

CAVITATION STUDY

REFERENCE : EH505



Non contractual photo

**SERVICE : WATER SUPPLY: 3000 L / H
UNDER 2 BAR 220 V, 50 HZ SINGLE PHASE
POWER SUPPLY
DIMENSIONS : 950 MM X 450 MM X 1500 MM**

WEIGHT : 125 KG

Cavitation occurs when a moving liquid is vaporized when subjected to excessive shear stresses. It is manifested by the appearance of liquid-vapor interfaces in the flow domain. These interfaces can take many forms :

- Quasi-spherical bubbles carried by the flow
- Cavities hung on solid walls
- Swirling filaments whose heart is filled with vapor

The cavitating flow causes instabilities, shocks, noise sources, and structural vibrations, as well as erosion of the walls. In addition to these undesirable effects, cavitation has the effect of reducing the performance of hydraulic machines and components, such as, for example, the head of the pumps, the efficiency of the turbines, the thrust of the propellers, and so on. It is therefore important to avoid, if possible, this phenomenon in the design of industrial systems. However, it is difficult to avoid it when the speeds of the liquids relative to the solid walls are large.

Students must therefore understand the phenomenon of cavitation and its consequences. The EH 505 Cavitation Demonstration System is an important first step in the study and understanding of the phenomenon. Further work can be done on the Cavturn EH 501.

- Visualization of cavitation for different flow rates
- Measurements and interpretation of upstream and venturi neck pressures for different flow rates

Technical specifications :

The Deltalab device is autonomous and operates in a closed circuit. The test vein consists of a transparent venturi, of rectangular section, machined in Plexiglas with pressure taps at the neck and upstream of the vein. The pressure taps are connected to the manometer mounted above the vein. The set is mounted on a frame, with wheels, to facilitate its movement. The pump and the supply tank are mounted on the bottom of the frame. The unit is equipped with a flow control valve, a flow meter and a thermometer. For a better visualization of the phenomena of cavitation, it is advisable to use a stroboscope.