

## CE 271

### Multi-head diaphragm pump



#### Description

- **metering with a multi-head diaphragm pump**
- **stroke individually adjustable for each head**

Multi-head diaphragm pumps are used for metering in many process engineering areas. In food technology, for example, multi-head diaphragm pumps enable the precise observation of mixing ratios in order to ensure consistent high quality of the products. In addition, diaphragm pumps are leak-free and thus prevent germs from entering the piping system. This ensures that the high hygiene requirements that apply in food technology are observed.

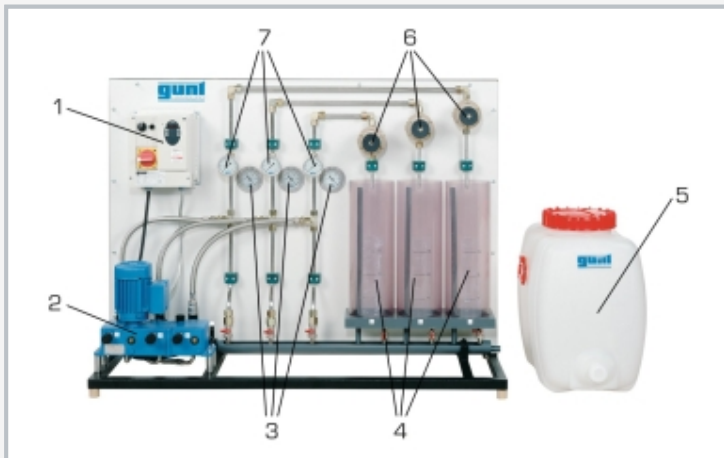
The pump in CE 271 has three pump heads. Each pump head conveys water from the feed tank into a tank with scale. The common stroke rate of the three pump heads is set at the switch box. The stroke of each pump head is set directly at the pump. Three overflow valves enable the user to set a counter pressure for each pump head. Manometers indicate the pressures on the intake and delivery side of each pump head. This enables students to examine the effect of the counter pressure on the flow rate and the mixing ratio. A stopwatch for the determination of the flow rate using the scaled tanks is included in the scope of delivery.

#### Learning objectives/experiments

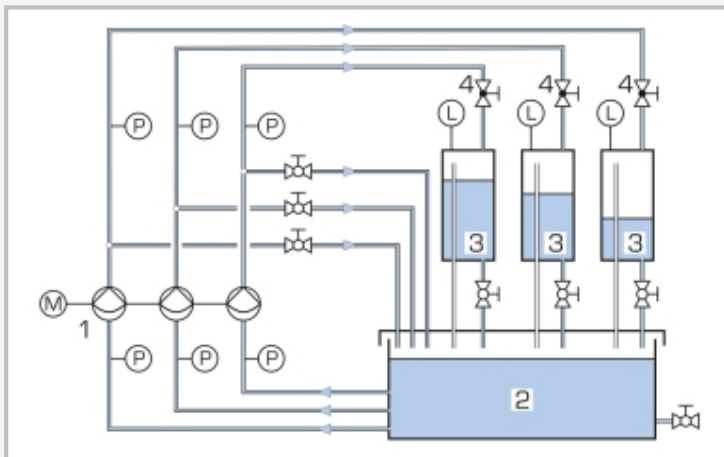
- familiarisation with the basic principle of a multi-head diaphragm pump
- flow rate and mixing ratio depending on
  - ▶ the stroke
  - ▶ the stroke rate
  - ▶ the counter pressure

# CE 271

## Multi-head diaphragm pump



1 switch box, 2 pump, 3 manometer (intake side), 4 tanks with scale, 5 feed tank, 6 overflow valves, 7 manometer (delivery side)



1 pump, 2 feed tank, 3 tanks with scale, 4 overflow valves; P pressure, L level



Adjusting the pump stroke

### Specification

- [1] examination of a multi-head diaphragm pump
- [2] diaphragm pump with 3 heads
- [3] common stroke rate adjustable for all 3 heads
- [4] stroke individually adjustable for each head
- [5] 3 overflow valves to set the counter pressure
- [6] 3 scaled tanks to determine the flow rate
- [7] 6 manometers to measure the pressure on the intake and delivery side
- [8] feed tank

### Technical data

#### Pump

- max. head: each approx. 100m
- max. suction head: each approx. 3m
- max. stroke: each approx. 6mm
- flow rate: 3x 0...18L/h

#### Tanks

- tanks with scale: each 5L
- feed tank: 60L

#### 3 overflow valves

- adjustable pressure range: each 2...6bar

#### Measuring ranges

- pressure (outlet): 3x 0...10bar
- pressure (inlet): 3x -1...0bar
- stroke rate: 1x 0...100min<sup>-1</sup>
- level: 3x 0...20cm

230V, 50Hz, 1 phase

230V, 60Hz, 1 phase; 230V, 60Hz, 3 phases

UL/CSA optional

LxWxH: 1250x500x950mm

Weight: approx. 50kg

### Scope of delivery

- 1 experimental unit
- 1 tank
- 1 set of hoses
- 1 stopwatch
- 1 set of instructional material

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Optional accessories

WP 300.09

Laboratory trolley