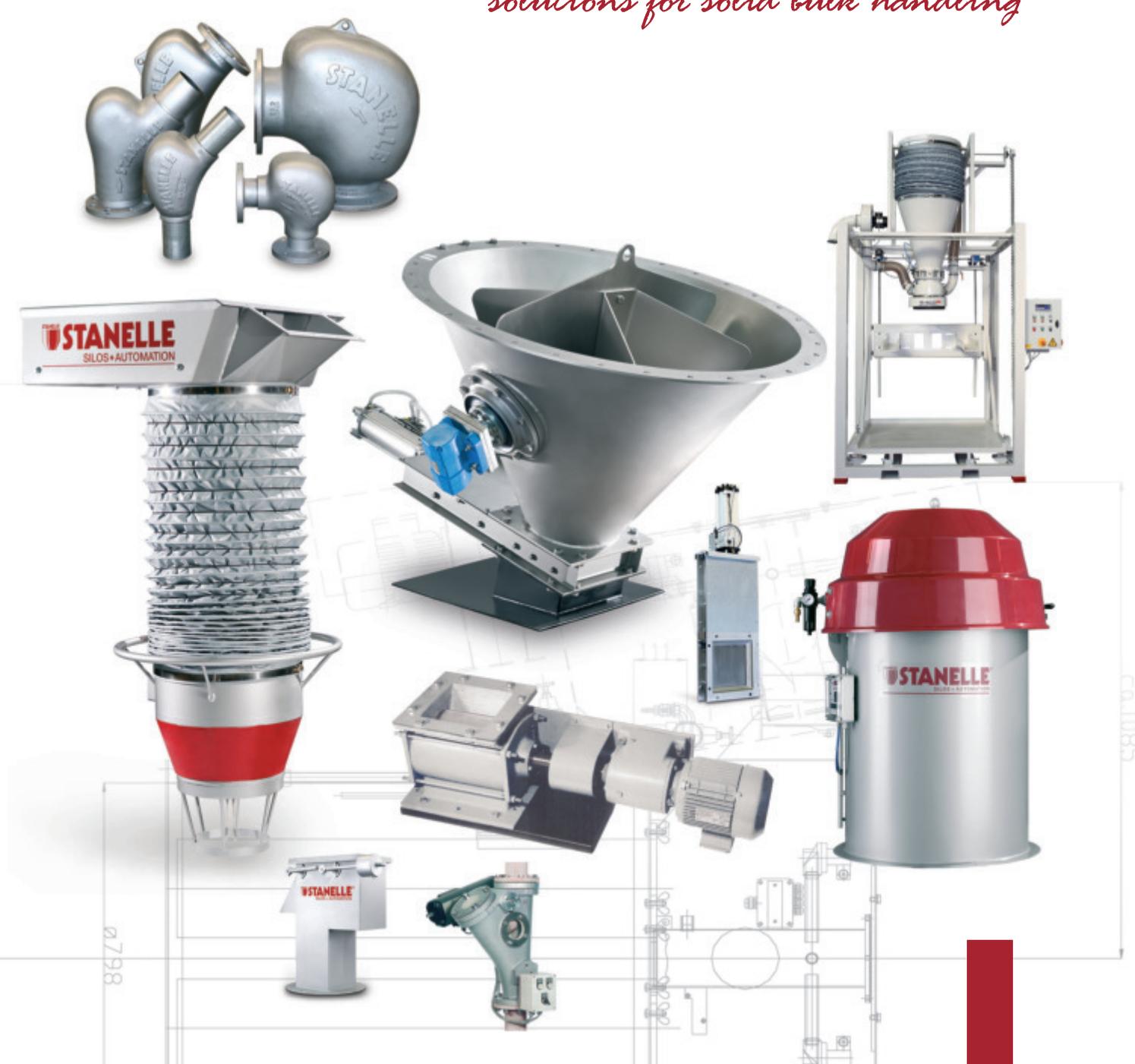


Silo Components

*Stanelle -
solutions for solid bulk handling*





STANELLE[®] offices and manufacturing premises

Stanelle

*Delivering product expertise
for over 50 years*

STANELLE[®] Silos + Automation GmbH is specialised in producing a comprehensive range of silo components. We always deliver outstanding customer-focused solutions with high quality standards.

Our products are associated with first class silo technology and silo automation solutions that have been meeting customer requirements for over 50 years. Our innovative strength, the high quality of our products and our efficiency make us a strong partner in the silo component industry.

Many Stanelle automation components are notable for their practical and innovative features which optimise the flow of materials, enhance operational safety and help to protect the environment. Our highly proficient experts support our customers during the project development phase and continue to be reliable partners during the planning and implementation of the project.

We set the highest standards for the quality of the materials and the manufacturing processes we use. We achieve these high quality standards thanks to our conscientious employees, our cutting edge manufacturing technology and reliable quality assurance measures.

Our extensive warehouse with 724 pallet bays ensures to achieve a smooth production and delivery processes.

Our silo components have been tried and tested over many decades and have proven their worth due to their operational reliability and durability. Our following range is not limited to the items that are shown.



High-bay warehouse with 724 pallet bays

Dedusting Technology

extreme durability

The Stanelle filter TYPE **PNEUFIX** has been designed to dedust pneumatic, mechanic, continuous and discontinuous filling or conveying processes in **silos or bunkers**. The PNEUFIX never fails to impress thanks to its solid construction and the fact that it can be used flexibly in a wide range of applications.

Stanelle dedusting filters TYPE **STAFI** have been designed to filter discontinuous exhaust air when **silos** are filled pneumatically with powdery and dry bulk materials. They are particularly suitable for use in the construction, building materials and mining industries and are notable for their robustness and durability.



PNEUFIX



STAFI

high-quality materials

The Stanelle mixer filter TYPE **MIXFI** is designed for a direct dedusting of **batch mixers**. The special design of the filter ensure that the filter dust will be fed back in to mixer without any problems. High-quality materials and top quality surface coating ensure that the filter can be used in all industries. The long service life of the filter materials make our filters particularly outstanding.

The Stanelle filter TYPE **ZEWAFI** is an electronically controlled fully automatic filter with external pressure vessels and is used to weigh the extracted dust. The ZEWAFI filter will be ready to operate once it has been connected to the on-site compressed air supply and has been integrated with the master controller. In combination with the Stanelle MIXFI mixer filter, it provides an end-to-end mixing system solution with an add-on weighing device.



Dedusting Technology

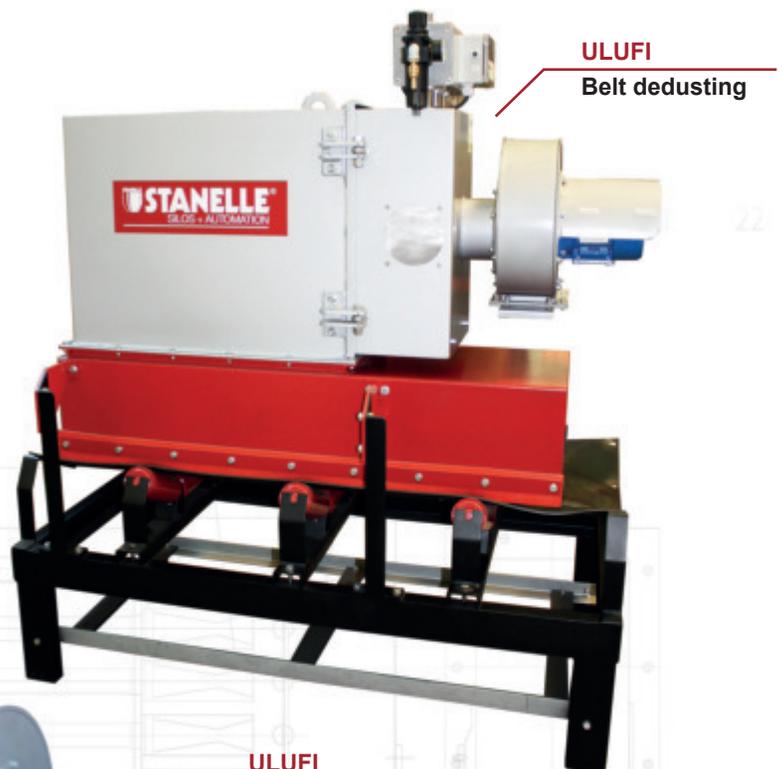
conveyor belt deduster

The Stanelle loader filter TYPE **BELFI** is primarily used in conjunction with the Stanelle JET LOADER to carry out direct dedusting and to recirculate dust when loading **silo vehicles and containers**. Its compact design also means that it can be used to dedust air conveyor troughs, enclosed conveyor belts, silos and bunkers that are filled without pressure.

The Stanelle filter TYPE **ULUFI** is designed to dedust **silos and bunkers and loading bellows when the silo truck is loaded**. Its compact design makes it the perfect device for dedusting conveyor belts. The loading and conveyor belt filter is specifically designed to dedust granulated, fine-grained and dry bulk materials such as cement, lime, gypsum, ready-mixed mortar, flue gas desulphuriser products and grain. The filter area is available from 10 to 100 m².



BELFI



ULUFI
Belt dedusting



ULUFI
Bunker dedusting

container dedusting

The Stanelle filter TYPE **STAFI R** is used for discontinuous filling and conveying processes with powdery dry bulk materials. It is used for the dedusting of containers with mechanical feeding and for the dedusting of discontinuously operated mechanical conveying processes, e.g. screws, troughed chain conveyors and elevators.

Dedusting Technology Attachments

Filter cartridges, filter inserts and filter hoses in various designs.

Exceptionally well suited to deal with the separation of harmful substances in an economical way (even the finest impurities) or to recover valuable waste materials from gases.

An example of this is the filter hoses which can be used in filtering separators in smelting plants and cement works, in the mining and chemical industries, in animal feed production and in numerous other applications.



Loading Spouts

high operational reliability

Silo vehicle loading

The Stanelle JET loader TYPE **QUADRO 220** has been designed to load **silo vehicles, covered containers and rail freight wagons** with dry, granulated bulk materials.

The compact design includes an integrated winch motor with a sensor system that is preset at the factory. This expedites the installation process, enables it to be positioned in the best possible way and provides a high degree of operational reliability.

Square interior buckets, which are held apart by two strong retaining straps, protect the folded bellows against mechanical stress and centre the stream of bulk material. The lifting cables positioned outside of the stream of the bulk material stabilise the interior buckets and provide a high degree of flexibility for the loader. The sealing cone seals the discharge cone and prevents any bulk material from escaping and any moisture and foreign substances from entering the QUADRO 220.



QUADRO 220
square
interior buckets



RONDO 250
round
interior buckets

optimum positioning

Silotruck and open truck loading

The round, thick walled interior buckets (available in steel, stainless steel or plastic iron cast) included in the Stanelle JET loader TYPE **RONDO 250** (bucket design) are extremely resistant to wear and tear.

The RONDO 250 loader is designed to load **silo vehicles** and is fitted with a discharge cone. The optional dust skirt or a variable dust cap virtually eliminates the formation of dust when bulk materials are loaded on **open trucks, rail freight waggons and containers**.

The Stanelle JET loader TYPE **TELE-RONDO** is a special loader in a tube design that is used to load **silo vehicles** that are loaded with a wide variety of bulk materials, such as dry mortar. Bulk materials of different weights and large drop distances can result in separation problems in standard loaders and this can have a detrimental effect on quality. Using the TELE-RONDO virtually eliminates the separation of bulk materials of this kind. The TELE-RONDO discharge cone is placed on the silo dome opening and the telescopic tube is inserted deeper into the silo truck. This leaves a drop distance of 20 to 40 cm. The minimal drop distance and the gradual raising of the telescopic pipes via the level control as the vehicle is filling prevent virtually all bulk material from becoming separated into their constituent weights.



RONDO 250 variabel
open and closed



TELERONDO

Loading Spouts

maximum loading performance

The Stanelle Rondo 300 M XX JET loaders are designed in a modular format. This means that it is possible to change the outlets with or without a sealing cone and with the dust cap with the same loading head. The Stanelle Rondo 300 M XX JET loader can be used in a range of applications, including those found in the building materials, cement, mining, chemical, power generation, water, waste water treatment and pharmaceutical industries. Minimum loading times for silo vehicles are required in these industries. This can be achieved by increasing the throughput profile.

The Stanelle JET loader **RONDO 300 M VK** (sealing cone) is our most powerful loading bellow that has been designed to load **silo trucks and containers with dry and granulated bulk materials**.

The Stanelle JET loader TYPE **RONDO 300 M SG** (dust cap) has been designed to load **open road and rail vehicles with dry and granulated bulk materials**.

JET loader TYPE **RONDO 300 M VAR/DT** with **variable dust cap and rotary plate** is also possible.

RONDO 300 M VK

Sealing cone



RONDO 300 M VAR/DT

rotary plate



RONDO 300 M SG

Dust cap

open loading



The Stanelle JET loaders TYPE **RONDO 350 / 400 / 500** with an extended hub are designed for loading ships and slagheaps. The required volume of exhaust air of approx. 2,000 - 3,000m³/h can be extracted via the suction nozzles by using an appropriate dedusting unit.



RONDO 350
Slagheap loader

The Stanelle JET loader TYPE **RONDO 600 - 800 R** (telescopic tube version) is particularly suitable for loading **open road and rail vehicles, and containers** with crushed minerals (depending on nominal size) up to a particle size of 200 mm. Special protective tube inserts increase the service life of the loader and particularly make it the ideal choice for use in the aggregates and quarrying industries. The telescopic tube version of the RONDO can be modified to suit the specific requirements (mounting height, extended length etc.) of our customers. Dusty air is drawn between the telescopic tubes and the folded bellows it will be fed into the filter system.



RONDO 800
Gravel loader

Discharge Aids

easy to retro-fit

The Stanelle **discharge vibrating cone TYPE ASK** serves as an excellent discharge aid for non-free-flowing, bridging, dry, powdery and granular bulk materials. The flanged version that is inclined at 60°/70° to allow drainage can be easily retrofitted to any silo or bunker.

The Stanelle **vibration arm TYPE SVA** acts as a discharge aid for bridging, dry, powdery and granular bulk materials. It can be fitted to rectangular bunkers or special discharge outlets. It is very easy to retrofit this device to existing silos or bunkers. The vibration arm can be used in a very targeted way by installing the variable vibration motors in a specific way.

The Stanelle discharge TYPE **SAD 300/65** will be used for of very hard flowing bulk products out of silos or bunkers. The SAD is very suitable for handling of quick lime, activated carbon, gypsum etc. The installation in existing applications is possible without problems. The vertical agitator is driven by a gear motor separately. It breaks up the product and loosen the product in the outlet area. A steady and smooth discharge will be ensured out of a silo or bunker. The horiozontal discharge and dosing screw is designed with a progessive pitch. It allows a controlled discharge with constant volume flows

The Stanelle **LUALO air injection fluidisation system** with nozzles, pads and pulsators is used to fluidise poorly flowing, technically dry, non-sticky and powdery products. The advantage of air injection fluidisation is that the nozzles and pulsators are not located directly in the stream of the bulk materials and they can also be changed from the outside. It is recommended that it is used when the material is discharged in a series of pulses.



Silo Safety

The Stanelle **high/low pressure flaps TYPE SDAK** a safety device for pneumatically filled silos. In its combined version, both high and low pressure that occurs when the material is discharged or that comes from the exhaust fans can be levelled out during pneumatic filling. This can prevent unnecessary expense due to container damage. Stanelle SDAK is not just suitable for use with silos, but can also be used with air hoses that need to be protected from high and low pressure. There are enormous benefits to be gained from using the weight loaded, vertically operated SDAK device compared with spring-loaded systems. It is possible to technically guarantee that the unit can be safely opened and closed following an emergency.

combined version

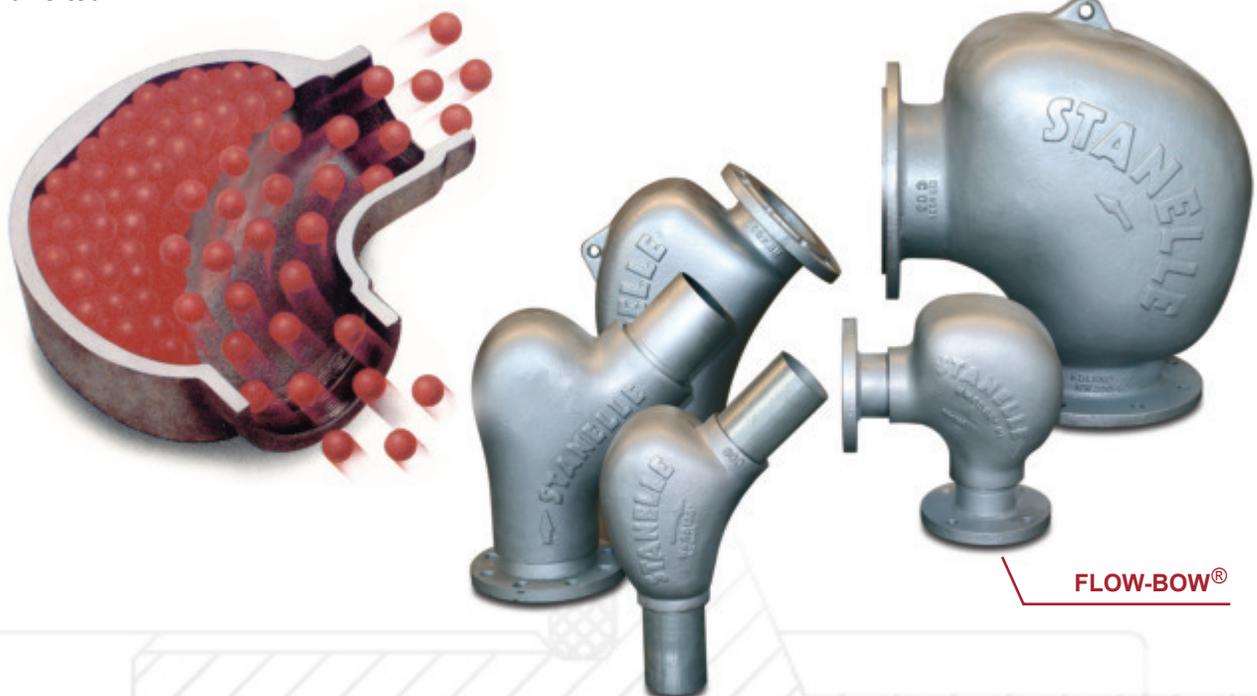
The Stanelle **Silo overfill protection TYPE ÜFS** device is an autonomous safety system. The controls are ready to be connected and work in conjunction with the components included in the delivery (SQV pinch valve, max probe and pressure switch) to prevent the silos from overfilling. This also prevents the permissible level of internal pressure inside the silo from being exceeded e.g. during the final surge in the filling process.



Conveyor Line Components

long service life

The Stanelle **FLOW BOW**[®] has been designed to serve as a wear-resistant deflector for dry, non-clumping bulk materials during dense phase conveying. It can be used in a wide variety of applications ranging from powdery, chipped to highly abrasive bulk materials such as quartz sand, shotcrete, basalt grit through to cocoa shells or applications in rendering processes. Versions manufactured in cast stainless steel are available for use in the plastics and food industries (1.4408). The illustration shows the thickness of the walls in the product's design and the way the reserves of material form in the **FLOW BOW**[®] during dense phase conveying. This achieves optimum protection against wear and tear when the bulk material is diverted.

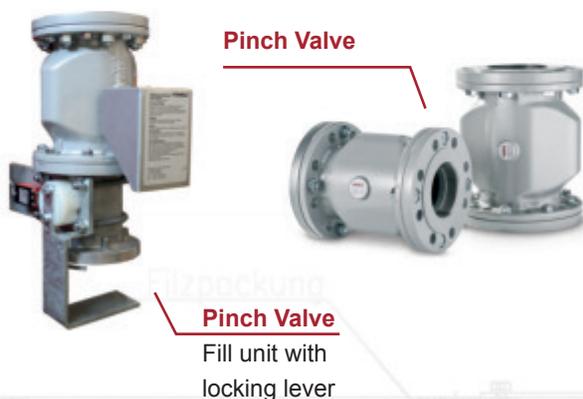


uncomplicated and robust

The Stanelle **pipe coupling system TYPE CONNEX** seals and connects conveying pipes in the most economical way possible.



The Stanelle **pinch valve TYPE SQV** is used as a shut-off valve when silos are filled pneumatically. It is built into the filling pipe and enables the entire cross section of the pipe to be kept clear during the filling process. The strong rubber walls of the membrane increase the service life of the part. The magnetic valve that is fitted directly on the pinch valve facilitates short opening and closing times.



The **ZR two-way valve** is used to distribute the solids in two pipelines. However, it can be used either in pneumatic low-pressure or in high pressure systems. The two-way valve can be used for all pneumatic conveyable solids, either in dust- or powder form. Exceptions are conveying products which incline to cake, stick or clump. Due to varied sealing materials, products with temperatures of 180° C max. can be conveyed without any problems.



The **ZD accessory nozzle** is used for conveying lines of high pressure conveying plants. It is installed mainly behind the pressure vessel in order to ensure a lean phase conveying. The ring-gap-nozzle can also be used within the conveying line e.g. at the riser tube.



The **SE silo deeding nozzles** is used where conveying lines need to be connected to silo bodies. Due to its construction, the riser tube can be led closely along the body. The gas-, dust-mixture will be turned away in an right angle and inserted into the silo.



The **DF pressure tank** is used as a pressure vessel for high-pressure conveyor systems. The tank consists of the bottom hatch, the cylindrical jacket and the cone with an angle of 60°. Each tank has a manhole and all connections for the required fittings. The positions of the connections are variable and can be located to suit the requirements of the installation site.



Shut-off Components

simple and robust

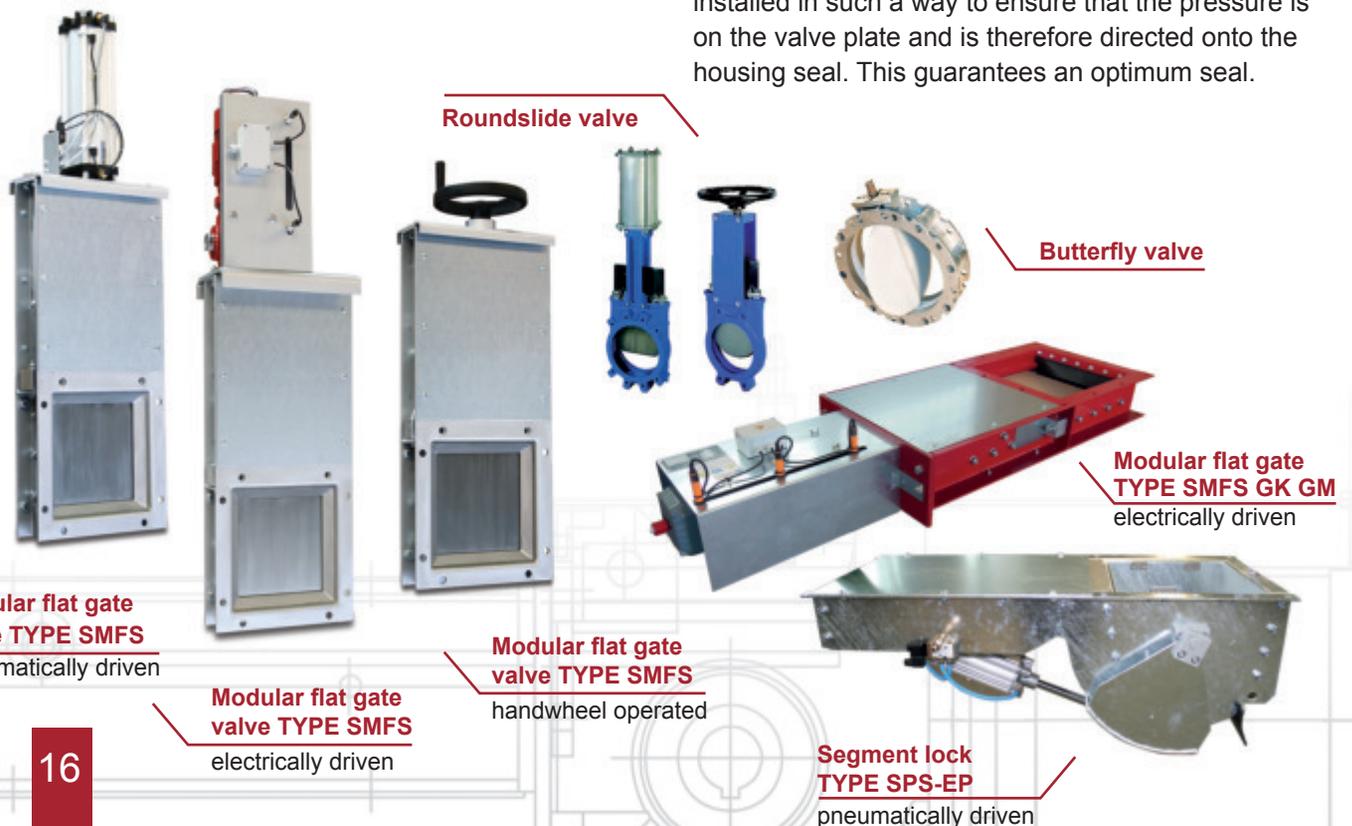
The Stanelle **modular flat gate valve TYPE SMFS** can be used on silo and container discharge outlets. It guarantees an optimum seal when storing pulverised and granulated bulk materials up to a grain size of 4 mm. The modular design of the slide valve enables different drive systems (manual, pneumatic and electric motor driven) to be attached on the same base frame. The sliding plates are guided by rollers that are sealed on both sides.

The Stanelle **flat slide gate TYPE SMFS GK Series** will be mounted at the outlet of a silo or buffers to interrupt the free flow of bulk products. It ensures the best tightness of storing of grainy bulk products with a grain size up to 50 mm.

The Stanelle **segment lock TYPE SPS-EP** will be mounted at silo and container outlets and will be used for shut-off and dosing of coarse-grained bulk materials.

The **butterfly valve (round)** can be used anywhere that requires a flexible connection. A rubber or cloth collar provides the connection to the element downstream. Typical example: between silo and scales, sifting machine etc.

The **roundslide valve** acts as a shut-off element or intermediate flange valve that is operated either by a handwheel or pneumatically. The valve is pressurised on one side which means that it should be installed in such a way to ensure that the pressure is on the valve plate and is therefore directed onto the housing seal. This guarantees an optimum seal.



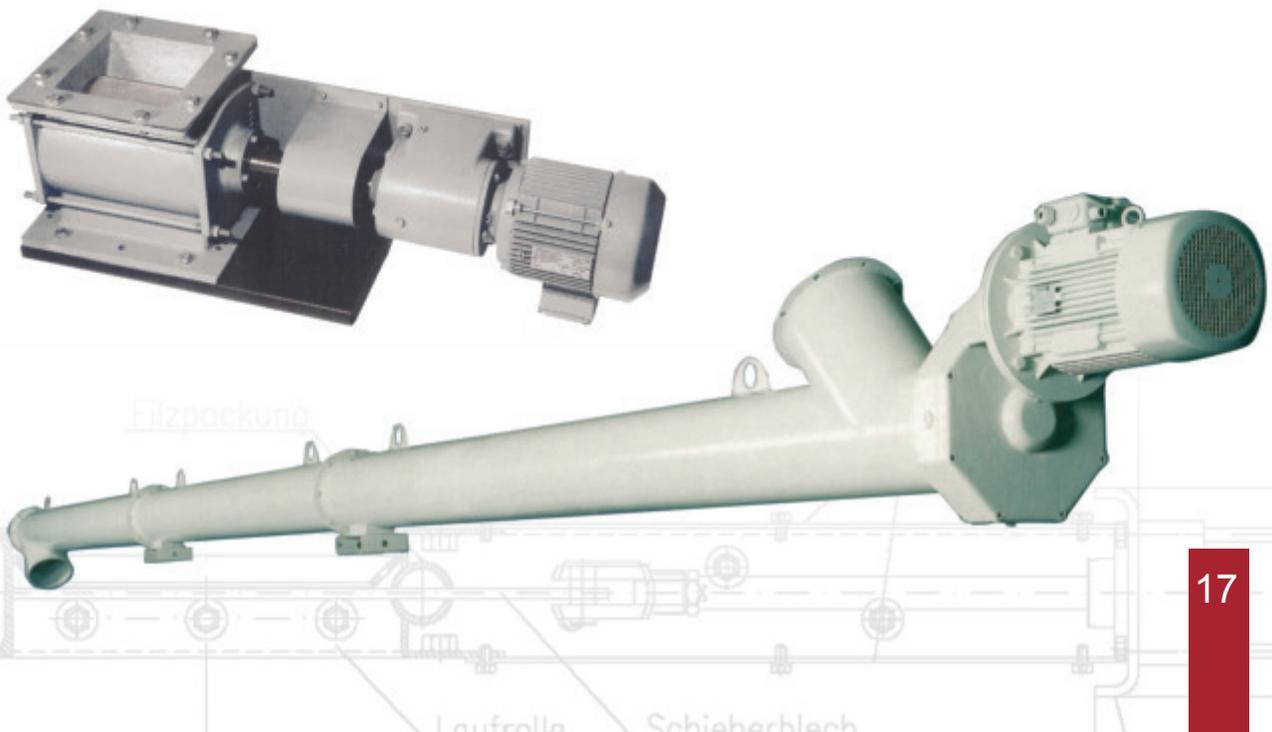
Conveyor and Dosing Devices

The STANELLE **rotary feeder** is designed for bulk materials. Various cellular wheels, combined with a speed adjustment facility, enable the throughput to be finely graduated. The cellular wheel is generously sized and mounted on permanently lubricated roller bearings which are sealed with radial seal rings. The enclosed design of the cellular wheel feeder and the extremely precise fit from the housing to the cellular wheel guarantee a very tight seal.

Conveying screws used to convey dry, powdery and granular bulk materials horizontally and at sloping angles (up to 45°). Standard tube diameters and a modular design used to assemble the conveying screws guarantee high quality and an optimal price/performance relationship.

There are a variety of designs available for the gear units and electric motors. The compact design, the progressive gradient of the screw helix and the spring-loaded stuffing box seal in particular provide considerable benefits that result in trouble-free operation. The standard gear unit is attached with the screw helix and the bearing units via maintenance-friendly spline shafts and enables a high degree of flexibility in the planning, production, insertion and assembly of the conveying screws.

The individual screw inlet and outlet through a flange, pipe bead or universal inlet for tilt and angle adjustments supplement the modular system and simplify installation.



BIG-BAG - Handling Sack - Handling

efficient filling and emptying

Emptying or filling, the Stanelle Sack or BIG BAG solutions have not just been developed to deliver quick and ergonomic filling and emptying solutions, but also provide a perfect dedusting solution and direct connectivity to other Stanelle products such as the JET loader.

The Stanelle **bag emptying station TYPE SSA-10** has been specially designed so that it can be configured to empty sacks without generating dust. The displaced air is fed directly into the filter (MIXFI / BELFI) and can then be channelled outside or into the production area depending on the application. Depending on the process specifications, it is possible to feed the product back into the process vessels or into a collecting tank.

The Stanelle **BIG BAG emptying system TYPE SEB 1000** is available with both manual and electric hoists. When designing this device, there was a particular focus on creating an ergonomic product with optimal dedusting capabilities. Modifications and different versions of the product can also be delivered in accordance with customer requirements.

The Stanelle mobile **BIG BAG filling station TYPE SBB 1000 M** has been designed to fill big bags extremely efficiently with the Stanelle JET loader. It can, however, also be adapted to work with devices produced by other manufacturers. Different versions, including a weighing unit, stainless steel and ATEX versions, are also available and as stationary filling station TYPE SBB 1000 S.



Bag emptying
SSA-10



BIG-BAG
SBB 1000 S Filling Station

BIG-BAG
SBB 1000 M Filling Station

Silos

as a complete solution

The aggregate and cement silo made from sheet steel used to store cement and other dry bulk materials with a bulk density of a max. of 1,400 kg/m³.

The silos are manufactured in one piece and tightly welded, as long as it is possible to transport it in this form.

It includes loading and transport lugs, the NW 500 inspection port, a weld-on frame or a weld-in opening for a Stanelle SDAK 150 high/low pressure flap in the silo roof, a DN100 galvanised filling pipe on the silo cylinder, a pinch valve with a type A fixed coupling and a Stanelle FLOW BOW® filling bow.

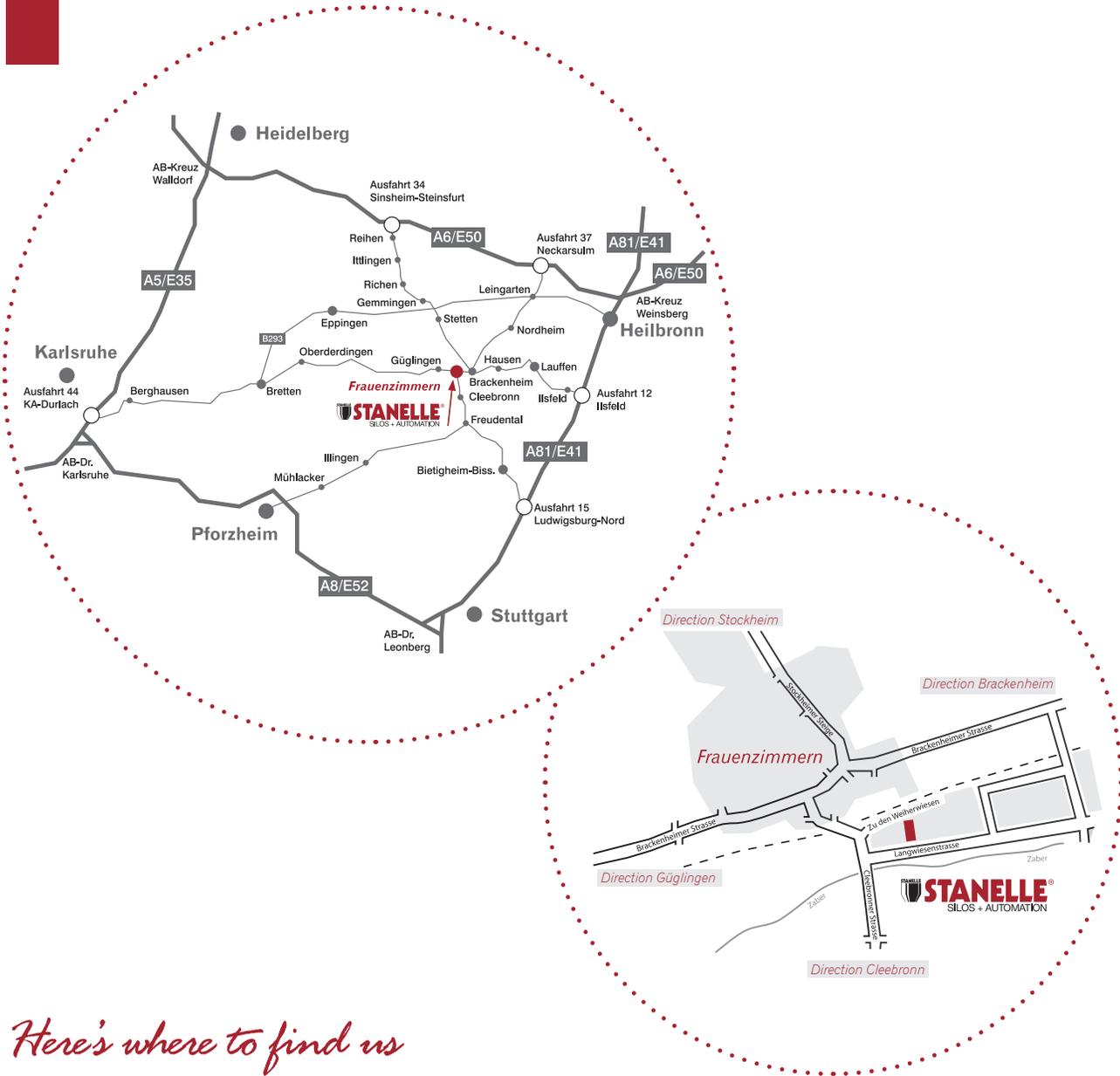
The standard configuration includes a crushing cone inside the cone and a water repellent ring outside the cone. The substructure comprises four tubular steel supports that includes all the necessary bracing elements, head and base plates and anchor bolts. The discharge flange height is approx. 1,500 mm above the base. Anchor girders should be positioned and cemented in on site. All screws are galvanised and anchor screws are black.

Standard types with different diameters and silo contents are available for the domestic market. We also offer other diameters and silo sizes in accordance with customer requirements. The standard cone gradient is 53°. Steeper cone gradients must be used for materials that do not flow easily and the bulk material discharge process should be



supported by special discharge aids, such as the Stanelle LUALO air injection fluidisation system or the ASK discharge vibrating cone.

We offer a range of essential attachments such as filling pipes, ladders, railings for the top of the silo, high/low pressure flaps, filters, fill level probes, discharge aids and slide valves



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