

# Electric Motors (IMC-8)

## INDUSTRIAL MAINTENANCE



### GREYSTONE

The Greystone line of training systems offers an all-in-one solution for your mechatronics and industrial maintenance lab! Durable lab equipment and rigorous courseware combine to deliver all you need for your secondary or post-secondary career and technology education program.

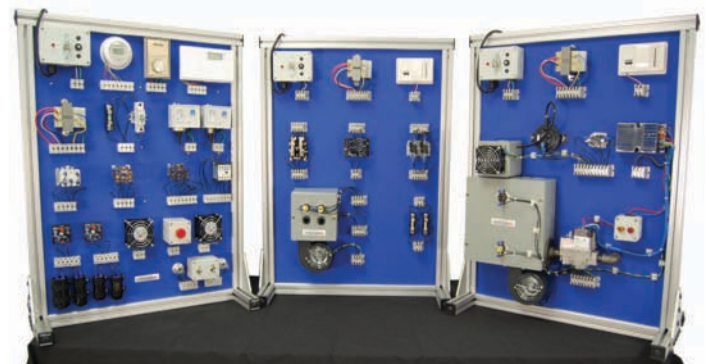
These robust, versatile training stations allow for in-depth training in small spaces. From desktop trainers to mobile training stations, Greystone stations feature industrial-grade components incorporated into rugged aluminum framework. All trainers include competency-based curriculum with emphasis on operating theory, installation, maintenance, and troubleshooting.

Give your trainees and students the advantage of working with the same equipment they will encounter in industry. Choose Greystone training systems!

### EXPAND YOUR INDUSTRIAL TRAINING PROGRAM

Increase the versatility of your training program with the following additional options and related hardware:

- Electrical Control Training: Industrial Power Control, PLCs
- Electrical Wiring
- HVAC Control Training
- Mechanical Training: Machine Shaft Alignment, Vibration Analysis



Electric Motors is a stand-alone benchtop training station providing students with the essential skills for working with common industrial motors, including three-phase, split-phase and capacitor-start motors. From wiring motor circuits to preventive maintenance and troubleshooting, students gain practical experience in all aspects of industrial motor operation, including connecting and operating a three-phase motor, troubleshooting a capacitor-start motor and testing motors with adjustable loads

Electric Motors effectively presents the principles and application of motor drives by using the same components used in the field, including industrial motors mounted on Flexponent™ panels which attach to the Greystone trainer base. Motor panels are easily exchanged allowing the workspace to be re-configured as multiple students progress through the course. Students learn via hands on activities building and troubleshooting motor drive circuits and working with industrial DC, SCR, AC and solid-state motor drives as well as controllers and inverters.

The included Student Study Guide lays a solid foundation in the theory and concepts involved in industrial power as well as guiding students step by step through hands-on lab activities with the trainer equipment.

# Electric Motors

## Materials Included

Order # 10-IMC8-0000

### IMC-8 Trainer

- Frame size: 25"h x 32"w x 16"d  
635mm x 812mm x 406mm
- Trainer weight (approximate): 60 lbs (14 kg)
- Construction: Anodized aluminum U-shaped frame with environmentally stabilized, non-conductive polymer panels, six adjustable leveling feet, non-conductive wire-way, panel mounting bolts
- Power Requirements: 120V AC 15A single-phase  
220V AC 20A three-phase
- Electrical connections:
  - All electrical components are permanently mounted to the panel
  - Electrical components are wired through industry-standard terminal strips rated at 50-amps @ 600-volts
  - Terminal strips feature recessed and insulated fasteners and are field-serviceable
  - Electrical connections are completed through color-coded 16-gauge insulated and stranded lead wires
  - Each connecting lead wire is terminated on each end with metal uninsulated, crimped ferrules

### Flexponent Panels

- E057 Motor Generator Panel
- E010 Three-Phase Motor
- E019 Single-Phase Motor
- E156 Dissectible Motor
- E034 DC Motor

### Included Accessories

- Hook-up lead kit
- 1/4-20 thumb nuts, nylon (20)
- 4 D-size batteries
- 1/4-20 wing nuts, nylon (4)
- Flexible coupling with 1/2" hub, 3/8" hub, and insert
- Resistor
- Student study guide
- Installation guide

## Materials Required (sold separately)

- Digital Multimeter (Fluke Model 115 or equivalent)
- Tachometer
- Oscilloscope

## Optional Curriculum Supplements

- Electric Motors - Textbook #10-IMC3-TB01

## Course Outline

### Safety

- Activity 1: The IMC-8 Trainer
- Activity 2: Electric Motors
- Activity 3: Single-Phase Motors
- Activity 4: Direct Current Motors
- Activity 5: Three-Phase Motors
- Activity 6: Motor Nameplate Data
- Activity 7: Motor Selection
- Activity 8: Motor Protection
- Activity 9: Motor Failure
- Activity 10: Troubleshooting Motors



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**Electric Motors** features a portable training station equipped with single-phase and three-phase power control components for building and troubleshooting motor circuits. With swappable motors and an adjustable brake students learn how various motors perform under differing loads. Included panel-mounted motors include a three-phase, capacitor-start and DC motor.

## IMC-8 Trainer Components

- 120V single-phase AC and DC power control enclosure
  - 120V single-phase AC on/off control switch
  - Single-phase AC power indicator light
  - Single-phase AC run/stop switch
  - Single-phase AC ammeter
  - 90V, DC power controller
  - DC power indicator light
  - DC speed control trimpot
  - DC on/off switch
  - DC ammeter
  - Load brake w/ adjustable base
  - Adjustable motor load power supply with control panel display
- 230V three-phase power control enclosure:
  - Three-phase power control on/off switch
  - Forward/ stop/ reverse switch
  - Individual phase power indicator lights (3)
  - 5A circuit breakers (3)
  - Individual phase voltmeters (3)
  - Individual phase ammeter (3)

## Flexponent Panel Specifications

All included Flexponent™ panels meet the following specifications:

- Construction: 3/8" (9.5 mm) thick environmentally stabilized, chemically resistant, non-conductive, high density polyethylene.
- Terminal strips Industry-standard recessed and insulated fasteners rated for 50-amps at 600 volts.
- Dimensions
 

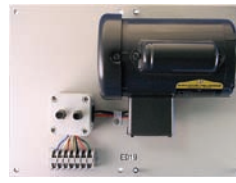
Single panel:	8"W x 11.5"H x 0.375"D (203 mm x 292 mm x 9.525 mm)
Double-wide	16"W x 11.5"H x 0.375"D (406 mm x 292 mm x 9.525 mm)

### Panel E156 : Dissectible Motor



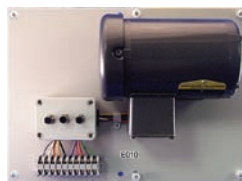
Panel type: Single  
3ph motor, 13hp, 1725 rpm, disabled

### Panel E019: Capacitor-Start Motor



Panel type: Double  
1 1-phase motor, .08hp, 1725rpm  
2 Fault switches: 4A, 250V push-on/push-off momentary

### Panel E010: Three-Phase Motor



Panel type: Double  
1 3-phase motor, 13hp, 1725 rpm  
3 Fault switches: 4A, 250V push-on/push-off momentary

### Panel E034 : DC Motor



Panel type: Double  
1 Motor, 90VDC, 13hp  
1 Fault switch: 4A, 250V push-on/push-off momentary

## Make Greystone Training Systems part of a comprehensive STEM program!

Add virtual, hardware-based or blended learning labs to deliver in-depth Industrial Maintenance, Mechatronics and Advanced Manufacturing programs.



# intelitek

444 East Industrial Park Dr. • Manchester, NH 03109  
Phone: 800-221-2763 • info@intelitek.com

www.intelitek.com

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