

**Product Name :**  
Astra Scientific Series and Parallel Pumps

**Product Code :**  
Fluid Mechanics Lab0034



**Description :**

Astra Scientific Series and Parallel Pumps

**Technical Specification :**

**DESCRIPTION:** The Module features a closed water circuit with a water tank and two centrifugal pumps with drive motors. The speed of one motor is variably adjustable by a frequency converter. The other pump is fitted with a motor with fixed speed; this pump can be added to the system. The impellers of both pumps are mounted in transparent housings and can be observed during operation. Valves enable to easily switch change between single pump, series or parallel pump operation. The system behaviour is analysed with the aid of a valve at the outlet of the pump adjusting the flow resistance.

In complex systems, pumps can be connected in series or in parallel. In serial operation the heads of the pumps are added and in parallel operation the flow rates (capacities) of the pumps are added.

The experimental unit provides the determination of the characteristic behaviour for single operation and interaction of two pumps.

## FEATURES:

- Investigation and operating behavior of pumps in various operating modes
- Single pump, series or parallel pump operation, configurable via valves Closed water circuit contains centrifugal pumps with drive motor and a transparent water tank
- One pump with variable speed and one pump with fixed speed
- Adjustment of flow resistance by a valve at outlet of the pump
- Sensors for pressure at inlet and outlet of the pumps and flow rate
- Due to integrated microprocessor-based instrumentation no additional devices with error-prone wiring are required
- Display and evaluation of the measured values as well as operation of the unit via software

## SPECIFICATION:

- Centrifugal pumps with motors

Power consumption: 370W each

- Pump with variable speed:  $0 \dots 3300 \text{min}^{-1}$

Max. Flow rate: 40L/min

Max. Head: 10m

- Pump with fixed speed: approx.  $2800 \text{min}^{-1}$

Max. Flow rate: 40L/min

Max. Head: 10m

- Water tank: approx. 15L
- Measuring ranges

Pressure (inlet):  $\pm 1$ bar

Pressure (outlet): 2x 0...5bar

Flow rate: 10...140L/min

- 230V, 50Hz, 1 phase



## Astra Scientific

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