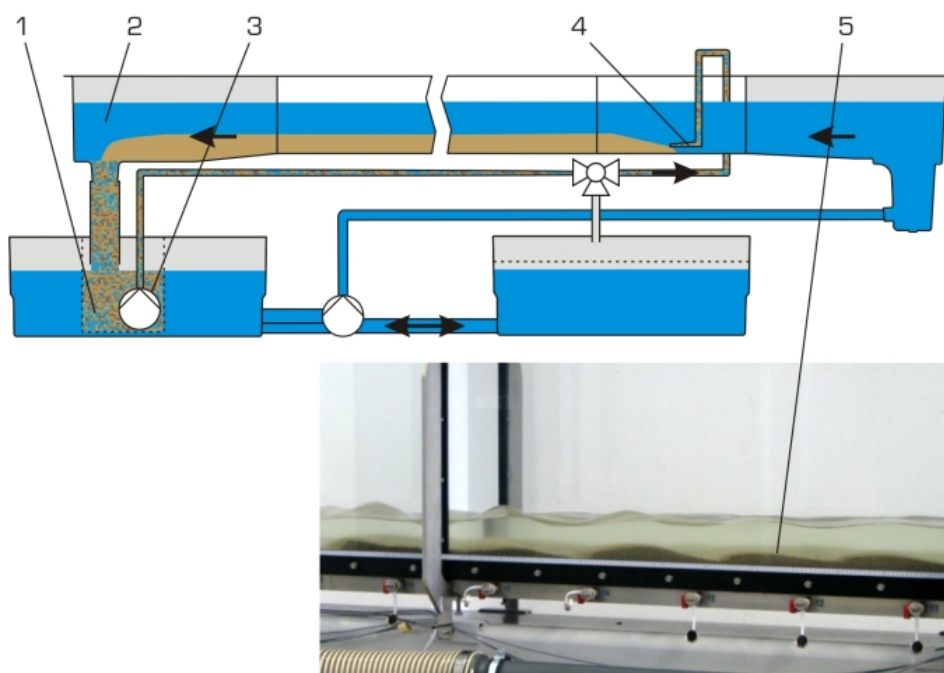


HM 163.71

Closed sediment circuit



1 screen basket, 2 outlet element of HM 163, 3 pump, 4 sediment feed, 5 dune migration

Description

- **bed-load transport in open channels**
- **operation of the sediment pump via touch screen in HM 163**

Flows in rivers, canals and coastal areas are often associated with sediment transport. Bed-load transport is the main transport. During bed-load transport, solids are moved along the flume bottom.

HM 163.71 considers the bed-load transport and consists of a sediment trap, a sediment feed and a pipe system with a pump for delivering the mixture of water and sediment from the trap back to the sediment feed between two experiments.

The sediment circuit and the water circuit of HM 163 are independent systems. This guarantees that the sediment cannot get into the pump or the flow rate sensor of the water circuit of experimental flume HM 163.

At the beginning of the experiment, a sediment bed is made in the experimental section without flowing water. Then, the water circuit is switched on. The accessory is automatically identified by the PLC.

The sediment pump is operated via the touch screen of the PLC of HM 163.

The flowing water transports the sediment close to the bottom along the experimental section. This bed-load transport can be observed clearly.

A screen basket placed in the water tank below the outlet element of the experimental flume HM 163 is used as sediment trap. A pump placed in the screen basket delivers the mixture of water and sediment from the screen basket back to the sediment feed. The mixture of water and sediment has a high water content. The sediment feed is lowered into the experimental section and feeds the sediment close to the bottom. The height of the sediment feed above the flume bottom can be varied freely.

At the end of the experiment, the sediment is removed from the flume by delivering the mixture of water and sediment to a screen in the second water tank.

HM 163.71 is not suitable for suspended load transport.

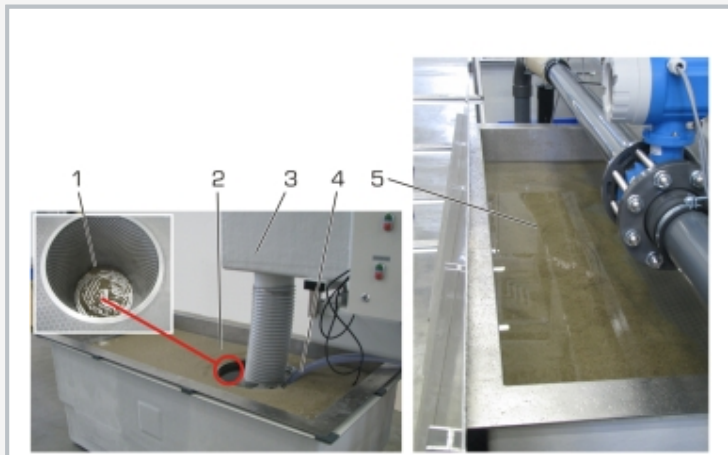
HM 163 can be extended with HM 163.71 at any time.

Learning objectives/experiments

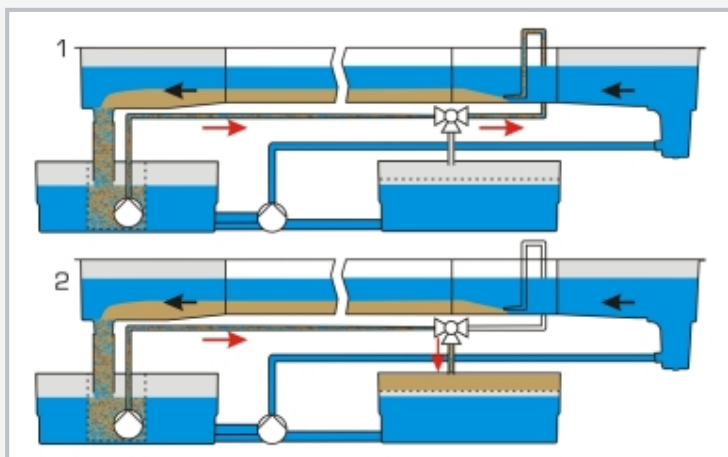
- observation of bed-load transport along the flume bottom
 - ▶ rolling and saltation bed-load transport
- formation and migration of ripples and dunes
- together with HM 163.29 or HM 163.46
 - ▶ fluvial obstacle marks

HM 163.71

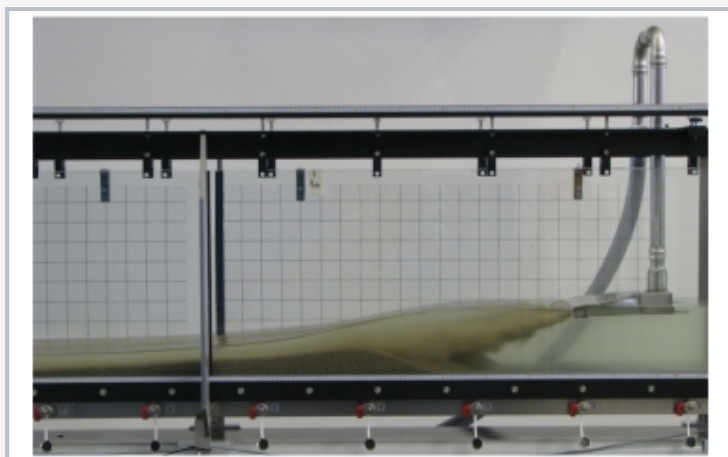
Closed sediment circuit



1 screen basket (pump not shown), 2 sediment, 3 outlet element of HM 163, 4 pipe system for transporting the mixture of water and sediment, 5 screen for sediment removal on second water tank



Principle of the sediment circuit: 1 running experiment with sediment delivery, 2 sediment delivery from the screen basket to the sediment removal at the end of the experiment; arrows: flow direction



Sediment feed

Specification

- [1] bed-load transport with closed sediment circuit for the experimental flume HM 163
- [2] screen basket as sediment trap, to be inserted into the water tank below the outlet element of HM 163
- [3] pump with pipe system for transporting the water/sand mixture from the trap to the sediment feed
- [4] sediment feed directly into the experimental section
- [5] height of sediment feed above the flume bottom can be varied
- [6] automatic identification of the accessory in the PLC
- [7] operation of the sediment pump via touch screen of the PLC in HM 163
- [8] sediment removal from the flume using screen on the second water tank
- [9] HM 163 can be extended with HM 163.71 at any time

Technical data

Pump

- power consumption: 1,1kW
- max. flow rate: 36m³/h
- max. head: 11m

Screen basket

- aperture size: 0,3mm (49mesh)
- capacity: approx. 120L

Screen for sediment removal

- aperture size: 0,3mm (49mesh)

400V, 50Hz, 3 phases

400V, 60Hz, 3 phases; 230V, 60Hz, 3 phases

UL/CSA optional

LxWxH: 500x320x900mm (sediment trap)

LxWxH: 2000x1000x180mm (screen)

Total weight: approx. 200kg

Required for operation

sediment: sand (1...2mm grain size)

Scope of delivery

- 1 closed sediment circuit
- 1 screen
- 1 set of accessories
- 1 manual

HM 163.71

Closed sediment circuit

Required accessories

HM 163 Experimental flume 409x500mm

Optional accessories

HM 163.29 Sluice gate

HM 163.46 Set of piers, seven profiles