

# Refrigeration Capstone Project

## 8112101 (3424-0C)

**FESTO**

LabVolt Series

Datasheet



## Table of Contents

General Description	2
Features & Benefits	2
List of Equipment	2
List of Manuals	3
Optional Equipment	3
Equipment Description	3
Optional Equipment Description	3

## General Description

### Give future refrigeration technicians a challenging project to sharpen their practical skills

Festo designed a workstation for the 2017 Refrigeration WorldSkills competition. Contestants carried out a challenging project, while putting the workstation to the test. This workstation is now available to schools training skilled refrigeration technicians.

This capstone project allows future refrigeration workers to practice a variety of skills necessary to fabricate, install, and commission a challenging refrigeration circuit. The project is aimed at producing ice while recovering the extracted energy to heat a water tank at a specified temperature, and then rejecting additional heat into the atmosphere through an air-cooled condenser.

The workstation is a turnkey solution that includes all the mechanical (except copper tubes) and electrical hardware as well as control devices. A set of drawings including the refrigerant flow diagram, electrical and mechanical plans is supplied. The student manual has many photos and videos to guide the student during fabrication.

To help the instructor evaluate the work performed by the students, a work assessment section with a list of criteria is available for each exercise.

The system has been designed so that the project can be repeated indefinitely. Replacement parts and consumable parts packages are available as needed.

## Features & Benefits

- Turnkey solution with all required hardware (except copper tubes) and drawings
- Project meets the strict requirements of a Worldskills competition
- Replacement parts packages available to repeat the project multiple times
- Multiple essential skills are put to the test with a single system
- Mobile, safe and small workstation

## List of Equipment

Qty	Description	Model number
1	_____	8107947
1	_____	8107949
1	Workstation _____	8116697 (46400-0c)
1	Consumables _____	8103315 (46401-00)
1	Parts A _____	8103325 (46403-0c)
1	Parts B _____	8103319 (46404-00)

## List of Manuals

Description	Manual number
Refrigeration Capstone Project (Instructor Guide)	8107947
Refrigeration Capstone Project (Drawing Set)	8107949
Refrigeration Capstone Project (Student Manual)	8107951

## Optional Equipment

Qty	Description	Model number
1	Refrigeration Charging Equipment	587636 (3440-50)
1	Refrigerant Recovery Unit	587640 (3445-10)
1	Consumables	8103315 (46401-00)
1	Replacement panels	8103316 (46402-00)
1	Parts A	8103325 (46403-0c)
1	Parts B	8103319 (46404-00)

## Equipment Description

### Parts A 8103325 (46403-0c)

This package includes parts that are brazed by students such as the compressor, condenser coil, filter/dryer, thermostatic expansion valve, liquid receiver, hot gas bypass regulator, sight glass, suction accumulator, and a variety of valves required to build the refrigeration circuit.

### Parts B 8103319 (46404-00)

This package includes all fasteners and some parts required to build the refrigeration circuit such as the thermostat, tanks and brackets.

## Optional Equipment Description

### Refrigeration Charging Equipment (Optional) 587636 (3440-50)



The Refrigeration Charging Equipment is an accessory kit in refrigeration and air conditioning. The Refrigeration Charging Equipment is designed to enable students to evacuate and charge refrigeration training systems. It consists of a manifold, a charging hose kit, a vacuum pump, an automatic refrigerant charging meter, and a heater blanket.

### Features & Benefits

- Easy-to-read gauges

- Forged-brass body with metal valve handles
- Color-coded hoses
- Hose cover pin-pricked to resist bubbling and bursting
- Two-stage vacuum pump for great efficiency
- Refrigerant charging meter automatically shuts off when charging is completed
- Compatible with refrigerants R-12, R-134a, R-404A, R-502, and R-507

**Refrigerant Recovery Unit (Optional)  
587640 (3445-10)**



The Refrigerant Recovery Unit enables students to recover refrigerant for storage or recycling. A low-pressure indicator on the unit monitors the pressure condition on the suction side of the recovery system. A filter dryer and an oil separator are used to condition the refrigerant before it enters the recovery system compressor. At the high-pressure side of the recovery system compressor, a second oil separator ensures good lubrication by returning the oil at the

suction side of the compressor, thus avoiding oil migration to the storage tank. A high-pressure indicator is also provided to monitor the pressure conditions on the discharge side of the compressor. A high-pressure controller will automatically shut off the compressor if the discharge pressure exceeds a preset limit. A forced-air condenser is used to transform the high-pressure refrigerant vapor to a high-pressure liquid refrigerant.

**List of Manuals**

Description	Manual number
Refrigeration System Setup (User Guide) _____	580301 (30788-E0)
Refrigerant Recovery Unit (Instruction Manual) _____	590056 (32064-D0)

**Features & Benefits**

- Hermetically sealed compressor
- Compressor oil drain conveniently located at the bottom of the unit
- Easy access to filter at the back of the unit, after removal of the access door
- Forced-air coil condenser
- Low-and high-pressure gauges
- High-pressure safety device
- Compatible with refrigerants R-134a

Reflecting the commitment of Festo Didactic to high quality standards in product, design, development, production, installation, and service, our manufacturing and distribution facility has received the ISO 9001 certification.

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