

# PURPOSE-BUILT FOR BIOPROCESSING

## Rapid bulk and sample cold storage preparation in hours instead of days or weeks

FARRAR™ pioneered forced air convection cooling to answer the challenge of preserving biologic samples and materials. The Controlled Rate Chamber (model 4000 series) provides repeatable, precise, and rapid freezing and thawing of bulk materials and sample prior to cold storage.

Our Model 4000 series rate chamber, purpose-built for bioprocessing applications, greatly reduces freeze/thaw conditioning times, measured in hours, instead of days or weeks.

This precision controlled rapid freeze/thaw chamber helps protect product quality by enabling fast, uniform bulk freezing and thawing of protein or products in a variety of containers of various sizes, (bags, bottles, etc.) including single use system (SUS), polycarbonate vessels or polypropylene vessels.

Our high-performing Controlled Rate Chamber model 4002/05, (air-cooled) or 4102/05, (water-cooled) conducts rapid freeze/thaw for +40°C to -80°C temperature needs. FARRAR's refrigeration experts help customers plan their process and provide performance data to ensure requirements are met.

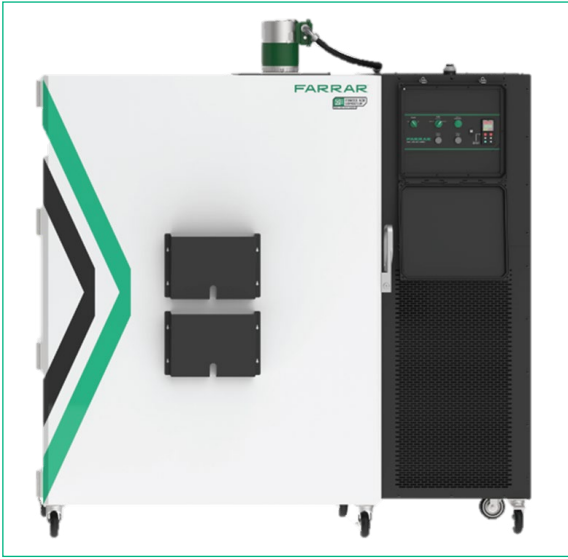


## KEY FEATURES

- Wide-range temperature capability for nearly any application (+40°C to -80°C)
- Air or water-cooled options available
- Uniform, repeatable results to help ensure quality control
- Cycle start/stop with +/-1°C product temperature tolerance
- Sizable and powerful cooling capacity achieves steady state in 38min (empty chamber) and is capable of freezing 100L to -80°C in <12h







## 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)	(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)

## REFRIGERATION SYSTEM

Heat Transfer	Convection, Air Flow Evaporator
High Stage	R-449A
Low Stage	R-508B
Defrost	Defrost- Manual Start/ Automatic Complete
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)

## PERFORMANCE DATA

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

## CONTROLLER

Controller	Watlow PID/Standard (NO, NC, C) with 4 outputs (General Alarm, Profile Running, Profile Complete, Door Open) 0-10VDC outputs for chamber probe and optional second probe
Sensor	RTD PT100 Din A
Dry Contacts	Standard (C, NO, NC)

## ORDERING INFORMATION

Model Number	Description	Voltage (Hz)	Amps (FLA) / Breaker
4002	Controlled Rate Chamber, Air-Cooled	208/240VAC - 3 Phase - 60 Hz	26 FLA / 40A
4102	Controlled Rate Chamber, Water-Cooled	208/240VAC - 3 Phase - 60 Hz	26 FLA / 40A
4005	Controlled Rate Chamber, Air-Cooled	400VAC - 3 Phase - 50 Hz	24 FLA / 30A
4105	Controlled Rate Chamber, Water-Cooled	400VAC - 3 Phase - 50 Hz	24 FLA / 30A

## ADDITIONAL SERVICES/OPTIONS

- Validation IQ/OQ/PQ
- Material Handling and Placement Solutions
- Temperature Mapping Studies
- Custom Programming and Testing

