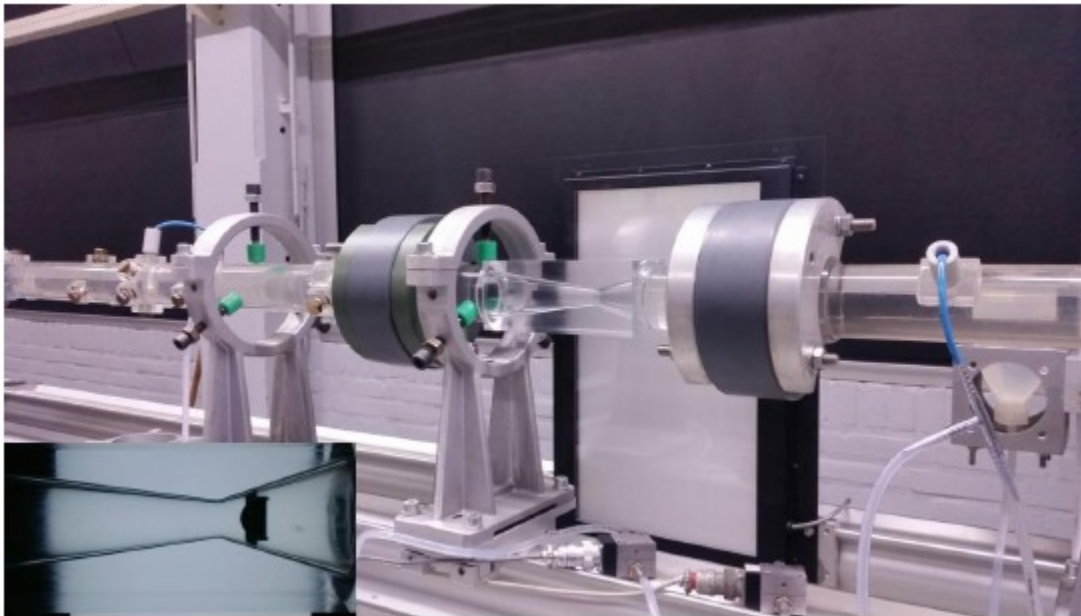


Summary of the deliverable D2.2: MHV test rig

provided by ESR 5 , Mr Saad Jahangir ,under the guidance of Dr Christian Poelma, TU Delft, August 2016



Systematic buildup of a test rig to investigate cavitation in a mechanical heart valve has been done. A closed loop with the possibility to control flow rate and static pressure in the system is used. A pipe with a converging diverging nozzle is used as a measurement section, designed so that it can accommodate the valve. Steady flow from centrifugal pump was used to perform initial experiments. Investigation of different cavitation regimes was done using the shadowgraphy technique. Steady pipe flow will be imposed with the pulsatile flow using a suction injection piston pump to mimic cardiac flow.

The experimental setup consists of a smooth pipe with a run in length of 40 diameters, centrifugal pump, vacuum pump, flow meter, measurement section, suction injection piston pump and a pressure recovery section. The general structure of test rig is shown in figure 1. Various modifications in the current setup can be done depending on the results and requirements for thorough investigation of cavitation.

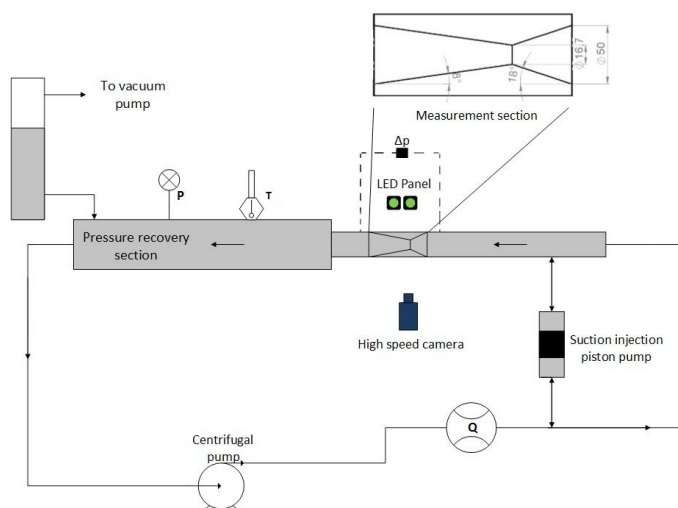


Figure 1: Schematic diagram of the pipe flow facility as prototype of the portable test rig.