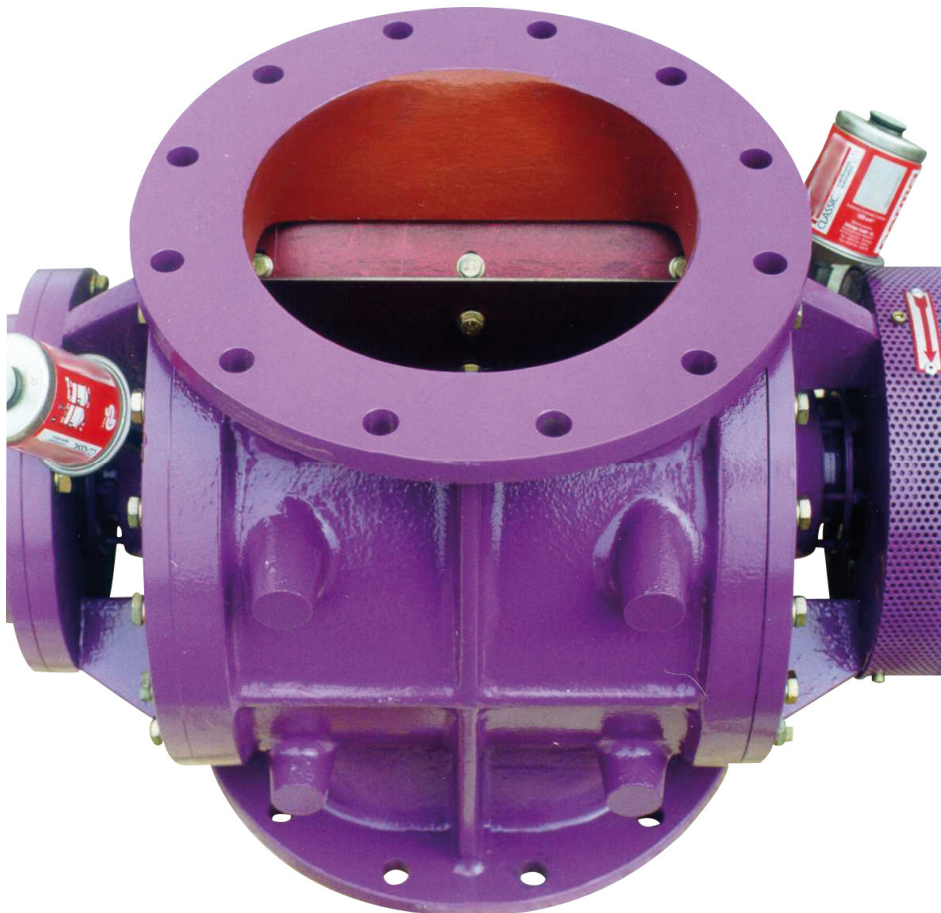


solids Rotary Valves

Type ZRS



Discharge and metering rotary valve, for discharge of silos and/or feed into pressure or vacuum conveying pipelines ; even for dust explosion hazardous products



Advantages:

- **Sturdy and less wear**
- **Cost-effective and low maintenance due to simple assembly**
- **Space-saving**
- **Gas-tight from outside**
- **Protection against spreading of dust explosions and effective flame trap**
- **Safety for operators, with a DMT certificate**

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Functions and operating modes of a rotary valve

Generally a rotary valve has two basic functions: Discharging and metering. Both the functions have an additional task to establish an air lock point between two sections of the system. Absolute air lock is however not possible at the given pressure difference. The flow of the leakage air can only be minimised.

Discharge

The basic function of pure discharging is executed by the well-known basic rotary valve: In the housing the rotor is revolving by constant speed. Due to gravity the product comes out from the container or the hopper from the top and falls in the chambers of the rotor. Due to the revolving rotor the product is transported to the discharge opening, from where it again moves down by gravity. The rotary valve itself does not affect the flow capacity of bulk solids. It depends on the chamber volume, filling ratio and rotation speed.

Metering

The rotary valve for metering is characterised by a variable speed, e.g. using a variable-pitch geared motor or a frequency converter drive. The metering is purely volumetric in such a case: A specific volumetric flow per time unit is set as the desired value in dm^3/s or m^3/h . It is however not measured so that there is an undefined deviation between the desired and actual values. The mass flow capacity is not measured and regulated, and therefore the term, "metering" is actually incorrect in the strict sense; a constant and reproducible volumetric flow can however be set.

The condition is, that

- a) the density of bulk solids is always constant,
- b) the rotor is always fed with the same filling ratio. This can be achieved, e.g. using an agitator or a pneumatic discharge aid in the pre-hopper over the rotary valve,
- c) the chambers are emptied completely.

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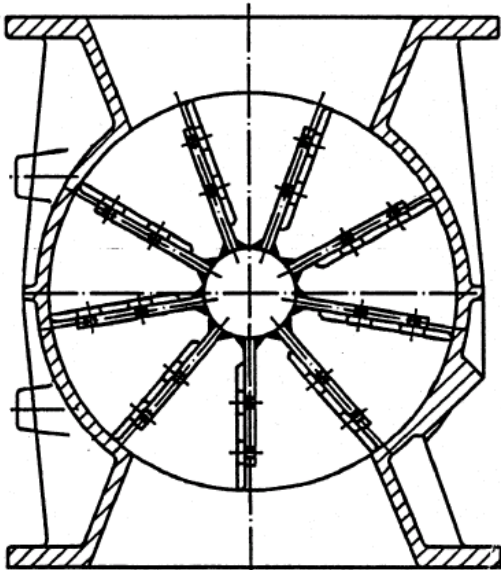


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Volumetric metering using solids rotary valves



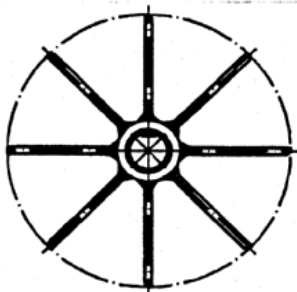
Standard rotary valve, type ZRS:

- Housing with inlet and outlet
- Horizontal rotor with chambers (see rotor versions)
- Filling the chambers at the inlet
- Downward transport by rotation
- Emptying due to gravity; free discharge at the outlet
- Setting the volumetric flow by changing the speed
- Sizes from entry- \varnothing 150 to 500 x 1000 mm
- Capacity range: from 100 dm³/h to 200 m³/h

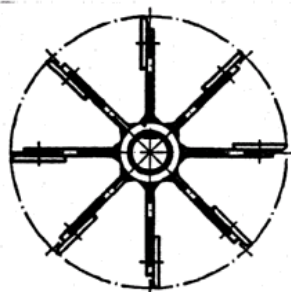
Conditions:

The maximum particle size must be determined depending on the pressure difference and other product properties.

Most important rotor versions:



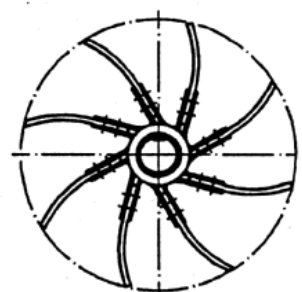
- a) Basic version:
- Fixed bars
 - For non-wearing products



- b) Replaceable, adjustable sealing strips
- made of elastomer or cutting strip
 - for moderately wearing products



- c) Rounded chambers
- with/without replaceable sealing strips
 - for slightly accumulating products
 - with coated chamber surface



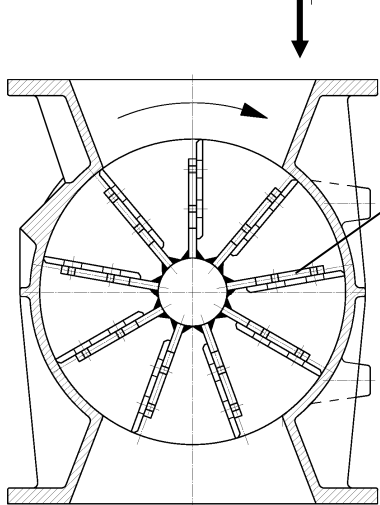
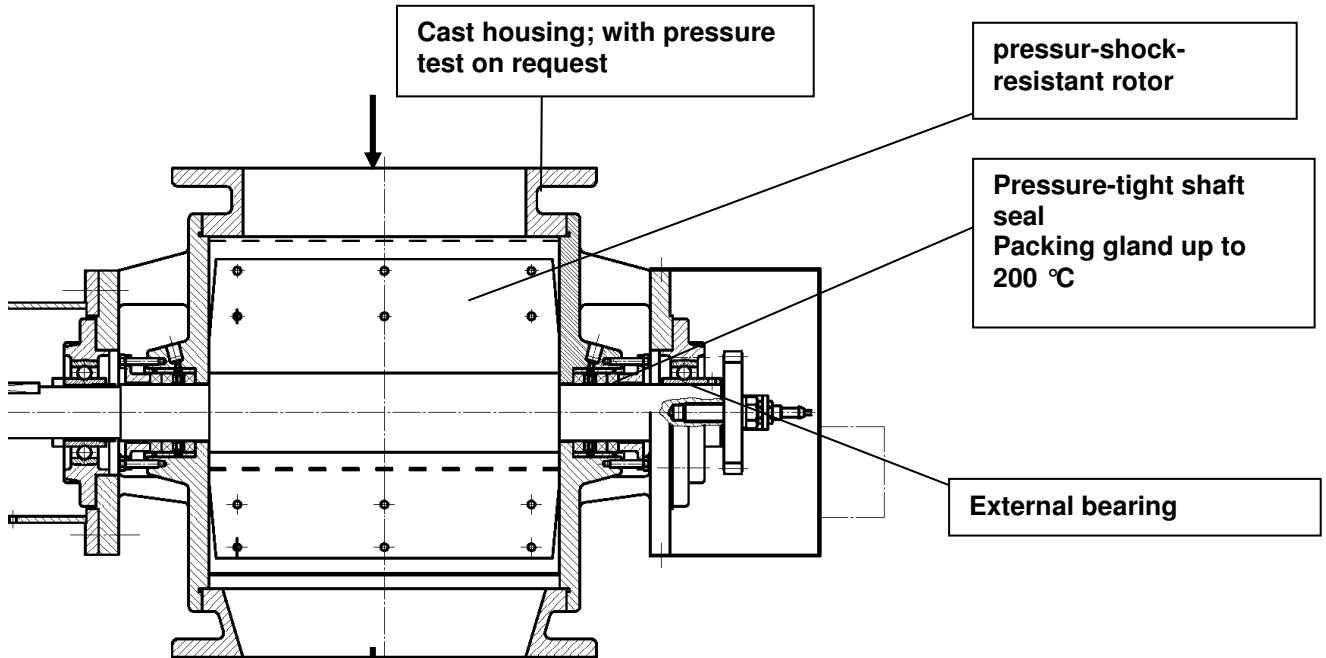
- d) Towing vane made of elastomer
- for granular, sticky and fibrous products

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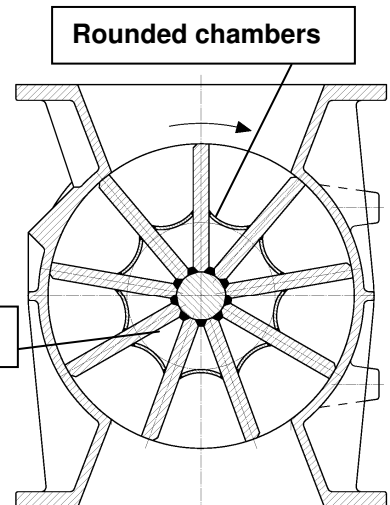
Type ZRS



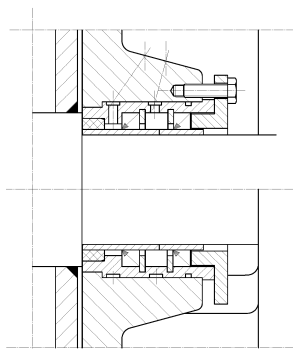
Characteristics (here as an example of a pressure-shock-resistant rotary valve):



Rotor for dust explosion class ST1



Rotor for dust explosion class ST3



Optional: radial shaft sealing rings with a sealing gas connection

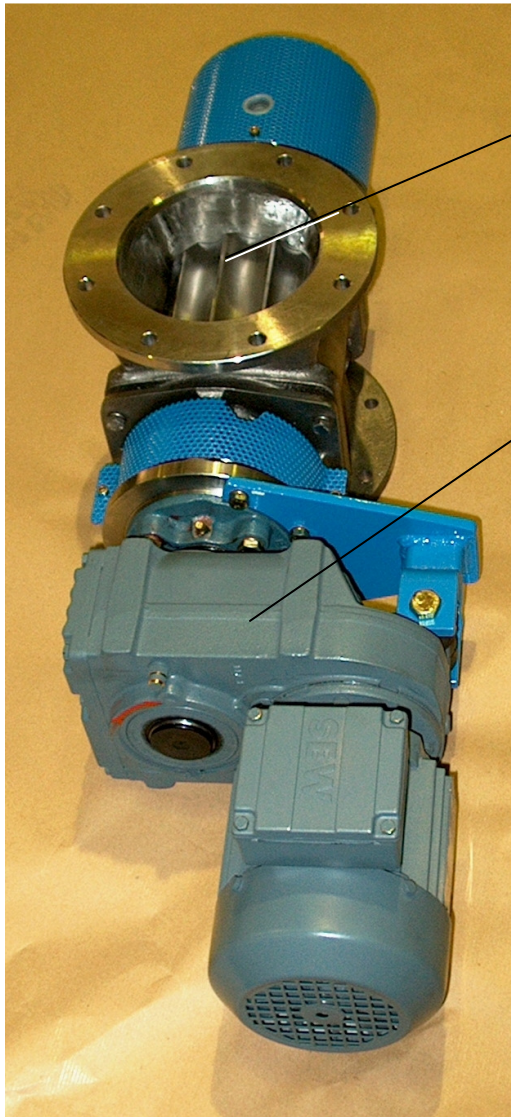


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Type ZRS



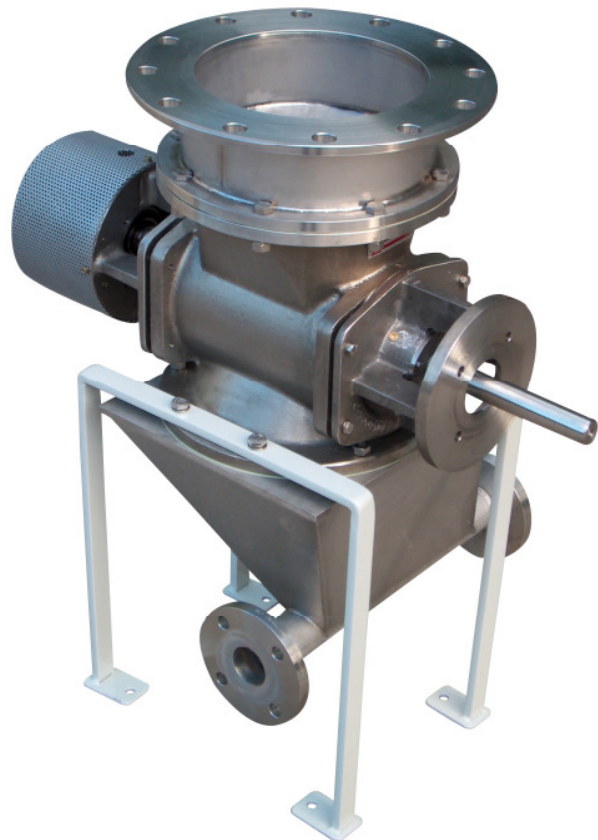
Foodstuffs version:



Rounded chambers

Slip-on gear

Complete with a leakage air collector and a blowing shoe:



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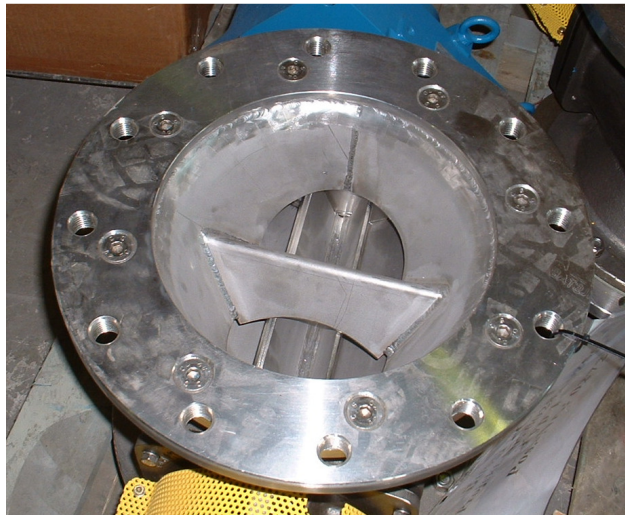
solids Rotary Valves

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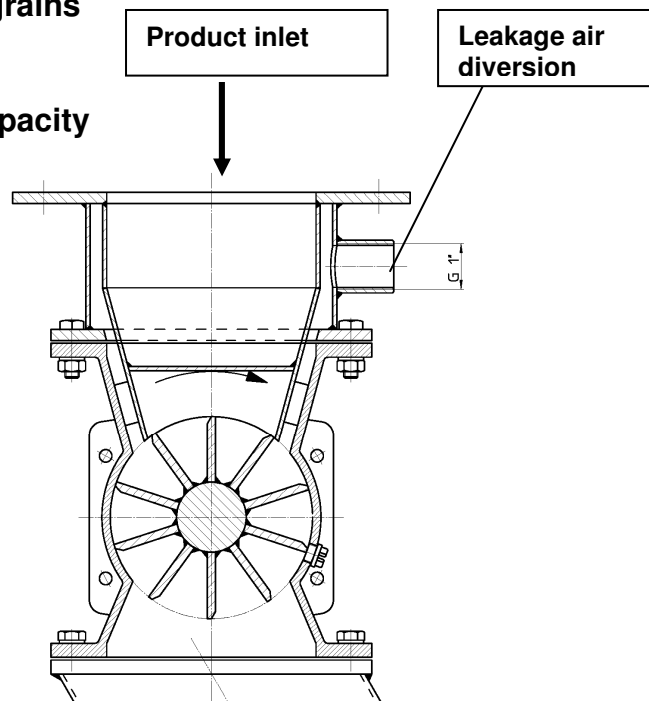
Accessories:

Leakage air collector for optimised diversion of leakage air from the pressure conveying by the solids rotary valve; inclusive of the granulate inlet for granular products



Advantages:

- Space-saving
- Fail-safe; prevents coarse grains from clamping
- Cost-effective
- Increases the conveying capacity



Characteristics:

- Welded steel design; all commonly available steel and stainless steel qualities
- For pressure conveying
- Nominal widths 150 to 350 mm corresponding to the rotary valve

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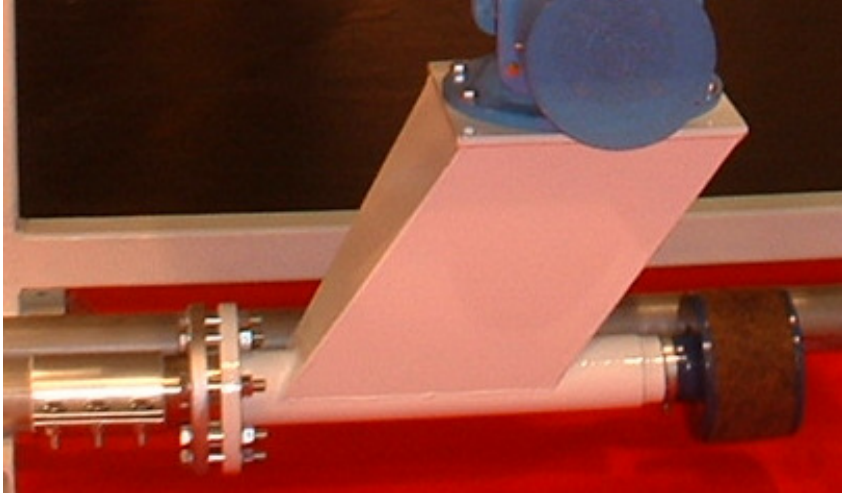


solids Rotary Valves

Type ZRS

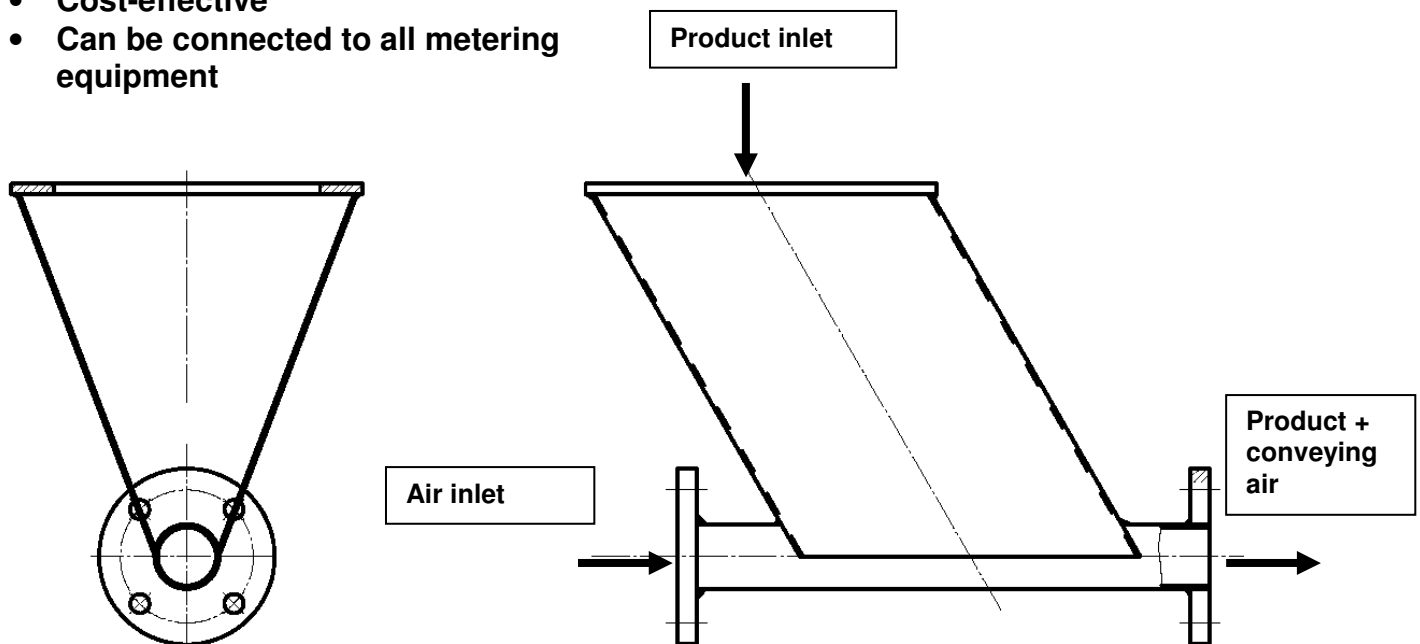


Blowing shoe below the metering equipment for filling a pneumatic conveying pipeline



Advantages:

- Space-saving
- Fail-safe
- Cost-effective
- Can be connected to all metering equipment



Characteristics:

- Welded steel design; all commonly available steel and stainless steel qualities
- Pressure-resistant
- For suction and pressure conveying
- Conveying pipe nominal widths 50 to 150 mm

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