

# STUDY OF WATER HAMMER AND EQUILIBRIUM CHIMNEY



*Non contractual photo*

**SERVICE : POWER SUPPLY (220V, 50HZ,  
SINGLE PHASE) PNEUMATIC SUPPLY  
OSCILLOSCOPE WITH MEMORY  
DIMENSIONS : 1350 X 650 X 2150 MM**

**WEIGHT : 100KG**

## REFERENCE : EH170

Rapid changes in speed in a pipe generate significant pressures or depressions due to the inertia of the water. If these pressure variations are large enough, the water becomes a compressible fluid capable of propagating high-speed waves that can cause water hammer. To dampen the shock waves and prevent damage in the pipes, equilibrium chimneys are introduced. However, they create a new phenomenon of mass oscillation.

The water hammer and equilibrium stacker, EH170, allows the study of non-permanent flows in a stainless steel serpentine pipe with a length of eleven meters and having at each of its ends a Pressure sensor. The shock waves are caused either by the rapid closing of a pneumatic valve placed downstream of the pipe, or by the closure of the flow control valve placed upstream of the flowmeter. A bypass with stop and control valves leading to a vertical tube allows the influence of an equilibrium stack to be studied.

- Study of pressure losses in a pipe
- Highlighting the phenomenon of water hammer
- Calculation of the speed of sound in water and in a pipe
- Highlighting the phenomenon of cavitation due to depression
- Influence of a balance chimney

### Technical specifications :

- A stainless steel coil
- A pneumatic quick closing valve
- Two piezoelectric pressure sensors placed upstream and downstream of the coil with 4-20 mA output
- A float flowmeter
- A valve to regulate the flow and a float flowmeter
- A holding tank with drain valve, containing a submerged pump
- Power supply box with general circuit breaker, pump circuit breaker and sensor amplifier
- A bypass with stop and control valve leading to a vertical Altuglas tube. This tube is closed at the top and has a trap for adjusting the amount of trapped air and a drone-type manometer

### OPTIONS :

A compressor can be provided.