

## HF 160 WATER HAMMER APPARATUS

### GENERAL DESCRIPTION:

This apparatus is used to study the effects of both pipe surge and water hammer using two separate straight pipes with a constant head tank.

Pipe surge employs a clear acrylic surge shaft to demonstrate gradual velocity change, hence pressure rise and its oscillations by slow valve closing. Water hammer employs a quick closing valve and two pressure sensors-one next to the valve and another further away. Sudden rise in pressure on quick closing valve can be demonstrated on a computer (separately supplied). The equipment is to be used with Hydraulics Bench (separately supplied).

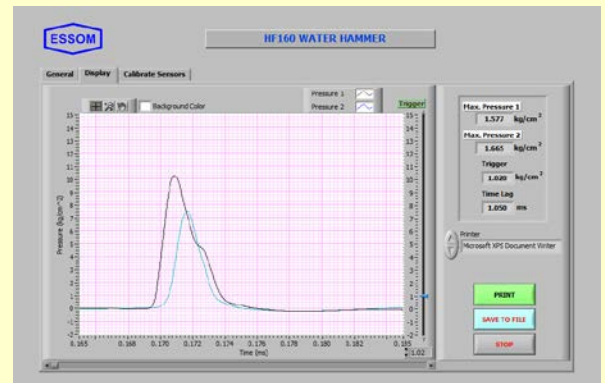
Instruction manual is also included.



Photograph includes optional equipment

### EXPERIMENT CAPABILITIES:

- Pipe surge and oscillations in surge shaft.
- Friction loss between head tank and surge shaft.
- Pressure profiles for water hammer and comparison with theoretical values.
- Determination of the velocity of sound through a fluid in a pipe.



Pressure Waves

### TECHNICAL DATA:

- Constant head tank : 1 ea.
- Delivery pipes:
  - Water surge : Stainless steel pipe and clear acrylic surge shaft with slow closing valve and a flow control valve
  - Water hammer : Stainless steel pipe with quick closing valve.
- Pressure measurement : 2 sensors on water hammer pipe
- Computer interface unit
- Software for data display of pressure waves on computer (separately supplied).
- Power supply : 220 V, 1 Ph, 50 Hz. Other power supply is available on request.

### OPTIONAL EQUIPMENT:

- HB100N or HB100 Hydraulics Bench, Neo or Hydraulics Bench (required accessory)

Net Dimensions WxLxH : 50 x 375 x 110 cm  
Net Weight : Approx. 190 kg

