

**Features:**

- Adjustable silo geometry
- Different types of discharge: mass flow, funnel flow, and arching

Silos are used for the large-scale storage of a wide variety of bulk solids. The stored bulk solids are then seamlessly supplied to production processes. To achieve this goal, the silo has to be designed as a mass flow silo.

Tesca Flow of Bulk Solids from Silos Apparatus provides a practical demonstration of the types of discharge from different silos: mass flow, funnel flow, and arching. The type of discharge that occurs is dependent on the flow properties of the bulk solids, the silo geometry, and the wall material.

The trainer includes two identically shaped silos with transparent front walls and different wall materials. The silos have a wedge-shaped discharge hopper whose inclination and width are adjustable.

The outflow behavior is characterized by the measured time, the weight of the bulk solids, the silo geometry, and the observed discharge type. The acquired data can also be used to review silo design in practice, for example together with the experimental unit Tesca Flow properties of bulk solids apparatus.

Flour is recommended as additional bulk solid for the experiments with arching.

**Specifications:**

1. Investigation of the outflow of bulk solids from silos with wedge-shaped discharge hoppers
2. Demonstration of arching, mass flow, and funnel flow with different bulk solids
3. Two silos with different hopper wall materials
4. Front walls of the silo made of transparent material
5. Silos can be removed for cleaning

Note: Specifications are subject to change.

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6. Angle of the hopper wall adjustable while retaining constant outlet cross-section
7. Tamper for compacting the bulk solids
8. Stopwatch for determining outflow times
9. Practical review of the design results from Tesca Flow properties of bulk solids apparatus.

#### **Technical Specifications:**

2 silos with wedge-shaped hopper

- Base body cross-section: 200x200mm
- Wide outlet 10...70mm
- Height of silo section: approx 300mm
- Height of hopper: approx. 50...140mm
- Volumes: approx. 14...18L

2 bulk solids

- Plastic granulate: 2...5mm
- Spelled husks: 5...15mm

Balance

- With tare function
- Up to 10kg

Stopwatch

- 0...10h

#### **Experiments:**

- How wall material and angle of the hopper walls affect the outflow time
- Demonstrate typical discharge types in silos:
  - Mass flow
  - Funnel flow
  - Arching
- How flow properties affect outflow time and flow profiles
- Comparison of different bulk solids
- Review of the silo design used in CE 200

#### **Requirements:**

- Mains Power 220 – 240V @ 50Hz, 1Ph

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