

HM 161

Experimental flume 600x800mm



The illustration shows HM 161 together with the sediment feeder HM 161.73.

Description

- **experimental section with transparent side walls, length 16m**
- **homogeneous flow through carefully designed inlet element**
- **models from all fields of hydraulic engineering available as accessories**

The experimental flume HM 161 is the largest within the GUNT product range. The flow velocities that can be achieved in the experimental flume, and the long length of the experimental section, are the perfect conditions for designing your own projects. These projects can be very close approximations of reality.

The experimental section is 16m long and has a cross-section of 600x800mm. The side walls of the experimental section are made of tempered glass, which allows excellent observation of the experiments. All components that come into contact with water are made of corrosion-resistant materials (stainless steel, glass reinforced plastic). The inlet element is designed so that the flow enters the experimental section with very little turbulence. The closed water circuit consists of a series of water tanks and a powerful pump. The tanks are included in the system in such a way that they also serve as a gallery which you can stand on.

The user can thus comfortably reach any part of the experimental section.

The experimental flume has a motorised inclination adjustment to allow simulation of slope and to create a uniform flow at a constant discharge depth.

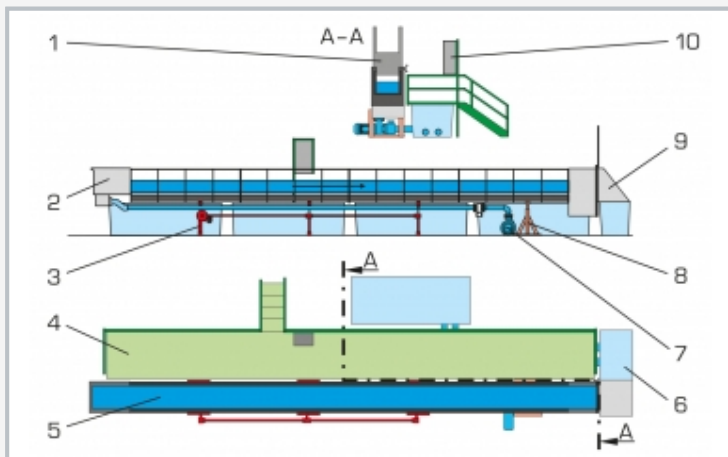
A wide selection of models, such as weirs, piers, flow-measuring flumes or a wave generator are available as accessories and ensure a comprehensive programme of experiments. Most models are quickly and safely bolted to the bottom of the experimental section.

Learning objectives/experiments

- uniform and non-uniform discharge
- flow formulae
- flow transition (hydraulic jump)
- energy dissipation (hydraulic jump, stilling basin)
- flow over control structures
 - ▶ weirs (sharp-crested, broad-crested, ogee-crested)
 - ▶ discharge under gates
- flow-measuring flumes
- local losses due to obstacles
- water surface profiles
- transient flow: waves
- vibrating piles
- sediment transport

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1 gate at the outlet element, 2 inlet element, 3 jacking support with motorised inclination adjustment, 4 gallery, 5 experimental section, 6 water tank, 7 pump, 8 fixed support, 9 outlet element, 10 switch cabinet



Hydraulic jump



HM 161 with outlet element, gallery and switch cabinet in the foreground.

Specification

- [1] basic principles of open-channel flow
- [2] experimental flume with experimental section, inlet and outlet element and closed water circuit
- [3] length of the experimental section 16m
- [4] smoothly adjustable inclination of the experimental section
- [5] experimental section with evenly spaced threaded holes on the bottom for installing models or for pressure measurement
- [6] side walls of the experimental section are made of tempered glass for excellent observation of the experiments
- [7] experimental section with guide rails for the optionally available instrument carrier HM 161.59
- [8] all surfaces in contact with water are made of corrosion-resistant materials
- [9] flow-optimised inlet element for low-turbulence entry into the experimental section
- [10] closed water circuit with 6 water tanks, pump, electromagnetic flow sensor and flow control
- [11] water tanks form a gallery that can be walked on
- [12] models from all fields of hydraulic engineering available as accessories

Technical data

Experimental section

- length: 16m
- flow cross-section WxH: 600x800mm
- inclination adjustment: -0,75...2,1%
- 3 spindle-type lifting gears

Tanks

- 1x 2300L
- 5x 4300L

Pump

- power consumption: 15KW
- max. flow rate: 440m³/h
- max. head: 17,5m

Measuring ranges

- flow rate: 20...400m³/h

400V, 50Hz, 3 phases

LxWxH: 20000x4000x4000mm

Weight: approx. 4000kg

Scope of delivery

- 1 experimental flume
- 1 set of instructional material

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Optional accessories

Control structures

| | | |
|-----------|-----------|---|
| 070.16129 | HM 161.29 | Sluice gate |
| 070.16140 | HM 161.40 | Radial gate |
| 070.16130 | HM 161.30 | Set of plate weirs, four types |
| 070.16131 | HM 161.31 | Broad-crested weir |
| 070.16133 | HM 161.33 | Crump weir |
| 070.16136 | HM 161.36 | Siphon weir |
| 070.16138 | HM 161.38 | Rake |
| 070.16134 | HM 161.34 | Ogee-crested weir with pressure measurement |
| 070.16132 | HM 161.32 | Ogee-crested weir with two weir outlets |
| 070.16135 | HM 161.35 | Elements for energy dissipation |

Change in cross-section

| | | |
|-----------|-----------|------------------------------|
| 070.16144 | HM 161.44 | Sill |
| 070.16145 | HM 161.45 | Culvert |
| 070.16146 | HM 161.46 | Set of piers, seven profiles |
| 070.16177 | HM 161.77 | Flume bed with pebble stones |

Flow-measuring flumes

| | | |
|-----------|-----------|-------------------|
| 070.16151 | HM 161.51 | Venturi flume |
| 070.16155 | HM 161.55 | Parshall flume |
| 070.16163 | HM 161.63 | Trapezoidal flume |

Other experiments

| | | |
|-----------|-----------|-----------------|
| 070.16141 | HM 161.41 | Wave generator |
| 070.16180 | HM 161.80 | Set of beaches |
| 070.16161 | HM 161.61 | Vibrating piles |
| 070.16172 | HM 161.72 | Sediment trap |
| 070.16173 | HM 161.73 | Sediment feeder |

Measuring instruments

| | | |
|-----------|-----------|---------------------|
| 070.16152 | HM 161.52 | Level gauge |
| 070.16191 | HM 161.91 | Digital level gauge |
| 070.16164 | HM 161.64 | Velocity meter |
| 070.16150 | HM 161.50 | Pitotstatic tube |
| 070.16153 | HM 161.53 | 20 tube manometers |
| 070.16159 | HM 161.59 | Instrument carrier |