

CENTRIFUGAL PUMP LEARNING SYSTEM

950-PM1



Amatrol's Centrifugal Pump Learning System (950-PM1) introduces learners to the operation of pumps and their application in real-world mechanisms, such as air conditioners, washing machines, fire engines, and more. Within Amatrol's curriculum, learners can study practical 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.

CURRICULUM IS THE KEY TO LEARNING

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

The 950-PM1 includes a Centrifugal Pump, an Electric Motor Unit, an Instrument Panel (flow meters, pressure gauges, vacuum gauge, etc.), a Motor Control Center (AC motor drive, pushbuttons, speed control knob, etc.), and a Piping Network (cavitation valve, suction line, pressure line, return line, etc.). This learning system also comes with Amatrol's signature welded steel workbench that 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. These additional pumps include multiple centrifugal pumps (95-PM1-A), turbine pump (95-PM1-B), diaphragm pump (95-PM1-C), peristaltic pump (95-PM1-D), piston pump (95-PM1-E), gear pump (95-PM1-F), magnetic pump (95-PM1-G), and centrifugal pump with stuffing box (95-PM1-H).

DESIGNED FOR LEARNING

Centrifugal Pump Components and Function



Centrifugal Pump (green) on the 950-PM1

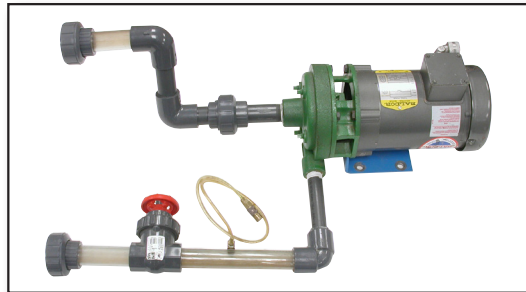
The 950-PM1 specifically focuses on the function and application of a centrifugal pump. Learners will study the basic parts, proper sizing, safety rules, maintenance, troubleshooting, priming, cavitation, and pseudo-cavitation. Learners will also be presented with many mathematical formulas related to 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.

Industrial-Grade Components

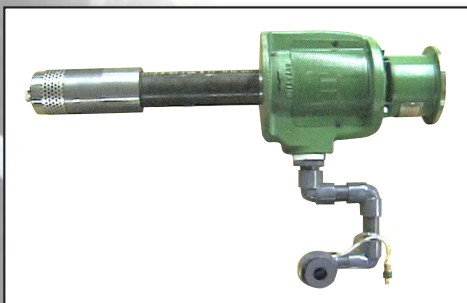
In addition to the centrifugal pump, the 950-PM1 features a 30 gallon reservoir with a 2-way drain, a 1/3 Hp, 3-phase electric motor unit, a network of PVC piping, and various gauges. Amatrol supplies these industrial-grade, top-flight components in order to give the learner an opportunity to work with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

Additional Learning Systems

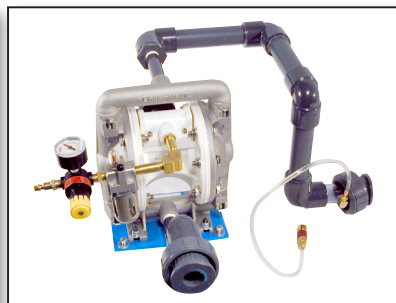
The 950-PM1 offers several separately purchased learning options for advanced pump systems training, such as the Multiple Centrifugal Pumps Learning System (95-PM1-A), the Turbine Pump Learning System (95-PM1-B), and the Diaphragm Pump Learning System (95-PM1-C). The 95-PM1-A adds series and parallel 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-A



95-PM1-B



95-PM1-C

TECHNICAL DATA

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

Instrument Panel

- 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

- 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

Centrifugal Pump

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

Electric Motor Unit

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

Piping 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

B18610 Student Curriculum

C18609 Teachers' Guide

Power Requirements:

- 1-Phase, 208-240 VAC, 50/60 Hz, 7 Amps