



With this equipment you can practice much of the operations, start-up, operation and necessary regulations in a pump installation.

One of the pumps is controlled by a frequency variable, which allows varying the speed of rotation. Likewise, this pump has a measurement system of mechanical torque.

The flow rate is measured by an electronic flow meter.

In addition, you can make an study of the characteristics of a pump, working individually and in groups, in series or in parallel, performing a wide range of practices and experiences.

LEARNING OBJECTIVES

- Start-up of a pump, analysis and study of different aspects to consider.
- Priming pump.
- Checking the sense of rotation.
- Overcurrent produced in the engine.
- Study and obtain the characteristic curves of a pump.
 - Height - flow (H-Q).
 - Hydraulic power - flow (P-Q).
 - Torque - flow (M-Q).
 - Mechanical efficiency - flow (η_m -Q).
 - Mechanical power - flow (Pm - Q).
 - Efficiency of the engine - flow (η_e -Q).
 - Electric power - flow (Pe-Q).
 - Total efficiency - flow (η -Q).
- Study of cavitation, and obtaining the N.P.S.H. Curve required-flow.
- Study of the different forms of regulating a pump. Checking similarity laws.
- Variation of the rotational speed. Obtaining the new characteristic curves.
- Changing the operating point by varying the pumping installation.
- Manoeuvred of the discharge valve.
- Analysis of the same and different pumps working in group.
 - Characteristic curves operating in serie.
 - Height - flow (H-Q).
 - Power - flow (P-Q).
 - Efficiency - flow (η -Q).
 - Characteristic curves operating in parallel.
 - Height - flow (H-Q).
 - Power - flow (P-Q).
 - Efficiency - flow (η -Q).

DATOS TECNICOS

Internal diameters:

- Suction pipe
 - \varnothing interior = 45,2 mm.
 - \varnothing exterior = 50 mm.
- Drive pipe
 - \varnothing interior = 34 mm.
 - \varnothing exterior = 40 mm.

Tank:

- Capacity: 250 litros

Manometers:

- Bourdon type with glycerin from -10 m.c.a. to 70 m.c.a.
- Bourdon type with glycerin from -10 m.c.a. to 35 m.c.a. (x3)

Pumps characteristics:

- Manometric height 22 m.c.a.
- Maximum flow 160 l/min. a 10 m.c.a.
- Power consumed 750 W.
- Rotational speed 2.900 r.p.m.

Otros elementos:

- Electronic flowmeter 1200-50000 l/h
- Dynamometer 2 Kg x 10 gr.
- Wattmeters de 0 a 1200 W.
- Frequency variable 220V - 1,1 Kw.

REQUIREMENTS

- Power supply: 230V/50Hz.