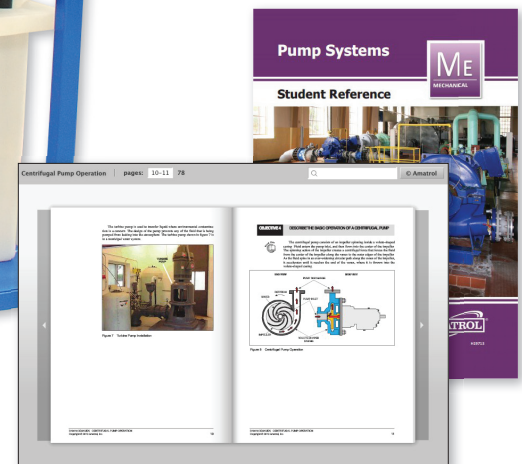


Centrifugal Pump Learning System

950-PM1



950-PM1 Learning System



Optional Online eBooks and Student Reference Guide

Learning Topics:

- Centrifugal Pump Operation
- Centrifugal Pump Characteristics
- Centrifugal Pump Troubleshooting
- System Characteristics
- Centrifugal Pump Performance
- Pump Safety and Installation
- Pump Flow Rate Measurement
- Head Concepts
- Cavitation
- Suction Side Design
- Impeller Diameter and Speed Calculations

Amatrol's Centrifugal Pump Learning System (950-PM1) introduces the fundamental principles of pumps, while showing their application in real-world mechanisms, like washing machines, air conditioners, fire engines, and more. After completing this learning system, learners will understand skills like installing a centrifugal pump and aligning it with an electric motor, as well as intricate theory, such as measuring pump flow rate and calculating friction head loss.

The 950-PM1 includes a centrifugal pump mechanical seal and foot mount, a variable speed motor/drive unit, a tank with valve network, a motor speed and current monitor, precision pressure gauge package, inlet and outlet, and digital flow meter readout. This mobile learning system also comes with Amatrol's signature, durable welded steel workbench, to provide a sturdy, long-lasting learning station. The workbench features a 30 gallon reservoir, swivel casters, and a drip pan. Amatrol's 950-PM1 easily expands to add on a variety of pumps so learners can study a wide array of components on this learning system.



Technical Data

Complete technical specifications available upon request.

Mobile Workstation

- 36" W x 60" H x 62" L
- Welded steel construction
- Swivel casters
- Drip pan
- Pump/motor mounting
- Instrumentation panel
- 30 gallon reservoir

Instrumentation Panel with Digital Flow Meter with Precision Pressure Gauge Package, Inlet and Outlet

- Flow meter, paddlewheel type, 0.8 to 54 gpm
- Flow meter readout, digital, LCD
- Pressure gauge, 0-15 psig (0-100 kPa), 4" liquid-filled
- Pressure gauge, 0-60 psig (0-400 kPa), 4" liquid-filled
- Pressure gauge, 0-160 psig (0-1100 kPa), 4" liquid filled
- Vacuum gauge, 0-30 psig (0-200 kPa), 4" liquid-filled

Motor Control Center with Torque Load/Speed Monitor

- Variable speed AC motor drive, 0.5-5 Hp, 1-phase 208 VAC supply, capable of driving two motors at the same time
- Digital readout for motor speed and current (torque analog), supplied with variable speed drive
- Circuit breaker switch
- Ground fault interrupter
- Motor-on indicator light
- Motor-start pushbutton
- Motor-stop pushbutton
- Motor speed control adjustment knob
- Power cable

Variable Speed Motor/Drive Unit

- 1/3 hp, 3-phase, induction motor type
- Foot mount
- Couple guard
- Flexible jaw coupling

Centrifugal Pump

- Foot mount, cast iron housing
- Mechanical seal
- 13 gpm flow at 9' head
- 15' max. head

Tank with Valve Network

- Cavitation valve, gate type
- Priming port
- Pseudo-cavitation valve, needle type
- Suction line, PVC construction with transparent section and vacuum gauge connection quick connect fitting
- Pressure line, PVC construction with transparent section and pressure gauge connection quick connect fitting
- Return line, PVC construction
- Load valve, gate type
- Foot valve with strainer
- Pump vent valve
- Suction line fill cap

Student Curriculum (B18610)

Instructors Guide (C18610)

Installation Guide (D18610)

Student Reference Guide (H18610)

Optional eBook (E18610)

Additional Requirements

- None
- 30 Gallons of Water

Utilities

- Electricity (208 VAC/60 Hz/3 Phase)

Complete Pumping System with Industrial Centrifugal Pump

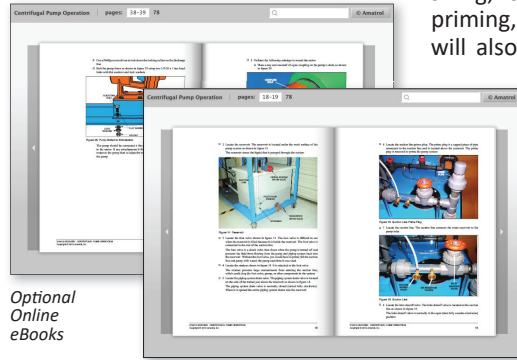
In addition to the centrifugal pump, the 950-PM1 features a 30 gallon reservoir with a 2-way drain, a 1/3 Hp, 3-phase electric motor unit, a network of PVC piping, and various gauges. Amatrol supplies these industrial-grade, top-flight components in order to give the learner the opportunity to work with real-world mechanisms and gain experience they would normally only acquire on the job.



Centrifugal Pump on the 950-PM1

Centrifugal Pump Curriculum with Optional Online eBooks

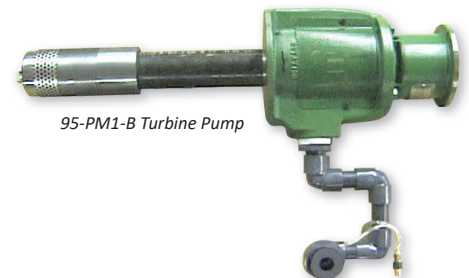
The 950-PM1 specifically focuses on the operation, installation, performance analysis, troubleshooting, and maintenance of centrifugal pumps. Learners will study the basic parts, proper sizing, safety rules, maintenance, troubleshooting, priming, cavitation, and pseudo-cavitation. Learners will also be presented with many mathematical formulas related to the centrifugal pump, such as how to calculate the effect of an impeller's diameter and speed on pump head, how to convert between mass and volumetric flow rate, and how to compute the total suction lift. As an online option to the Learning Activity Packets (LAPs) Amatrol's eBooks look like a real book and allow users to flip between pages with ease.



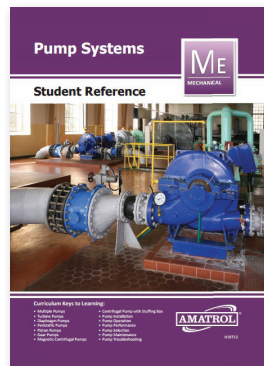
Optional Online eBooks

Incredible Number of Pumps Available as Add-Ons

Additional learning systems are available to extend the capabilities of the 950-PM1 Learning System, creating options for advanced pump systems training, such as the Multiple Centrifugal Pumps Learning System (95-PM1-A), the Turbine Pump Learning System (95-PM1-B), and the Diaphragm Pump Learning System (95-PM1-C). The 95-M1-A adds series and parallel pump applications to the 950-PM1 curriculum, and the 95-PM1-B discusses vertical turbine transfer pumps, which are used for high flow, low pressure transfer of fluids. The 95-PM1-C covers air-operated diaphragm pumps used to transfer fluids that are too viscous, corrosive, abrasive, or hot for other types of pumps.



95-PM1-B Turbine Pump



Student Reference Guide

A sample copy of the Centrifugal Pump Learning System Student Reference Guide is included with the learning system. Sourced from the multimedia curriculum, the Student Reference Guide takes the entire series' technical content contained in the learning objectives and combines them into one perfect-bound book. If you would like to inquire about purchasing additional Student Reference Guides for your program, contact your local Amatrol Representative for more information.

