



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 LN<sub>2</sub> dewars for uninterrupted supply
- **Continuous LN<sub>2</sub> Flow** – Eliminates process interruptions and liquid shortages
- **Sub-cooled LN<sub>2</sub>** – Superior vacuum insulation technology delivers vapor free single-phase LN<sub>2</sub>
- **Smart Monitoring System** – Detects LN<sub>2</sub> 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

# 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 LN<sub>2</sub> 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.

### Safety Enhancements

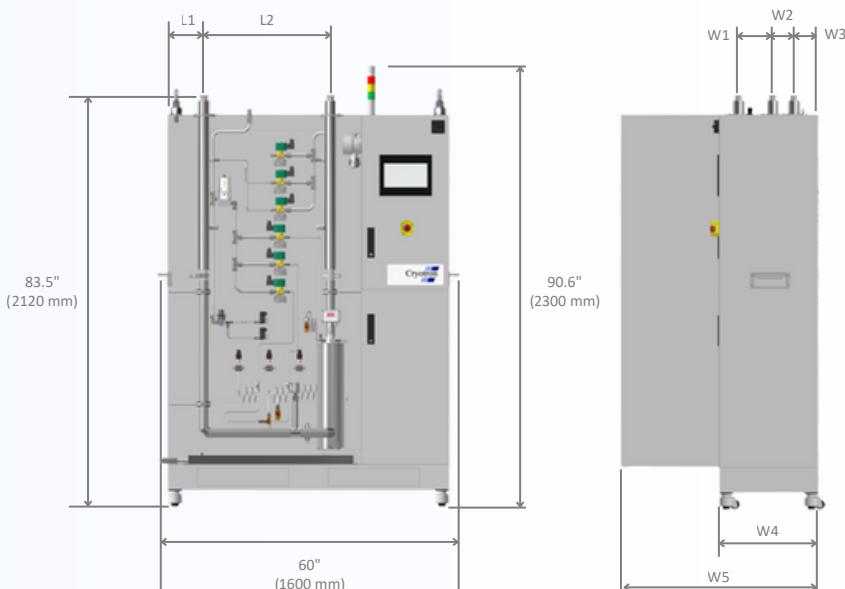
- **Safety and Leak Containment** – Prevents exposure to cryogenic media leaks for operation safety
- **Leak Detection** – Integrated O<sub>2</sub> sensors with safety alarm and ventilation system prevents asphyxiations
- **Pressure Safety Relief** – Equipped with a safety valve and continuous pressure 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 @ $1 \times 10^{-9}$ cc/s
Standard Certification		NEMA 4X, CE
Optional		Test: Pneumatic Pressure, Vacuum Retention, LN2 Cold Shock Cert.: Pre-material cert. Services/Inspections: CFOS Cleaning for O2 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.