



### Features

- Gas flow classification with a zigzag sifter
- Transparent duct to observe the separation process
- Practical experiments on a laboratory scale

Zigzag sifters permit classification of solid compounds. The solid compound being separated is charged into the feed hopper. The compound is fed into the zigzag duct of the sifter at mid-height by way of a vibrating trough. An air flow flows upwards through the vertical duct. Depending on the geometry and density of the particles, they are carried along by the air or drop down due to gravity. At every bend in the duct the solid compound passes through the air flow and falls onto the opposite wall of the sifter. This corresponds to one sifting stage. Owing to the flow conditions, a vortex wake is formed between two bends of the zigzag duct. It ensures that the solid matter moves roughly perpendicular to the air flow. In this way, a transverse sift takes place at every bend. Sequencing of large numbers of such stages results in very fine separation. Tesca Gas Flow Classification 32371 features a 20-stage zigzag duct. Transparent material provides optimum observation of the processes in the duct.

A fan generates the air flow. The volumetric air flow rate and the solid mass flow are adjustable. The fine material transported upwards with the air flow is separated by a cyclone. Pressure measurement points at the relevant positions in the trainer enable the pressure loss to be determined.

Activated carbon in different particle sizes is recommended for use as the feed material. For particle size analyses of the feed and of the coarse and fine material, a balance and a screening machine 32372 are recommended.

### Specifications

- Zigzag sifter to separate solid compounds
- Feed hopper with vibrating trough for feed of solid compound into sifter
- Dosage of feed material by way of distance of hopper outlet from vibrating trough and frequency of vibrating trough

Note: Specifications are subject to change.

### **Tesca Technologies Pvt. Ltd.**

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- Separation of solid compound into coarse and fine material with air flow in 20-stage zigzag duct
- Air flow generation by fan; adjustment by valve
- Separation of fine material from air flow by gas cyclone with tangential inlet
- 3 tanks for feed material and coarse and fine materials
- Recording of volumetric air flow rate and differential pressure through sifter and cyclone

### Technical Specifications

#### Vibrating trough

- Mass flow: max. 10kg/h
- Vibration frequency: max. 3000min<sup>-1</sup>

#### Zigzag sifter

- Height: approx. 1500mm
- Cross-sectional area: 40x50mm

#### Cyclone

- Height: approx. 550mm
- Diameter: 150mm

#### Fan

- Volumetric flow rate: max. 600m<sup>3</sup>/h
- Power consumption: approx. 3600W

#### Tanks

- Feed hopper: 3L
- Coarse material: 2L
- Fine material: 2L

#### Measuring ranges

- Cyclone and sifter differential pressures: 0...100mbar
- Volumetric flow rate (air): approx. 10...100m<sup>3</sup>/h

### Experiments

- Learning the fundamental principle of wind sifting (gas flow classification)
- Sorting
  - Coarse material fraction
  - Fine material fraction
- Dependent on solid mass flow rate and volumetric air flow rate
- Classifying 32372
  - Fraction balance
  - Separation function
  - Separation size
  - Sharpness of separation
- Dependent on solid mass flow rate and volumetric air flow rate
- Pressure losses of
  - Sifter
  - Cyclone
- Dependent on solid mass flow rate and volumetric air flow rate

### Requirements

- Water connection 300L/h, drain
- Mains Power 220 – 240V @ 50Hz, 1Ph

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