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PRODUCT DATA SHEET
Catalogue reference for product evaluation

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Model of a Refrigeration System with Refrigeration and Freezing Stage | PolarX - 592

Category: Refrigeration and Air Conditioning · **Country of Origin:** India

Product Overview

The Model of a Refrigeration System with Refrigeration and Freezing Stage PolarX - 592 forms a complete dual-stage refrigeration system when combined with its base unit, sold separately. This Model of a Refrigeration System with Refrigeration and Freezing Stage features two transparent chambers (265x265x265mm each), configurable evaporators in series or parallel, and an adjustable evaporation pressure controller (0~6bar). Expansion options include a thermostatic expansion valve, capillary tube (1.6~2.2m), and bypass valve, with 5 manual service valves for mode configuration. Sensors monitor temperature (6x, -100~400°C) and pressure (2x, -1~15bar), with optional software enabling fault simulation and real-time p-h diagram tracking.

View this product online: https://scienticoindia.com/product/model-of-a-refrigeration-system-with-refrigeration-and-freezing-stage-polarx-592/



Request a model-specific quotation
Include quantity and delivery country.

Technical Specifications

Model of a Refrigeration System with Refrigeration and Freezing Stage PolarX - 592, Technical Specifications

Component	Type / Detail
System Integration	Model of a refrigeration system designed to plug into the base unit (PolarX - 592), sold separately
Chamber Configuration	Each chamber features evaporator with fan for air circulation and heater to simulate cooling loads
Chamber Front	Transparent
Pressure Control	Adjustable evaporation pressure controller
Expansion Elements	Selectable expansion valve or capillary tube
Training Technology	Hardware/Software Integration (HSI) technology
Operating Modes	Configured using 5 manual service valves
Sensors	Record temperature and pressure
Software Control	Solenoid valves, fans, heaters, and fault conditions managed through software
Software Connectivity	Control functions and data acquisition via USB on Windows 10 (optional)
Software Package	Educational content, data acquisition, system operation, available with base unit PolarX - 592 (optional)

Technical Data

Refrigeration Chamber

Parameter	Value
Dimensions (L x W x H)	265x265x265mm
Electric PTC Heater (cooling load)	150W
Expansion Valve	Thermostatic
Capillary Tube Length	1.6~2.2m
Evaporation Pressure Controller	0~6bar
Valve Selection	Separate valves to operate expansion valve or capillary tube
Fan	For air circulation

Freezing Chamber

Parameter	Value
Dimensions (L x W x H)	265x265x265mm
Electric PTC Heater (cooling load)	150W
Expansion Valve	Thermostatic
Bypass Valve	Included
Fan	For air circulation

Measuring Ranges

Parameter	Value
Temperature	6x -100~400°C
Pressure	2x -1~15bar

Key Features

Key Features

- **System Type:** Model of a Refrigeration System with Refrigeration and Freezing Stage for HSI training
- **Base Compatibility:** Plugs onto base unit PolarX - 592, sold separately
- **Dual Chambers:** Two refrigeration chambers, each with independent evaporator and expansion elements
- **Evaporator Configuration:** Series or parallel operation
- **Pressure Control:** Adjustable evaporation pressure controller, 0~6bar
- **Expansion Elements:** Thermostatic expansion valve, capillary tube (1.6~2.2m), and bypass valve
- **Manual Control:** 5 manual service valves for operating mode configuration
- **Fans:** 2, one per chamber, for consistent temperature distribution
- **Temperature Sensors:** 6x, range -100~400°C
- **Pressure Sensors:** 2x, range -1~15bar

Experiments

- Design and operation of a refrigeration system with two evaporators
- Series and parallel connection of two evaporators
- Familiarisation with the different expansion elements
- Operation with capillary tube
- Operation with expansion valve
- Operating behaviour under load
- Refrigeration cycle in the p-h diagram
- Effect of the evaporation pressure
- Fault simulation

Construction and Design

The Model of a Refrigeration System with Refrigeration and Freezing Stage PolarX - 592 features two distinct refrigeration chambers, each measuring 265x265x265mm with a transparent front. Each chamber includes its own evaporator, fan, and a 150W electric PTC heater to simulate cooling loads. Evaporators can be configured in series or parallel using solenoid valves. One chamber offers a choice between a thermostatic expansion valve and a capillary tube (1.6~2.2m), while the freezing chamber uses a thermostatic expansion valve with a bypass valve. An evaporation pressure controller (0~6bar) allows independent temperature adjustment in the upper chamber during parallel operation. Operating modes are configured using 5 manual service valves, and all components are clearly organized on a panel.

Required for Operation (optional)

- Base unit for refrigeration and air conditioning training system, PolarX - 592

Scope of Delivery

- 1 module
- 1 instructional manual

Ordering & Delivery

- Send the product name, quantity, delivery country and destination with your enquiry.
- Production schedule, freight, payment terms and export documents are confirmed in the written quotation.

Frequently Asked Questions

Q: What does the Model of a Refrigeration System with Refrigeration and Freezing Stage PolarX - 592 demonstrate?
A: It forms a complete refrigeration system with both refrigeration and freezing stages when combined with the base unit, sold separately.

Q: How can the evaporators be configured?
A: The two evaporators can be connected in series or in parallel, allowing for different pressure levels and temperature ranges suited to refrigeration or freezing.

Q: What expansion elements are available?
A: One chamber offers a choice between a thermostatic expansion valve and a capillary tube (1.6~2.2m); the freezing chamber uses a thermostatic expansion valve with a bypass valve.

Q: How many manual service valves control the operating modes?
A: 5 manual service valves configure the system's operating modes.

Q: What is the range of the evaporation pressure controller?
A: 0~6bar, allowing independent temperature adjustment in the upper chamber during parallel operation.

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