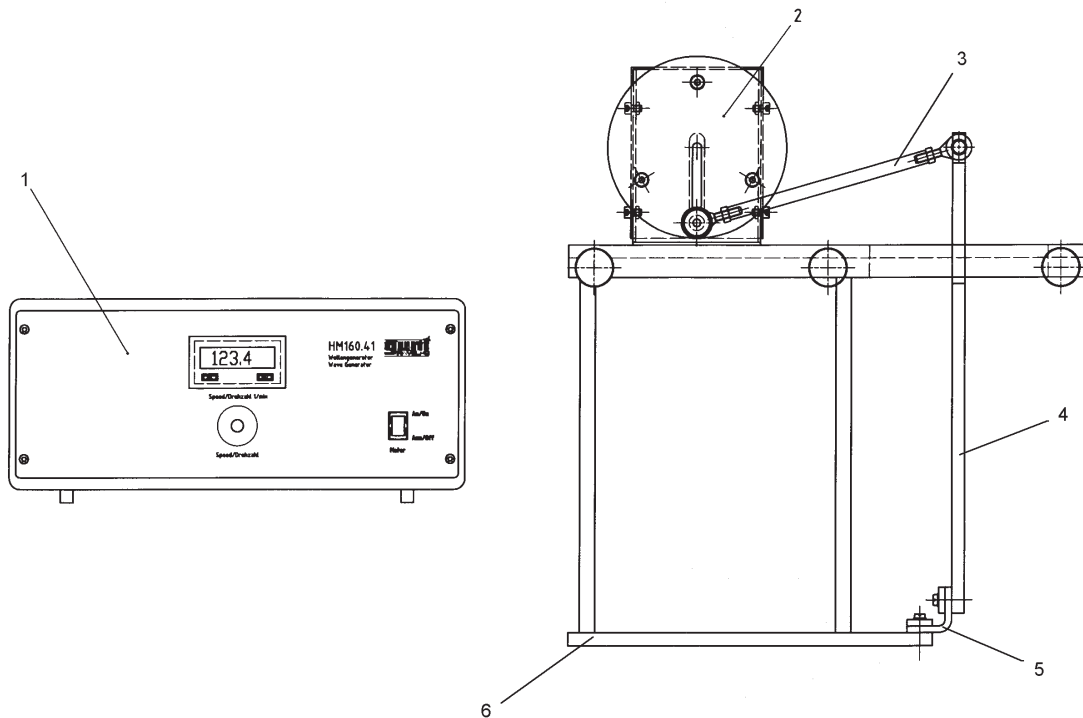


Technical Information

HM 160.41 Wave Generator Flap-Type

HM 160.41 WAVE GENERATOR FLAP-TYPE

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Technical Information

Please read and follow the safety regulations before the first installation!

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HM 160.41 *WAVE GENERATOR FLAP-TYPE*

1 Introduction

The **wave generator HM 160.41** is used to create waves of various types at the Multipurpose Teaching Flume HM 160.

This accessory unit is used to help obtain information on the behaviour of waves in the offshore area as well as in coastal protection.

The **rotational speed** of the drive motor can be **steplessly** varied via the control unit.

Mounting of the **wave generator HM 160.41** on the Multipurpose Teaching Flume HM 16 is kept very simple. The support for the drive motor can be positioned at almost every point of the channels working section.

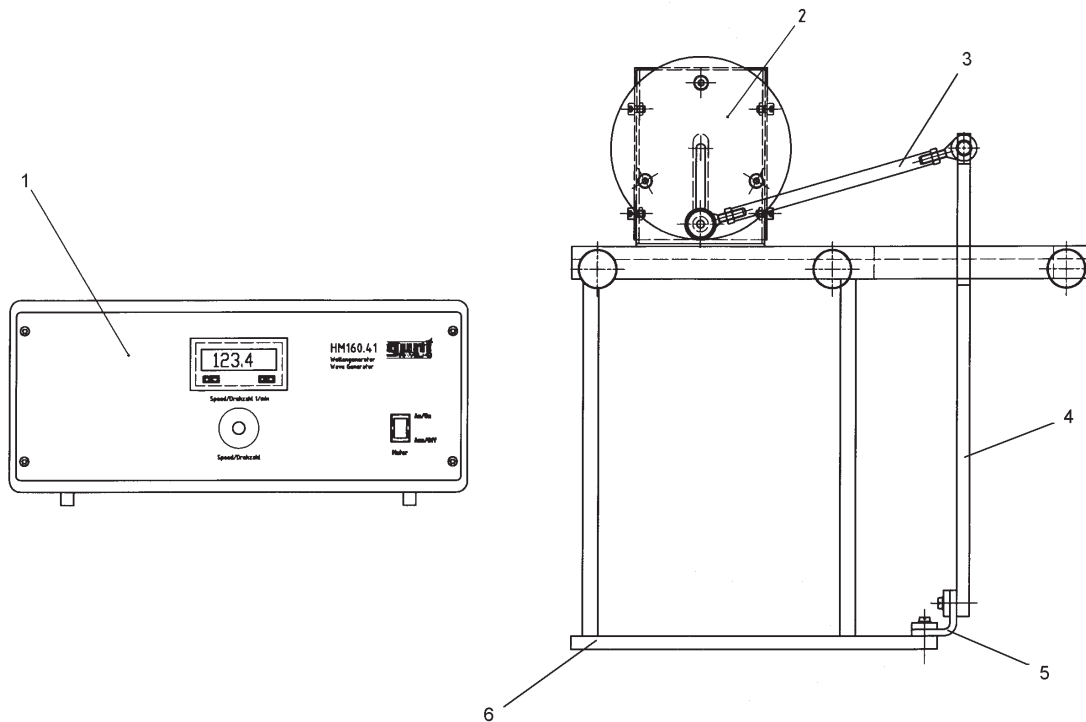
In conjunction with some units from the wide range of **accessories** from **G.U.N.T.**, the following experiments are possible:

Measurement on waves

- Height (amplitude) and length (frequency)
- Forces
- Absorption of wave forces
- Velocity
- Different wave shapes
- Wave breaking on coastal structures
- Wave reflection
- Behavior of structures in the seaway

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2 Unit description



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Fig.: 2.1 HM160.41

- 1 Control Unit
- 2 Drive Motor (with gear box and crank disk)
- 3 Pushing rod
- 4 Paddle plate
- 5 Rubber bearing
- 6 Support with knurled fixing screws

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The experimental set-up “wave generator” consists of various positions. The **drive motor with gear and crank disk (2)** is positioned on a **support (6)**. On the lower side of the support, a **paddle plate (4)** is fixed, using a **rubber bearing (5)**. On the upper side of the support are six knurled screws for fixing the support at the channel side walls.

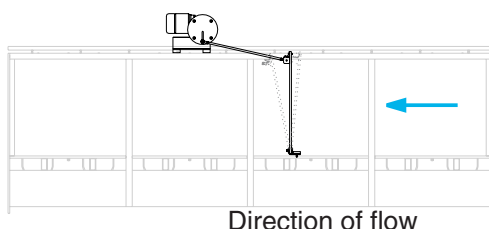
The support with the wave generating components can be positioned at almost every point of the channel working section.

During operation in the teaching flume, the paddle plate is acted via a **pushing rod (3)**, which is connected to the crank disk. The stroke of the paddle plate can be adjusted with a help of a sliding block, to which the pushing rod is connected.

The drive motor has to be connected to the mains via the **control unit (1)**. Then the motor can be activated via the control unit. There is an ON/OFF-switch and a potentiometer for adjustment of the motor speed. The actual motor speed during operation can be seen on a display at the front of the control unit.

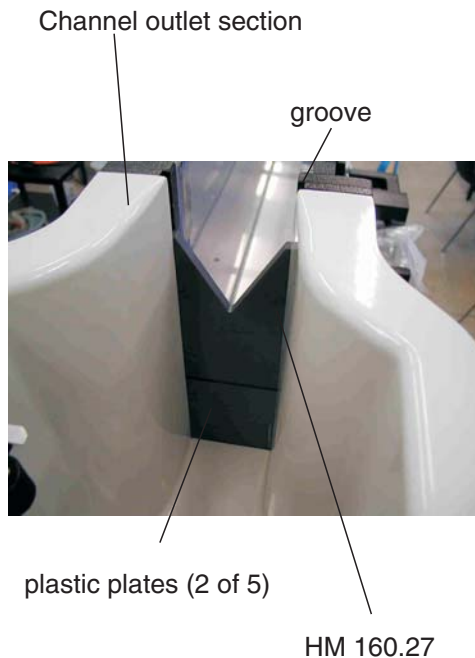
The whole experimental set-up is pre-assembled and has only to be inserted in the working section of the channel and fixed at place. The control unit should be positioned at a place where it is protected from water splashes.

ATTENTION! The paddle plate of the wave generator has to act **against** the direction of flow.



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2.1 Operation of the wave generator



The wave generator HM 160.41 primarily generates **translation waves**. However, surface and gravity waves can also be created.

To be able to create waves, the water in the channel working section has to be dammed. To enable the user to do so, in the scope of delivery of the HM 160 are some **plastic plates**, which can be inserted in a groove at the channel outlet section.

With the numerous **accessory units** from **G.U.N.T.**, for example beach simulation, it is possible to perform interesting experiments, such as the damping of waves on a beach (with HM 160.42).

2.2 Step by step description to set the unit into working order

- Create flow in the channel
- Dam the water, until $\frac{3}{4}$ of the working sections height is under water and adjust flow in the channel, so that the water level remains constant
- Insert wave generator in working section with paddle plate against direction of flow
- Fix the unit using the knurled screws
- Put supply cable of drive motor in the plug at rear of control unit
- Connect control unit to the mains
- Switch On control unit with the potentiometer for the speed at position "0"
- Act the potentiometer for the speed a little bit, the wave generator begins to work
- Put the drive motor to the desired speed

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3 Safety

The following factors relating to work safety must be observed when handling the wave generator HM 160.41:



- **DANGER! Take care when opening the control unit and when reaching into the electrical systems:**

There is a risk of electric shock.

Have repairs carried out only by specialists.

Protect the control unit from **water!**



- **DANGER! Never reach into the crank disk when the wave generator is in operation.**

This would result in injury!



- **CAUTION! Never leave the system running unsupervised.** Users must be instructed on the system's technical characteristics, particularly the safety features!

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4 Technical Data

Mains supply

Supply voltage 230 V, 50 Hz

Alternatives optional, see type plate

Stroke (of paddle plate)

Adjustable via sliding block in crank disk

from 20 mm

to 100 mm