

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.

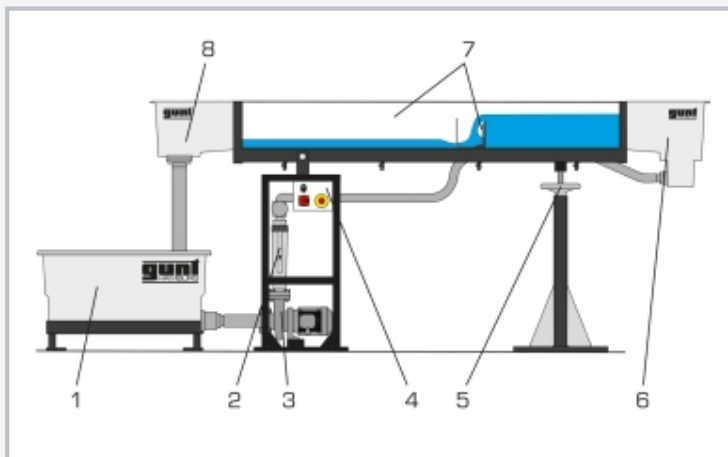
A wide selection of models, such as weirs, piers, flow-measuring flumes or a wave generator are available as accessories and ensure a comprehensive programme of experiments. Most models are quickly and safely bolted to the bottom of the experimental section.

Learning objectives/experiments

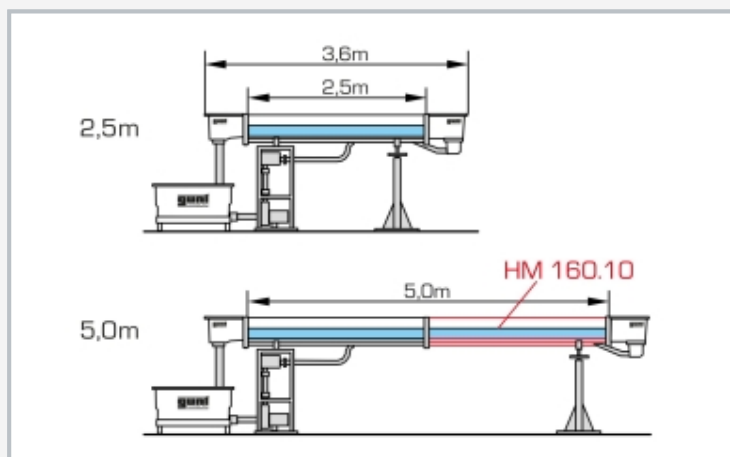
- together with optionally available models
 - ▶ uniform and non-uniform discharge
 - ▶ flow formulae
 - ▶ flow transition (hydraulic jump)
 - ▶ energy dissipation (hydraulic jump, stilling basin)
 - ▶ flow over control structures:
 - weirs (sharp-crested, broad-crested, ogee-crested),
 - discharge under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

HM 160

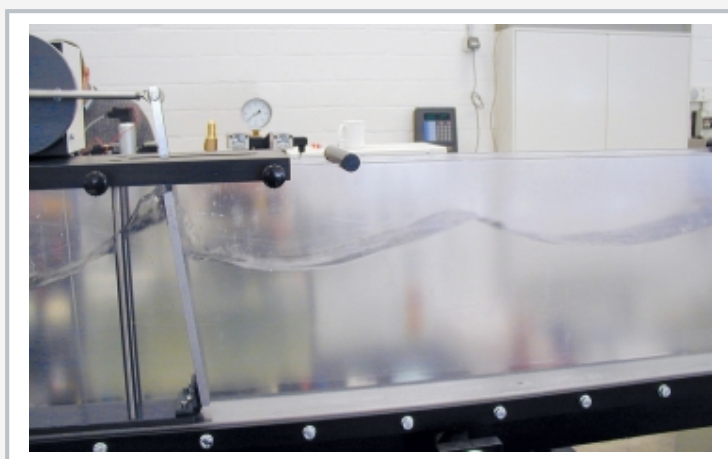
Experimental flume 86x300mm



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

- max. flow rate in the experimental section: 10m³/h
- max. flow rate of the pump: 15m³/h
- max. head of the pump: 21m

Measuring ranges

- flow rate: 0...10m³/h

230V, 50Hz, 1 phase

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

UL/CSA optional

LxWxH: 4310x670x1350mm (experimental section 2,5m)

Weight: approx. 254kg

Scope of delivery

- 1 experimental flume
- 1 set of instructional material

HM 160

Experimental flume 86x300mm

Optional accessories

Control structures

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

Change in cross-section

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

Flow-measuring flumes

HM 160.51	Venturi flume
-----------	---------------

Other experiments

HM 160.41	Wave generator
HM 160.80	Set of beaches
HM 160.61	Vibrating piles
HM 160.72	Sediment trap
HM 160.73	Sediment feeder

Measuring instruments

HM 160.52	Level gauge
HM 160.91	Digital level gauge
HM 160.64	Velocity meter
HM 160.50	Pitotstatic tube
HM 160.53	Ten tube manometers

Other accessories

HM 160.10	Extension element of the experimental flume
HM 160.19	UV system for disinfection