



#### **SALIENT FEATURES :**

- 01 Facilitates easy and safe wiring by students due to use of 4mm sturdy Shrouded banana patch cords & shrouded socket arrangements.
- 02 All machines are mounted on finely painted sturdy base frame with easy machine interchangeability. Use of gear coupling facilitates screwless coupling. interchangeability. Use of gear coupling facilitates screwless coupling.
- 03 With due emphasis on student safety machines operate upto 300W power levels and upto 1500 RPM, without compromising on didactic use. Able to draw all graphs.
- 04 Trunnion mounted DC Integrated machine is used as Dynamometer for loading other machines (Motors/ generators both); unlike magnetic powder brake or eddy current brake which can load only coupled Motors and not generators, with facility to measure shaft power using electronic torque / speed Measurement

#### **DC MOTOR COUPLED 3PH. SALIENT MOTOR TRAINER**

##### **Name of the Experiments :-**

- Experiment -1 speed torque curve of DC shunt motor with 3 phase salient motor
- Experiment -2 speed torque curve of DC series motor with 3 phase salient motor
- Experiment -3 Speed torque curve of separately excited DC motor with 3 phase salient motor
- Experiment -4 Speed torque of DC compound motor with 3 phase salient motor
- Experiment -5 v-i efficiency curve of DC shunt generator with 3 phase salient motor
- Experiment -6 v-i efficiency curve of DC series generator with 3 phase salient motor
- Experiment -7 v-i efficiency curve of DC separately excited generator with 3 phase salient motor
- Experiment -8 v-i efficiency curve of DC compound generator with 3 phase salient motor
- Experiment -9 v-i efficiency curve of occ of shunt generator with 3 phase salient motor
- Experiment -10 Speed torque of 3ph. synchronous motor
- Experiment -11 Efficiency and input power factor measurement 3ph. synch. motor
- Experiment -12 Study of 'v' curve and inverted 'v' curve
- Experiment -13 output volt -amp charACTeristics of synchronous generator
- Experiment -14 Efficiency of synchronous generator
- Experiment -15 Performance of R, L, and C load

##### **Panels Provided**

- 01 Aluminum Machine trainer Rack
- 02 Input 3 phase DOL Starter panel

Note: Specifications are subject to change.

#### ***Tesca Technologies Pvt. Ltd.***

IT-2013, Ramchandrapura Industrial Area, Sitapura Extension,  
 Near Bombay Hospital, Vidhani Circle, Jaipur-302022, Rajasthan, India,  
 Tel: +91-141-2771791 / 2771792; Email: info@tesca.in, tesca.technologies@gmail.com  
 Website: www.tesca.in

- 03 Multifunction Meter (Single Phase/Three Phase AC 50Hz)
- 04 FWD/REV, Star-Delta starter panel
- 05 DC voltmeter & Ammeter and Torque Measurement Meter
- 06 Variable DC Power Supply
- 07 Input Single Phase DOL Starter Panel AC DC Fix / Variable Supply
- 08 AC Load Resistor
- 09 DC Load Resistor
- 10 AC Load Inductor
- 11 Capacitive (C) Load
- 12 Extension Board

#### Motors Provided

- 01 DC Integrated (Trunion Mounted) Motor
- 02 3 Phase Salient Pole Alternator

#### Accessories Provided

- 01 Hand held digital Tachometer
- 02 Shrouded connecting leads 4mm 50 / 100cm assorted Red & Black



#### DC INTEGRATED (TRUNION MOUNTED) MOTOR

**Voltage :**  $V_{arm} = 180V$   $V_{field} = 180V$

**Capacity** -300W/2 Pole m/c, **RPM** - 1500, **Shrouded Socket** - 12

**Rotor Construction:** Standard commutator / brush arrangement with laminated stack, brought out on 2 terminals

**Stator construction :** Separately excited field winding with laminated solid yoke 2 pole and series winding brought out on 4 terminals.

**Torque characteristic:** Provision of load cells 6 Kg. 2 No. assembly to measure the torque .



#### 3 PHASE SALIENT POLE ALTERNATOR

**Voltage :** 415VAC, 50Hz

**Capacity** -300W/4 Pole m/c, **RPM** - 1500, **Shrouded Socket** - 12

**Rotor Construction :** Star connected, four terminals including star point brought out on 4 slip rings mounted on shaft.

**Stator construction :** Separately excited field winding with laminated solid yoke, 4 pole brought out on 2 terminals



#### ALUMINUM FRAME - MODULAR PANELS

Electrical motor trainer rack made up aluminium profile size 40×40mm, foldable and light in weight 10 panel setup can be interchange conveniently to perform experiments. Dimension Length 1100×Height 1000×Depth 350mm.

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## Technical Specification of Panels

### INPUT 3 PHASE DOL STARTER PANEL



- 1 MCB 4 pole 4Amp.
- 2 DOL 9A Contactor with 415V / 50 Hz / 11VA COIL .
- 3 RYB Indicator
- 4 Emergency Switch
- 5 Shrouded socket 8Nos.
- 6 Push button switch for Stop/Start

### INPUT SINGLE PHASE DOL STARTER PANEL AC DC FIX / VARIABLE SUPPLY



- 1 MCB 2 pole 10A with indicator
  - 2 Emergency Switch
  - 3 Push button switch for Stop/Start
  - 4 DOL 9A Contactor with 230V / 50 Hz / 11VA Coil .
  - 5 Shrouded socket 4Nos.
- Variable AC Supply (0-200V)**
- 1 Shrouded socket 6Nos.
- Fix/Variable DC Supply (0-200V)**
- 1 Shrouded socket 4Nos.

### MULTIFUNCTION METER (Single Phase/ Three Phase AC 50Hz)



- 1 Bidirectional Multifunction Meter
- 2 3 Phase 4 wire, 440V, Current 5A
- 3 LED display,
- 4 Aux supply 230V, 45-65Hz, 5W
- 5 To measure parameters ie Voltage Current., KVA, Frequency, Power factor, Active Power (W), Reactive Power (vary) etc.
- 6 Shrouded socket 08Nos. etc.

### AC LOAD RESISTOR



- 1 AC Resistors 10K/5K/3.5K/2.5K/2K/1.5K/ OFF 200W x 3 phases/ 6 taps
- 2 Load Resistance switch 3 POL 7 Way/10Amp.
- 3 Cooling Fan size 4" 230V Operated
- 4 Shrouded socket 12Nos.

### FWD/REV AND STAR-DELTA STARTER PANEL



- 1 FWD/REV, 3 pole 3 way Switch with centre OFF, 10A/ 440V.
- 2 Star/Delta switch 3 pole, 3 way with centre OFF, 10A/ 440V.
- 3 Shrouded socket 12Nos.

### DC LOAD RESISTOR



- 1 750E/600E/300E/212E/162E/ 125E/112E/100E/400W /8 taps + OFF + separate 60E tap For DC series Gen.
- 2 Load Resistance switch 3 POL 7 Way/10Amp.
- 3 Cooling Fan size 4" 230V Operated
- 4 Shrouded socket 6Nos.

### DC VOLTMETER & AMMETER WITH TORQUE MEASUREMENT METER



- 1 TWO DPM DC voltmeter (0-1000V)
- 2 TWO DPM DC Ammeter (0-20A)
- 3 Torque Measurement Meter
- 4 Shrouded socket 16Nos.

### AC LOAD INDUCTOR



- 1 Inductive load =0.15H/0.3H/ 0.45H/0.6H/0.75H/1.5H/3H/ 400mA X 3Nos.
- 2 Load inductor switch 3 Pole 7 Way/10Amp.
- 3 Shrouded socket 12Nos.

### VARIABLE DC POWER SUPPLY



- 1 Half bridge SCR based 0V-200V / 3 Amp cosine firing with linear characteristics, 3 Nos. Switch SPDT to On/Off with indication
- 2 Three Nos. of these supplies required for DC Armature, DC motor field and AC generator field.
- 3 Shrouded socket 8Nos.

### CAPACITIVE (C) LOAD



- 1 Capacitive load =1.25nF /2.5mF/5mF/440VX 3Nos
- 2 Shrouded socket 18Nos.

### EXTENSION BOARD

- 1 Operating Voltage 230VAC  $\pm$  10% at 50Hz
- 2 ON OFF Switch with indicator
- 3 Eight Nos. five pin 5 Amp Electrical Sockets

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