Feeding of dust and meal in the cement industry

The CORIOLIS principle - one step ahead
Your benefit - partnership with SCHENCK PROCESS

- know-how in products
  bulk solids handling, processes
  engineering based on long experience proven in cement plants worldwide

- wide range of products for the cement industry

- high standardization of all products all over the plant

SCHENCK PROCESSES GmbH
weighing - feeding - screening
Your partner in the cement industry

Products:
- apron feeder
- dryer
- belt weigher
- weighfeeder
- solids flow meter
- solids flow feeder
- CORIOLIS-feeder
- MULTICOR
- vibration screen
- vibration conveyor
- weighbridge
- loading automation
- mill optimization
- apron weigh feeder
- vibration monitoring

weighing - feeding - screening
Job-sharing for better results

Application/design according to the feed rate and the used bulk material

- cement
- raw meal
- fly ash
- filter dust
- trass, lime meal
- grits
- coal dusts

Systems which integrate all of these functions in one unit can never meet the requirements for the different jobs to do.

weighing - feeding - screening
CORIOLIS-feeder - MULTICOR-S, K
Worldwide ~ 500 systems installed

- high control accuracy through high speed acquisition of measured data

- accuracy ± 0,5% related to the actual feed rate

- feed constancy ±1% within 10 seconds

- CORIOLIS measuring principle immune to external forces

- approved measuring system 'legal for trade'

gravity discharge
direct feed into pneumatic conveying tube
10bar-pressure-proof design for coal dust
CORIOLIS-principle - one step ahead

\[ P = \frac{M}{W \cdot R^2} \]

\[ F_c = \text{CORIOLIS force} \]
\[ F_z = \text{centrifugal force} \quad \text{no influence on the} \]
\[ F_R = \text{friction force} \quad \text{measuring result} \]
CORIOLIS-feeder - highly accurate and reliable MULTICOR-S

MULTICOR-S is used for the measuring of the flow rate of bulk solids up to 300 cbm/h.

Special features:

- direct mass flow measurement
- approved measuring system 'legal for trade'
- enclosed, dustproof system no dust emission
- low headroom
- easy installation
Different prefeeders for different requirements

- good material flow characteristics with silo aeration
  ==> flow-gate for feed rates
  up to **300 cbm/h** with Coriolis-feeder
  up to **800 cbm/h** with solids flow feeder

- good material flow characteristics with silo aeration, if required
  ==> starfeeder for feed rates
  recommended up to **100 cbm/h**

- poor material flow characteristics without silo aeration
  ==> screw with integrated agitator for feed rates
  recommended up to **80 cbm/h**
CORIOLIS-feeder - kiln feed
High feed constancy for high clinker quality

- feed rates up to 300 cbm/h

- position controlled flow-gate as prefeeder

- option: On-Stream-Calibration via check bin
CORIOLIS-feeder - dust & meal feeding
High accuracy also at low feed rates

- feed rates up to 70 t/h

- speed controlled starfeeder as prefeeder
CORIOLIS-feeder - by-pass cement
High accuracy over a wide control range

- feed rate up to **20 t/h**
- speed controlled screw with integrated agitator as prefeeder
- wide inlet section guarantees a good homogeneous material discharge
CORIOLIS-feeder - loading station
Legal-for-trade design

- accuracy of ± 0.5% of truck load
- straight onto truck without any detours
- easy to integrate in existing installations
- low headroom required
- fully automatic operation of loading plant
CORIOLIS-feeder - two functions in one system
Simultaneous weighing and mixing

- quality insurance:
  legal-for-trade design

- cost reduction:
  mixers are not required

- high mix quality:
  proven by tests performed by Rugby Cement
CORIOLIS-feeder - feeding of pulverized coal

10bar-pressure-proof design for the feeding of pulverized coal.

**Economical**
- low investment costs
- minimum operating costs

**Reliable**
- high short-term feed constancy
- reliable measurement principle
- immune to external forces

**Ecologically beneficial**
- reduced emission
- low power consumption
CORIOLIS-feeder - feeding system for pulverized coal
MULTICOR-K

MULTICOR-K is designed exclusively with components designed specifically for and adapted to the feeding of pulverized coal.

Special features:

- direct mass flow measurement
- high short-term feed constancy
- direct feed into pneumatic conveying line
- 10bar-pressure-proof design
- low power consumption
CORIOLIS-feeder - *high feed constancy*
Prerequisite for stable kiln operation

MULTICOR-K designed for:

- petrol coke
- hard coal
- steam coal
- oil coal
- lignite
- anthracite
- ......

Large inlet section (700 mm)
Excellent homogenization
Pulsation-free discharge
High speed control 0.2 sec.

Not influenced by external forces
CORIOLIS - feeding directly from the presilo

References:
- Acros / Brazil
- Adana / Turkey
- Alsen-Breitenburg (Holderbank) / Germany
- Anglo Alpha / South Africa
- Blue Circle / South Africa
- Cajati / Brazil
- Cearense / Brazil
- Cementos Mexicanos (KHD) / Mexico
- Cem. Banska Bistrica / Slovakia
- Changjiang / China
- China Cement / Hongkong
- Cimentas Izmir / Turkey
- Cimento Itau, Minas / Brazil
- Cimento Itau, Tocantins / Brazil
- Cimesa / Brazil
- Cimpor / Portugal
- Cipasa / Brazil
- CMP / Portugal
- Corecemar / Argentine
- Dyckerhoff, Amöneburg / Germany
- Green Island / Hong Kong
- Hai Lou / China
- Heidelberger Zement Group / Germany
- Hejöcsaba (FCB) / Hungary
- Heracles II / Greece
- Ital. Cementi / Italy
- Koromacno / Croatia
- Lafarge / France
- San Teh / China
- Sung Shin / Korea
- Technip - Cle / Vietnam
- Tongyang / Korea
- Yingde / China
CORIOLIS - multiple feeding from a common presilo

References:
- Adana / Turkey
- APO-Cement Corp. / Philippines
- Lafarge / France
- Malogoszcz (Lafarge) / Poland
- Pahang Cement / Malaysia
- Teutonia / Germany

Minimized investment costs for one system with several burners
CORIOLIS - feeding system for the mixture of several coal dusts in one common conveying tube

Reference:
- ENCI (Heidelberger Zement Group) / Netherlands
- Dyckerhoff / Germany

Reduced operating costs, resulting from reduced primary air consumption and reduced blower power for only one blower
CORIOLIS-feeder - reliability, feed constancy and accuracy for your PROCESS

MULTICOR-S
raw meal

Solids flow feeder for feed rates more than 300 cbm/h

MULTICOR-S
fly ash

Substitution of the clay component

MULTICOR-K
pulverized coal
Service - bulk solids expertise

At the bulk solids lab specialized characteristic data are obtained permitting a bulk solids behaviour to be evaluated.

This permits for

- sizing of mass flow silos
- appropriate selection of suitable feeding systems
Service - material test facility

Practical experience, theoretical knowledge and practice-orientated test of bulk solids permit for the selection of the right weighing and feeding system. Two systems provide high and low capacity capability as required.

This - assures a high confidence of expected field performance - verifies quality and durability requirements - ensures predictable start up process