Rain Gauge by Hellmann

GROUP 7	RAIN
NO.	**7011 / 7013.0000**
VERSION / DATE / NAME	02 / 06.2017 / Zi

DESCRIPTION

The Rain Gauge by Hellmann is an automatically recording device to measure the quantity of rain and it is provided with a recording drum.

CONSTRUCTION AND MODE OF OPERATION

On top of an approx. 900 mm high cylindrical housing, which is lockable by a front door, there is an approx. 100 mm high collection funnel, with 200 cm^2 orifice. The area is limited by a sharp-edged brass ring. A float chamber, a registration drum and a collection bowl are located in the housing. The rain falling in the funnel flows through a hose into the float chamber, which is proportionally smaller than the collection funnel. Through this the precipitation column is increased correspondingly. After an amount of 200 cm^3 has flown in, the float chamber will automatically be emptied through a glass siphoning tube and the water flows into a collection bowl. This process will then be repeated continuously. The quantity of 200 cm^3 each corresponds to a precipitation height of 10 mm.

The lift, that the float is describing, is always proportional to the collected precipitation and is transferred via a lever system to the registration device. Thus the lift will be directly graphically registered. The precipitation quantity in mm during a given observation time results from the quantity of the lifts multiplied by 10 during this time.

The collecting bowl can be taken out of the housing for quantity control or else.

If the device should also be used during the period of spring and autumn, which means occasional appearance of frost, a design with heating can be chosen (two thermostatically regulated infrared radiators, 100 W each, in the housing) (refer to ordering code).

TECHNICAL DATA

Orifice:	200 cm^2
Measuring range:	0...10 mm = 0...10 l/m^2
Resolution:	0.1 mm
Housing:	Sheet steel, galvanised, light grey RAL 7035
Collecting bowl:	Polythene, type 7011; 5 l type 7013; 8 l

DIMENSIONS

Height:	1000 mm
Housing ∅:	type 7011; 230 mm type 7013; 385 mm
biggest ∅:	type 7011; 375 mm type 7013; 490 mm
Weight:	type 7011 approx. 14 kg type 7013 approx. 18 kg

MEASURING DEVICE

Type 7011:	Recording device with drum clockwork and fibre tip pen, recording height 80 mm, rated recording time: 7 days or 24 h
Type 7013:	with band recorder, rated recording time: 31 days

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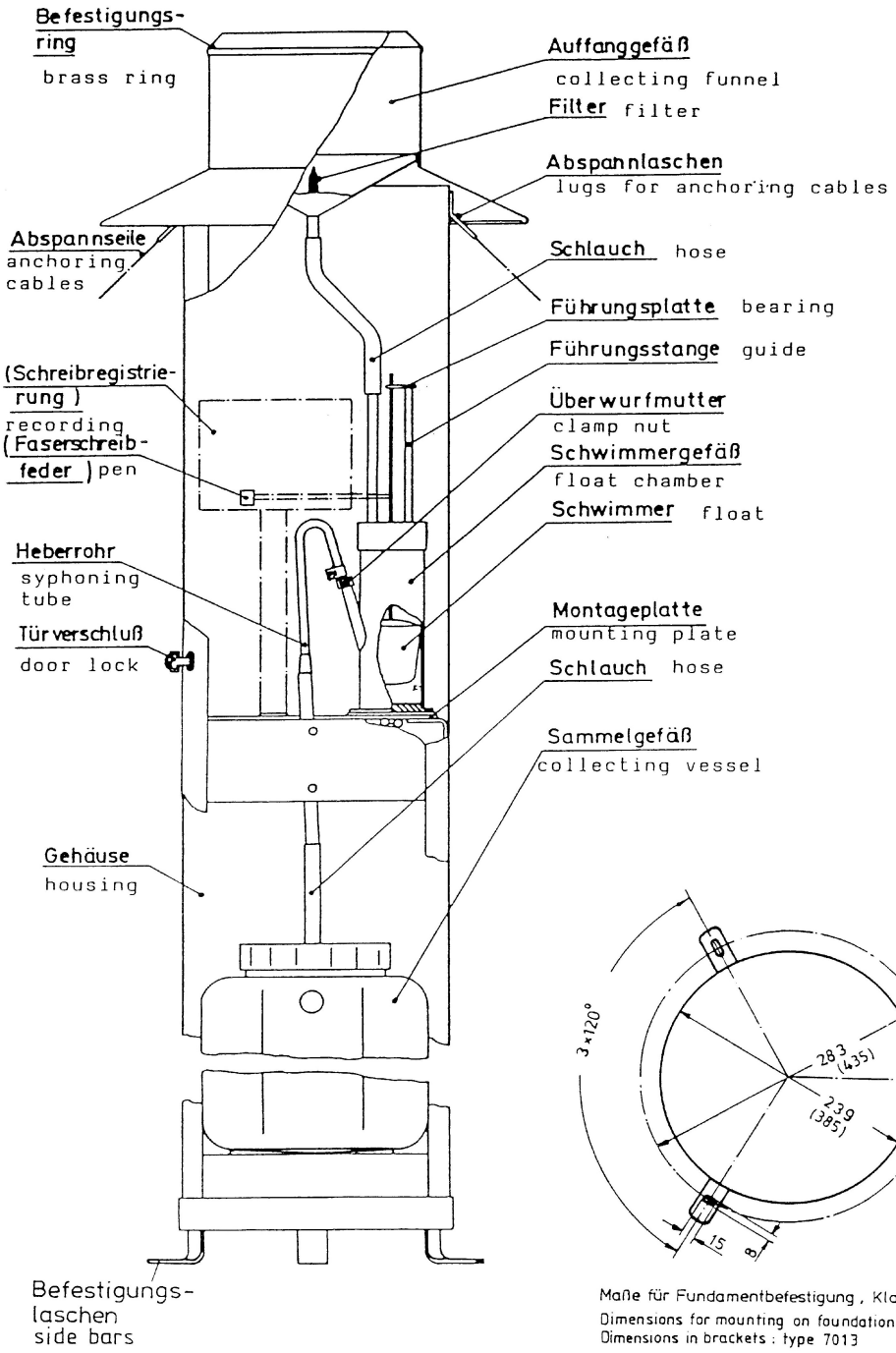
CONSTRUCTION



Maße für Fundamentbefestigung, Klammermaße: Typ 7013
Dimensions for mounting on foundation
Dimensions in brackets: type 7013

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ORDERING CODE

Rain gauge by Hellmann, with built-in drum recorder:	**7011.0000**	
Dto., with built-in heating:	**7011.1000**	
Rain gauge by Hellmann, with built-in band recorder:	**7013.0000**	
Dto., with built-in heating:	**7013.1000**	
Feed: 10 mm/h:	**7013.**	**100**
Feed: 20 mm/h:	**7013.**	**200**
	7013.	

ACCESSORIES

1 set strip charts (100 sheets)
1 pcs fibre pen
1 pcs syphoning tube

OPEARTION INSTRUCTIONS

Installation:
The device should be placed at the clearest possible site, which means trees, buildings or similar objects should have a distance to the rain gauge, that at least corresponds to their own height. In any case the side of the main wind direction should be completely free.

The device has to be set up on a foundation of approx. 50 to 60 cm diameter, aligned by means of the spirit level on the ground plate in the housing, and screwed down with the 3 side bars. In addition the device can be fastened with 3 anchoring cables which can be fixed to the upper lashes (below the cover). This, however, is only necessary if stronger mechanical load is expected, i.e. high wind speed.

Commissioning:
First the transport safety tape around the float chamber has to be removed. The separately delivered siphoning tube has to be fixed at the side of the float chamber and must be fasted with the clamp nut. It has to be watched that the siphoning tube is inserted to the limit even when the clamp nut is fastened tight. The limit is fixed, so that the water will be siphoned when reaching exactly the 10 mm mark.

During operation, a certain amount of water remains in the float chamber, which corresponds to the zero mark. When starting there has to be carefully filled in some water into the float chamber until the float chamber is emptied by the siphoning tube and only the minimum quantity of water remains in the chamber. The float that is connected to the recording arm of the registration device is situated exactly at the zero mark.

Maintenance:
To avoid blockage the collecting funnel has to be cleaned regularly. After a longer dry period, the siphoning tube and the float chamber can be dusted, which can lead to blockage of the float. These parts then have to be rinsed by clean water. It can also happen that the rest of water evaporates during a long dry period. It is eventually necessary to refill water until it flows over the siphoning tube.

Operating at temperatures around 0 °C: Rain gauges without heating have to be put out of operation during the freezing period, as solid precipitation cannot be measured by the float chamber. Also there is a risk of destroying the float chamber, float and siphoning tube by freezing water. When taking the device out of operation the float chamber must be completely emptied and the housing must be covered up completely!

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