

SOLAR THERMAL INSTALLATION LEARNING SYSTEM

950-STF1



Shown with option 95-STF2

The demand for qualified Solar Technicians is rising, as more consumers and businesses apply solar energy in their communities. Many employers are requesting NABCEP (North American Board of Certified Energy Practitioners) certification or equivalent skills as a condition of employment. Amatrol's Solar Thermal Installation Learning System supports the learning necessary to prepare for portions of NABCEP certification and helps to prepare students for successful employment in the solar thermal industry field.

Learning Topics:

- Mechanical Installation
- Fluid System Installation
- Electrical Installation
- Copper Tubing
- PVC Piping
- Soldering
- Solar Collectors
- Differential Controllers
- Centrifugal Pumps
- Heat Exchangers
- Solar Storage Tanks
- Expansion Tanks
- Control Valves
- Pressure/Temperature Valves
- Instrumentation

The 950-STF1 Solar Thermal Installation Learning System teaches students the installation and commissioning of closed loop and open loop solar thermal systems for commercial and residential applications. Students will learn how to install systems by selecting, preparing, mounting and connecting solar thermal components using copper tubing, PVC piping, and electrical wiring. Students will create and commission complete working systems, just as they would do on the job.

The 950-STF1 includes a mobile workstation with solar thermal components; solar thermal collectors; PC-based interactive, multimedia student curriculum; and teacher's guide. The mobile workstation is equipped with shadow boards for component storage, a benchtop worksurface and vise for tubing preparation, and mounting surface for assembly of solar thermal systems.



AMATROL®

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DESIGNED FOR LEARNING

Installation Skills Practice

The 950-STF1 provides a platform where students install real world systems using components commonly found in commercial and residential environments. Students select materials, solder and cut copper tubing, cut and glue PVC pipe, and run wire as they would do on the job. These skills are part of the preparation process for getting NABCEP certification.



TECHNICAL DATA

Workstation

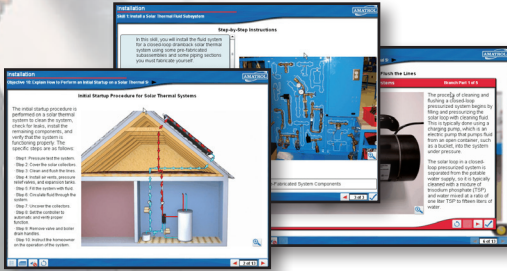
- Welded and braced steel tube frame
- Durable work surface, maple table top
- Shadow board for component storage with silk-screened labels
- Dimensions: 72in (183 cm)L x 72in (183 cm)H x 34in (86 cm)W
- Storage bin unit with 21 storage bins
- Solar collectors (2) with adjustable frame
- Component Circuit Panel for assembly of systems

Component Circuit Panel

- AC disconnect switch with breaker
- Ground fault circuit interrupter
- Centrifugal Pumps, AC-motor powered (2)
- Heat Exchanger, Plate type
- RTD probe, 1K, Pipe mounted (3)
- Solar Storage Tanks, 6 gal (22.71 L) insulated with boiler drain valve
- Expansion Tank
- Tempering Valve
- Boiler Drain Valves (2)
- Ball Valves (4)
- Relief Valve, 45 Psi (310.26 kPa)
- Relief Valve, 75 Psi (517.11 kPa)
- Temperature and Pressure Relief Valve
- Check Valve
- Schrader Valve
- Flow Control Valve
- Flow Meter
- Pressure Gages (2)
- Temperature Gages (3)
- Emergency Stop Pushbutton, hard-wired
- Differential Controller, 2 outputs, LCD display, digital type with keypad, up to 5 temperature inputs

Interactive Multimedia Curriculum

The 950-STF1 includes interactive, multimedia curriculum that can be used for self-paced student learning or in a traditional class setting as a presentation tool. The interactive, multimedia curriculum uses a competency-based instructional design that teaches industry standard skills. Eye popping graphics, 3D animations, video, audio and complete text explanations combine with strong interactivity to engage students and appeal to a variety of learning styles. Students can practice real world skills at their own pace, speeding overall student learning and retention.



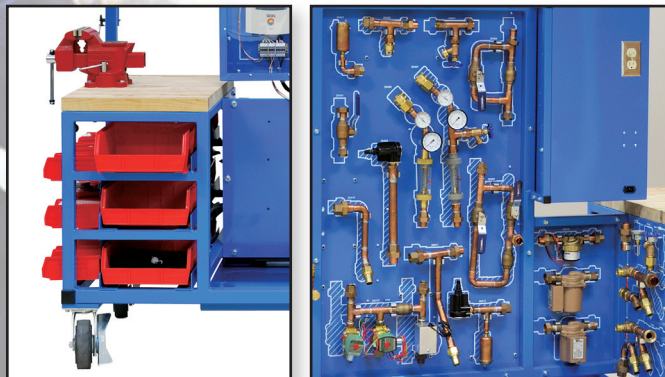
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Multi System Capabilities

This system has the unique ability to allow students to specialize in one of or four different applications of solar thermal installation. The base model of this system is designed to teach installation and commissioning of closed loop pressurized solar thermal systems. Option models 95-STF2 and 95-STF3 expand the learning to teach three more systems, including: closed-loop drainback, open-loop auto-draindown, and open-loop manual draindown.

Efficient, Effective, and Safe Training

This 950-STF1 workstation has been designed to be an effective, self-contained, and durable learning device. Installation skills are



Shown with option 95-STF2 & 95-STF3

Instructor's Assessment Guide, C20103

Installation Manual, D20103

Multimedia Courseware, M20103



Closed-Loop
Drainback System



Open-Loop
Drainback System

performed quickly and all-inclusive at the workstation with the use of bench-top workspace, table vise, and system installation panel. Silk screened shadow boards provide inventorying for easy access and storage.

Soldered components are supplied with unions and some pre-assembled piping to enable them to be reused by multiple student classes and minimize consumable costs.

The 950-STF1 has been designed with safety in mind to give students a safe experience and teach key safety skills. Safety features include: a soldering curtain that can be used in tight spaces to prevent fire; emergency stop pushbutton; automatic shutoff system to prevent overheating of collectors, and lockout/tagout.