ventilated face (sides, front) and 20 cm clearance in the rear for cables and hoses.
- The user interface touchscreen can be placed on any nearby work surface.

Please consider the allowable distance between components, as outlined in the cable diagram below. The helium hoses between the Cryostatation and compressor require a minimum bend radius of 9 in (23 cm) with a 4 in. (10 cm) straight section at each end.

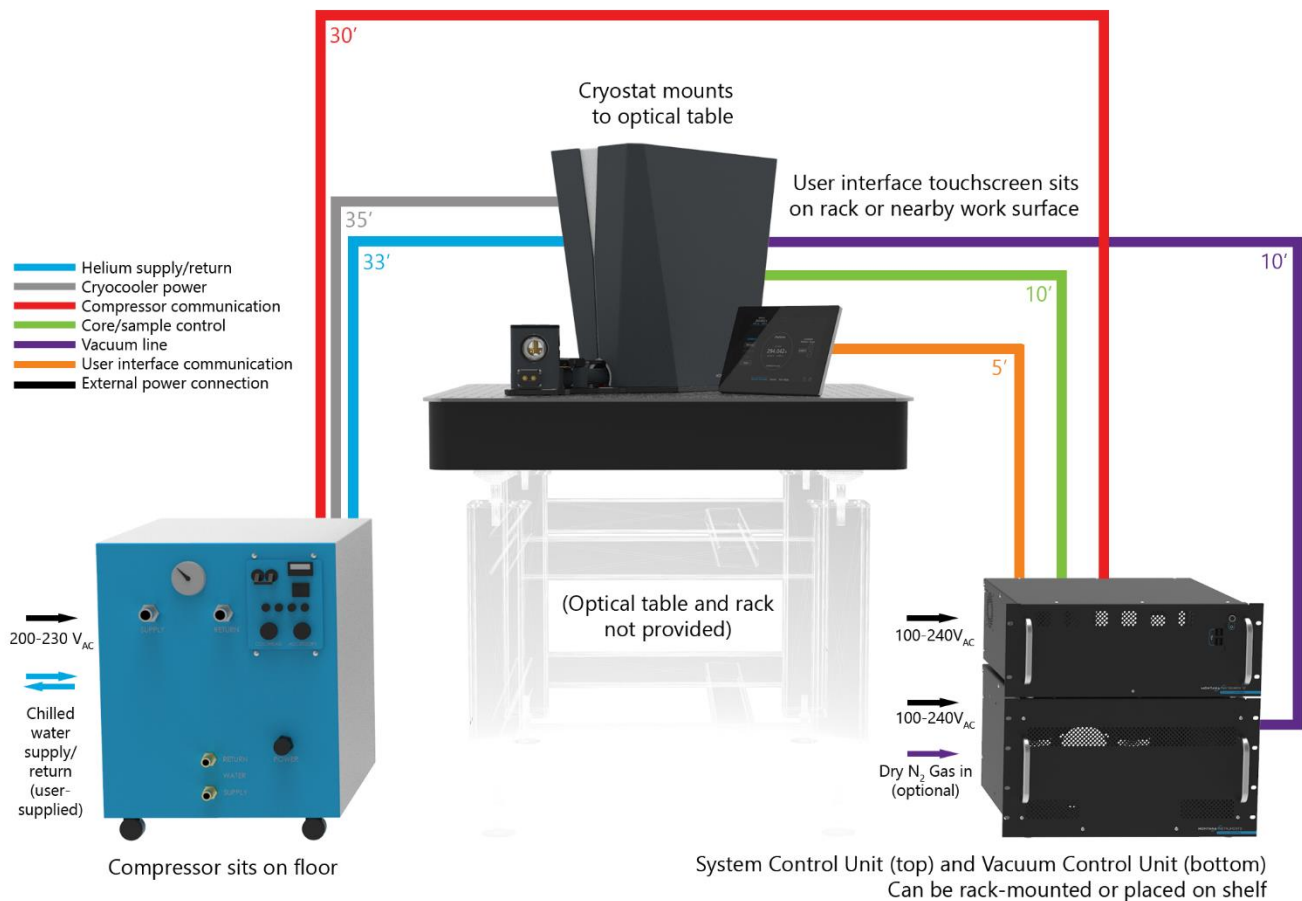


Figure 1: Component placement and layout plan diagram.*

*Compressor model shown here may be cosmetically different from the one you receive, but basic interconnection and functionality are the same.

3. WALL OUTLET AND POWER REQUIREMENTS

COMPRESSOR

Model	HC-4E	F-20L
Mains Power Cable	NEMA L6-20P	NEMA L6-20P
Line Voltage	200 – 230 VAC	200 – 230 VAC
Frequency	50 Hz or 60 Hz (region specific)	50 Hz or 60 Hz (region specific)
Rated Load Current	15.5 A	15.0 A
Maximum Power Consumption	3.0 kW	2.6 kW
Starting Current	58.0 A	N/A

Chilled Water Requirements

Model	HC-4E	F-20L
Water Connections	Barb fitting for ½" tubing	Barb fitting for ½" tubing
Water Inlet Temperature	4° - 27° C (40° - 80° F) ¹	4° - 27° C (40° - 80° F) ¹
Cooling Water Pressure (Min/Max)	210 kPa (30 psig) / 690 kPa (100 psig)	210 kPa (30 psig) / 800 kPa (116 psig)
Cooling Water Flow (Minimum)	2.7 L/min (0.7 gpm)	1.9-3.8 L/min (0.5-1.0 GPM)
Water Chiller Cooling Capacity	≥3.2 kW (11,000 BTU/hr) ²	≥3.0 kW (11,000 BTU/hr) ²

1. Cryostation system performance is validated with input water at 20° C and 1.0 gpm flow rate
2. Applies only if you are using a water chiller unit connected to the compressor. If using facility water, Temperature, Pressure & Flow are the critical parameters.

Refer to the associated product manuals listed below for important operating instructions, maintenance and safety information on provided third-party components.

Document Number	Document Title	Original Manufacturer
267318A	HC-4E1 and HC-4E2 Helium Compressors	Sumitomo
280358A	F-20L Helium Compressor	Sumitomo

SYSTEM CONTROL UNIT

Model	SC1160	
Mains Power Connector on Unit	IEC 60320 C14	
Line Voltage	100 – 240 VAC	
Frequency	50 – 60 Hz	
Maximum Current Draw	6.65 A	
Maximum Power Consumption	665 W	
Wall Outlet / Receptacle	N. America & non-EU	Standard NEMA 5-15
	CEE Europe (non-UK)	CEE 7/3 or CEE 7/5 w/ common ground terminal
	UK	BS1363 (UK) w/ common earth ground terminal
	Israel	I-32-3 w/ common earth ground terminal
	Cart Power Module	IEC 60320 C13

VACUUM CONTROL UNIT

Model		VC1110
Mains Power Connector on Unit		IEC 60320 C14
Line Voltage		100 – 240 VAC
Frequency		50 – 60 Hz
Maximum Current Draw		1.9 A
Maximum Power Consumption		190 W
Wall Outlet / Receptacle	N. America & non-EU	Standard NEMA 5-15
	CEE Europe (non-UK)	CEE 7/3 or CEE 7/5 w/ common ground terminal
	UK	BS1363 (UK) w/ common earth ground terminal
	Israel	I-32-3 w/ common earth ground terminal
	Cart Power Module	IEC 60320 C13

4. ADDITIONAL REQUIREMENTS

OPTICAL TABLE (NOT INCLUDED)

As noted, the system can be mounted to most imperial or metric optical tables. Please have optical table space available which allows for direct access to the sample chamber.

NITROGEN SUPPLY (OPTIONAL)

The vacuum control unit provides an inlet for dry nitrogen gas. To keep the sample space clean, a dry nitrogen connection is highly recommended, especially in humid climates. Nitrogen will help rid the system of moisture and decrease the initial pump down time. See 'Nitrogen Purge Cycles' tab of our [Basic Procedures web page](#) for more information.

The nitrogen source can either be high or ultra-high purity and should be 10-15 psi. The port on the back of the vacuum control unit fits a ¼ inch tube.

5. SHIPPING WEIGHTS & DIMENSIONS

The system will arrive on 3 pallets. The typical weights and dimensions of the standard system, as packed, are below.

	Pallet 1	Pallet 2	Pallet 3
Components	Compressor	System Control Unit Vacuum Control Unit	Cryostation
Pallet Dimensions (L x W x H)	27 in x 23 in x 30 in (68.5 cm x 58.4 cm x 76.2 cm)	40 in x 48 in x 38 in (102 cm x 122 cm x 97 cm)	40 in x 48 in x 38 in (102 cm x 122 cm x 97 cm)
Weight	~180 lbs (82 kg)	~120 lbs (54 kg)	~140 lbs (63 kg)

WARNING

Use extreme caution when handling the shipment

Refer to the system user manual for important instructions regarding the safe handling of system components.