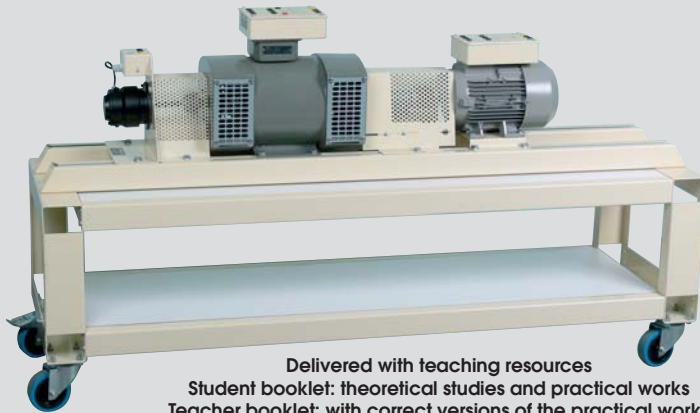


STUDYING THE 1.5KW DC MOTOR AND 3-PHASE ALTERNATOR

DESCRIPTION OF THE 20 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

3-phase alternator
Ref. MSM20 - Qty 1

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

Rotary torque sensor
Ref. CR2-V2 - Qty 1

DC tachogenerator
Ref. DYTA2 - Qty 1



DC variable supply
Ref. COMPAK40 - Qty 1



2000W Resistive load
Ref. RHP20 - Qty 1



3-phase wattmeter
Ref. PSY14 - Qty 1



Synchronoscope
Ref. CHR3 - Qty 1



AC/DC Power supply
Ref. ISOSEC1 - Qty 1



Magneolectric voltmeter
Ref. V1001 - Qty 2



Digital wattmeter
Ref. WATTELEC - Qty 1



Measurement of mechanical quantities
Ref. MECAWATT - Qty 1



Rheostat
Ref. ECO2-106 - Qty 1



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



20A magneoelectric Ammeter
Ref. A11 - Qty 2



Rheostat
Ref. ECO1-470 - Qty 1