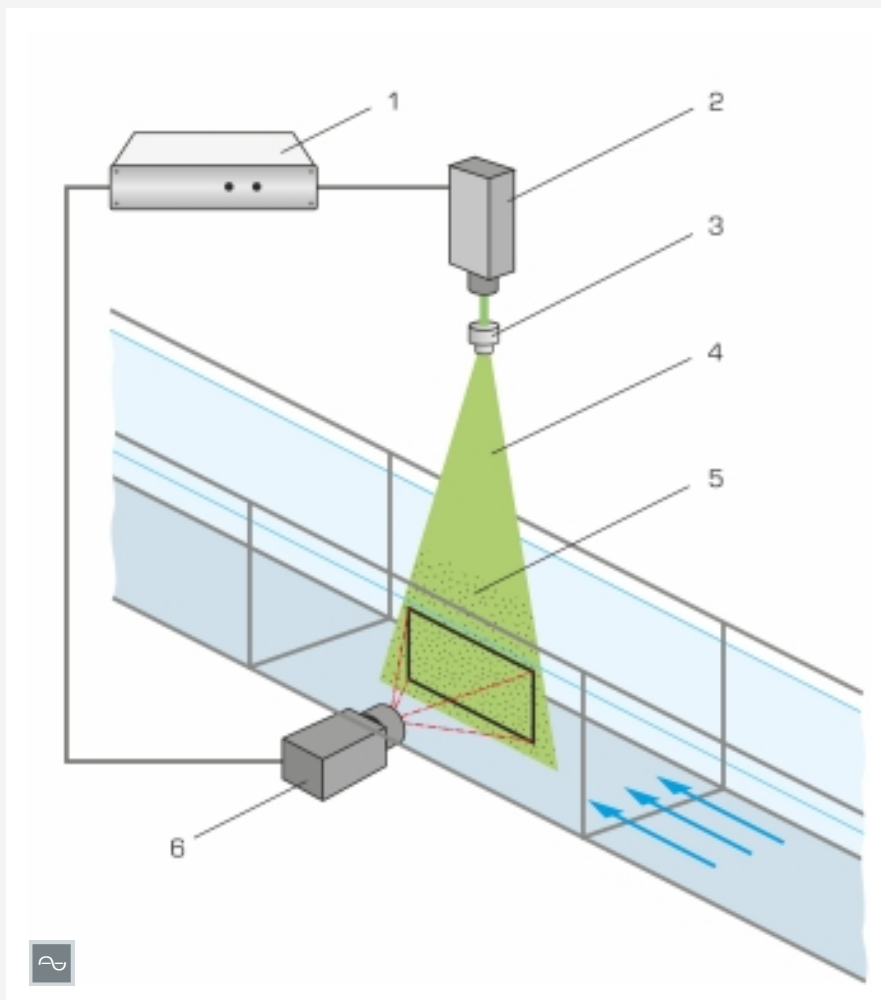


# HM 163.81

## PIV-System



Principle of operation: 1 synchroniser, 2 light source, 3 lens system, 4 light section, 5 illuminated particles in the flow, 6 camera

### Description

#### ■ accessory for the visualisation of velocity fields

A PIV system (Particle Image Velocimetry) is used to record velocity fields in the experimental flume. The HM 163.81 accessory includes a complete system with light sectioning optics, camera and synchronizer. This system is suitable for two-dimensional flow measurements.

LEDs serve as the light source, which in contrast to the laser are used without safety devices. A lens expands the light into a light section. To observe the flow, the light source is operated continuously. For the display and evaluation of velocity fields, the light source is pulsed.

A camera positioned in front of the experimental flume takes pictures of the particles in the flow. Light source and camera are operated simultaneously by the synchronizer.

The result is immediately displayed in the software and can be evaluated there. A notebook with pre-installed software is included in the delivery.

For experiments where the light source is to be mounted above the flume, the HM 163.82 instrument carrier can be used as an option. For experiments in which the light source is to be positioned under the flume, a HM 163.83 glass cut-out is available for the base of the flume. The installed glass pane is part of the HM 163 experimental flume and must be taken into account in the design. A subsequent installation is not possible.

### Specification

- [1] PIV system for recording velocity fields in the experimental flume HM 163
- [2] use together with HM 163.82 Instrument carrier for PIV system or HM 163.83 Glass cut-out for PIV system
- [3] polyamide particles suitable for experiments with water
- [4] notebook with pre-installed software included
- [5] software for displaying and evaluating two velocity components in one plane (2D-2C)
- [6] storage system for all components

### Technical data

#### Light section optics

- light source: LED, light colour: green
  - lens system: light cut approx. 100x100mm
  - operation: continuous/pulsed light
- #### Camera
- resolution: 2048x2048 pixels
  - pixel size: 5,5x5,5µm
  - lens: 35mm
  - refresh rate: 30 frames/sec, at intervals of 200µs
  - filter: wavelength 532nm +/- 3nm

#### Synchroniser

- resolution: 5ns
- pulse repetition rate: 0,047Hz to 10MHz

#### Notebook

- software for display and evaluation
  - 1 user licence
- #### Polyamide particles, suitable for water
- white
  - Ø 57µm
  - density 1,016g/cm<sup>3</sup>

### Required for operation

HM 163.82 Instrument carrier for PIV system or HM 163.83 Glass cut-out for PIV system

### Scope of delivery

- 1 light section optics with LED light source
- 1 camera
- 1 synchroniser
- 1 notebook + software
- 1 set of polyamide particles (100g)

# HM 163.81

## PIV-System

### Required accessories

HM 163	Experimental flume 409x500mm
HM 163.82	Instrument carrier for PIV system

### Optional accessories

HM 163.83	Glass cut-out for PIV system
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