

Steam Learning System

950-SH1



Learning Topics:

- Steam Systems Science
- Boilers
- Air and Condensate Control
- Pressure Control
- Temperature Control
- Condensate Recovery Systems
- Steam Systems Performance
- Thermal Expansion
- Internal Energy and Enthalpy
- Blowdown
- Strainers
- Heat Exchangers
- Globe Valves

Amatrol's Steam Learning System (950-SH1) introduces learners to the operation, installation, maintenance, and repair of steam systems and their application in paper mills, commercial and residential settings, power companies, and even nuclear submarines. Amatrol's exceptionally thorough curriculum covers a comprehensive range of steam system topics, including both practical applications such as how to operate a boiler and theoretical knowledge like the coefficient of volume and thermal expansion.

The 950-SH1 includes industrial-grade components such as an electric boiler, blowdown separator, and condensate feedwater system so learners can practice real-world applications and skills in areas such as safety, thermal expansion, and steam system performance. This is one example of Amatrol's commitment to providing the best components and curriculum available.



Technical Data

Complete technical specifications available upon request.

Mobile Workstation

Dimensions: 32-in W x 82-in H x 92- in L
4-in square welded steel tubing
Heavy duty casters

Electric Boiler

50 psig steam pressure, 51 lbs./hr flow rate
ASME coded pressure vessel, rated 100 psig
Low water cutoff/ level control
Main on/off switch
Pilot light
Blowdown valve
Water sight glass with shutoff valves
Safety relief valve
Steam pressure gauge
Automatic reset operating control
Manual reset operating control
Electric heating elements
Louvered enclosure with access door

Blowdown Separator

ASME code tank
Aftercooler assembly:
Globe valve
Strainer
Temperature regulator valve
Check valve
Thermometer
Mounting legs

Condensate Feedwater System

Condensate tank, 9 gallon
Sight glass
Globe valve
Mounting legs
Condensate pump, turbine type
Electric motor, 0.5 Hp
Makeup valve
Strainer

Process Water Heat System

Heat Exchanger, Shell-in-tube type, 4-pass, (2)
Strainer, Y-type
Steam Trap, inverted bucket type
Pressure Regulator Valve, 5-50 psig
Safety Relief Valves
Temperature Regulator Valves, (2)
Vacuum Breakers, (3)
Steam Traps, float and thermostatic type, (2)
Thermostatic Air Vent
Temperature Gauges, (7)
Pressure Gauges, (2)
Hot Water Storage Tank, 10 gallon
Hot Water Pump System
Centrifugal pump
Electric motor
2-Way Valves, (18)
Check Valves, (3)
Sight Glass

Student Curriculum (BB528)

Instructors Guide (CB528)

Install Guide (Db528)

Additional Requirements:

See <http://www.amatrol.com/support/computer-requirements>
Set of Hand Tools (41215)

Power Requirements:

3-Phase, 208 VAC, 60 Hz, 60 Amps or
3-Phase, 230 VAC, 50 Hz, 70 Amps
City water supply, 30 PSIG Min, 1 GPM

World-Class Steam Systems Curriculum

Amatrol's world-class curriculum infuses the scientific theory of steam with how it's harnessed for practical applications. The 950-SH1 explains important concepts like internal energy, specific heat capacity, and flash steam, as well as important calculations for steam power, such as calculating the change in enthalpy caused by phase change. Learners can then see how this theoretical material applies to tasks like the startup, shutdown, and blowdown of a boiler; the operation of an OS&Y valve; and how to test a steam trap.



Steam Safety Precautions

Amatrol's 950-SH1 also provides learners with a thorough understanding of the dangers of working with steam systems and the safety precautions that can prevent injury. The 950-SH1's curriculum teaches ten basic safety rules for working around steam systems, such as the appropriate choice of clothing to avoid burns, what safety components are present on a steam system, and the dangers of opening and closing valves without knowing their function. The 950-SH1 also covers maximum allowable working pressure (MAWP) and how safety relief gauges can keep a user safe when pressure builds in a steam system.



Testing a Steam Release Valve

Industrial-Grade Steam Components for Real-World Experience

The 950-SH1 features an electric boiler that is an ASME coded pressure vessel rated at 100 psig that can attain 50 psig steam pressure and 51 lbs./hr flow rate. The boiler also features low water cutoff/level control, steam pressure gauge, and both automatic and manual reset operating controls. The 950-SH1's condensate feedwater system features a 9 gallon condensate tank, turbine type condensate pump, and a 0.5 Hp electric motor. The learning system also features several valves, including: pressure regulator, safety relief, temperature regulator, 2-way, check, and globe.

