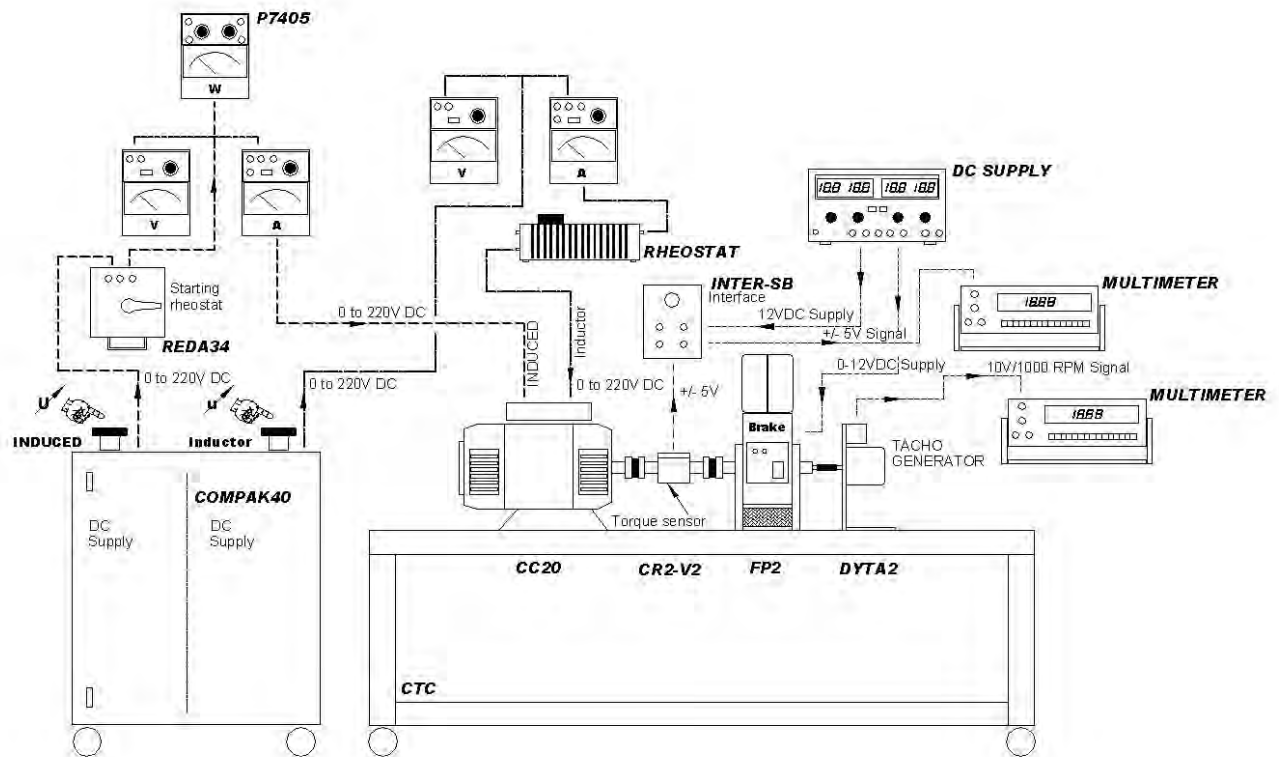




Complete kit for studying the 1.5kW DC motor

The PACK-DC1 power unit kit can be used for studying a 1500W DC motor.

The load properties are plotted based on measurements taken by various analogue or digital devices.



**COMPLETE RANGE
ROTARY MACHINES**

TUTORIALS DESCRIBED IN THE INSTRUCTIONS SUPPLIED WITH MOTOR PACK REF. PACK-DC1

- **Study of connection schematics with shunt excitation and separate excitation (independent).**
 - Understanding and undertaking motor wiring depending on the selected excitation type.
 - Measurements and comparisons of the various consumed power, voltage and current values depending on the selected excitation type.
- **Calculation method used for determining the resistance value:**
 - of the start-up rheostat
 - of the excitation rheostat
- **Study of the motor's operation when unloaded, when loaded and when overloaded with separate excitation (independent) and with shunt excitation:**
 - Theoretical reminders of the mathematical formulae applying to a DC motor.
 - Understanding and 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 consumption of field system/in the rotor
 - ✓ 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
- **Analysis of results and conclusion**

ref. PACK-DC1
ALSO AVAILABLE IN 300W. CONTACT US.

DELIVERED COMPLETE WITH TEACHING RESOURCES
STUDENT BOOKLET :
THEORETICAL STUDIES AND PRACTICAL WORK
TEACHER BOOKLET :
WITH CORRECT VERSIONS OF THE PRACTICAL WORKS





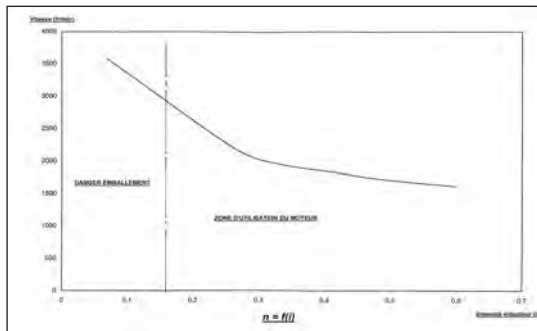
OPERATING PRINCIPLE

A power supply with two independent outputs varying from 0 to 220V DC powers the armature and field system of the motor.

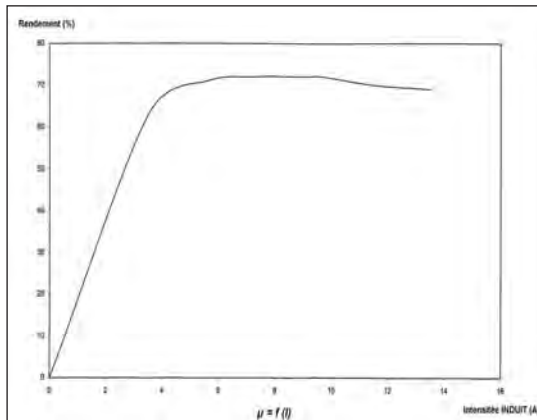
A starting rheostat is used for starting the motor without any surges and with overspeed protection.

A powder brake loads the motor with values of between 0 and 125% of the rated load. The torque sensor (brushless, no maintenance required) provides an image signal of the dynamic torque. The DC tachogenerator generates an image signal (10V/1000 rev/min) of the speed.

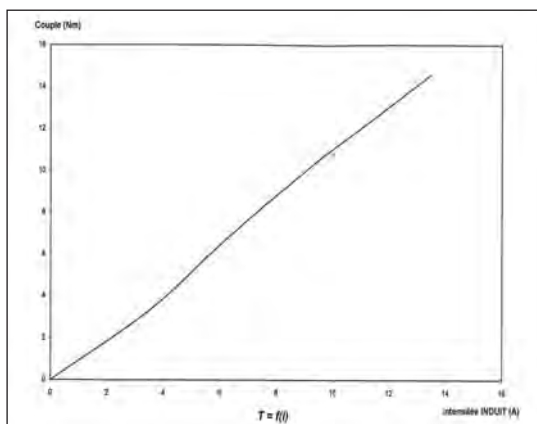
Various measuring devices can be used to plot the motor's load properties.



Speed as a function of the inductor current with separate excitation

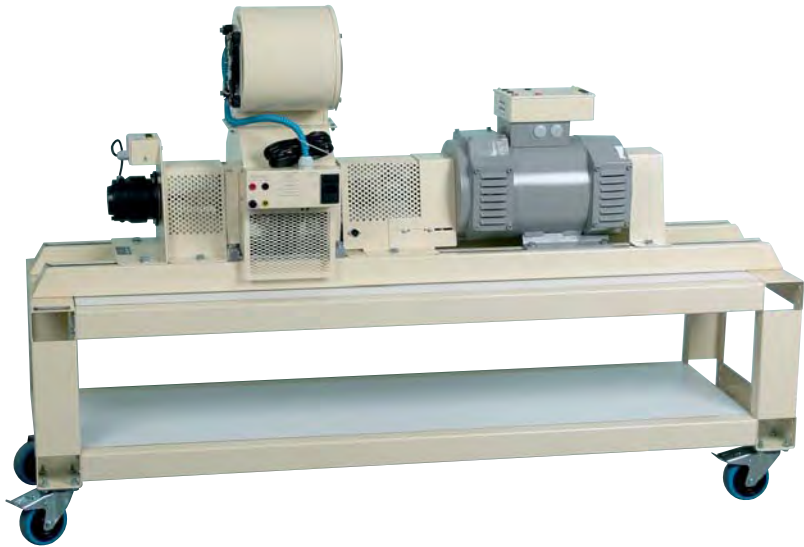


Efficiency as a function of the armature current with shunt excitation



Torque as a function of the armature current

DESCRIPTION OF THE 16 ELEMENTS INCLUDED PACK-DC1 REFERENCE



DC motor
 Ref. CC20 - Qty 1
 (features P. 59)
Capteur de couple rotatif
 Ref. CR2-V2 - Qty 1
 (features P. 60)

Powder brake
 Ref. FP2 - Qty 1
 (features P. 59)
DC tachogenerator
 Ref. DYTA2 - Qty 1
 (features P. 60)

Stand on wheels
 Ref. CTC - Qty 1
 (features P. 60)
Guide rails
 Ref. RGC - Qty 1
 (features P. 59)



DC variable supply
 Ref. COMPAK40
 (features P. 88)



Wattmeter
 Ref. P7405 - Qty 1
 (features P. 196)



Magnetolectric voltmeter
 Ref. V1001 - Qté 2
 (features P. 199)



20A magnetolectric Ammeter
 Ref. A11 - Qty 2
 (features P. 199)



Alimentation continue maître/esclave
 Ref. GPS3303 - Qty 1
 (features P. 175)



Torque measuring interface for brushless sensor
 Ref. INTER-SB - Qty 1
 (features P. 66)



Multimeter
 Ref. TRG803 - Qty 2
 (features P. 181)



Safety starter Rheostat
 Ref. REDA34 - Qty 1
 (features P. 59)



Rheostat
 Ref. ECO1-470 - Qty 1
 (features P. 94)



Set of 46 safety leads
 Ref. 300S - Qty 1 set
 (features P. 211)