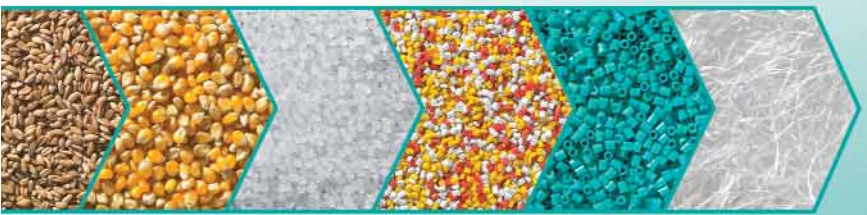
DYNAchute

25 Years

Flowmeter for Bulk Solids

- High accuracy
- No product calibration
- Maintenance-free



DYNA Instruments

Instrumentation for Powder and Bulk Industries

Highlights
System

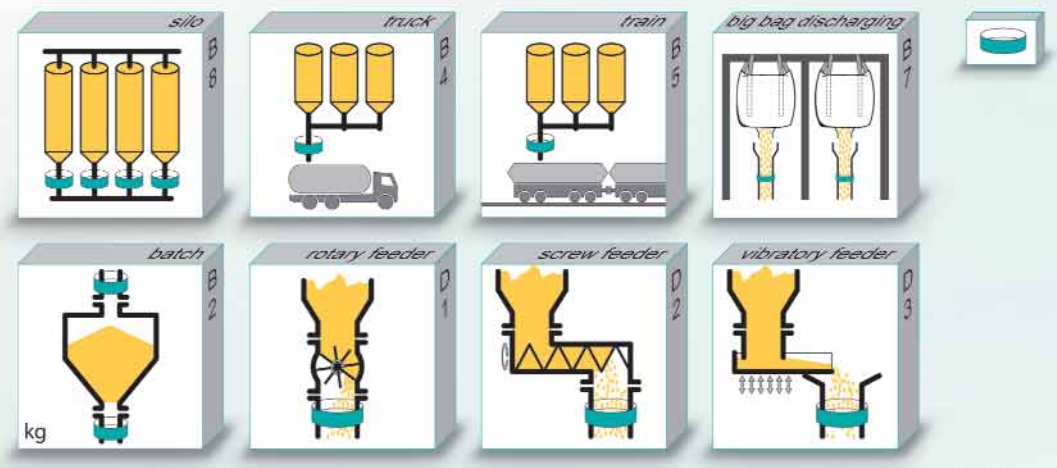
- No moving components
- Independent from changing product properties and flow velocity
- Gentle product flow, passive measurement principle
- Minimum operating costs
- Free product flow also if device is switched off
- Easy to integrate

High-Precision Measuring System, 1% and better
no Calibration, Maintenance-free

The patented measuring system **DYNAchute** is a unique flow meter which combines proven weighing technology with a non-contact velocity-measurement. By measuring the weight and the flow velocity at the same time — similar to the belt-weigher principle — the mass flow rate of pourable bulk solids is determined in free fall processes with high accuracy.

Unlike with impact meters, changing product-properties (e.g. moisture, density, particle size, friction properties) or varying product velocities (e.g. under silos) have no influence on the measuring accuracy of the system. Hence a complex calibration in the process especially with several products is not required. Also regular recalibration is not necessary while a very high reproducibility of the measuring results is granted.

Operational cost can be reduced to an absolute minimum and regular maintenance is normally not required, because the flow meter does not have any moving components, the solids are flowing smoothly over the weighing chute and the sensor system is well protected.



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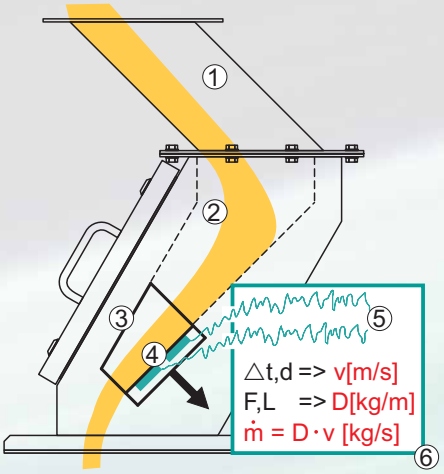
DYNAchute

Function



Approved and Efficient System
for Mass Flow Rate Measurement of Bulk Solids

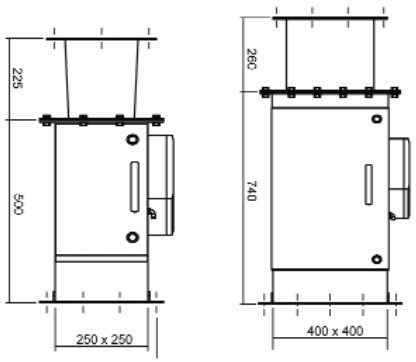
The product flows from the inlet ① via a calming section ② towards the measuring chute ③ which has the given length »L« and is connected to a load cell. The load cell determines only the weight force »F« which is perpendicular to the weighing chute, so that friction forces being effective parallelly to the chute have no influence. Simultaneously electrical charge signals ⑤ of the product flow are measured with two sensors ④ at the measuring chute.
The time offset »△t« of the two signals is determined in a correlation calculation performed by a digital signal processor ⑥. The flow velocity is calculated with the time shift and the given distance »d« between the two sensors. With the two absolute values 'product mass' and 'product velocity' the mass flow rate is calculated at the point of measurement and output as a digital or analog signal.

This separate measurement provides the advantage that neither changing product properties nor varying process conditions have an influence on the measurement result.

Technical Data DYNAchute

Measurement range	Size 250: 0,2...20 t/h / 0,4...35 m³/h Size 400: 2,5...50 t/h / 5...100 m³/h Other sizes on request.
Accuracy	Up to 0,2 % of the final value
Material	Stainless steel 1.4301, ceramic (measuring chute)
Compression strength	0,1 bar
Purge air connection	For very dusty products, p=2 bar / 0,6 Nm3/h
Protection class	IP 64
Temperature	Process: 10...40°C, Ambient: -15...50°C
Installation	Vertical, vibration-free

Size 250 **Size 400**



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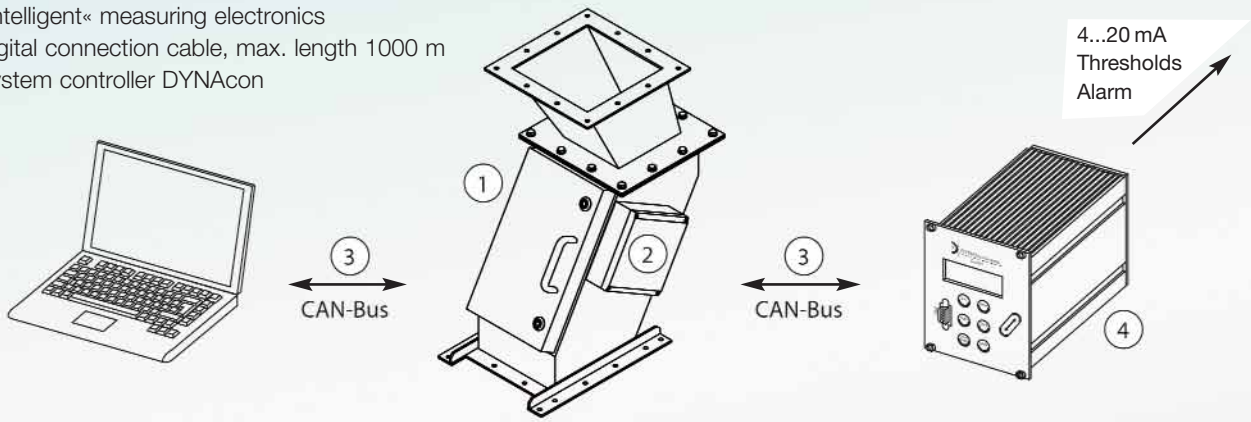
DYNAcon
Systemcontroller

Comfortable and Easy Operation
for Set-up, Calculation and Output

The **DYNAcon** serves to set the **DYNAchute**, to output and monitor the measuring signal as well as to control the process. Data back-up of all settings and system messages are done with a flash memory (without battery).
A bi-directional connecting cable between the measuring feeder **DYNAchute** and the system controller **DYNAcon** provides a high degree of interference resistance. And while the maximum cable length is 1000m, a minimum of wiring is necessary because up to 10 systems can be connected to one line. Modern 32-bit-technology and the approved Linux-operating system allow high processing speed while the operator interface is user-friendly with operating assistance in the lowest display line.
Instead of using the system controller **DYNAcon**, all settings and parameter back-up can be made also with a notebook using the software **DYNA**Pro Visual.

① Chute-weigher (flowmeter)
② »Intelligent« measuring electronics
③ Digital connection cable, max. length 1000 m
④ System controller DYNAcon



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Application
Solutions

- Production control
- Capability planning
- Process monitoring
- Quality control
- Inventory management

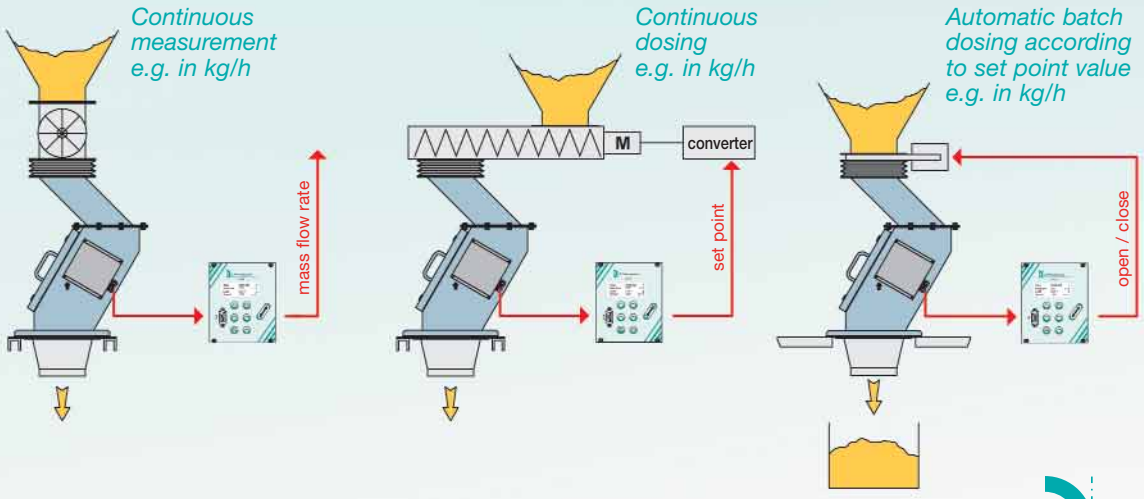
Mass Flow Rate Measurement from 100 kg/h - 50 t/h
Continuous or Batch Process

The **DYNAchute** allows a very precise mass flow rate measurement in free fall processes. Either in the process, during filling, loading or discharging — the **DYNAchute** delivers high measurement reliability and is easy to integrate.
Compared to belt-weighers the dust-proof system can help to reduce the dust load in processes. The system controller **DYNAcon** provides two operation modes:

1. Flow Control
For continuous measuring value output of the mass flow rate and for controlling a dosing unit (rotary feeder, slider, screw conveyor, …) according to set-point value.

2. Batch Control
For automatic batch dosing according to set point value.

Installation
Because of the low installation height the **DYNAchute** can easily be installed also in existing plants. Depending on the installation situation the flowmeter can be delivered with customized process connection.



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Experts for bulk materials

- Tests with customer products possible in the DYNA test plant *(picture left)*
- In-house development & production
- Made in Germany

INNOVATIVE SOLUTIONS · PROVEN TECHNOLOGY FOR MORE THAN 25 YEARS

- Mass flow rate measurement
- Flow monitoring
- Dust monitoring
- Velocity measurement
- Level detection
- Particle size measurement

ISO 9001
BUREAU VERITAS
Certification

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Subject to technical modifications.