

## STUDY BENCH OF MOMENTS OF MOTORIZED / INSTRUMENT INERTIA



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### PEDAGOGICAL APPLICATIONS

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- Characterization and comparison of the moments of inertia of different cylinder and bar disks.
- Composition of inertia (Steiner's theorem).
- Equation of the system.
- Comparison theoretical approach / measurement on the system.

## PRINCIPLE OF OPERATION

The BEI200 bench allows the study of moments of inertia of different mechanical parts.

The touch screen of the machine can be used to set the machine's operation (speed, motor torque, etc.) and also to control it (motor start / stop - braking).

The important torque and rotation speed measurements can be used directly on the supplied software.

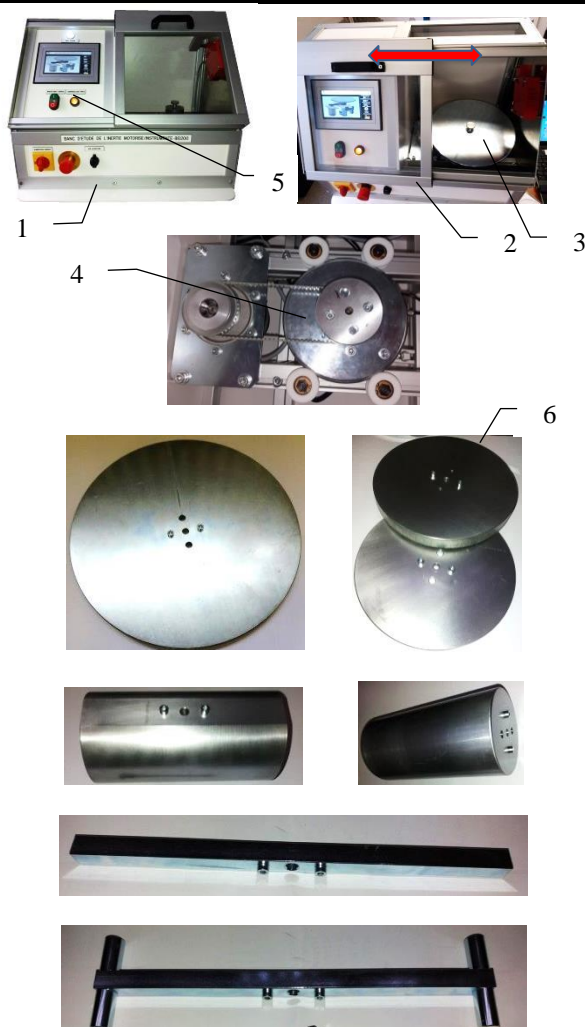
This software allows the direct observation of graphical plots Torque and speed as a function of time

It also makes it possible to export point files (spreadsheet format), for "post-processing" and exploitation of the precise data (measurement sampling frequency: about 25hz).

The aluminum structure of this bench integrates: the electric box, the control panel but also the zone of characterization of the inertias (the access door to this zone is locked as long as the motor is not completely at the stop. The engine start is also made impossible until the protective door is closed).

The rugged design of this equipment makes it ideally suited for use in schools.  
The manufacture of this equipment meets the European Machine Directive.

### Illustrations



### Technical specifications

1. Anodized aluminum bench frame on 4 legs.
2. Protection of the mounting area of the inertia to be characterized Transparent sliding door controlled by interlocking safety (locking + closing control of the door to allow the start of the engine).
3. Inertia mounting area to characterize
4. Inertia mounting pin. Brushless motor drive - torque measurement by gage bridge sensor - speed measurement by tachogenerator driven by a synchronous belt.
5. Control panel incorporating a touch screen (synoptic representation of the machine, display of values and control parameters), button on / off motor, button start / stop machine, door unlock button with door open authorization LED, USB data acquisition connector, general electrical disconnect and emergency stop.
6. Inertias to characterize:
  - Disc diameter 200 ep 10mm aluminum
  - Disc diameter 200 ep 20mm aluminum
  - Disc diameter 200 ep 10mm steel
  - Disc diameter 300 ep 10mm steel
  - Cylinder horizontal axis diameter 100mm aluminum
  - Cylinder vertical axis diameter 100 aluminum
  - Bar section square length 300mm steel
  - Bar section square length 300 + 4 steel weights

### Installation specifications

- Electrical supply : 230 Vac – 50 Hz – 4 A
- Kind of electrical plugs : 1 phase(s) + Neutre + Terre.
- Dimensions: (LxlxH mm): 750 x 600 x 650
- Weight (Kg): 40

Nota : Dans le cadre d'une installation de l'équipement par nos services, tous les raccordements aux réseaux doivent se situer à moins de 2m de la machine

### Documentation

- Instruction manual
- Instructional book
- Data acquisition software
- Technical file
- CE Certificate of Conformity

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