

# HM 161.45

## Culvert



The illustration shows a similar unit

### Description

#### ■ full flow through culvert and partially filled culvert

Culverts are crossing structures in running waters and allow the passage of water. They may be pipes that are laid under a road, allowing the flume to cross.

The culvert may be flowed through partially or in full, depending on the discharge occurring. A partially filled culvert with free surface is treated in the same way as an open channel, while a full flow through culvert corresponds to a pipe flow. By contrast, a full flow through culvert and a culvert in which the inlet is completely submerged are classed as control structures. These result in a limiting of the discharge. There may also be a combination of these two states, so that the culvert is in part fully flowed through and in part partially filled.

The culvert HM 161.45 contains two different cross-sections with the same cross-sectional area. The transparent material allows to observe closely the flow and occurring hydraulic jumps in the culvert. The culvert is fixed in the experimental flume using a clamping device.

### Learning objectives/experiments

- behaviour of open channel flow at reduced flow cross-sections
- free and submerged culvert inlet
- culvert outlet with free or submerged discharge
- different shapes of culvert cross-section
  - ▶ rectangular cross-section
  - ▶ circular cross-section

### Specification

- [1] culvert for experimental flume HM 161
- [2] transparent channel body made from PMMA
- [3] hollow channel body, fitted with a rectangular and a circular cross-section
- [4] 2 covers to close the unused cross-section
- [5] channel body with sealing lips
- [6] clamping device for mounting the culvert into the experimental flume

### Technical data

Culvert cross-sections

- circular,  $\varnothing$  284mm
  - rectangular, WxH: 251x251mm
- Material
- PMMA, transparent

LxWxH: 1800x600x780mm

Weight: approx. 70kg

### Scope of delivery

- 1 culvert
- 1 set of accessories
- 1 manual

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Required accessories

HM 161            Experimental flume 600x800mm