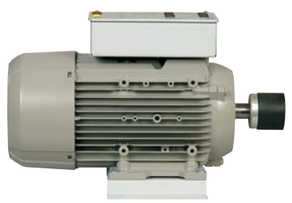
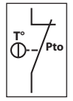
# ROTARY MACHINES

RANGE 300W

## 3-PHASE SQUIRREL CAGE INDUCTION MOTOR

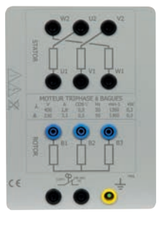




These engines work as well with a speed variator as directly connected to a 3-phase supply.que sur **secteur 50 Hz** en direct

| REF | U (V) | I (A) | H | B | L | Weight |
|---|---|---|---|---|---|---|
| **MAS12** | 230/400V | 1.5 / 0.9 | 90 | 172 | 235 | 8.2kg |
| **MAS42** | 400V/690V | 0.9 / 0.5 | 90 | 172 | 235 | 8.2kg |

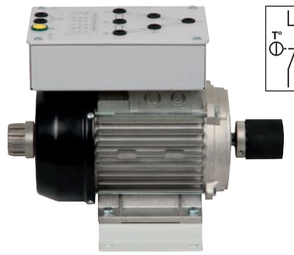
## 3-PHASE ASYNCHRONOUS SLIP RING INDUCTION MOTOR

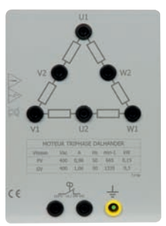




| REF | U (V) | I (A) | H | B | L | Weight |
|---|---|---|---|---|---|---|
| **MAT10** | 230/400V | 3.1/1.8 | 90 | 172 | 470 | 18kg |
| **MAT10-C1** | similar than MAT10 with 1024 points encoder. | | | | | |

## 3-PHASE ASYNCHRONOUS 2-SPEED MOTOR (AC)

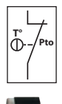




1 coil winding motor with 4/8 pole Dalhander coupling for quadratic resistive torque machines

| REF | n (t/min) | U (V) | I (A) | P (W) | H | B | L | Weight |
|---|---|---|---|---|---|---|---|---|
| **DAL10** | 1500 | 400 | 0.98 | 300 | 90 | 172 | 290 | 7,3kg |
| | 750 | 400 | 1.06 | 150 | | | | |

## 3-PHASE SYNCHRONOUS MACHINE

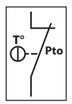




Works as a synchronous motor and 3-phase alternator.
Equipped with LEBLANC poles for the mains network synchronization.

| REF | U en V | H | B | L | Masse |
|---|---|---|---|---|---|
| **MSM10** | 230/400V | 90 | 172 | 470 | 18kg |

Pole wheel voltage 83Vdc / 1.2A.

## SINGLE-PHASE MOTOR WITH 2 CAPACITORS


2 capacitors, 1 starting and 1 running

| REF | U (V) | I (A) | H | B | L | Weight |
|---|---|---|---|---|---|---|
| **MO10** | 230V | 2.6A | 90 | 172 | 295 | 9kg |

## 3-PHASE RELUCTANCE SYNCHRONOUS MOTOR (AC)



This type of motor works as well on frequency converter as on 50Hz direct mains.

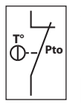
| REF | U (V) | I (A) | P (W) | H | B | L | Weight |
|---|---|---|---|---|---|---|---|
| **MSR10** | 230/400V | 4.6/2.7A | 300W | 90 | 172 | 320 | 12.1kg |

*Each machine is equipped with a binary temperature sensor with a contact that can be inserted into a control circuit.*





## POLYEXCITATION (COMPOUND) MOTOR

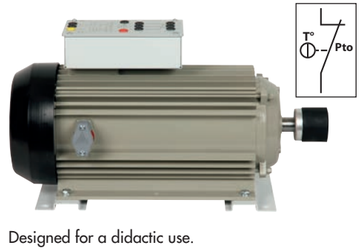




Designed to be high-performance motor (characteristics below), this machine also works as a generator.

| REF | U (V) | I (A) | H | B | L | Weight |
|---|---|---|---|---|---|---|
| **PM10** | 220V | 2.3A | 90 | 172 | 420 | 25kg |

Inductor 220V/0.3A

## SHUNT / SEPARATED DC GENERATOR



Designed for a didactic use.

| REF | U (V) | I (A) | H | B | L | Weight |
|---|---|---|---|---|---|---|
| **CG10** | 220V | 1.3A | 90 | 172 | 420 | 20kg |

Inductor 220V/0.1A

## SHUNT / SEPARATED DC MOTOR 220/220V

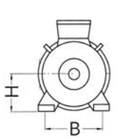
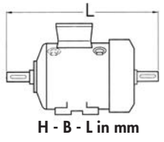


This engine works as well with a **speed variator** as directly connected to a DC supply.

| REF | U (V) | I (A) | H | B | L | Weight |
|---|---|---|---|---|---|---|
| **CC10** | 220V | 1.9A | 90 | 172 | 420 | 21kg |

Inducteur 220V/0.6A

The couplings are compatible across a single power range. Coupling and fastening screws provided with each reference number.

H - B - L in mm

## ACTIVE LOAD

NEW

System simulating industrial application loads on 300W rotating machines.
Configuration and data visualization via the integrated screen.

| Réf. | CH-AC1 |
|---|---|

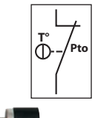
Data sheets detailed on last page

## POWDER BRAKE

**POWDER BRAKE PRINCIPLE**
The DC current injected into the brake coil creates a field which causes the magnetic powder placed in the air gap to agglomerate.
The torque measurement requires a rotary sensor to be positioned either on the left or on the right.
Maximum rotation speed 1800 rpm.

| REF | FP1-2 |
|---|---|
| Voltage/Current max for blocking | 2V / 0,1A |
| Max torque | 35Nm |
| H / B / L in mm | 90 x 172 x 240 - 18kg |
| Weight | Fanless |

## POLYEXCITATION (COMPOUND) GENERATOR


Designed to be high-performance generator (characteristics below), this machine also works as a motor.

| REF | U (V) | I (A) | H | B | L | Weight |
|---|---|---|---|---|---|---|
| **PE10** | 220V | 2A | 90 | 172 | 420 | 20kg |

Inductor 133V/0.7A

## PERMANENT MAGNET SYNCHRONOUS 3-PHASE MOTOR (AC)



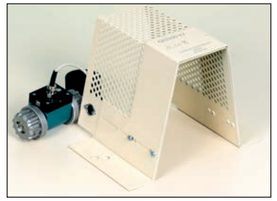
High efficiency motor, requires a control by speed variator.

| REF | n (RPM) | U (V) | I (A) | f (Hz) | P (W) |
|---|---|---|---|---|---|
| **MSAP10** | 1500/3000 | 376/217 | 1/1.73 | 50 / 75 | 300/440 |

| H | B | L | Weight |
|---|---|---|---|
| 90 | 172 | 260 | 4,1kg |

# ACCESSORIES FOR 300W ROTARY MACHINES

## BRUSHLESS TORQUE SENSORS WITH OR WITHOUT SPEED OUTPUT



**Connecting cable and protection casing supplied with all our sensors.**

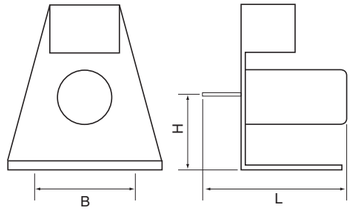
These brushless torque sensors have to be placed between 2 machines and measure the torque sensor V2 and the twist torques and speeds for the version V22. It is equipped with an optical torque so without mechanical wear and maintenance, with a dynamic range allowing to measure some important torque changes and high speeds. The values of starting are so easily measurable.
Torque output signal: 0 to 5V for the measuring span in Nm (0 to -5V according the rotating way).
Maximum rotating speed: 2000 rpm
Sensor supply: between 12 and 28 VDC

| Ref | For POWER | Sensor Range | Speed Output | L mm | Use with an important inertia * |
|---|---|---|---|---|---|
| **CR1-V2** | 300W | 50 Nm | no | 220 | yes |
| **CR1-V22** | 300W | 50 Nm | 5V to 2500 rpm | 220 | yes |

** The use of an inertia wheel + a rotary sensor (CR design) between the motor and the brake gives starting torques which can go to 7 times the operating torque.*

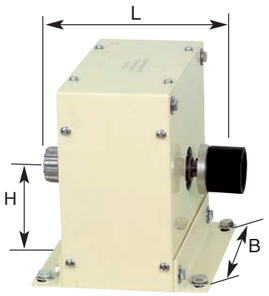
## DC TACHOGENERATORS

These tachogenerators deliver a continuous voltage proportional to the rotating speed.
Supplied complete with couplings, housings and screws bolt.




| Réf. | Power | Voltage at 1000 rpm | Connector | H (mm) | B (mm) | L (mm) |
|---|---|---|---|---|---|---|
| **DYTA10** | 300W | 10V | Terminals | 90 | 172 | 170 |

## INERTIA WHEELS




This inertia wheel allows to simulate rotary machines with a high moment of inertia.
Supplied with 1 coupling + 1 cover + screws.

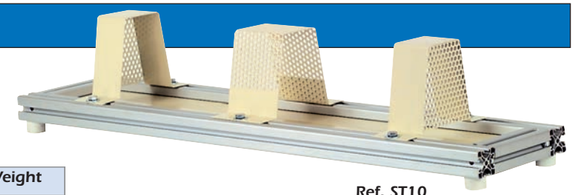
| Ref. | VOL1 |
|---|---|
| **For power** | **300W** |
| Inertia | 0,025kg/m² |
| Weight | 10kg |
| H | 90mm |
| B | 172mm |
| L | 111mm |



ELECTRO-TECHNICS
www.langlois-france.com

# GUIDE RAILS

These rails will be used for aligning and fixing the machines constituting of the made up groups according to your own configuration. With each pair of guide rails are included 2 end of shaft protective covers and 1 intermediate housing.



**Ref. ST10**

| Ref. | Power | Overall length | Pitch of rails | Weight |
|---|---|---|---|---|
| **ST10** | 300W | 1100mm | 172mm | 7kg |
| **STL** | 300W | 1450mm | 172mm | 8kg |

## CASTER OPTIONS FOR A MOBILE SOLUTION WITHOUT MOTOR STAND

This economical option consists of fixing 4 or 6 castors equipped with brakes directly under the rails. This solution effectively replaces a chair with casters and allows you to easily move your motor unit.
This solution raises the assembly by 170mm.

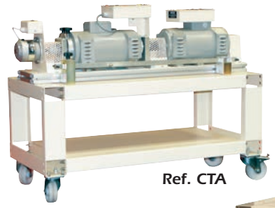
**ref. ROU-4**

# MOTORS STAND ON WHEELS

Designed to transport a complete set of machines. 4 wheels, 2 of them with a brake.

| Réf. | Useful Length | Width | Height | Weight |
|---|---|---|---|---|
| **CTA** | 950mm | 470mm | 500mm | 30kg |
| **CTB** | 1300mm | 470mm | 500mm | 30kg |
| **CTC** | 1610mm | 470mm | 500mm | 39kg |
| **CTH** | 1610mm | 470mm | 845mm | 45kg |
| **CTL** | 1900mm | 470mm | 500mm | 45kg |

**Ref. CTH**



**Ref. CTA**

**Ref. CTC**

**Handle option**

**ref. OP-CT**

# SAFETY STARTER RHEOSTAT


For **small** power
slip ring motors

**ref. RD3**


For **small** power
DC motor

**ref. RDC**


Star delta starter

**ref. CO-ET-8A**

info@langlois-france.com CE PRODUCTS 2 YEARS GUARANTEE

# ACTIVE LOAD: SIMULATOR FOR STUDYING 300W ROTATING MACHINES

This system allows you to carry out studies on 300W rotating machines (alternating or direct current). It simulates a load on the motor studied by applying the profile of an industrial application previously configured from the screen. It is thus possible to study applications simulating, for example, a lifting winch, a conveyor, a mixer, ventilation, a pumping station, etc.

The set allows the acquisition and visualization of the following data:

| | Rotary machine | Load |
|---|---|---|
| **Data type** | Voltage (AC/DC) | Voltage |
| | Current (AC/DC) | Current |
| | Active power | Active power |
| | Cos phi | |
| | Torque | |
| | Speed | |
| | Mechanical power | |

**ref. CH-AC1**

STUDENT/TEACHER EDUCATIONAL FILE

The outputs are connected via 4mm safety cables.
The energy generated by motor braking is dissipated by a braking resistor.

***The profile types are:***
- Constant torque (lifting winch, conveyor belt, etc.)
- Torque proportional to speed (screw compressor, metering pump, etc.)
- Torque proportional to the square of the speed (mixer, fan, etc.)
- Cyclic torque (cutting shears, etc.)

All configuration is performed directly from the integrated screen.
The application allows you to view load data in real time and plot it on a graph.

This data can be retrieved in .csv format directly onto a USB drive for processing in the spreadsheet software of your choice.

## EDUCATIONAL OBJECTIVES

- ***Conduct a study on a rotating machine***
- ***Take readings of physical quantities***
- ***Understand the mechanical and electrical characteristics of the main industrial applications***
- ***Take readings and then interpret them***

**COMPOSITION**

- Tabletop control box comprising:
  - 1 touchscreen
  - 1 emergency stop button
  - 1 load activation switch
  - 1 on/off button
  - 1 padlockable disconnect switch
  - 1 3m connection cable with a 400V HYPRA plug - 4P+E. - 1 USB port
  - 1 Ethernet port

Case dimensions: 600 x 560 x 400mm.

- 1 SIEMENS brushless motor with its sleeve and support

Axle height: 90mm

- 1 set of 2m encoder and power cables
- 1 braking resistor

***Practical work***

- Performing engine tests under load at nominal torque
- Recording physical quantities
- Plotting characteristic curves
- Setting up a load simulation
- Visualizing and interpreting data
- Exporting data to spreadsheet software.