Application

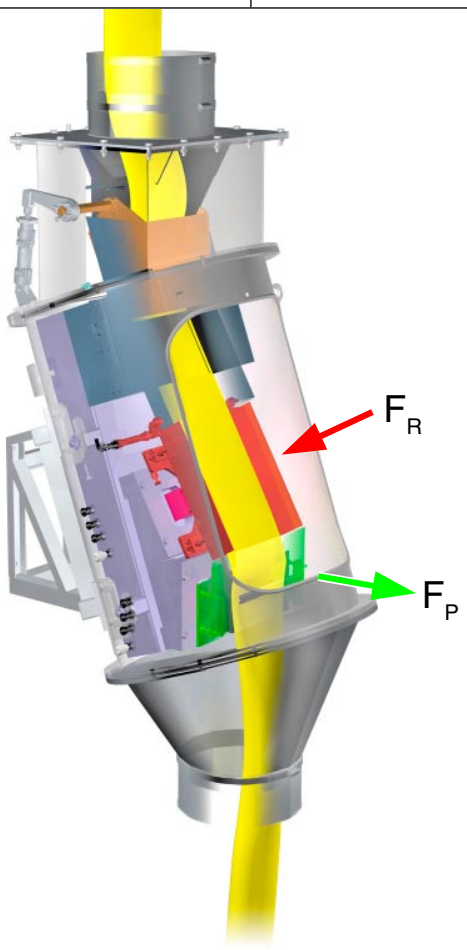
The K-TRON Smart Flow Meter is used in industries that need reliable metering, registering or monitoring bulk of material flows. For example: plastics, chemicals, animal feed, cement, coal, glass, aluminum, grain, etc. Particle size 0.02 mm up to 10 mm. Flow characteristics: very good to good. Angle of repose: smaller or equal to 40 degrees, measured from the horizontal line. The bulk material can consist either of granules, chips or fibers. Application examples: material flow control within a production line, measuring filling or discharge quantities, materials management and quantitative bulk goods measurement.

Design

The Smart Flow Meter has no moving parts. The bulk material flows through two force sensor stations that have no mechanical effect on the material whatsoever. Depending on the operating range, measuring channel A (narrow cross section) or measuring channel B (large cross section) is built in.

Function

The Smart Flow Meter uses the principles of Newtonian physics: F=ma. Bulk material flows by gravity into the upper measuring channel, an inclined chute mounted on a force transducer where the force F_R acting perpendicularly on the chute is measured as mass. The bulk material then flows into the lower, vertical channel which determines velocity or acceleration rate (Force F_P). From the signals of these two sensors the flow rate is determined per unit of time.



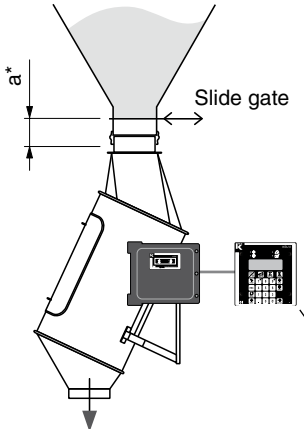
Operating range

with measuring channel A		
min		max
≥ 5 t/h and ≥ 10 m³/h (350 ft³/h)	without calibration	≤ 300 t/h and ≤ 100 m³/h (3500 ft³/h)

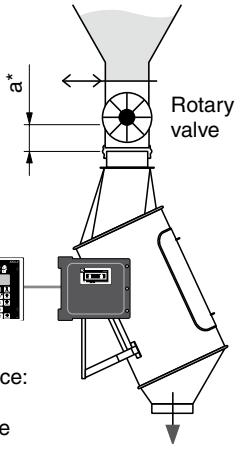
with measuring channel B		
min		max
≥ 10 t/h and ≥ 20 m³/h (700 ft³/h)	without calibration	≤ 300 t/h and ≤ 200 m³/h (7000 ft³/h)

Installation examples

Directly on the silo
(only for free flowing material)

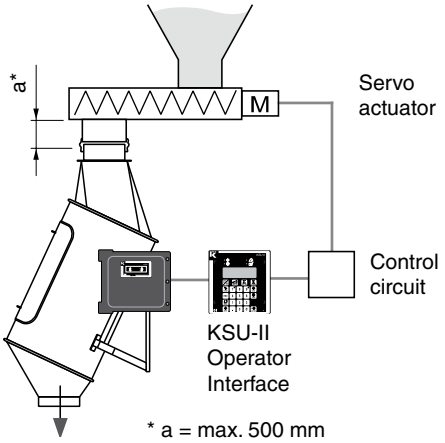


In a conveyor system



KSU-II Operator Interface:
- Totalizer
- Actual mass flow value (analog or digital)

As a control system in a custom application



* a = max. 500 mm
wihout ext. bulk mat. conditioner;
ensure continuous inlet stream

Technical Data

Measuring accuracy:	Better than ±0.5% or ±1% depending on application
Ambient temperature:	-10 ... 50 °C (14 ... 122 °F)
Product temperature range:	-10 ... 70 °C (14 ... 158 °F)
Max. humidity:	95%
Pressure range:	±0.05 bar (0.7 PSI)
Compressed air supply bypass flap:	pressure 5-10 bar(72-145 PSI), filtered, lubricated or unlubricated
Degree of protection:	IP 65, NEMA 4
Material:	Stainless steel, DIN 1.4404/1.4435/AISI 316 L
Weight:	305 kg (671 lb)

Main features

- No moving parts, ie. the bulk material is handled gently
- Easy to service, i.e. easy accessibility
- Rugged and simple design
- Function largely independent of bulk material
- Reliable and accurate force transducer system
- Stable long term behaviour
- Cost effective solution for in-line weighing
- Low headroom solution

Bypass channel

A bypass channel allows the flow meter to be tared at any time during the measuring process. A bypass valve deverts the bulk material flow into a separate channel, allowing retaring without interruption of the process. The bypass device can either be operated manually or programmed through the controls.

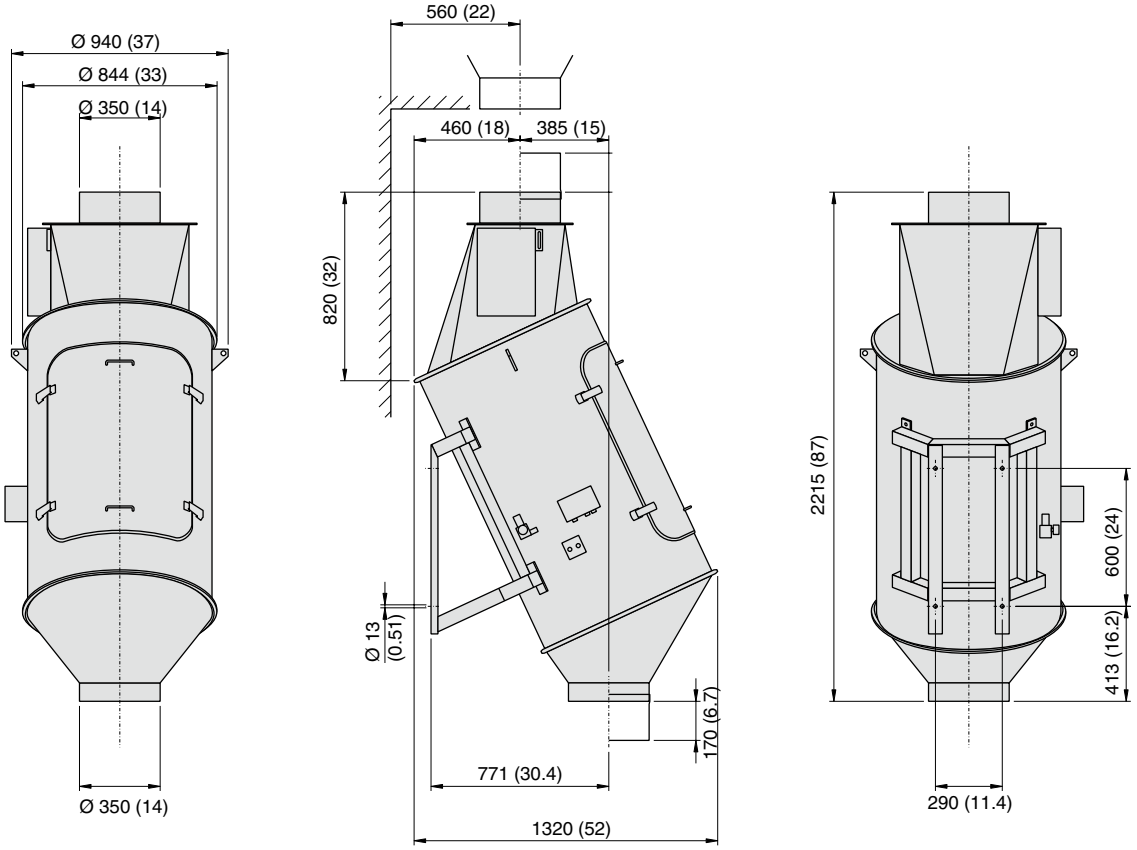
Options:

- High-temperature version
  Bulk mat. temp. max 120 °C (250 °F)
- Polished weigh chutes and deflector
- Polished inlet chute
- Feeder stand
- Flex inlet & discharge set

Hazardous Location Options: (see sheet I-000002)

NEC	Class II, Div. 2, Groups F & G / Class II, Div. 1, Groups F & G Class I, Div. 2, Groups C & D / Class I, Div. 1, Groups C & D
ATEX	3D/3D, 3G/3G, 2GD/2GD (outside/inside)

Dimensions [mm(in)]



Caution: these measurements are for general reference only. Please consult dimensional drawing for exact measurements