



## Introduction

The Three Phase Squirrel Cage Induction Motor Training System with Direct-On-Line (DOL) Starter is a versatile and industry-oriented training setup designed for electrical laboratories. It enables students to understand the construction, working principles, and starting methods of a three-phase squirrel cage induction motor.

The system is equipped with a built-in DOL starter, allowing practical study of motor starting characteristics, including inrush current and operational behavior. The panel is designed with a simplified layout and clear markings, enabling students to perform connections independently and safely.

*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 the Direct-On-Line (DOL) starting method
- To observe motor starting behavior and inrush current
- To study running and reversing of the motor
- To analyze motor performance under different operating conditions

## Key Features

- Integrated control with built-in Direct-On-Line (DOL) Starter
- Digital microcontroller-based measuring instruments with high accuracy and resolution
- Screen-printed symbols, circuit diagrams, and graphics for ease of understanding
- Standard BS-10 terminals with patch cords for electrical safety
- Copper-wound motor for long operational life
- Class "F" insulation for enhanced durability
- 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
- Non-contact digital speed measurement system
- Equipped with supply indication lamps

## 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'

### DOL Starter Unit

- Type : Direct-On-Line Starter
- Make : Siemens or equivalent
- Components : Contactor, overload relay, start/stop push buttons
- Function : Direct connection of motor to supply for starting

### 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) : 10 A
- Glass Fuse : 10 A

**Scope of Learning / Experiments**

- Study of three-phase squirrel cage induction motor
- Understanding fundamentals and operational principles of DOL starter
- Study of direct-on-line starting method
- Observation of inrush current during motor starting
- Running and reversing operation of motor
- Performance analysis under different 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)

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