



Cryotron X

Dewar Changeover

The Cryotron series provides a cost-effective solution for enhancing operational safety and efficiency. By eliminating the need for elevated access, it reduces fall hazards and installation costs. Its integrated ventilation and monitoring systems mitigate asphyxiation risks and improve operational efficiency by maintaining safe gas levels and moisture control. Additionally, an advanced security system safeguards equipment from unauthorized access, ensuring seamless and reliable operation.

Applications

- Semiconductor wafer fabrication
- Semiconductor chips assembly and test
- Material research
- Superconducting magnet
- Synchrotron
- Biomedical
- Cryopreservation

Operation

Cryotron X ensures a stable, subcooled continuous LN₂ supply with automated switchover control based on preset settings. An integrated purge function enhances system warm up and dry down, while built-in monitoring functions and alarms provide real-time alerts for safe, efficient, and trouble free operation.

Cryotron X comes with CSM renowned customer service, from conceptual design to implementation, and are backed by a 5-years Vacuum Warranty, & 1-year Defect Warranty.

Key Features and Benefits

- **Automated Switchover System** – Seamlessly transitions between LN₂ dewars for uninterrupted supply
- **Continuous LN₂ Flow** – Eliminates process interruptions and liquid shortages
- **Sub-cooled LN₂** – Superior vacuum insulation technology delivers vapor free single-phase LN₂
- **Smart Monitoring System** – Detects LN₂ levels and optimizes switchover timing
- **Advanced Control** – Efficient changeout based on accurate level and pressure measurement
- **Application Flexibility** – Interchangeable outlet connections type
- **Labor & Cost Savings** – Eliminates manual dewar changeouts and reduces operational downtime
- **Process Continuity Assurance** – Ensures critical applications remain unaffected by supply fluctuations.
- **Dynamic Real-Time Information** – Provides real-time pressure, level, and alarm data

Safety Enhancements

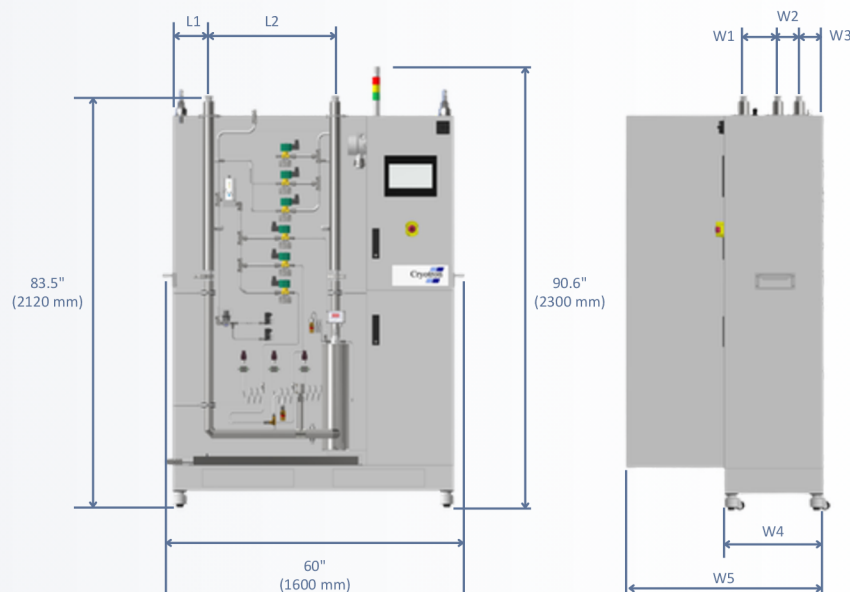
- **Safety and Leak Containment** - Prevents exposure to cryogenic media leaks for operation safety
- **Leak Detection** - Integrated O₂ sensors with safety alarm and ventilation system prevents asphyxiations
- **Pressure Safety Relief** – Equipped with a safety valve and continuous pressure monitoring
- **Humidity & Condensation Detection** – Integration with moisture sensor provides early warning of vacuum insulation deterioration, triggering for preventive maintenance
- **Audible & Visual Alerts** – Alarms and indicator lights for quick hazard response
- **Emergency Shutdown** – Single-switch operation for immediate system halt
- **Physical Security** – Lockable swing door prevents unauthorized tampering with the equipment
- **Operational Protection** – HMI with multi-level password security

Cryotron X Specifications

Model	CTX.5	CTX.10
Inner Diameter	0.75" (19.05 mm OD)	
Outer Diameter	1.5" IPS (48.3 mm OD)	
Vessel MAWP	200 psi (13.8 bar)	
Steady State Heat Loss	1 BTU/hr/ft (0.96 W/m)	
Bayonet Heat Loss	65 BTU/hr (1.9 W)	
VJ Valve Heat Loss @ 20K	2.4 BTU/hr (0.7 W)	
Orifice Size	Variable Orifice	
Insulation	Dynamic (DV6R-Gauged)	
System Utilities	Electricity: 100-240 VAC; GN2: 116 psi (8 bar)	
Materials - Body - Cabinet	Stainless Steel 300 Series Galvanized Sheet (Epoxy Powder-Coated)	
Cleanliness Level	Cleaned, oil and grease-free	
Accessories	Oxygen sensor, Moisture sensor, Door open alarm, Castor wheel with stopper, and Ventilated roof	
Standard Testing	Dimensional Check He Leak Checked @ 1×10^{-9} cc/s	
Standard Certification	NEMA 4X, CE	
Optional	Test: Pneumatic Pressure, Vacuum Retention, LN ₂ Cold Shock Cert.: Pre-material cert. Services/Inspections: CFOS Cleaning for O ₂ Application, X-ray, ASME-coded (BPVC Section VIII Pressure Vessel)	

Cryotron X Dimensions

Model	L1	L2	W1	W2	W3	W4	W5
CTX.5	7.3" (185 mm)	25.7" (653.5 mm)	6.8" (173 mm)	4.2" (107 mm)	4.8" (121 mm)	2.5" (630 mm)	47.2" (1200 mm)
CTX.10							



All dimensions provided are for indication purposes only and may not accurately represent the actual product dimensions. Please contact us for updated and actual measurements.