



Introduction

The Three Phase Squirrel Cage Induction Motor Training System is a versatile and adaptable setup designed for electrical laboratories. It enables students to gain a comprehensive understanding of the construction, working principles, and performance characteristics of a three-phase squirrel cage induction motor.

The system is additionally equipped to study **reduced voltage starting methods** using a three-phase autotransformer, allowing analysis of starting current and motor behavior under controlled voltage conditions. The panel layout is simple and user-friendly, enabling students to perform connections independently.

Note: Shown image is for illustration purposes only. Actual product may vary.

Training Objectives

- To understand the construction and working of three-phase induction motors
- To study operational characteristics of squirrel cage motors
- To perform running and reversing operations
- To study reduced voltage starting methods
- To measure starting current and analyze motor performance
- To evaluate motor behavior under different loading and voltage conditions

Key Features

- Digital microcontroller-based measuring instruments with high accuracy and resolution
- Screen-printed symbols, circuit diagrams, and graphics for easy understanding
- Standard BS-10 terminals with patch cords for electrical safety
- Copper-wound motor for long service life
- Class "F" insulation for enhanced thermal protection
- Standard mechanical loading arrangement

Note: Specifications are subject to change, Photos shown above are Indicative, Actual Product can Vary.



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- Heavy-duty MS channel base with provision for concrete mounting
- Brake drum/pulley with internal heat suppression facility
- Contact/non-contact digital speed measurement system
- Equipped with supply indication lamps
- Facility for reduced voltage starting using autotransformer

System Components

Three Phase Induction Motor

- Type : Squirrel Cage
- Power Rating : 1 HP
- Voltage Rating : 415 V AC $\pm 10\%$, 50 Hz
- Current Rating : As per standard
- Speed : 1440 RPM $\pm 10\%$
- Insulation : Class 'F'

Reduced Voltage Starting Unit

- Type : Three Phase Closed Type Autotransformer
- Function : Provides variable reduced voltage for controlled motor starting
- Application : Study of starting current reduction and smooth acceleration

Loading Arrangement

- Type : Mechanical loading
- Brake Drum / Pulley : MS / Aluminum cast with heat suppression facility
- Spring Balance : 2 Nos. (Salter make)

Machine Base

- Material : MS "C" Channel
- Construction : Heavy-duty with suitable interconnections

Measuring Instruments

- **AC Voltmeter** : 0 – 500 V
- **AC Ammeter** : 0 – 10 A

Digital Tachometer

- Range : Up to 19,999 RPM
- Type : Contact / Non-contact

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Technical Specifications**Mains Supply**

- Voltage : 415 V AC $\pm 10\%$
- Frequency : 50 Hz

Protection Devices

- MCB (TPN) : 16 A
- Glass Fuse : 5 A

Scope of Learning / Experiments

- Study of three-phase squirrel cage induction motor
- Understanding fundamentals and operational working principles
- Running and reversing operation of motor
- Study of reduced voltage starting method
- Measurement of starting current under reduced voltage
- Comparison of full voltage vs reduced voltage starting
- Performance analysis under load conditions

Supporting Accessories Supplied

- Patch cords with different color schemes
- Single-phase and three-phase mains cords
- Extra glass fuses
- Digital tachometer
- Learning material manual (soft copy)
- Three Phase Closed Type Autotransformer

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