

# Steam System

Educational Training Equipment for the 21st Century

Bulletin 181-100B

## H-181-100 Steam Boiler Trainer



### MODEL H-181-100

Dimensions: 83" H x 92" W x 32" D

Shipping Weight: 1650 lbs

### Purpose

The Hampden **Model H-181-100** Steam Boiler Trainer efficiently provides hot water for process heat and building heat typically used throughout industry. This trainer teaches technicians the skills they need to select, operate, install, maintain and repair basic steam systems.

The **Model H-181-100** is a 'real-world' system producing heated process water. It includes the major steam and hot water system components commonly encountered. The trainer also includes extensive pressure, temperature and flow instrumentation which enables students to learn operational skills and troubleshooting. The piping is designed so that components can be removed and replaced.

The **Model H-181-100** consists of the following:

- Industrial Boiler
- Blowdown Tank/Aftercooler
- Pressure Regulator Valves
- Temperature Regulator Valves
- Feedwater Tank and Pump
- Pressure Gauges
- Temperature Gauges
- Heat Exchangers
- Student and Teacher's Manuals

### Modes of Operation

1. Steam generation, start-up
2. Steam to hot water, using one heat exchanger
3. Steam to hot water, using two heat exchangers
4. Cooling of hot water, using one heat exchanger
5. Blow down/shut down of the steam boiler

All Hampden units are available for operation at any voltage or frequency

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## Specifications

- 18 kw Electric Boiler
  - 50 psig steam pressure, 52 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 valves
  - Safety relief valve
  - Steam pressure gauge
  - Automatic reset operating control
  - Manual reset operating control
  - Electric heating elements
- Condensate Feedwater System :
  - Condensate tank, 9 gallon
  - Sight glass
  - Globe valve
  - Makeup valve assembly
  - Mounting legs
  - Condensate pump (high pressure), turbine type
  - Electric motor, 1/3 Hp
  - Makeup valve
  - Strainer
- Blowdown Separator with:
  - ASME code tank
  - Aftercooler assembly consisting of:
    - ball valve
    - strainer
    - check valve
- Heat Exchanger, tube-in-shell type
- Strainer, Y-type
- Steam Trap, inverted bucket type
- Pressure Regulator Valve, (5–50 psig)
- Temperature Regulator Valves
- Vacuum Breakers
- Steam Traps, float and thermostatic type
- Temperature Gauges
- Pressure Gauges
- Hot Water Storage Tank, 12 gallon
- Hot Water circulating pumps
- 2-Way Valves
- Check Valves
- Sight Glass
- Mobile Workstation with:
  - Swivel casters with brakes (2)
  - Fixed casters (2)

## Learning Topics

- Steam Boiler
- Condensation Systems
- Steam Traps
- Steam Pressure Control
- Steam Vacuum Breaker
- Steam to Water Heat Exchangers
- Hot Water Storage
- Hot Water Circulation Pumps
- Hot Water Temperature Control
- Pressure Gauges
- Temperature Gauges
- Flowmeters
- Ball Valves
- Check Valves
- Globe Valves

## Services Required

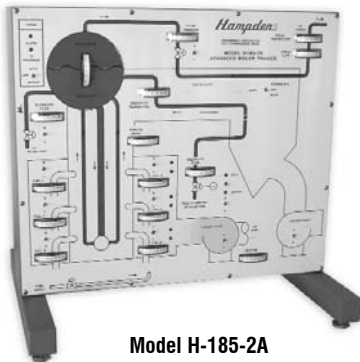
**Electrical:** 208VAC–3Ø–60Hz, 60 Amps

**Water:** Water Supply, 30 psig min., 1gpm

## Option

Hampden **MODEL H-181-100-FP** Electrical Fault Package Option with six instructor insertable faults.

## Related Trainers



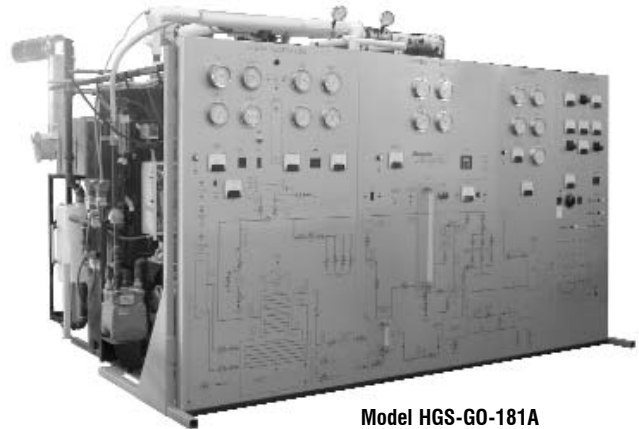
**Model H-185-2A**  
Advanced Boiler Trainer

### ← Model H-185-2A

Hampden's Advanced Boiler Trainer is a digital power simulator that demonstrates principles of operation and troubleshooting techniques of a current model boiler system.

### Model HGS-GO-181A→

Hampden's Dual Fuel-Fired Automated Boiler Trainer demonstrates how a dual-fuel fired boiler makes steam for power generation.



**Model HGS-GO-181A**  
Dual Fuel-Fired - Gas/Oil Automated Boiler Trainer

All Hampden units are available for operation at any voltage or frequency

**Hampden**  
ENGINEERING CORPORATION