

stolz

desmet ballestra

Handling Equipment & Dedusting



Chain Conveyors



Chain conveyor

Purpose

A chain conveyor is designed for the handling and extracting of granular and powdery products over a sloped, horizontal or linear trajectory.

Capacity

Our new range of chain conveyors covers capacities up to 530 m³/h i.e. 400 t/h on cereal base SW 0,75.

The complete range allows capacities up to 1600 m³/h.

For applications not included in this range, our Design Offices are qualified to develop specific conveyors meeting any requirements.



Chain conveyors

Improved design

- Sprocket with dismountable teeth.
- Block screw pulleys
- Rationalized chains:
 - chains including Stolz forged links, with breaking strengths from 22 to 100 T
 - ISO standardized mechanical chains, with breaking strengths from 11 to 31 T
- Return rails in HMW, and HMW plates every 2 pitches reducing the wear and sound level
- Limited references for spare parts

Improved discharge

Different possible axis height of pinions and foot pulleys according to the chain type optimizing the conveyor discharge.

Without this system, some chains lift up over a few meters before discharge head preventing a complete discharge of the unit.

The chain trajectory is then adjusted as close as possible to the bottom.

As an option, a rounded casing follows the chain trajectory at foot reducing the product retention.

Safety devices

- ATEX compliance 94/9/CE on demand
- Rotation control
- Clogging detection
- Product flow detection



Whole cleaning plates

Non contractual photos and diagrams



1

- Rounded head top profiles
- Axis height adjustment

Design for limited product retention

- Rounded head top profiles
- Optional rounded moving tensioning casing at foot
- Adjustment of trajectories according to chain types
- Complete high Density Polyethylene chains with plates and side polyurethane scrapers
- Bottom replacement valves
- Vertical spacers
- Shaped return rails

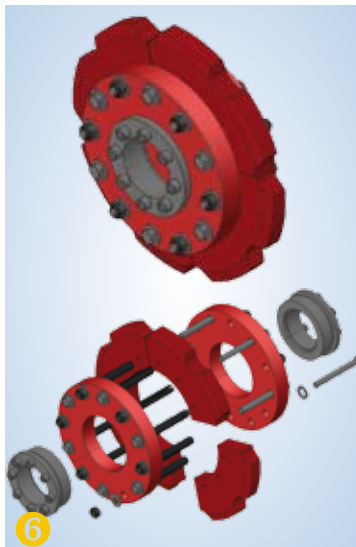
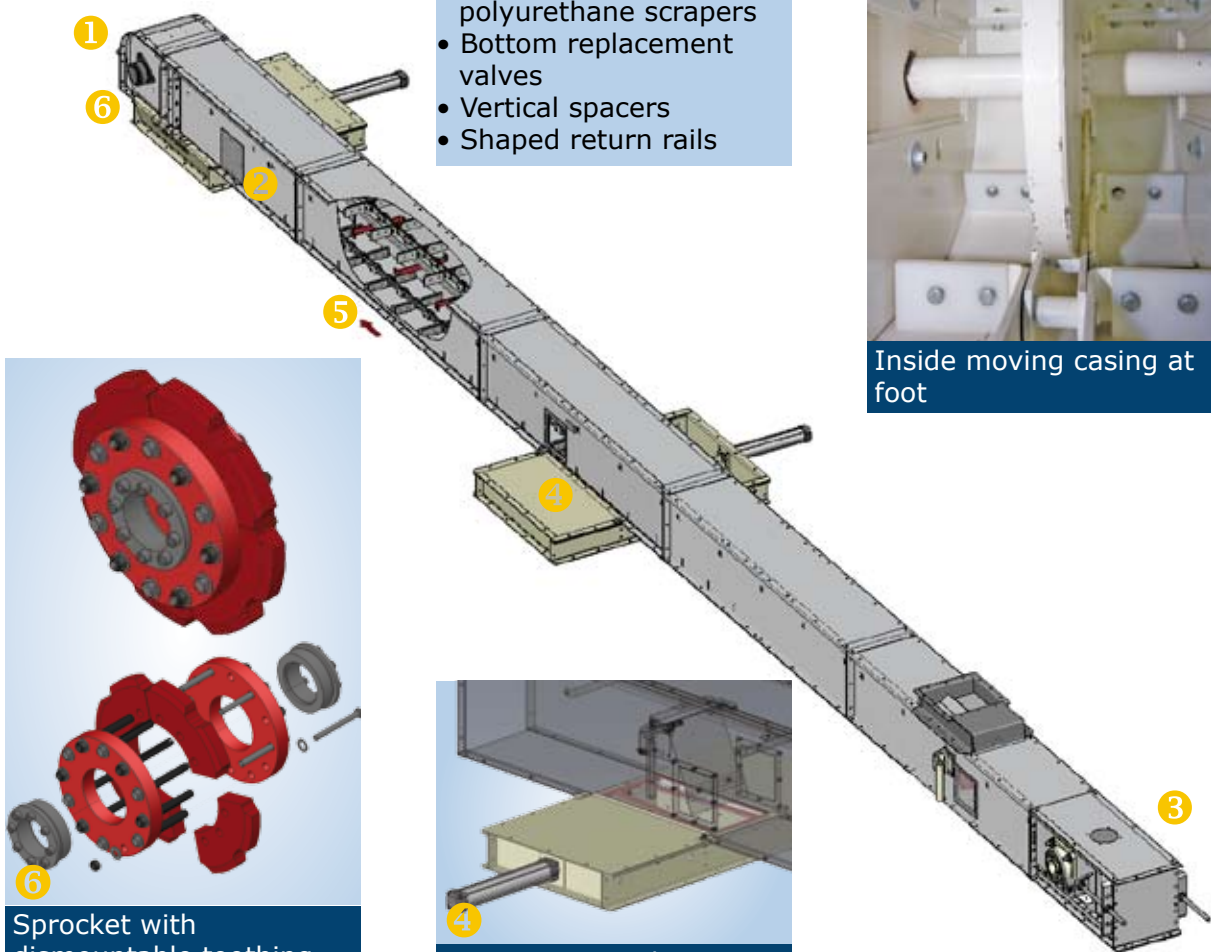


3

- Tensioning system with optional rounded moving casing

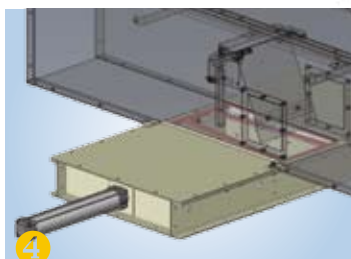


- Inside moving casing at foot



6

- Sprocket with dismountable tothing



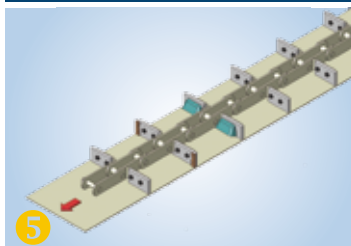
4

- No retention valve



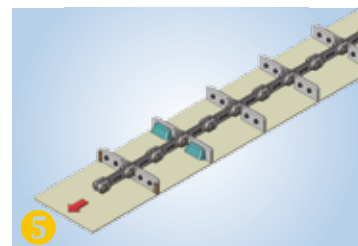
2

- No retention smooth inner inspection door



5

- ISO chains with breaking strength 11 to 31 tonnes



5

- STOLZ chains with breaking strength 22 to 100 tonnes

Non contractual photos and diagrams

Bucket Elevators



Bucket elevator

Purpose

A bucket elevator is designed for the handling and extracting of granular and powdery products over a vertical linear trajectory.

Our wide range of standard elevators allows capacities up to 1600 m³/h.

For applications not included in this range, our Design Offices are qualified to develop



High capacity elevator head (1600 m³/h, height 65 m, 2x200 kW)

specific elevators meeting any requirements.

Features

- Protection of the head ejection area against abrasion
- Adjustable and flexible outlet skirt
- Dismountable sheath
- Any type of buckets and belts or chain
- Possible slow speed for fragile products



Foot above ground with optimized discharge

Options

- Optimized discharging foot
- Suction intake or built-in dedusting filters
- Gradual progress for maintenance
- Feet above ground for easy maintenance

Accessories

- Refeeding inlet

Safety devices

- ATEX compliance 94/9/CE on demand
- Belt misalignment control
- Rotation control
- Clogging detection
- Product flow detection



Galvanized elevator



Bucket elevator



Elevators with discharge suction intakes

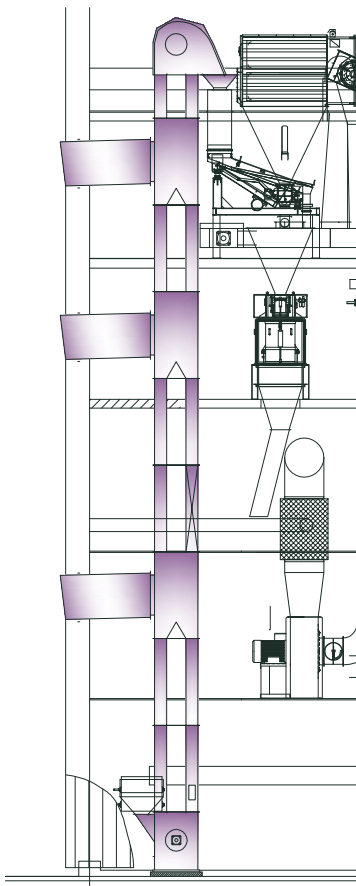


Foot with optimized discharge

Solutions for limited explosion risks

STOLZ solutions to limit explosion risks:

- Use of antistatic (ISO284) and self-extinguishing (ISO340) belts
- Fitting of explosion vents (to be specified according to each elevator: installation, capacity, KST product...)
- Dedusting at feeding inlets and outlets
- Misalignment belt control
- Rotation control
- Bearing temperature control (option)
- Inert gas injection



Explosion vent at elevator head



ATEX elevator



Bucket elevator with optimized discharge



Bucket elevators

Non contractual photos and diagrams

Screw Conveyors



Screw conveyors

Purpose

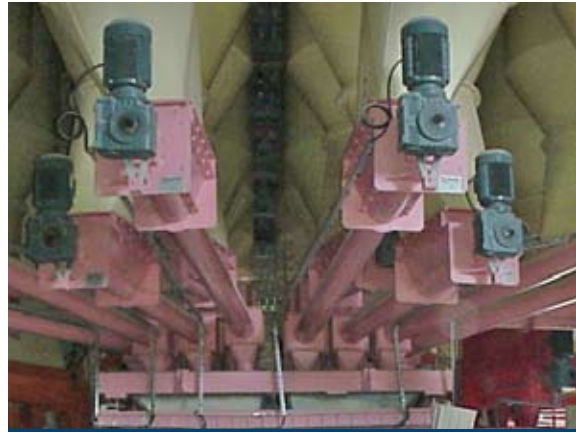
The screw conveyor is designed using the screw conveyor principle for the handling and extracting or dosing of the granular and powdery products. The product is handled horizontally or sloped in a linear way.

Our wide range of standard screw conveyors allows capacities up to 300 m³/H.

For applications not included in this range, our Design Offices are qualified to develop specific screws meeting any requirements.



Screw conveyors



Screw feeders

Types

2 types of screw conveyors :

- trough
- tubular

Conical extracting screws

Spires

The spire usually includes a tube on which a continuous thread is welded. They can be with pallets or ribbon.

The pitch can be :

- regular for product conveyance
- progressive for product extraction

Features

- Continuous pitch, with pallets or ribbon
- Regular, progressive or conical pitch
- Synthetic intermediate bearings
- V ring joints or felt sealing

Options

- Bronze or cast bearings, with or without wearing shell
- Sealing by gland with braids
- Spire height adjustment



Screw feeders



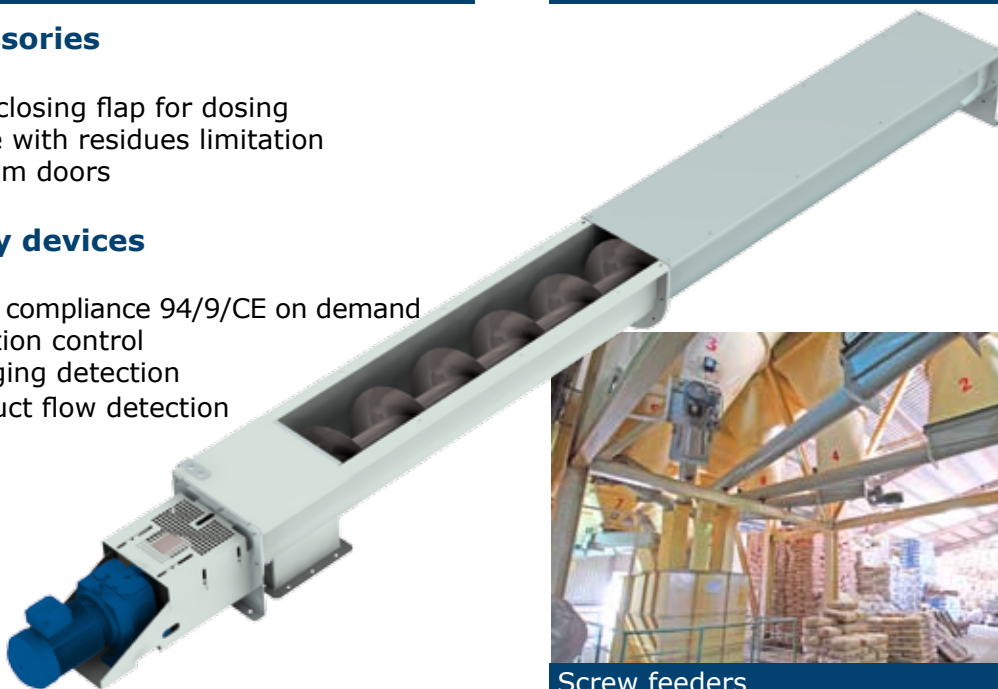
Valve with residues limitation

Accessories

- Fast closing flap for dosing
- Valve with residues limitation
- bottom doors

Safety devices

- ATEX compliance 94/9/CE on demand
- Rotation control
- Clogging detection
- Product flow detection



Screw feeders



Extracting screws

Belt Conveyors



Storage bins feeding

Purpose

The belt conveyor is designed for the handling and extracting of the granular and powdery products. The product is handled in a linear way over long distances, horizontally or sloped.

Granular or powdery product handling, fragile products within a range with capacities up to 1600 m³/h.

For applications not included in this range, our Design Offices are qualified to develop specific conveyors meeting any requirements.



Discharge hopper

Features

- Pulley and belt scrapers
- Magnetic protection
- Automatic or screw tension with counterweight
- Antistatic (ISO284) and self-extinguishing belts (ISO340)
- All types of rollers
- Discharge hopper with 1 or 2 outlets

Accessories

- Protection against bad weather conditions
- Mobile tripper, 1 or 2 outlets



Sealed belt conveyor with fines recovery

Options

- Dedusting filter at feeding inlet or discharge outlet
- Tripper with built-in dedusting filters
- Specific scrapers

Safety devices

- ATEX compliance 94/9/CE on demand
- Belt misalignment control
- Rotation control
- Clogging detection
- Product flow detection
- Emergency stop with cable



Stacker belt conveyor



Food belt



Sugar handling



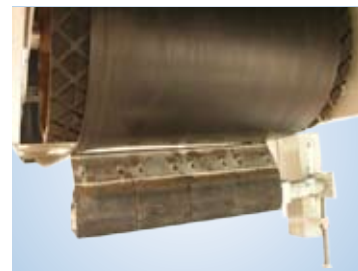
Port handling



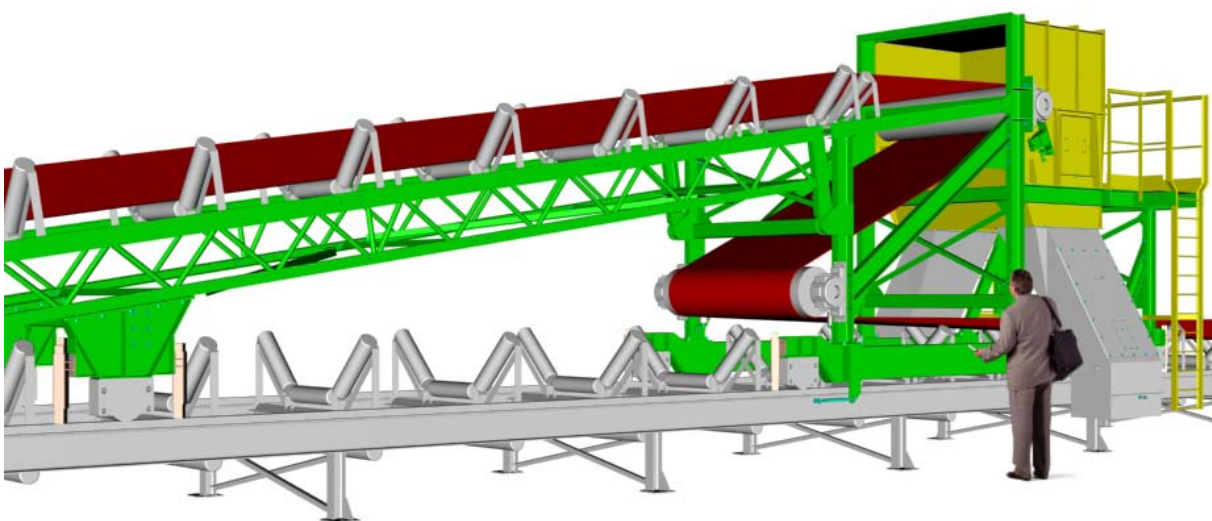
Belt misalignment control



Feeder hopper



Head scraper



Tripper

Non contractual photos and diagrams

Chain Reclaimer



Chain reclaimer in canola cakes

Purpose

The chain reclaimer is a machine dedicated to the handling or extracting of bulk granular products in flat storage.

At refilling stage it can be used to optimize the storage capacities through bottom flat equalizing.

At discharging stage it is designed for removing residual heaps.

Features

- Assisted automated operation
- Open beam designed to prevent product retention

Safety devices

- ATEX Area 22 on demand
- Autonomous safety devices monitoring
- Chain reclaimer can be placed in a safety position to give access to storage area



Example of automatic operation

Principle

Storage



A first part of the flat storage is filled up gravitarily

Filling up



The product heap is scraped by the chain reclaimer to the bottom during storage to optimize the content capacity.

Unloading



The product is pushed by the chain reclaimer to the chain conveyor by moving from one side to the other one.



Silo unloading



Product pushed to the chain conveyor



On site operators training



Workshop testing

Automation

Control

Automatism on the machine allows a complete control of :

- Electric monitoring
- Automatic cycles control
- Machine and human safety devices control
- Preventive maintenance
- Remote maintenance

Equipment

- Remote control to control product approach and to start up assisted automated cycles
- Display panel allowing interaction with the machine
- Profibus network allowing communication between cabinet and beam
- AS-i network on beam collecting all information from sensors
- Modem for remote maintenance



STOLZ cabinet



Remote control



Network wiring of sensors



Hoist embarked on beam



Positioning sensor



Chain reclaimer in sugar silo

Gravity handling



Trucks loading

Purpose

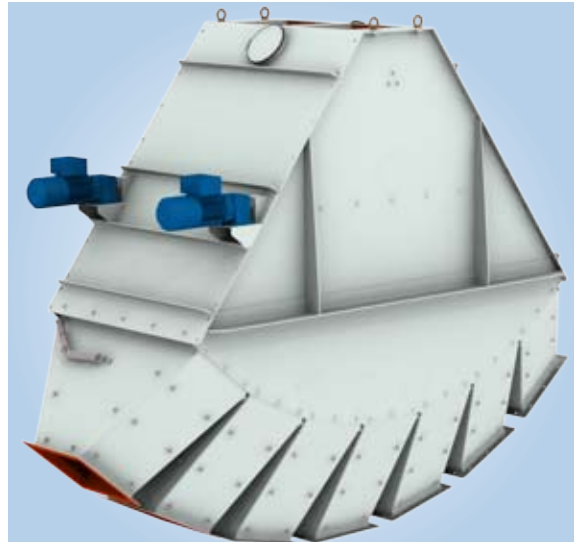
Gravity handling of granular or powdery products.

Features

- Round or square shapes
- Manually, pneumatically, or electrically operated diverters (swing distributors, revolver distributors, two-way boxes, valves)
- Depending on use : special steels, elastomers, ceramics

Accessories

- Fall boxes
- Non cross contamination retarder



Swing distributor with non contamination flap



Revolver diverter



Ships loading distributor



Canal-boat loading

Pneumatic conveying



Pneumatic conveying

Purpose

Handling of granular or powdery products by pulsed air or air vacuum.

Features

- Speed in accordance with product embrittlement
- Different types of rotary valves and sealing chambers
- Round, square, or rectangular sections
- Specific air release piping



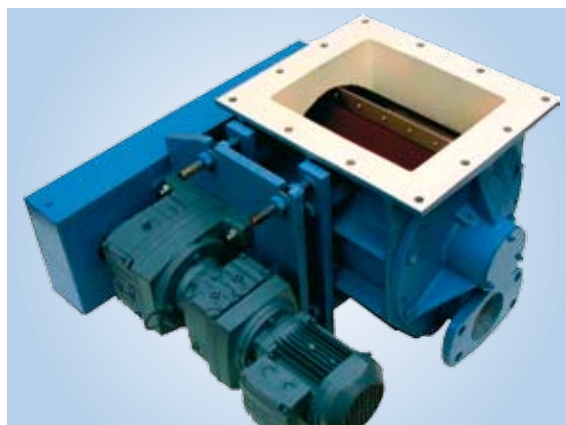
Pneumatic conveying



A pneumatic conveying feeding by a cyclone

Options

- Anti-wearing protection in ceramic
- Removable cast iron, Ni-Hard bends
- Pressured seal for tightness at shaft crossing tightness
- Regulation on programmable automaton
- Air treatment by heater and dryer



Rotary valve

Safety devices

- Pressure switch, temperature sensors, regulation
- Counter current inerting
- Clogging sensors
- Equipotential link

Pad Filters



Built-in pad filter

Features

- Limited size for filtering area up to 120 m²
- Cleaning by counter current compressed air (tank do not require to be proofed again)
- Filtering pads adapted to the different kinds of products

Uses

- Silo decompression
- Pneumatic handling
- Cooling
- Grinding
- Bulk pit cleaning
- Cleaning of dust emission points on handling equipment (inlets, outlets,...)
- Bags unloading

Regulation

- Atex 94/9/CE compliance on demand
- Compliance to the regulations in force and to specific requests in regard of dust discharge
- Air tank compliance to the 97/23/CE pressure equipment directive, do not require to be proofed again

Solutions for limited explosion risks

- Use of antistatic medias
- Installation of explosion vents (to be specified according to : implantation, capacity, product KST,...)
- Installation of a decoupling valve
- Reinforcement of the filter
- Clogging monitoring of the media by measuring the Delta-P
- Control of the medias state
- Wastes control
- Inert gas injection



Bag emptying pad filter



Centralised dedusting

Non contractual photos and diagrams



Pad filter on a grinding unit



Pads filter for silo depressurization



Pads filter on chain conveyor



Pads filter on cooler

Monitoring of filtration processes



Our sequencer is designed to control and monitor the pads and sleeves filters cleaning.

The solenoid valves are inserted into the sequencer.

This device is set according to the required use.

The sequencers are fitted with a ΔP module, controlling the start-up and stop of the cleaning operation. This device saves air and improves filtration.

It is equipped with :

- High and low ΔP alarms (with relay output)
- A ΔP threshold and an input for fast running
- A control of an electric fault
- An analog output for the remote monitoring of ΔP measurement
- 2 relay outputs to report faults and control the cleaning.

Sleeve Filters



Sleeves filters with decoupling valves, explosion vent

Features

- High capacity of filtration : up to 210 m² as standard
- Cleaning by counter current compressed air (tank do not require to be proofed again)
- Filtering sleeves adapted to the different kinds of products
- Shapes designed to limit retention of product
- Control of the filtering process of product similar to pads filters (see page 15)

Uses

- Centralised cleaning
- Grinding
- Bulk pit cleaning
- Bulk loading cleaning
- Cleaner - Drumschalper

Regulation

- Atex 94/9/CE compliance on demand
- Compliance to the regulations in force and to specific requests in regard of dust discharge
- Air tank compliance to the 97/23/CE pressure equipment directive, do not require to be proofed again

Cyclofilter principle

The advantage of the cyclonic effect is a pre-separation of the biggest particles that could damage the sleeves.

Because of its more resistant round shape it can resist to pressure-vacuum :

- Safe installation for Atex zone, protected by explosion vents
- Pneumatic conveying installation
- Cleaning units with vacuum pressure
- Separation of products with high pressure (fine grinding with turbosifter,...)

It can also do a product separation :

- Fines (premix and micronized powders)
- Abrasives (minerals or grains)
- Specific products (starch, chicory, gluten, sunflower cakes, soya, canola)



Galvanized cyclofilter with sleeves

Non contractual photos and diagrams



High capacity sleeve filter



Sleeve filter unit for pneumatic transfer

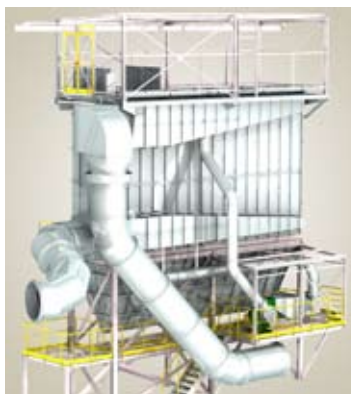
Low capacity sleeve filter

That range of sleeve filters has been especially designed to meet the requirement regarding :

- Silos decompression
- Pneumatic conveying
- Mixer decompression



Parallelepipedic sleeve filter



1400 m² sleeve filter



Dust sensor

The installation of a dust sensor at a cleaning filter outlet can detect an abnormal amount of dust in an air flow. Some versions can also do a measurement of atmospheric wastes.

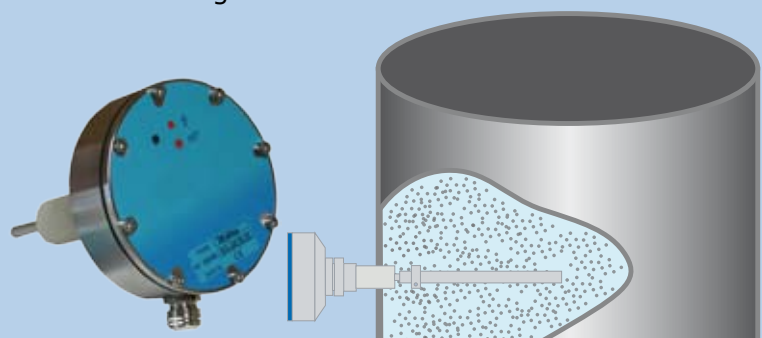
In the first case, it can :

- Detect a damaged filtering media
- Detect an explosive atmosphere (Atex)

In the second case, it can also check the compliance to the rules relating to dust wastes.

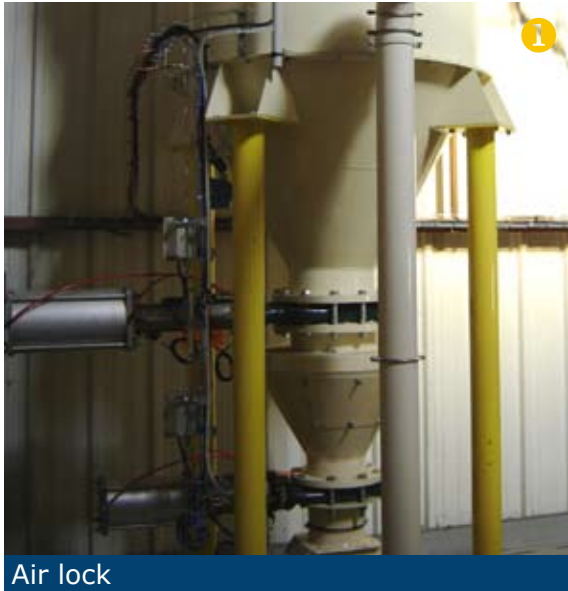


Sleeves filters with rotary extractor



Non contractual photos and diagrams

Centralised Cleaning



Air lock

Purpose

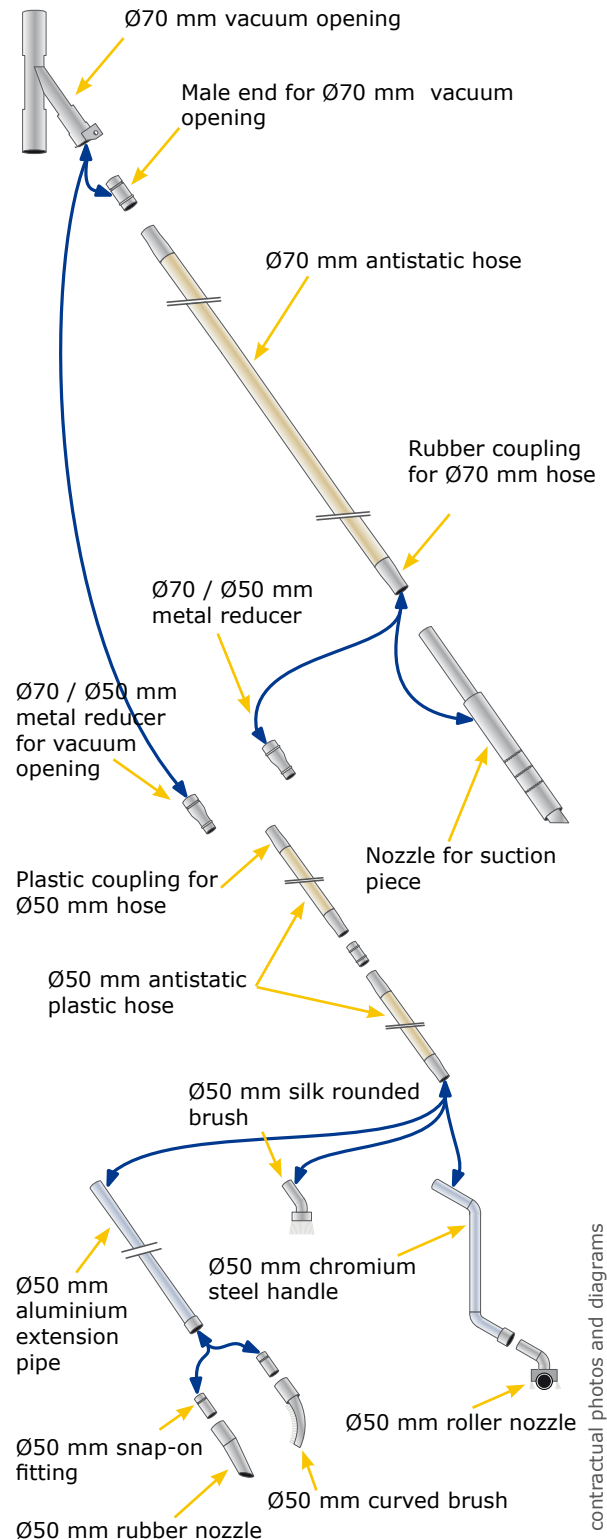
Stolz offers centralised cleaning solutions for long distances and with high vacuum pressure.

That system includes a suction turbine with a fixed filter plug to a piping network covering the silo or factory. It allows an operator to clean by suction without effort and without dust emission in all critical zones.

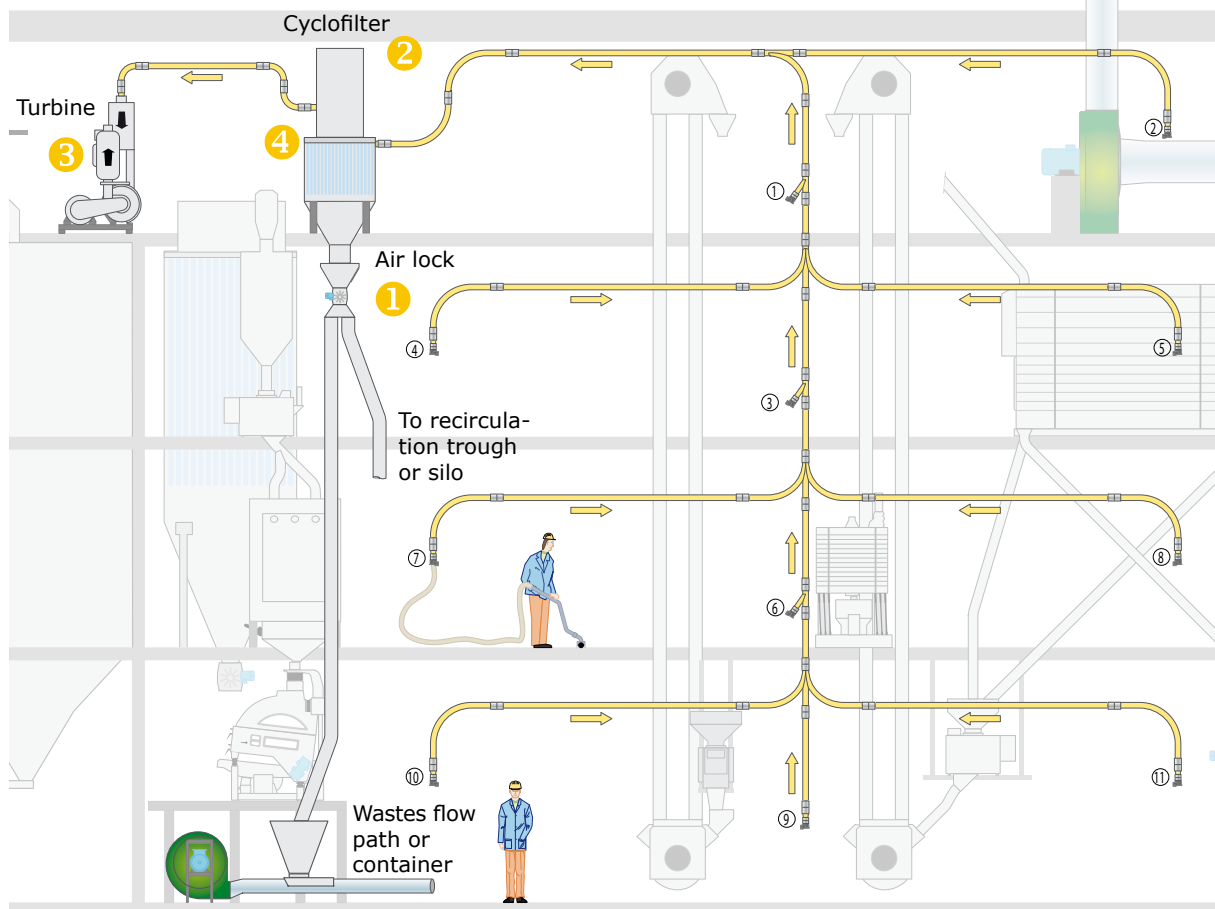
The wastes are continuously evacuated to the dust flow path or to good product flow path (overflow recovery) without bags, containers or bins handling.



Filtration



Non contractual photos and diagrams



Advantages

- Improvement of working conditions
- Easy to use
- Safety

Safety

- ATEX compliance

Technical characteristics

- Cyclofilters
- Multistage turbine
- Sealed air lock with pneumatic valves
- Pneumatic handling type piping with high radius elbow
- Assembly by bolted coupling without welding
- Suction inlet with automatic closing flap
- Cleaning accessories



Differential pressure unit



Cyclonic separation

Non contractual photos and diagrams

stolz

desmet ballestra

Handling equipment & Dedusting

Grinding

Thermal conditionning & Cooling

Pelletizing

Mixing & Coating

Sifting & Cleaning

Services

www.stolz.fr

STOLZ SEQUIPAG SA, 82 route de Boisjean - 62170 WAILLY-BEAUCAMP - FRANCE
Tél. +33 (0)3 21 90 05 05 - Fax +33 (0)3 21 90 05 15 - E-mail : contact@stolz.fr