

PT 500.17

Cavitation in pumps kit



Description

- **observation and measurement of cavitation**
- **understanding conditions for cavitation**

Cavitation can play a major role in the vibration of pumps during operation.

With the PT 500.17 accessory set, cavitation can be experimentally induced and its influence on the vibration spectrum investigated.

The principal elements of the accessory set are a single-stage centrifugal pump and a storage tank. The pump and tank are interconnected by hoses. Valves and manometers in the delivery and intake lines allow various operating conditions to be set. The transparent plastic pump housing provides a view into the interior of the pump during operation. This enables the formation of cavitation bubbles to be observed. Stroboscopic analysis is specially recommended (stroboscope not supplied).

The pump can be driven directly through a flexible coupling on the base system PT 500 or by the PT 500.14 belt drive.

The accessory set is mounted on the base plate of the machinery diagnostic base system PT 500.

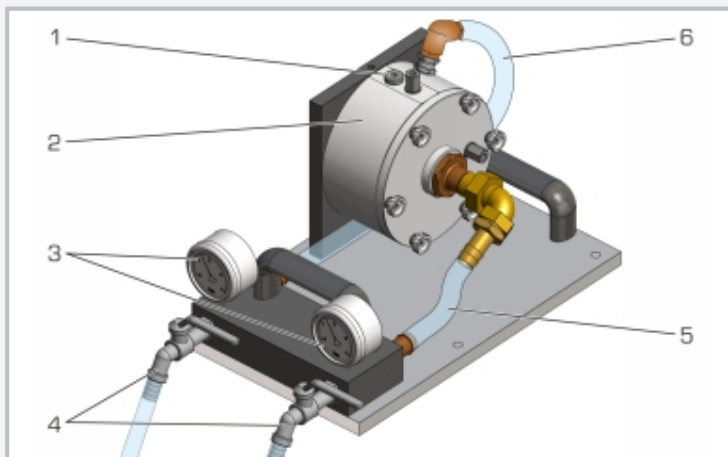
To measure and evaluate the experiment, the computerised vibration analyser PT 500.04 is required. It includes all the necessary sensors, a measuring amplifier and analysis software to record the vibration phenomena.

Learning objectives/experiments

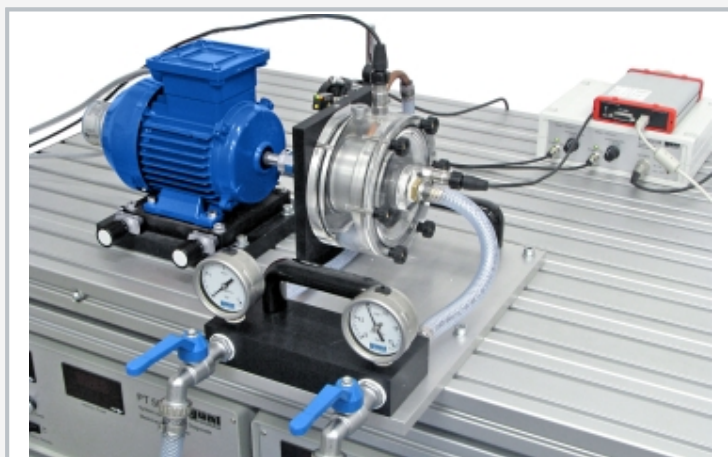
- observing and understanding cavitation in a centrifugal pump
 - ▶ visually
 - ▶ stroboscopically (stroboscope available as accessory)
 - ▶ by vibration analysis
- investigation of the operational vibrations of a centrifugal pump
- understanding and interpreting frequency spectra
- use of a computerised vibration analyser

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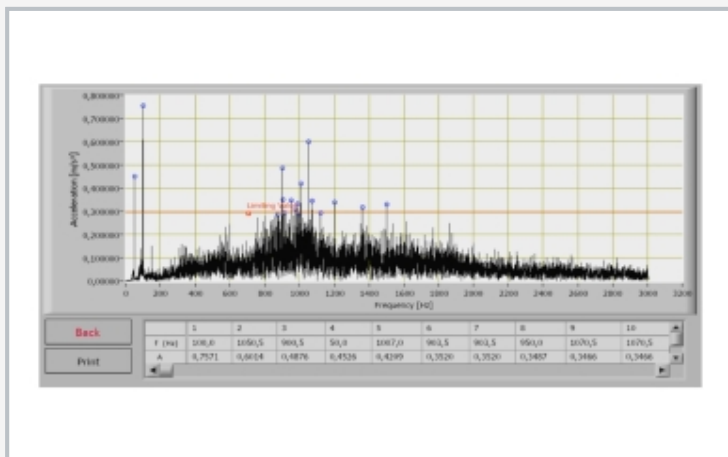
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1 pump housing vent screw, 2 pump housing, 3 manometer, 4 valve, 5 intake side hose, 6 housing cover



The illustration shows PT 500.17 together with PT 500 and PT 500.01.



Software screenshot: frequency spectrum in cavitation

Specification

- [1] investigation of the conditions for cavitation in pumps
- [2] single-stage centrifugal pump
- [3] valves and manometers in delivery and intake lines allow to set operating conditions including generating cavitation
- [4] transparent housing
- [5] pump driven via coupling (PT 500) or with belt drive PT 500.14
- [6] accessory set for PT 500 machinery diagnostic training system
- [7] stackable storage system to house the components

Technical data

Centrifugal pump

- max. flow rate at 3300min^{-1} : $17\text{L}/\text{min}$
- max. head at 3300min^{-1} : 12m
- impeller with 3 blades
- min. speed for cavitation: approx. 2240min^{-1} (with restriction on intake side)

Tank

- material: HDPE
- capacity: 20L

Manometer

- delivery side: $0\text{...}4\text{bar}$
- intake side: $-1\text{...}1,5\text{bar}$

LxWxH: $600\times 400\times 320\text{mm}$ (storage system)

Weight: approx. 16kg

Scope of delivery

- 1 pump
- 1 tank
- 1 set of hoses
- 1 storage system with rubber mat
- 1 manual

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Required accessories

PT 500	Machinery diagnostic system, base unit
PT 500.04	Computerised vibration analyser

Optional accessories

PT 500.14	Belt drive kit
PT 500.01	Laboratory trolley