

HM 160

Experimental flume 86x300mm



The illustration shows HM 160 together with the ogee-crested weir HM 160.32 and the level gauge HM 160.52.

Description

- **basic principles of open-channel flow**
- **experimental section with transparent side walls, lengths of 2,5m and 5m available**
- **homogeneous flow through carefully designed inlet element**
- **models from all fields of hydraulic engineering available as accessories**

Hydraulic engineering is concerned with artificial waterways, the regulation of rivers and with barrages, amongst other things. By using experimental flumes in the laboratory, it is possible to teach the necessary basic principles.

The experimental flume HM 160 has a closed water circuit. The cross-section of the experimental section is 86x300mm. The experimental section is 2,5m long and can be increased to 5m with the extension element HM 160.10. 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 inclination of the experimental flume can be finely adjusted to allow simulation of slope and to create a uniform flow at a constant discharge depth.

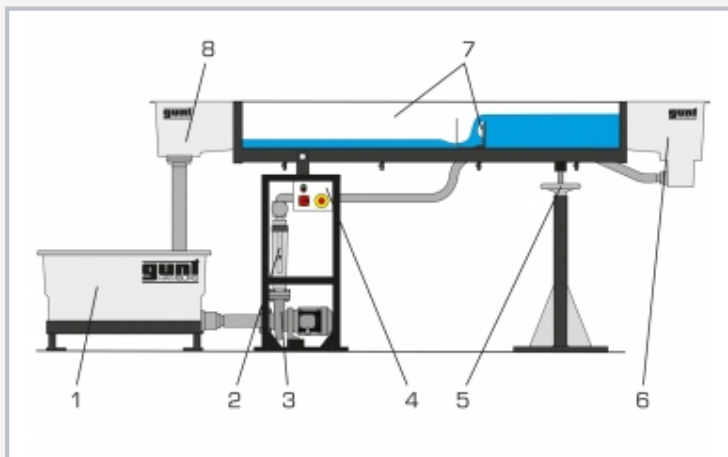
A wide selection of models, such as weirs, piers, flow-measuring flumes or a wave generator are available as accessories and ensure a comprehensive programme of experiments. Most models are quickly and safely bolted to the bottom of the experimental section.

Learning objectives/experiments

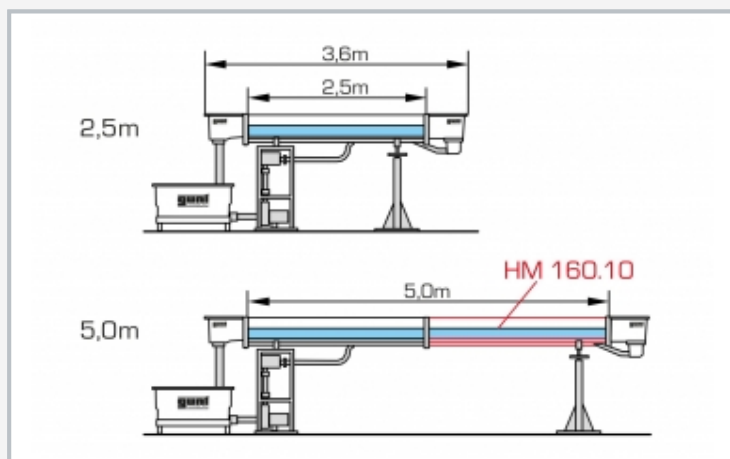
- **together with optionally available models**
 - ▶ uniform and non-uniform discharge
 - ▶ flow formulae
 - ▶ flow transition (hydraulic jump)
 - ▶ energy dissipation (hydraulic jump, stilling basin)
 - ▶ flow over control structures: weirs (sharp-crested, broad-crested, ogee-crested), discharge under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

HM 160

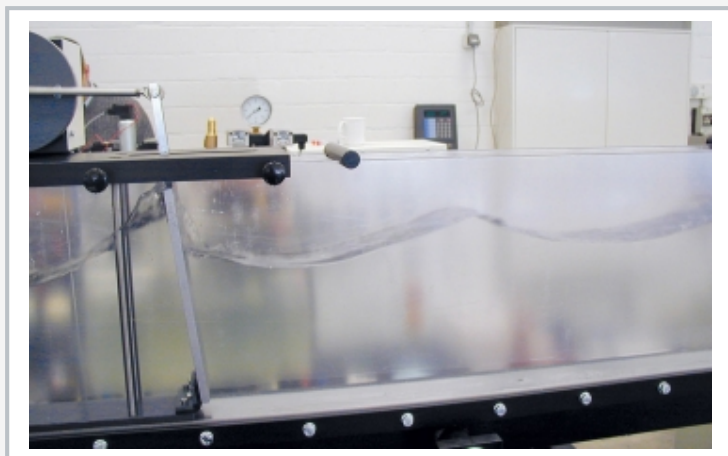
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1 water tank, 2 flow meter, 3 pump, 4 switch box, 5 inclination adjustment, 6 inlet element, 7 experimental section with plate weir HM 160.30, 8 outlet element



HM 160 with the two experimental sections of different lengths (2,5m or 5m). In the 5m version, an extension element HM 160.10 is required.



The wave generator HM 160.41 generates waves in the experimental flume.

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 2,5m or 5m (with extension element HM 160.10)
- [4] smoothly adjustable inclination of the experimental section
- [5] experimental section with 10 evenly spaced threaded holes on the bottom for installing models or for water level measurement using pressure
- [6] side walls of the experimental section are made of tempered glass for excellent observation of the experiments
- [7] all surfaces in contact with water are made of corrosion-resistant materials
- [8] flow-optimised inlet element for low-turbulence entry into the experimental section
- [9] closed water circuit with water tank, pump, rotameter and manual flow adjustment
- [10] models from all fields of hydraulic engineering available as accessories

Technical data

Experimental section

- length: 2,5m or 5m (with 1x HM 160.10)
- flow cross-section WxH: 86x300mm
- inclination adjustment: -0,5...+3%

Tank: 280L

Pump

- power consumption: 1,02kW
- max. flow rate: 22,5m³/h
- max. head: 13,7m

Measuring ranges

- flow rate: 0...10m³/h

230V, 50Hz, 1 phase

230V, 60Hz, 1 phase; 120V, 60Hz, 1 phase

UL/CSA optional

LxWxH: 4300x660x1350mm (experimental section 2,5m)

Weight: approx. 500kg

Scope of delivery

- 1 experimental flume
- 1 set of instructional material

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Optional accessories

Control structures

070.16029	HM 160.29	Sluice gate
070.16040	HM 160.40	Radial gate
070.16030	HM 160.30	Set of plate weirs, four types
070.16031	HM 160.31	Broad-crested weir
070.16033	HM 160.33	Crump weir
070.16036	HM 160.36	Siphon weir
070.16034	HM 160.34	Ogee-crested weir with pressure measurement
070.16032	HM 160.32	Ogee-crested weir with two weir outlets
070.16035	HM 160.35	Elements for energy dissipation

Change in cross-section

070.16044	HM 160.44	Sill
070.16045	HM 160.45	Culvert
070.16046	HM 160.46	Set of piers, seven profiles
070.16077	HM 160.77	Flume bottom with pebble stones

Flow-measuring flumes

070.16051	HM 160.51	Venturi flume
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Other experiments

070.16041	HM 160.41	Wave generator
070.16042	HM 160.42	Plain beach
070.16061	HM 160.61	Vibrating piles
070.16072	HM 160.72	Sediment trap
070.16073	HM 160.73	Sediment feeder

Measuring instruments

070.16052	HM 160.52	Level gauge
070.16091	HM 160.91	Digital level gauge
070.16064	HM 160.64	Velocity meter
070.16050	HM 160.50	Pitotstatic tube
070.16053	HM 160.53	Ten tube manometers

Other accessories

070.16010	HM 160.10	Extension element of the experimental flume
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