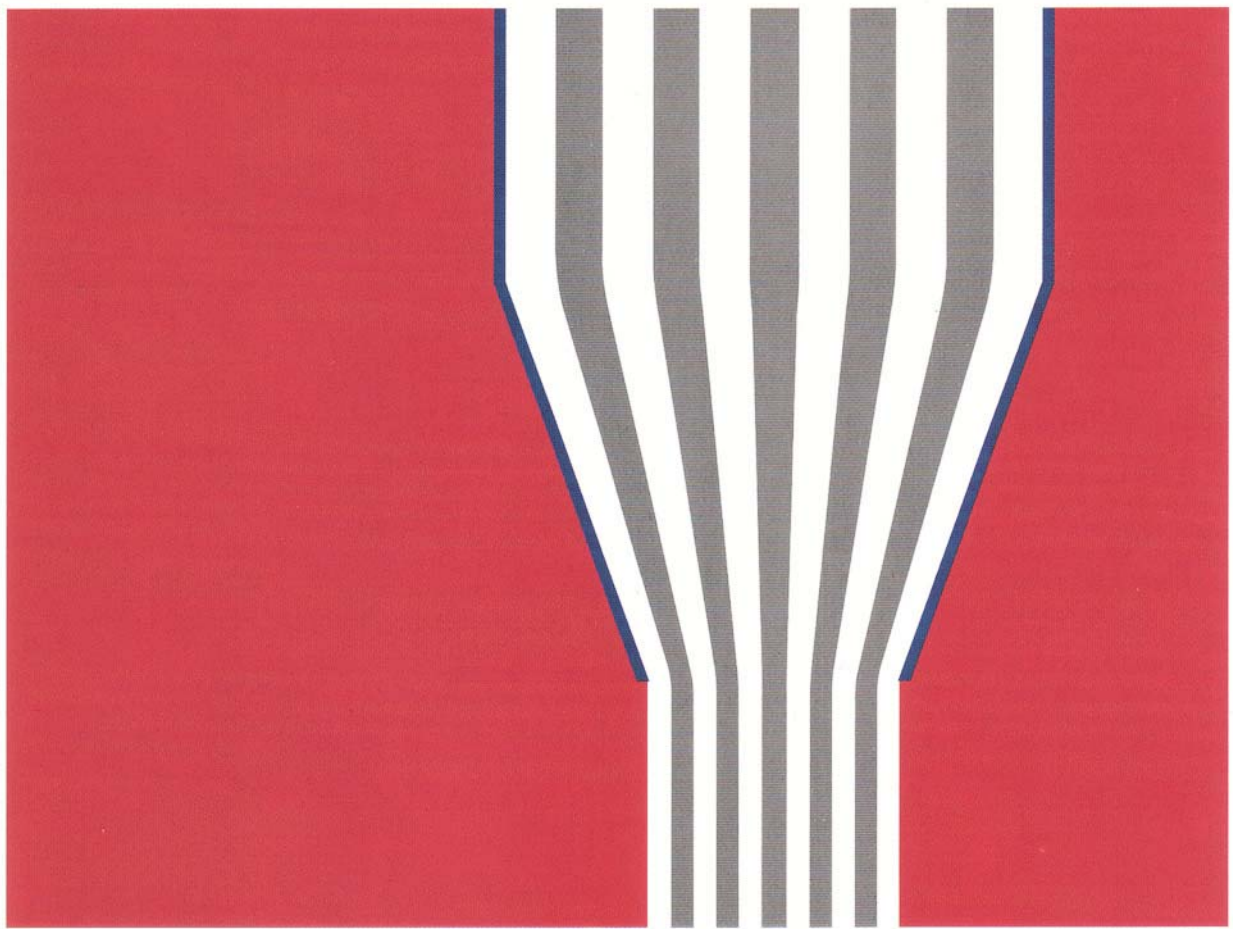




Silo Technology



# ROTAFLOW

Bulk material activator

# ROTAFLOW

## Bulk material activator. Even and continuous discharge of bulk materials providing mass flow in containers with several outlets.

### The common problem

When silos are being emptied, stoppages caused by bridges or funnels often occur as a result of deficient silo design.

With regard to the flow of bulk materials in silos, it is necessary to distinguish between mass flow and core flow. In the case of mass flow, the entire contents of the silo are in motion. Whereas in the case of core flow, basically only the contents of the silo above the outlet are in motion. As a result of core flow, dead areas occur leading to compaction of material over time. In the case of mass flow, the surface of the material descends evenly. The material is discharged without any segregation.

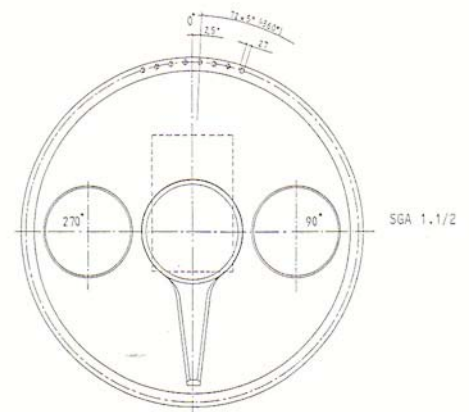
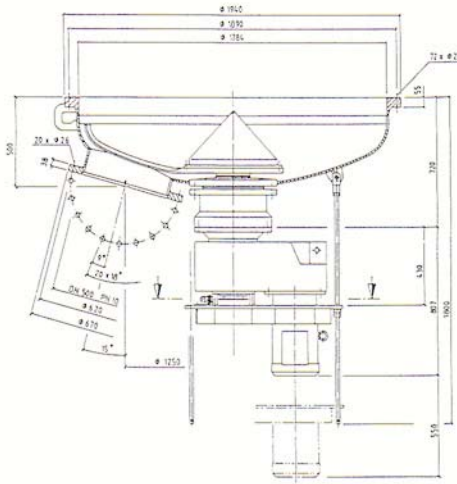
If the outlet opening of a mass flow silo is too small, bridging will occur above the outlet. In the case of a core flow silo, bridging and/or funnels may occur. In both cases material discharge will stop completely. Even when the outlet opening of a mass flow silo is correctly sized, surging of materials can occur which is larger than the required amounts. These problems become more serious when silos with several outlets operate independently of each other.

### The basic solution

The required discharge area to ensure that no bridges or funnels are formed is equal to the inlet area of the ROTAFLOW bulk material activator.

Above the curved activator floor is a centrally-mounted, rotating activator blade made of wear-resistant, high-tensile steel. The drive shaft is, securely sealed by several special seals located externally from the activator and can be removed easily. A grease pump ensures that all bearings are adequately lubricated.

The rotating activator blade cuts underneath the entire column of bulk material in the problem zone of the silo. This prevents inactive areas from forming. As a result of the clearing effect caused by the rotating blade, the bulk material above the entire



activator cross-section is removed. Compacting of the material is impossible even if the outlets are closed because the activator only activates the bulk material in horizontal planes. Special aeration nozzles are fitted in the floor of the activator. This ensures that the activator will turn easily even if it has not been used for a long period of time. In order to simplify the task of subsequent dosage equipment, the amount of air supplied can be controlled by the power consumption of the gear motor. When a consistent power consumption has been achieved, a constant density of the bulk material in the outlet area can be assumed. The direction of travel of the activator blade can be reversed, depending on the power consumption of the drive motor. The reversibility of the activator blade guarantees the loosening of any bulk material which may have become compacted during long shutdown times of the unit.

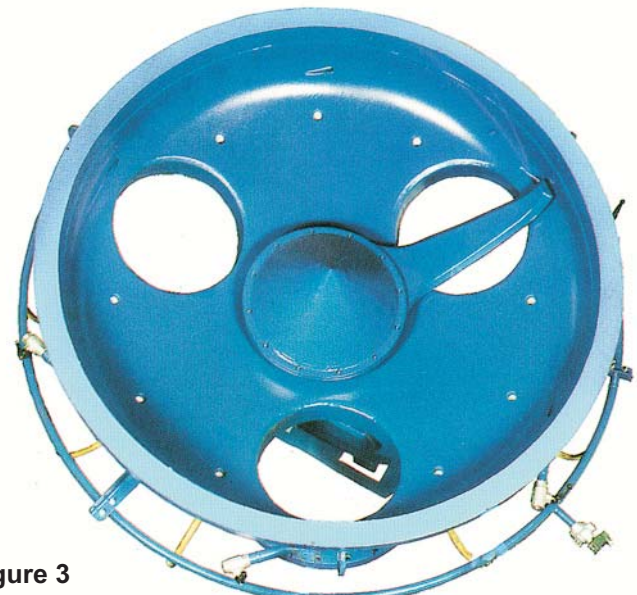
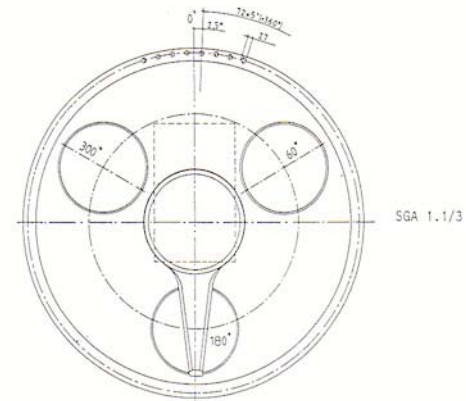
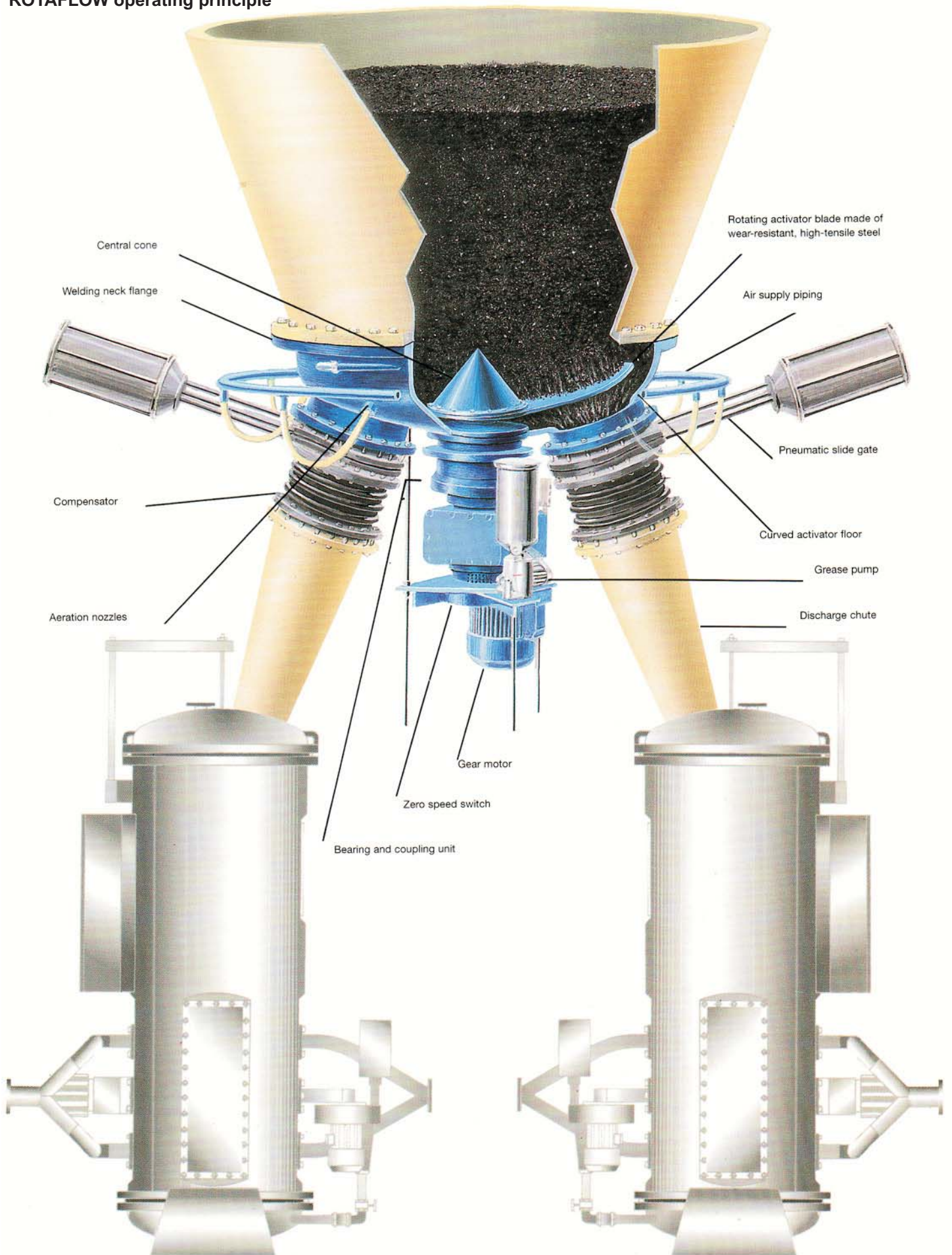


Figure 3

# ROTAFLOW operating principle



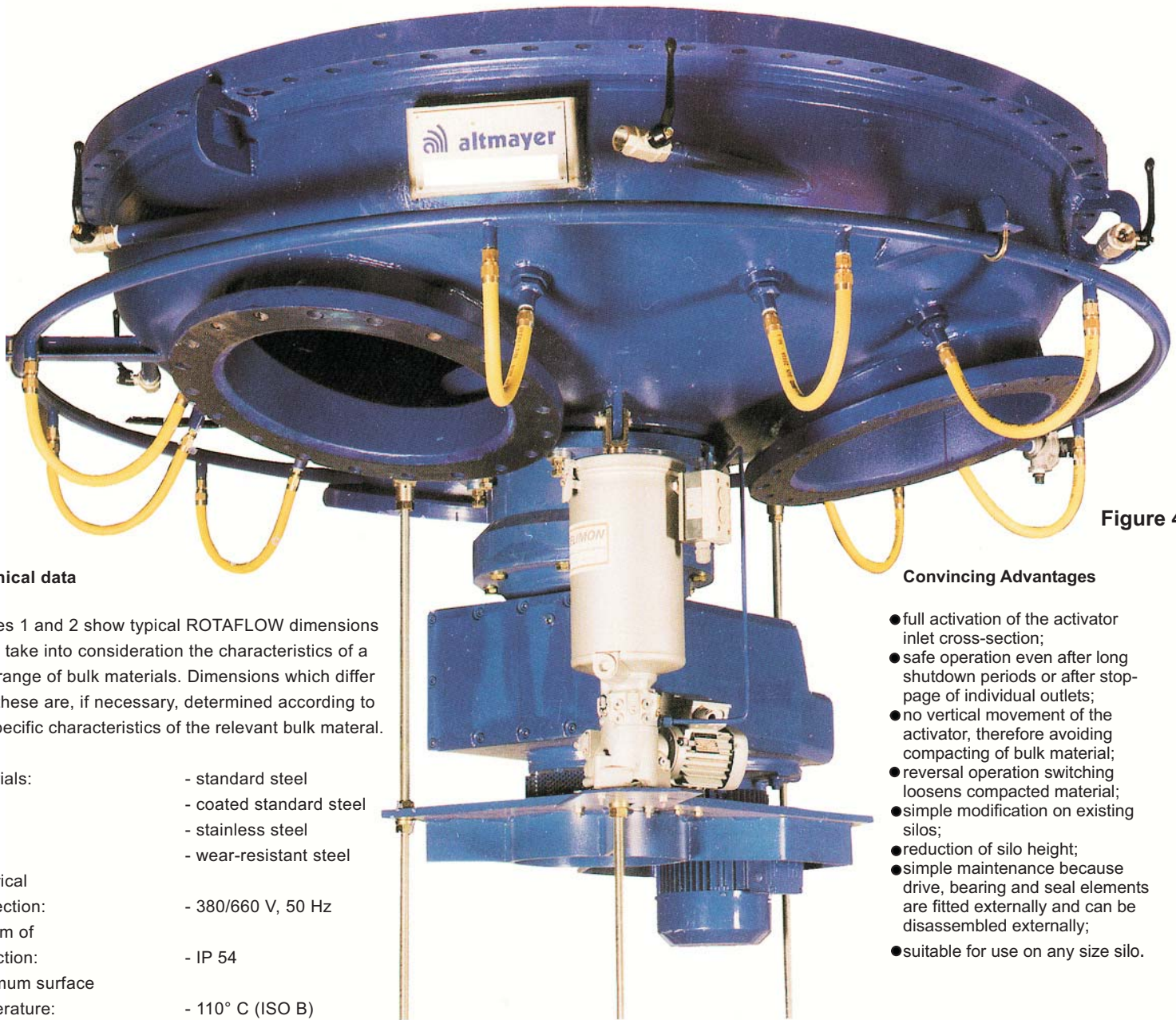


Figure 4

**Technical data**

Figures 1 and 2 show typical ROTAFLOW dimensions which take into consideration the characteristics of a wide range of bulk materials. Dimensions which differ from these are, if necessary, determined according to the specific characteristics of the relevant bulk material.

- Materials:
- standard steel
  - coated standard steel
  - stainless steel
  - wear-resistant steel
- Electrical connection:
- 380/660 V, 50 Hz
- System of protection:
- IP 54
- Maximum surface temperature:
- 110° C (ISO B)
- Operating factor:
- 100% continuous duty
- Special design:
- (EX)e (VDEO 171)

**Convincing Advantages**

- full activation of the activator inlet cross-section;
- safe operation even after long shutdown periods or after stoppage of individual outlets;
- no vertical movement of the activator, therefore avoiding compacting of bulk material;
- reversal operation switching loosens compacted material;
- simple modification on existing silos;
- reduction of silo height;
- simple maintenance because drive, bearing and seal elements are fitted externally and can be disassembled externally;
- suitable for use on any size silo.

**Typical bulk materials and fields of use**

Industry	Bulk material
Food Processing Industry	Milk powder, sugar, instant powder, flour, soybean flour
Power Plants	Ground limestone, calcium hydroxide, finde coal dust
Construction Industry	Clay, cement, gypsum, chalk, marl, coal dust, ground shale, silica sand
Chemical Industry	<b>Dye stuffs, fertilizers, pesticides, plastic granulate, glass fiber, oxides, soda chlorate, soda powder, silicic acid, lead oxide, cleaning solvents, graphite, barium, potash, chalk, titanium dioxide, soot, coal dust</b>
Steel Industry	Foundry sand, binding agents, additives
Aluminium Industry	Fine coal, coal dust
Timber Industry	Wood coal, sawdust
Water Treatment and Sanitation	Ground limestone, calcium hydroxide, flocculents, additives, activated carbon, coal dust
Glass Industry	Additives, sand, glass batch, dye stuffs



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