MAGNETIC POWDER BRAKE & ELECTRONIC CONTROL

Mod. AFC-2D/EV

INTRODUCTION

This brake enables the measure of the mechanical and electrical characteristics of electrical motors and allows plotting the Torque = f (RPM) curve and calculating the real Pmec(W) developed by the motor.
The unit includes a built-in an electrical programmable instrument (see the Technical Features for the details) that calculates (and displays) the supplied electrical power Pel (W). With Pmec and Pel, the AFC-2D/EV supplies automatically the Efficiency. All these parameters are calculated at any measure.
The unit is suitable in experimental program as an **alternative to the Electrodynamometer mod. P-12/EV or to the Eddy Currents Brake mod. P-15/EV.**
The system is composed by two units:
- The Magnetic Powder Brake (to be coupled to the motor under test).
- The Electronic Control Board, that supplies the power and the control commands to the brake, and processes the brake input/output signals.

TECHNICAL SPECIFICATIONS:

MAGNETIC POWDER BRAKE

- Braking torque range: up to 30 Nm. With max torque limiter.
- Speed range: up to 6000 RPM. With min speed limiter.
- Power range: from 0,75 to 1.5 KW
- Integrated thermal protector and fan
- Includes the RPM probe and the bidirectional Torque probe.
- The unit is ready to be directly coupled to the "POWER" motors line (1 kW), over the same support base mod. BP/EV (not included).

Dimensions: 400 x 260 x 300 mm
Weight: 30 kg

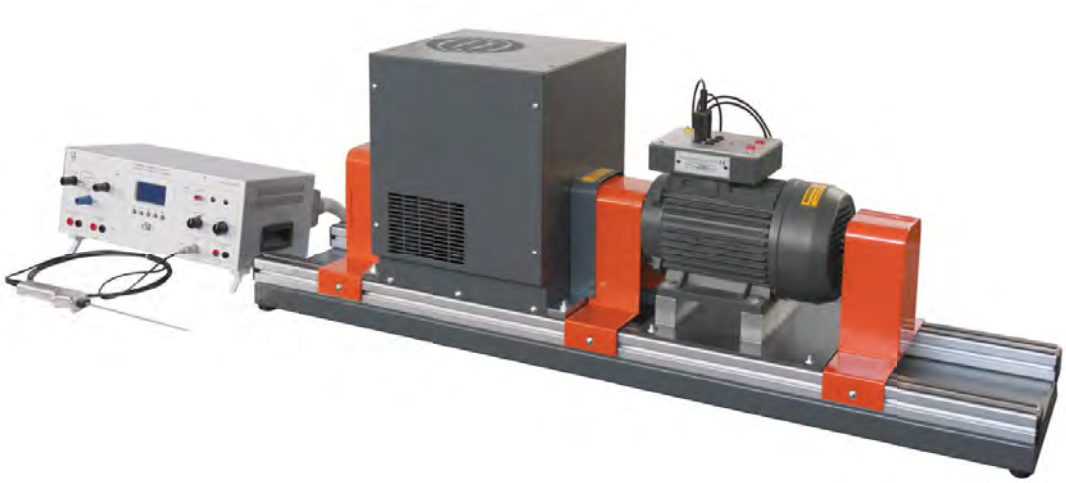
ELECTRONIC CONTROL BOARD

- Supplies the power to the Brake unit and processes the signals of the RPM, Torque and Temperature probes.
- Braking Modes: EXTERNAL, MANUAL, AUTO (with 4 selectable braking curves):
  a) Constant Torque vs. RPM. It is the MANUAL mode, with T = k1 , being k1: a constant that can be set at different values. This curve is typical of elevators and cranes, conveyor belts etc.
  b) Linear Torque vs. RPM (T = k2 * n (RPM), being k2: a constant that can be set at different values). This curve is typical of calenders, used in textile , paper and metallurgy industries.
  c) Quadratic Torque vs. RPM (T = k3 * n^2 (RPM), being k3: a constant that can be set at different values). This curve is typical of centrifugal pumps, centrifugal fans etc.
  d) Inverse Torque vs. RPM (T = k4 / n (RPM), being k4: a constant that can be set at different values). This curve is typical of lathes, cutting machines, reel-type machines etc.
- The braking time is settable, to define constants k2, k3 and k4.
- For each braking mode, it is possible to set the UNDER SPEED and OVER TORQUE limiters for safe tests. One 3-states LED for signaling: READY, RUN and OVERTEMPERATURE.
- The unit supplies 2 * 0-10 VDC analog outputs (both programmable among any internal measured or calculated parameter): for example, one can be proportional to RPM and the second proportional to Torque. These signals can be used as inputs for other instruments (our CEM-U/EV Computerized Measurement Unit, or any already existing instrument).
- Possibility of external control with a 0-10 V D.C signal.

- On-board programmable multifunction instrument. It can be selected for:
  a) AC (single-ph or 3-ph balanced): measures V, I, W, VAr, VA, frequency and Power Factor.
  b) DC: measures V, I W
- Backlit digital display and keyboard for programming the instrument and to show the set / measured / calculated parameters, such as: Torque (Nm), RPM, Pmec (W), Pel (W), Efficiency etc.

Dimensions: 400 x 160 x 250 mm
Weight: 7 kg

EXAMPLE OF CONNECTION BETWEEN BRAKE AND MOTOR, WITH SUPPORT BASE mod. BP/EV (motor and base not included)



POWER SUPPLY:
230 V / PE - 50-60 Hz

THEORETICAL-EXPERIMENTAL HANDBOOKS
Technical handbook.