

# Universal Refrigeration Skills Trainer 587631 (3420-00)

**FESTO**

LabVolt Series

Datasheet



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## General Description

The Universal Refrigeration Skills Trainer provides hands-on training in the principles and components of universal refrigeration units. The trainer includes a hermetic compressor with a fan-cooled condenser and a vertically mounted fan-cooled evaporator built into the unit's stainless steel cooling chamber. Two wood panels designed to accept the refrigeration and electrical components are provided.

Supplied as a kit, the complete unit and components include a high/low pressure control, thermostat control, control valve, moisture/liquid indicators, filter dryer, low- and high-pressure gauges, liquid receiver, suction accumulator, and capillary tube.

## Features & Benefits

- Standard reusable components
- Steel-insulated chamber with clear plastic door
- Kit format for assembling and disassembling for training purposes
- Heavy-duty frame with casters
- Reversible component mounting panels for extended usage
- Includes the following major components: hermetic condensing unit, hermetic compressor, forced-air condenser, liquid receiver, moisture/liquid indicator, filter dryer, thermo-static expansion valve, starting relay, capillary controller, temperature controller, forced-air evaporator, low-pressure controller, and high-and low-pressure gauges
- R-134a Refrigerant
- Estimated program duration: 30 hours

## List of Manuals

Description	Manual number
Refrigeration System Setup (User Guide) _____	580301 (30788-E0)
Refrigeration Skills (Student Manual) _____	585010 (73115-00)
Refrigeration Workshop Exercises (Student Manual) _____	585235 (87249-00)

## Table of Contents of the Manual(s)

### Refrigeration Skills (Student Manual) (585010 (73115-00))

- 1-1 Shop Safety
- 1-2 Refrigeration Symbols and Abbreviations
- 2-1 Types of Tubing
- 2-2 Tube Cutters and Reamers
- 2-3 Bending Tools and Tube Bending
- 3-1 Flaring Tools and Tube Flaring
- 3-2 Soft Soldering of Copper Tubing
- 3-3 Hard Soldering of Copper Tubing

- 3-4 Swaging Tools and Swage Joints
- 4-1 Electrical Connections
- 4-2 Solderless Connectors
- 4-3 Electrical Soldering
- 5-1 Isometric Drawings
- 5-2 Tubing Drawings
- 5-3 Conduit Wiring Drawings
- 5-4 Troubleshooting Techniques

**Refrigeration Workshop Exercises (Student Manual) (585235 (87249-00))**

- 1-1 Safety and Symbols
- 1-2 Assembling the Universal Refrigeration Trainer (Optional)
- 2-1 Refrigeration System with a Capillary Tube and a Thermostat
- 2-2 Refrigeration System with a Thermostatic Expansion Valve
- 2-3 Refrigeration System with a Dual Pressure Controller
- 2-4 Refrigeration System with a Dual Pressure Controller and a Thermostat

**Optional Equipment**

Qty	Description	Model number
1	Refrigeration Charging Equipment _____	587636 (3440-50)
1	Refrigeration Tool Cabinet _____	587639 (3441-20)
1	Refrigerant Recovery Unit _____	587640 (3445-10)

**Module Options Description**

**Refrigeration Charging Equipment  
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

## Specifications

Parameter	Value
<b>Refrigeration Charging Equipment</b>	
Includes:	Manifold
	Charging hose kit
	Vacuum pump
	Automatic refrigerant charging meter
	Heater blanket

## Refrigeration Tool Cabinet 587639 (3441-20)



The Refrigeration Tool Cabinet consists of a tool storage cabinet with all the tools required for to perform the exercises in the refrigeration training systems, Series 3400. The included tools and accessories are listed below:

- Gauges
  - Safety glasses
  - Welding gloves
  - Hacksaw
  - Hammers
  - Holding magazines
  - L hooks
  - Pegboard hooks
  - Flexible drain hose
  - Set of impact drivers
  - Set of hexagonal keys
  - Flaring and swaging tool and kits
  - 2-valve manifold
  - Different types of pliers
  - PNL tool
  - Puller fuse and gear
  - Compressor oil pump
  - Rack clip
  - Inner-outer reamers
  - Different types of screws
  - Different types of screwdrivers
- Different types of lever tube benders
  - Set of benders
  - Set of snapping bushings
  - Different types of clip springs
  - Snap-in bushings
  - Different types of finger grip adjustable clips
  - Set of crimpers
  - Copper tube cutters

- Snip tins
- Measuring tapes
- Measuring tape holder
- Thermometer
- Pinch-off tool
- Flat washers
- Different types of wrenches

## Specifications

Parameter	Value
<b>Tool Cabinet</b>	
Dimensions (H x W x D)	2134 x 1543 x 578 cm (84 x 60.8 x 22.8 in)

## Refrigerant Recovery Unit 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-DO)

## 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

## Specifications

Parameter	Value
<b>Power Requirements</b>	
Current	2.5 A
Service Installation	Standard single-phase ac outlet
<b>Compressor</b>	
Type	Hermetically sealed
Nominal Power	186 W (1/4 hp)
Oil	Polyolester, 280 ml (9.5 oz)
<b>Condenser Type</b>	Forced-air coil
<b>Refrigerant Compatibility</b>	R134a
<b>Filter/Dryer Type</b>	82 ml (5 in <sup>3</sup> ), 6.35 mm (0.25 in) flare x 6.35 mm (0.25 in) flare
<b>Instrumentation</b>	Low- and high-pressure gauges
<b>Safety Device</b>	High pressure
<b>Physical Characteristics</b>	
Intended Location	On a table able to support the weight of the equipment
Required Floor Space (H x W x D)	345 x 490 x 255 mm (13.6 x 19.3 x 10 in)
Net Weight	50 kg (110 lb)

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