MECHANICAL DRIVES 1 LEARNING SYSTEM 950-ME1

The 950-ME1 Mechanical Drives 1 Learning System teaches fundamentals of mechanical transmission systems used in industrial, agricultural, and mobile applications. Students will learn industry-relevant skills including how to: operate, install, analyze performance, and design basic mechanical transmission systems using chains, v-belts, spur gears, bearings, and couplings.

The model 950-ME1 includes a mobile workstation, motor control unit, mechanical transmission components, specialized tools, prony brake load device, performance measurement instruments, student learning materials for both theory and lab, and teacher's guide. This system uses industrial quality components to help assure that students are better prepared for what they will encounter on the job and to withstand frequent student use.

Additional panels are also available to extend the learning capabilities of the 950-ME1 System to levels 2, 3, 4, and beyond. With these additional panels the 950-ME1 System provides the most extensive range of component coverage ever provided in a mechanical trainer. Examples include 7 types of couplings, 6 types of belt drives, 3 types of chain drives, and 4 types of bearings!

CURRICULUM IS THE KEY TO LEARNING

Learning Topics:

• Power and Work
• Mechanical Safety
• Component Operation/ Installation
• Chain and V-Belt Drives
• Flexible Jaw Couplings
• Pillow-Block Type Bearings
• Shafts and Keyways
• Spur Gears
• Motor Mounting / Leveling
• Soft Foot
• Straight Edge & Feeler gauge Alignment
• Multiple Shaft / Gear Alignment
• Component Selection

AMATROL ®

Rigid Work Surface for Precision Alignment -
The mobile workstation is constructed of heavy-duty welded steel and provides a precision-machined, thick work surface made of tooling plate material to enable students to perform precise shaft alignments. Holes are pre-drilled in the work surface by a CNC machine to enable students to quickly set up a variety of applications.
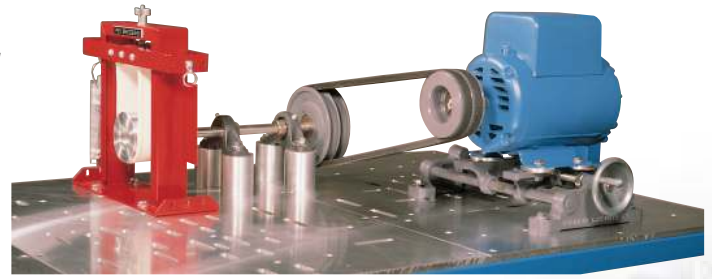
Performance Measurement with Industrial Load Conditions - The 950-ME1 System features the unique ability to measure the performance of each mechanical transmission setup, showing students the effects of proper alignment and how to obtain best efficiency. The system includes a prony brake, which places a variable load on each setup, and instrumentation, which measures speed, torque, and current.

Quick Access Component Storage - Most components are conveniently stored on panels with silk-screened outlines to enable students to quickly locate and return them to their stored locations. Ample panel storage is provided overhead and underneath the work surface to permit the addition of the many optional panels available. Other components are stored in the industrial-quality tool storage cabinet located at one end of the workstation.

Double-Sided Workstation - The 950-ME1's mobile workstation is 84 inches long and includes two identical work areas to support as many as four students working in pairs at one time. Additional components are available to support a 4-student configuration by selecting the Model 95-ME1-A 2-Student Add-On Mechanical Drives 1 System and the 95-ME1-B Enhanced 2-Student Add-On Mechanical Drives 1 System.

TECHNICAL DATA

Mobile Workstation
- Welded 1.5 in. steel tube, 84 in. (211 cm) L x 76.75 in. (195 cm) H x 30 in. (76 cm) W
- Work surfaces (4), Aluminum tooling plate
- Component storage, panels, under work surface (16)
- Component storage, panels, overhead (8)
- Tool box storage shelf
- Motor control unit mounting
- Casters, locking type (2)

Prony Brake
- Torque Range, 0-3.05 N-M
- Manual torque adjustment
- Spring gauge force readout
- Coolant spray bottle
- Load drum with coolant chamber

Constant Speed Motor
- Single phase, capacitor start
- 1/3 Hp rating; Nema 56 frame; 1750 RPM

Adjustable Motor Base
- Formed steel, 11 gauge
- Dual lead screw adjustment
- Travel adjustment, 5.75 in (146 mm)

Motor Control Unit
- Nema enclosure-Safety switch with lockout / tagout
- Manual motor control starter, single pole with heater
- Variable speed control unit with potentiometer adjustment
- Current meters, analog, 0-10 amp range and 0-5 amp range
- Motor read switch, momentary
- Fuse, slow-blow type, 5 amp

Phototachometer, LCD Display, Up to 10000 RPM

Variable Speed Motor
- AC / DC universal motor
- 52:1 right angle gearbox
- Speed range 0-306 rpm at no load
- 1/15 Hp

Shaft panel 1
- Component storage panel
- Shaft, 0.625 in. dia., 12 in. long, stainless steel

- Pillow block bearings, cast iron, 0.625 in. bore, lock collar (2)
- Pillow block bearing standoffs, aluminum (4)
- Constant speed motor risers (4)
- Soft foot riser
- Flexible jaw coupling, type L with 0.625 in. bore

Shaft panel 2
- Component storage panel
- Flexible jaw coupling half, 0.5 in. bore
- Shafts, 0.625 in. dia., stainless steel (3)
- Pillow block bearings, cast iron, 0.625 in. bore, lock collar (4)
- Pillow block bearings standoff (8)
- Sleeve coupling, 0.625 in. bore
- Gear Motor Risers (4)

Gear Drive panel 1
- Component storage panel
- Spur gears, varying sizes of DP, PA, and teeth (8)
- Gear gauge

Belt Drive panel 1
- Component storage panel
- Sheave, FHP, .625 in. dia. fixed bore, varying PD sizes (3)
- Pillow block bearings, cast iron, 1.0 in. bore, lock collar (2)
- Shaft, 1-in. dia., stainless steel
- Belt tension checker
- Sheave gauge

Chain Drive panel 1
- Component storage panel
- Sprockets, 0.625 in. dia. bore, 40 pitch, varying teeth numbers (3)
- Chain Puller, #35-#60 chain

Tool Cabinet
- Steel construction
- Dimensions: 26.25 in. L x 11.5 in. H x 12.25 in. W
- Drawers (3)

Tool Cabinet storage Items
- Shim stock set, 80-piece
- Key stock, 24-inch lengths (2)
- Fastener Package with grade 5 bolts, nuts, and washers
- Classic V-belt, A size, 36 in. length-Roller chain, #40, 0.5 in. pitch 39.5 in. long
- Master link, #40 chain
- Spray can, Teflon spray
- Feeler gauge
- Spirit level
- Straight edge, 36 in.
- Torpedo level
- Combination square
- Dial indicator with 90 degree tip and adjustable mounting brackets and clamps
- Magnetic base and mounting plate with quick release attachment

Student Learning Activity Packet Set, B502
Instructor's Guide, B512

Power Requirements:
- 1-Phase, 110 VAC, 60 Hz, 9 Amps or
- 1-Phase, 230 VAC, 50 Hz, 6 Amps

Additional Required Items
- Hand Tool Set #41210