

Pharmaceutical and BioProcessing Application

PLC High Performance Controlled Rate Freeze/Thaw Chamber



Farrar Scientific New PLC control rate chamber with optional process probe monitoring enables rapid freeze/thaw process for Bio Processing applications, greatly reducing the freeze or thaw conditioning time from days or weeks to hours.

The new PLC Control Rate Chamber Model 4002-LC Air cooled or 4102-LC Water cooled can rapid freeze/thaw from +40C to -80C. The PLC controlled rate chamber enables fast, uniform bulk freezing and thawing of Protein or products contained in a variety of containers, (bags, bottles or any size containers) such as single use system (SUS), polycarbonate vessels or polypropylene vessels.

“Rapid bulk freezing and/or thawing in hours instead of days or weeks”

General Performance:

- ◆ Uniform, repeatable results improve quality control in production and logistics.
- ◆ Forced-air circulation provides quick pulldown from ambient to desired temperature throughout the container extending to the fluid core which avoids false freeze points and optimizes the freezing process (1,000 CFM air circulation).
- ◆ Repeatable Freeze & Thaw process.
- ◆ Eliminates uncertainty. Provides temperature specific conditioning to satisfy processing and shipping protocols for various pharmaceuticals.
- ◆ Solid phase conditioning assures maximum heat of fusion for greater energy storage and longest cooling capacity over time.

Application and Electrical Requirements

Application	Pharmaceutical and Bioprocessing.
Chamber Volume	23.3 Cu. Ft. /659.8 L
Temperature Range	Programmable +40°C to -80°C
Electrical	208-220 VAC, 3 Ø, 60Hz, 26 FLA
Certification	CE <i>International Models</i>
Ambient Operating Temperature	+18°C to +30°C
Air Cooled Condenser Requirements	+18°C to +30°C
Water Cooled Condenser Requirements	Tower Water 29.5°C, Max. flow rate 26.5 l/min. Chilled Water 7.2°C, Max. flow rate 13.25 l/min.

Dimensions

Interior Dimensions (W x D x H)	34" x 27.5" x 43" 863.6 x 698.5 x 1092.2 mm
Exterior Dimensions (W x D x H)	75" x 38" x 80" 1901.5 x 960.4 x 2028.8 mm
Net Weight	1,010 lbs. 459 Kg
Shipping Weight	1,597 lbs. (726 Kg)

Performance Data

Pull Down Empty Chamber	< 38 minutes from +25°C to -80°C
Door Open Recovery @ -80°C	< 10 minutes
100L Load +25°C to -80°C	< 12 Hours
Uniformity Air Temperature	+/- 2.0°C
Uniformity Product Temperature	+/- 1.0°C

Refrigeration System

Heat Transfer	Convection, Air Flow Evaporator
High Stage	R-449A
Low Stage	R-508B
Defrost	Auto defrost program
Heat of Rejection – Air Cooled	38,000 BTU/hr (11 Kw/hr)
Heat of Rejection – Water Cooled	1,700 BTU/hr (0.5 Kw/hr)

PLC Controller / Sensor / Dry Contacts

IDEC PLC Programmable Controller	IDEC PLC 12" Display
Sensor	RTD PT100 Din A
Dry Contacts	Standard (C, NO, NC)
Optional process probe	RTD PT100 Din A with connector

Additional Services/Options

- Validation IQ/OQ/PQ
- Temperature Mapping
- Custom Programming
- Door Ajar Alarm
- Bunded Tray/Containment Shelf