

# HM 161.41

## Wave generator



The illustration shows a similar unit

### Description

- generation of surface waves
- operation via touch screen in HM 161

Surface waves are generated by a paddle that swings back and forth. A motor with frequency converter and a crank mechanism are used to drive the paddle. The stroke of the crank mechanism can be adjusted continuously. The motor is placed on the experimental section of the experimental flume HM 161 and fixed in place using bolts. The paddle is fixed to the bottom.

The accessory is automatically identified by the PLC. The frequency of the paddle is set and directly displayed on the touch screen of the PLC on the experimental flume HM 161.

Two wave absorbers reduce the reflection of waves at the front sides of the experimental flume. When flowing through the wave absorbers, the wave heights are reduced. Experiments on waves are only performed without flow.

### Learning objectives/experiments

- observation of waves: different wave shapes
- together with accessories:
  - ▶ absorption and reflection of wave forces at different beaches (HM 161.80)
  - ▶ behaviour of waves at piers (HM 161.46)

### Specification

- [1] wave generator for the experimental flume HM 161
- [2] automatic identification of the accessory in the PLC
- [3] generation of surface waves via paddle swinging back and forth
- [4] drive of the paddle via crank mechanism and motor with gear
- [5] motor with variable speed via frequency converter
- [6] stroke of the crank mechanism manually infinitely adjustable
- [7] frequency of the crank mechanism continuously adjustable via touch screen of the PLC in HM 161
- [8] two wave absorbers reduce the reflection of waves

### Technical data

#### Motor

- power output: 0,75kW
- speed: 1400min<sup>-1</sup>
- output speed: 0...114min<sup>-1</sup>

#### Crank mechanism

- stroke: 70...230mm
- frequency: 0,18...1,83Hz

2 wave absorbers with 8 perforated plates each

400V, 50Hz, 3 phases  
 230V, 60Hz, 3 phases  
 LxWxH: 1150x840x1250mm (wave generator)  
 LxWxH: 840x220x870mm (wave absorber)  
 Weight: approx. 140kg

### Scope of delivery

- 1 wave generator
- 2 wave absorbers
- 1 set of accessories
- 1 manual

# HM 161.41

## Wave generator

### Required accessories

HM 161                    Experimental flume 600x800mm

### Optional accessories

#### Wave absorption

HM 161.80                Set of beaches

#### Other experiments

HM 161.46                Set of piers, seven profiles