Pneumatic Conveying Technologies for the Minerals Processing Industry

- Raw Materials Receiving Systems
- In-Plant Transfer Systems
  - Dilute Phase Airveyor™ Systems
  - Mixed Phase FK™ Pump Systems
  - Dense Phase Systems
- Product Blending Systems
- Product Storage and Loadout Systems
Railcar Unloading

High Capacity - High Demand Applications: FK™ Pump Unloading System

- One, two or three cars simultaneously
- Dust-controlled, clean operations
- Automated, less labor
- Dependable, less unplanned downtime
- Maximum use of space, compact designs

Moderate Capacity - Moderate Demand: Kompact II™ Pump Unloading System

- Moderate-capacity system
- Low maintenance
- User friendly, reliable
- Minimum height requirements

Moderate Capacity - Moderate Demand: Pressure Tank Unloading System

- Single or dual tank
- Batch or continuous operation
- Dilute phase
- Dense phase
- Cost effective

Low Capacity - Low Demand: Vacuum / Pressure Unloading System

- Multiple pickup / multiple destination
- High reliability
- Clean operation
Dilute Phase Airveyor™ System for Process Transfer

Pressure Systems
- Longer distance, higher capacity systems
- Multiple discharge points

Vacuum Systems
- Shorter distance, low to mid-range capacities
- Single discharge point

Vacuum / Pressure Systems
- Longer distance, higher capacity
- Multiple pickup points
- Multiple discharge points
Mixed Phase Process Transfer Systems

- Lower velocities than dilute technology
- Higher pressure than dilute technology

Fuller-Kinyon™ Pump
- Thousands in operation
- High capacities
- Most economical and reliable long-distance, high capacity technology
- Operational simplicity

Dense Phase Transfer Systems

Modu-Dense™ Conveying System
- Single or dual tank systems
  - Batch operation
  - Continuous operation
- Automated operation
  - Reduces plugging
    (modulating valve eliminates need for boosters for most materials)
- Low velocity

Fullveyor™ System
- Lowest velocity
- Non-purging
- Reduced wear
- Reduced product degradation
- Reliable boosters

EZ-Flow™ System
- Low cost modular design
- Low cost installation
- Package system controls
- Tank assemblies shipped mechanically and electrically assembled
- Low velocity
Innovative technology and proven performance in material handling systems

- Fuller-Kinyon™ pumps
- Modu-Dense™ Conveying System
- Inject product through tuy res or lances
- Results in faster chemical and thermal reaction
- Produces greater operational efficiency
- Reduces loss of expensive raw materials

Modu-Dense™ Conveying System

- Batch or continuous conveying
- Precise solids discharge rate control and turn down by means of an ISAC* air management system
- Efficiently transfers highly abrasive materials
- Can handle high-process back pressures without back flow

* Injection System Airflow Controls

Fuller-Kinyon™ Pump Systems

- Continuous conveying
- Low headroom requirements
- Simple operation
- Simple controls
- Rugged, heavy-duty design
Airslide™ Conveying System

- High capacities, +1500m/hr (53,000 cf/hr)
- No moving parts, low maintenance costs
- Replacement for high-maintenance screw or belt conveyors
- Low noise
- Gentle conveying
- Fabric available for high temperature applications up to 426°C (800°F)
- Multiple inlet and discharge options
- Even permeability over entire length of fabric requires air connection every 100 feet
- Custom designs for various applications
- Clean operation

1 Positive Displacement Blower
2 Fan
3 Rotary Cutoff Valve
4 Butterfly Flow Gate
5 Rotary Metering Flow Gate
6 Side Discharge Valve
7 Turnbox
8 Discharge Box
9 Airslide Swivel Assembly
10 Telescopic Loading Spout
11 Fuller-Kinyon™ Pump
12 Aerated Bin Bottom
13 Unit Aeration Package
Blending Technologies for the Minerals Industry

Column Blender Technology

- No moving parts, low maintenance
- Gravity discharge 60° cone design
- Simple operation
- Robust design
- Greater flexibility in particle size range
- Design for different batch sizes available
- A fully fluidized cone, an upper and lower air plenum and an open-ended central column allow air blending of the most difficult materials.
- The fluidizing air enters the cone beneath the column conveying the product upward as the material from the annulus of the cone flows inward. This “Fountain-Flow” gives a radial circulation capable of blending ultra fine powders, coarser sandy materials and particles with a wide particle size distribution.

Applications

- Homogenize trailer / railcar shipments
- Drive off unwanted moisture
- Provide uniform process characteristics
- Cool blended materials

Airmerge™ Blender Technology

- Blends dry, pulverized free-flowing materials
- Gentle blending action with diffused fluidizing air through porous membrane fabric for silos up to 100,000 cubic feet in volume
- Fluidized silo bottom is separated into quadrants that can be controlled with varying airflow intensities to achieve the blend required

Advantages

- 3-in-1: blender, storage, efficient discharge
- No moving parts, low maintenance
- No mechanical wearing parts, low noise
- Gentle blending action
- Storage and blending combined into one vessel
- Can be effectively used to overcome bridging or funnel flow when discharging silos
- Rapid and total discharge capability
Research and Development

- World leader in development of new technology
- Materials testing, analysis and classification
- Consultation/troubleshooting of existing systems
- Full-scale testing and customer demonstration prior to purchase
- Establishing baseline parameters for performance guarantees
- Product pilot plant classification and blending facilities

Parts and Service

- Local warehouses and service centers
- Certified service personnel
- Field and shop repair/rebuild
- Compressor exchange program
- FK™ Pump screw exchange program
- Emergency repairs
- Technical support and training

World Class Warranty

F.L. Smidth has the best warranty in the industry for both systems and parts. All F.L. Smidth Pump and Compressor parts come with a 12/18 month warranty on material and workmanship.

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