This trainer has been designed for the visualization and the study the phenomenon of water hammer.

It is possible to study the effects on a surge tank where there is a decrease in the over pressure/under pressure generated by the water hammer.

The system is set for the observing and the testing of the pressure increase produced by the variation of the flow rate through a valve: it allows the observation of positive and negative water hammer produced by the sudden shut of a valve.

### TRAINING OBJECTIVES
- Study and visualization of the pressure increase produced by the variation of the flow through a valve.
- Study and visualization of the phenomenon of water hammer produced by the instantaneous closing of a valve.
- Study and visualization of the phenomenon of water hammer by the unexpected shutdown of a pump.
- Study and display of the effects on a surge tank in the attenuation water hammer.
- Determining the speed of sound through water a pipe.
- Determining the head losses in a pipe.

### TECHNICAL DATA

#### PIPES:
- PVC pipe inner Ø= 28.4 mm, thickness= 1.8 mm and length= 3 m.
- Copper pipe inner Ø= 26 mm, and thickness= 1 mm and length= 3 m.

#### PRESSURE TRANSDUCERS
- 3x absolute pressure transducer 0-10 Bar.
- 2x absolute pressure transducer 0-16 Bar.
- 1x absolute pressure transducer 0-5 Bar.

#### COMPUTERIZED SYSTEM
- Data acquisition module with USB connection

#### VALVES
- 1” brass valve.
- Ø32mm PVC ball valve.
- NOTE: Valves are interchangeable between the 2 pipes.

#### SURGE TANK
- 1.7 meters surge tank.
FLUID MECHANICS

Requirements:
- Power supply: 230V/50 Hz.
- Compressed air line or air compressor for the quick closing valve.

Necessary accessory:
DL DKL014 – Hydraulic bench
The basic hydraulic bench is a simple, mobile, self-contained module that allows a supply of "hydraulic energy", i.e. an accurately controlled and measurable flow of water. It includes two collecting tanks, a centrifugal pump, a flowmeter, a mobile frame work on wheels, a set of valves and piping.