



## User – and assembly manual

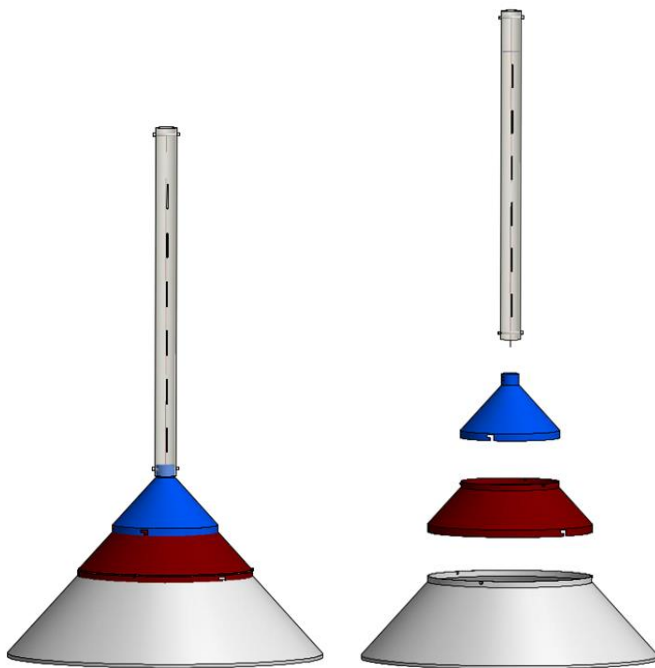
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Original

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# Air-Flow

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### Watch out product contents:

**# 4009003016 701**

Acryl glass tube, mounted  
Cone [120 – 325 m<sup>3</sup>/h/m<sup>2</sup>]

**# 4009003016 700**

Acryl glass tube, mounted  
Cone [120 – 325 m<sup>3</sup>/h/m<sup>2</sup>]  
Cone [100 – 225 m<sup>3</sup>/h/m<sup>2</sup>]

**# 4009003016 699**

Acryl glass tube, mounted  
Cone [120 – 325 m<sup>3</sup>/h/m<sup>2</sup>]  
Cone [100 – 225 m<sup>3</sup>/h/m<sup>2</sup>]  
Cone [50 – 93 m<sup>3</sup>/h/m<sup>2</sup>]

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Airflow measurement for bulk materials

Revision 2

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Thank you for choosing a product from Schmelzer Germany

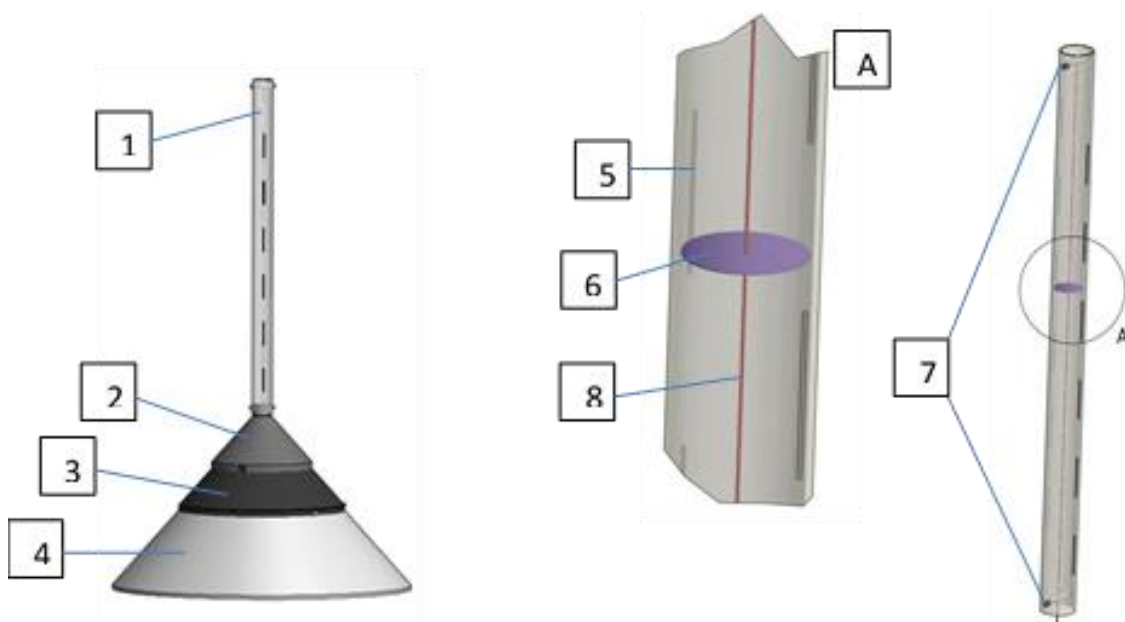
## 1 General

The aeration of bulk materials has different purposes. They range from simple cooling with air to complex chemical and biological processes. While it e.g. with the ventilation in agriculture which provides cooling and drying of grain or seed and storability related to the fore, one would like to provide the microorganisms in the aeration of compost with sufficient oxygen to ensure the fastest possible degradation of the biomass.

The ventilation is always associated with a certain energy consumption, which is not cheap. With the *Air-Flow* from Schmelzer, you can measure on the one hand side the air flow rate per square meter and secondly check that everywhere the same amount of air flows through the bulk.

The *Air-Flow* system is (depending on delivery) of up to three cones and therefore has a huge range, from about 50 m<sup>3</sup> / h / m<sup>2</sup> to 325 m<sup>3</sup> / h / m<sup>2</sup>.

## 2 Function



*Figure 1: Measuring system*

The air flowing through the bed is (No. 2 or 3 or 4, please note delivery content) with the outer cone and added into the acrylic glass tube (1). There, it flows against a plastic disc (6). Once the minimum air quantity is reached (depending on the cone), the disc starts to lift. Increases the air velocity in the tube due to increased air volume in the bulk material, which increases disk rotating around the guide line (8).

The guide line is held by quick-release axles (7, top and bottom) and is tensioned by a spring that is attached to the above thru-axle (not in picture). The bottom axis is positioned by shaft retaining rings (8mm) and the top by inserting it into the slot provided .

The cones and the acrylic tube itself be inserted by bayonet

### 3 Use and storage

#### 3.1 Before measuring

First of all, please check that all components are in a perfect condition.

The tube is pushed with the lower two half shafts on the appropriate cone and locked by a slight rotation.

The remaining cones are locked the same way in each other (depending on delivery).

#### 3.2 Measurement and handling with the *Air-Flow*

To measure the *Air-Flow* is simply placed in a fully assembled state on the bulk (about to 3 - 4 cm deep plugged). It is important to ensure that the acrylic glass of the air flow is vertical as possible.

Fast fitting and jerky is also to avoid such a fast lifting, it might take damage inside the vane disc.

The color of the cone, which rests on the head of the bulk (lowest cone) gives you the color of the scale. It is:

	Blue cone:	Blue scale
	Red cone:	Red scale
Watch out!	White cone:	Black scale

The *Air-Flow* is made relatively simple and constructed stable, but it should be always secured against falling (especially when its disassembled).

#### 3.3 Maintenance

It may happen that the rope in spite of the spring loses its tension. In these cases you can stretch the rope by adjust the lower lock (2mm Allen key). It is important to make sure that the spring is not stretched to much. As a guideline about 15 mm from the normal position of the spring (about 50 N preload).

### 3.4 Storage

Please storage the *Air-Flow* dry and free from dust. Avoid extreme conditions e.g. below 0°C and above 40 °C and long exposure to the sun. Also here: Please always secure against tipping.

## 4 Technical Specifications

### 4.1 Dimensions

#### Acryl glas tube

Diameter: approx. 60 mm

Länge: approx. 1000 mm

#### Cone 120 – 325 m<sup>3</sup>/h/m<sup>2</sup>, labeling blue

Diameter: approx. 302 mm

Height: approx. 215 mm

#### Cone 100 – 225 m<sup>3</sup>/h/m<sup>2</sup>, labeling red, only # 4009003016 700 a. 699

Diameter: approx. 502 mm

Height: approx. 185 mm

#### Cone 50 – 93 m<sup>3</sup>/h/m<sup>2</sup>, labeling white, only # 4009003016 699

Diameter: approx. 902 mm

Height: approx. 300 mm

#### Dimensions above all:

# 4009003016701	Diameter: 302 mm	Height: 1165 mm	Weight: approx. 1,6 kg
# 4009003016700	Diameter: 502 mm	Height: 1320 mm	Weight: approx. 3,8 kg
# 4009003016699	Diameter: 902 mm	Height: 1580 mm	Weight: approx. 9,0 kg

More technical specifications available on request.

### 4.2 Accuracy

Going forth of the measurement, the structure of the instrument itself and on the prevailing environmental conditions reversed a big factor influencing the accuracy. The *Air-Flow* is only for **estimation** of air flow in a bulk. The following tolerances were determined during the development phase and for guidance only. Not calibrated scale !

Cone 120 – 325 m<sup>3</sup>/h/m<sup>2</sup>, blue Accuracy: ± 20 m<sup>3</sup>/h/m<sup>2</sup>

Cone 100 – 225 m<sup>3</sup>/h/m<sup>2</sup>, red, **only # 4009003016700 and 4009003016699**  
Accuracy: ±10m<sup>3</sup>/h/m<sup>2</sup>

Cone 50 – 93 m<sup>3</sup>/h/m<sup>2</sup>, white, **only # 4009003016699** Accuracy: ± 5 m<sup>3</sup>/h/m<sup>2</sup>

## 5 Safety

In case of breakage due to handling of the acrylic glass may contain sharp edges. In such cases, special caution is required.

