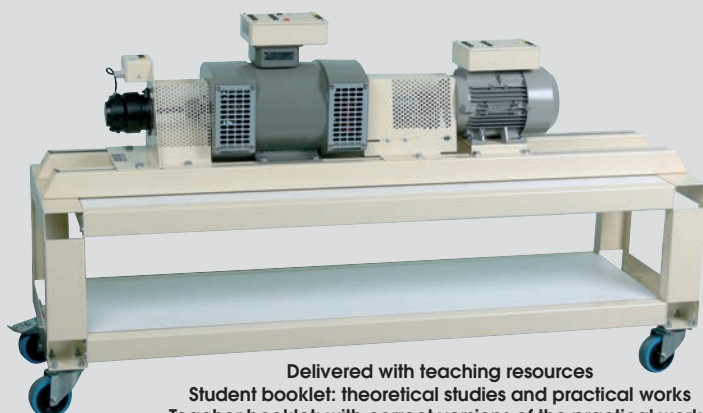


STUDYING THE 1.5KW DC MOTOR AND 3-PHASE ALTERNATOR

DESCRIPTION OF THE 19 ITEMS INCLUDED PACK-DC2 REFERENCE



Delivered with teaching resources
Student booklet: theoretical studies and practical works
Teacher booklet: with correct versions of the practical works

ref. **PACK-DC2**

ALSO AVAILABLE IN 300W. CONSULT US.

TUTORIAL WITH PACK-DC2

STUDY OF THE DC MOTOR

• Preliminary study

- Reading of the specifications plate, calculation of the torque & nominal efficiency
- Calculation of the starting torque
- Calculation method for determining the resistance value of the starting rheostat

• Study of the motor's operation when unloaded, when loaded & when overloaded

- Theoretical reminders of the mathematical formulae applying to a DC motor.
- Understanding & undertaking motor wiring with measuring devices.
- Creation of a table containing calculations and measurements of electrical and mechanical quantities at various points of the motor load:
- Current & Power consumption of field system/in the rotor
- Rotation speed
- Useful power
- Motor torque
- Counter-electromotive force
- Rotor Joule decrease
- Efficiency

• Plotting of properties based on motor measurements such as:

- Rotation speed as a function of the field system current
- Rotation speed as a function of the rotor current
- Efficiency as a function of the rotor current
- Torque as a function of the rotor current
- Power consumption as a function of the rotor current

• Results of powers

- Calculation of losses motor unloaded
- Results of power in nominal functioning

• Analysis of results and conclusion

STUDY OF THE ALTERNATOR

• Preliminary study

- Reading of the specifications plate, calculation of the torque & nominal efficiency

• Study of alternator operation with no load, with a load and with an overload, using a resistive load:

- Theoretical reminders of the mathematical formulae which apply to the alternator.
- Understanding and undertaking alternator wiring with measuring devices.
- Measurement and plotting of the properties of the magnetic circuit's hysteresis cycle.
- Creation of a table containing calculations and measurements of electrical and mechanical quantities at various points of the motor load
- Plotting the properties of the alternator's load: voltage as a function of the supplied current
- Calculation of the voltage decrease as a function of the load

• Study of the operation of the synchronised alternator on the public network

- Understanding and undertaking alternator wiring on the network.
- Use of the synchronoscope with its various displays
- Synchronisation on the mains network

• Results of powers

- Calculation of losses motor unloaded
- Results of power in nominal functioning

• Analysis of results and conclusion

DC motor
Ref. CC20 - Qty 1

Rotary torque sensor
Ref. CR2-V2 - Qty 1

3-phase alternator
Ref. MSM20 - Qty 1

DC tachogenerator
Ref. DYT2 - Qty 1

Stand on wheels
Ref. CTC - Qty 1
Guide rails
Ref. RGC - Qty 1



DC variable supply
Ref. COMPAK40 - Qty 1



2000W Resistive load
Ref. RHP20 - Qty 1



3-phase wattmeter
Ref. W17 - Qty 1



Synchronoscope
Ref. CHR4 - Qty 1



AC/DC Power supply
Ref. ISOSEC1 - Qty 1



Magnetolectric voltmeter
Ref. V1001 - Qty 2

Electrical and mechanical
quantity display module
Ref. MELEC-VISION - Qty 1



Rheostat
Ref. ECO1-100 - Qty 1



Set of 67 safety leads
Ref. 400S - Qty 1 set



20A magnetolectric Ammeter
Ref. A11 - Qty 2



Rheostat
Ref. ECO1-470 - Qty 1