

Electrical Machine Training Workbench Setup



Note Shown image is just for illustration original may differ

An integrated workbench consisting of instrument panel and working table is suitable for students to learn and perform various experiments of electronics and electrical related subjects. Measuring Instruments is internally electrically connect and fitted in the panel such that only front panel and necessary interfaces are easily accessible to use. Structure of workbench is made up of 1.5 mm thick CRC powder coated pipes with top made up of good quality 19 mm thick plywood and covered with 1.8 mm off white colour mica. The bench working area is covered by 2 mm thick antistatic mat which help students to controls static discharge as static cause interference or damage to students, equipment and circuitry. There are detailed training at consignee end for at least 1/2 days on how to use Workbench and utilization of this bench for various applications.

Structure and design of Workbench follow the below specifications:

1. The basic structure is made of 38 x 38 x 1.5 mm CRC powder coated pipes for sturdiness.
2. The overall dimensions of Workbench is not less than W = 1200 mm; D = 770 mm; H = 1650 mm
3. MS drawers 03 numbers 415 X 290 X 133 mm (H X W X D) and thickness 1.2mm with handle & separate lock on each drawer is provided
4. For the panel section, raised back height of 1200mm from floor with matching height support from the side at a depth 500mm for instrument housing with a MS Panel strip below it for housing Electrical Sockets and Switches for external use.
5. Two Pole MCB (32A – Havells / Siemens) to be provided for safety of Workbench
6. Workbench is work on Mains Supply - 230VAC, 50 Hz

The Machine Training setup is suitable for training the principles of three-phase rotating machines and covered following topics:

- Different concepts and devices important to the study of three-phase rotating machines, such as single-phase and three-phase AC power circuits, single-phase and three-phase power transformers, and power factor correction.
- Operation of different rotating machines, such as permanent-magnet DC motors, induction machines, and synchronous machines.
- Less common machines, such as conventional dc machines, universal motors, and single-phase induction motors.

The training workbench setup has following key Features and technical specifications:

- All workstations, modules, and components must be very sturdy to ensure a prolonged service life in a demanding environment such as a training laboratory.
- All electrical components can be interconnected without electric shock hazard since all live parts of the connection leads are concealed and insulated.
- All electrical symbols representing the components used in a laboratory exercise are clearly silk-screened on the front panel of the modules.
- This module is used as a DC and AC power source.
- Data Acquisition Interface system, this module gives access to a large variety of computer-based measuring instruments via the suitable software.

Modules / components and accessories

Specifications of all the items listed above is compatible to the design of the Machine Trainer setup. The above mentioned items of high quality and suitable rating to ensure a prolonged service life of the complete setup.

- 1x Table top Workstation
- 1 x Permanent Magnet DC Motor with loading arrangement, 1HP
- 1 x Four-Pole Squirrel-Cage Induction Motor with loading arrangement , 1HP
- 1 x Synchronous Motor, 3HP
- 1x DC Motor with loading arrangement, 1HP
- 1x Capacitor-Start Motor with loading arrangement, 1HP
- 1x Universal Motor operates in both AC & DC Supply , 1HP
- 1 x Three-Phase Transformer Bank, 1kva
- 1 x Single Phase Transformer Bank, 1kva
- 1 x Resistive Load.
- 1 x Inductive Load
- 1 x Capacitive Load
- 1 x AC Power Supply
- 1 x DC Power Supply
- 1 x Connection Lead Set
- 1 x Data Acquisition System

The Training modules / Work Book/ User Guide for Trainees covered following topics / experiments in details :

- DC Power Circuits
- Single-Phase AC Power Circuits
- Three-Phase AC Power Circuits
- 1HP, Three-Phase Rotating Machines
- 1kva, Single-Phase Power Transformers
- 1kva, Three-Phase Transformer Banks
- 1HP, Permanent Magnet DC Machine

The following items is supplied with the Machine Training Setup:

- 1x Personal Computer of suitable latest configuration (Min. i5 config, 500 GB SSD, rest of the specifications as suitable for the Machine Trainer)
- 2x Suitable Storage Shelves of dimensions (4ft x 2ft x 5ft)

Accessories:

The setups supply with all accessories and essential consumables required for the full feature working/Training of the Machine Training setup.