HM 160.61
Vibrating piles

Learning objectives/experiments

- vibration of a single pile
  - observation of a Karman vortex street
  - effect of the rod diameter
  - effect of additional masses
- determining natural frequencies

Specification

[1] rods as vibrating piles for the experimental flume HM 160
[2] 3 single rods with different diameters
[3] holder for weights and weights as additional mass for the single rods
[4] single rod is attached to the flume bottom for experiments

Technical data

Single rods: 420mm long, made of PVC
- Ø 4mm
- Ø 6mm
- Ø 8mm

Weights
- 1x 100g
- 1x 9g
- 1x 37g (holder)

Weight: approx. 1kg

Scope of delivery

3 rods
1 set of weights
1 set of accessories
1 manual

Description

■ vibrations of a single pile in a flow

Jetties or drilling platforms usually stand in the water on piles. Flowing water exerts forces on the part of the piles that is located under water, possibly causing vibrations. The vibrations can lead to component failure.

The vibrations are caused by the interaction between the water and the pile. For example, flow around a pile can lead to the formation of a Karman vortex street. The detachment of these vortices causes a change in the flow direction. In the worst case the vortex shedding frequency corresponds to the natural frequency of the pile.

HM 160.61 enables the observation of a single vibrating pile. The pile is a rod that is fixed in the flume bottom. Rods with different diameters are included in the scope of delivery. As additional masses, the rods can be loaded with different weights.

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Required accessories

HM 160	Experimental flume 86x300mm