



Non contractual photo

**SERVICE : 220 V SINGLE PHASE, 50 HZ
CLAMP AMMETER, CHRONOMETER, SET
OF MASSES: 4 X 15 KG (TYPE CAST IRON
DISCS) PC MICROCOMPUTER WITH
AUTOCAD OR DMT, SOLIDWORKS,
MECAPLAN, LE MANS RDM AND EXCEL IN
DIMENSIONS : 1 200 X 300 X 200 MM**

WEIGHT : 20KG

REFERENCE : EX700

This product uses a FAAC brand public portal opener. It was designed to perform the mechanical and energetic study of a real electro-hydraulic operator. This multi-technology teaching support allows three types of independent and complementary activities: experimentation, modeling and CAD 2 and 3D (SolidWorks®).

Educational Objectives :

The educational uses of this system cover the following areas :

- Energetic.
- Fluid mechanics.
- Functional analysis of an industrial product.
- Tools of technical communication.
- Construction of mechanical links.
- Product relationship - process - material Calculation of physical quantities.

The calculations are assigned to a spreadsheet (given plot) so that activities focus on measurement and interpretation of results.

Technical specifications :

The electro-hydraulic actuator is fixed on a frame in which the instrumentation is integrated.

This instrumentation makes it possible to measure :

- The speed of rotation of the electric motor: inductive sensor associated with a conditioner-display.
- The electric power consumed: wattmeter.
- The oil pressure in the two supply circuits of the cylinder chambers: dial gauges.
- The time taken by the cylinder rod to travel a predetermined distance : stopwatch.

Some essential characteristics are given such as :

- Geometric characteristics of the pump, measured by the three-dimensional measuring machine and the profile projector, in the form of a CAD file.
- Features of the hydraulic cylinder.
- Intensity of the lifted mass (the system is also used empty).
- From the measurements and the data the possible exploitations are : Determination of the theoretical displacement of the pump using CAD software. Determination, from the measurements carried out on the

test bench, of the following characteristics :

- speed of translation of the cylinder rod (time, stroke),
- theoretical flow rate of the pump (displacement, speed of rotation),
- flow of the oil supplying and leaving the cylinder (piston diameter, rod diameter, rod speed),
- mechanical power restored (weight lifted, rod speed),
- resultant pressure forces on the piston (piston diameter, stem diameter, pressures),
- cylinder efficiency and overall efficiency (if operating under load),
- Comparison of pump pump flow, pump cylinder. In combination with the hydraulic diagram, analysis of the technical functions performed by the different valves and pressure limiters in the hydraulic block. Highlighting the evolution of yield and passive resistances, depending on the load applied and the increase in temperature. Analysis of constructive solutions associated with the functions sealing, assembly ...