

PELLETIZING DISC

HAVER® PELLETIZING DISCS

Pelletizing Process

The pelletizing process allows the formation of ore, fertilizer, chemicals, biomass, animal compound feed, color pigments and other products into a ball-shaped format. THE HAVER SCREENING GROUP (HSG) offers custom made pelletizing discs with a size of 7500 mm in diameter and feeding capacities up to 150 t/h.

Iron ore pellet feed fines (PFF)

The iron ore pelletizing process is marked by spherical pellets in a nar-

row grain size distribution ranging between 9 mm and 15 mm. The raw material in the process consists of iron ore (< 100 µm), binders (i.e. bentonite) and additives such as coal dust. The moisture of the raw material can be variable.

Hybrid Pelletized Sinter (HPS)

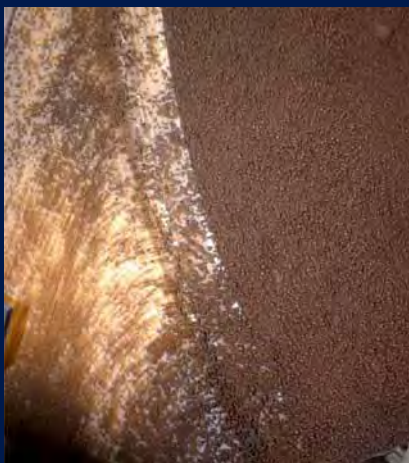
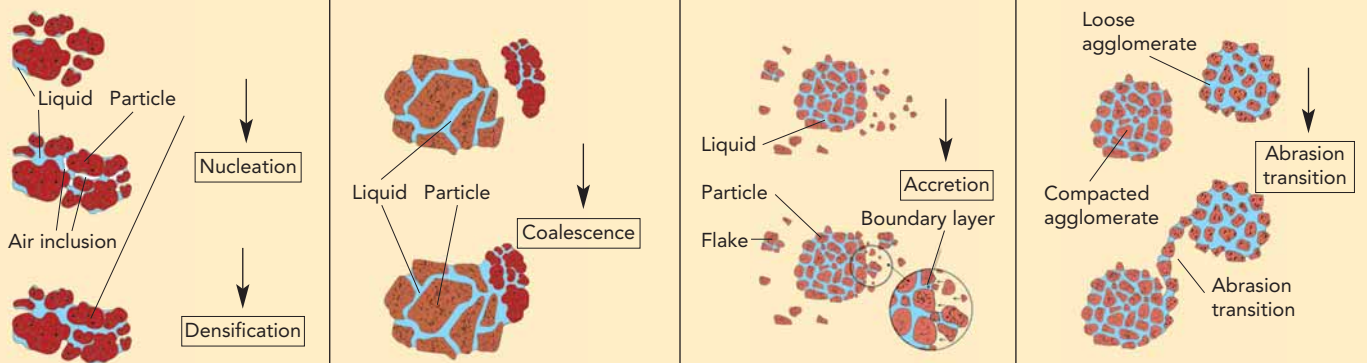
HPS is characterized by micro pellets with high mechanical strength, measuring between 2 mm and 8 mm. HPS feed consists of iron ore pellet feed fines (PFF), return fines and iron and steel work remnants, filter dust, additives and binders like limestone,

dolomite, bentonite and coal dust.

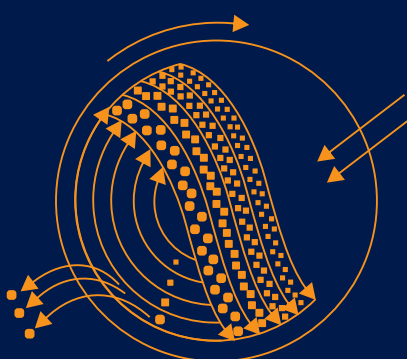
These micro pellets are fed into a sinter machine to produce sinter cake, which is then broken down and smelted in a blast furnace.

The segregation effect of the HAVER® PELLETIZING DISC guarantees a continuous narrow grain size distribution in the desired size range and a minimal recycling rate. In comparison to a drum with a recycling rate of app. 100 % to 400 %, the rate is extremely low. The specific energy consumption of a disc is < 1.0 kWh / t (iron ore pellets).

Bonding forces in pellets growing



Principle of agglomeration

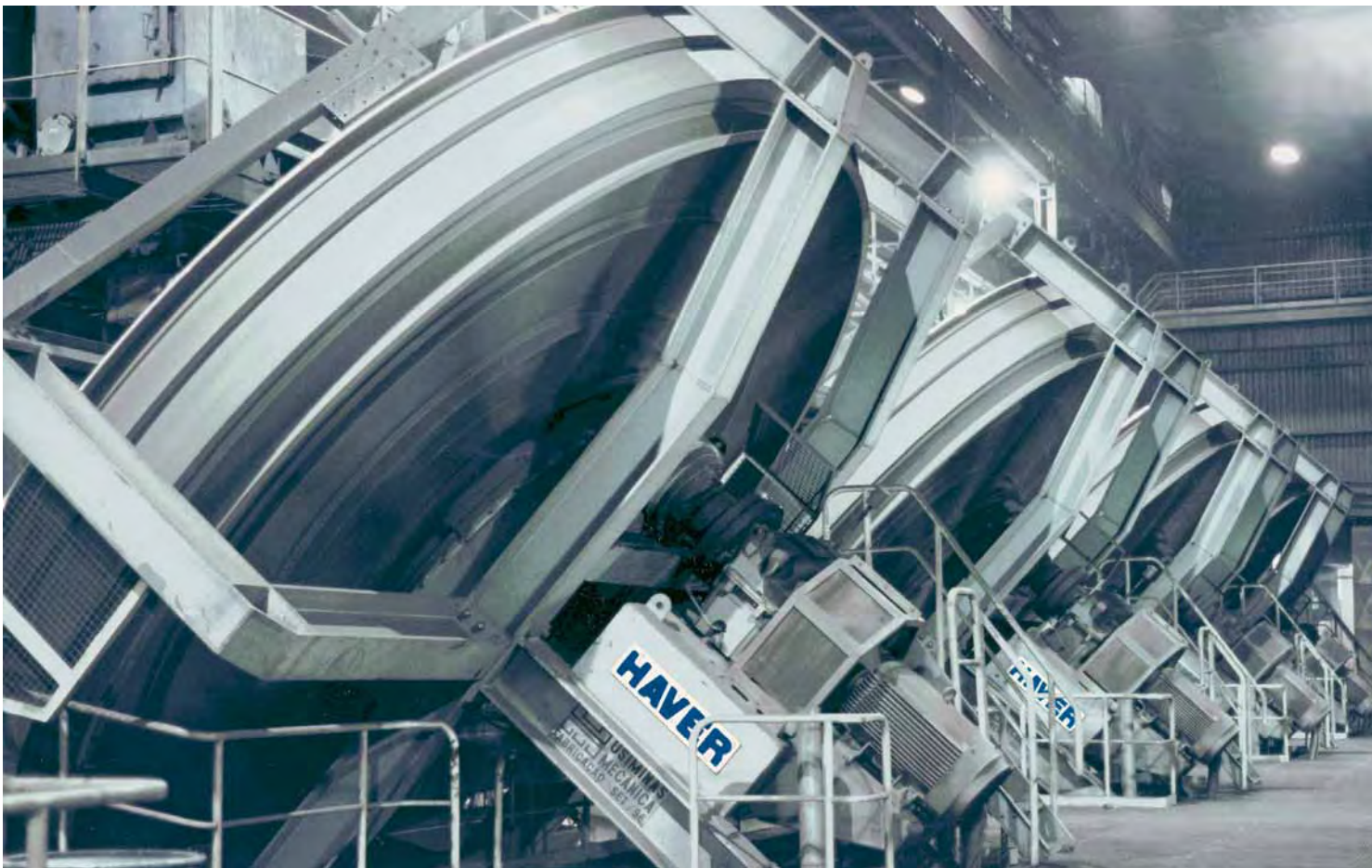


Technical Information

HAVER® PELLETIZING DISCS are maintenance friendly due to their rugged design, allowing a high productivity. The inclination angle of the disc can be adjusted automatically via a motor driven spindle, even dur-

ing operation. The disc's rotary speed is also adjustable. Due to the sophisticated drive design, it is possible to start the disc fully loaded. To influence the product quality and to meet changing operation conditions the side wall height is adjustable auto-

matically. The pelletizing discs are equipped with static scrapers to enable constant material layering with variable height. Long operating lifetimes are ensured by autogenous via protection.



Technical Details

- Inside diameter: 7500 mm
- Disc wall height: 560 - 900 mm
- Rotation speed: 1 - 10 rpm
- Inclination angle: 45 - 60°
- Installed power: 185 - 255 kW
- Total weight: 55 tons
- Feeding capacity: 0 - 150 t/h
- Specific capacity: 2 - 3 t/m²h (iron ore)

HAVER® PELLETIZING DISCS

HAVER® PELLETIZING DISCS are composed mainly of the support frame, the base frame with a forward pivot support to hold the disc and the scrapers.

All scrapers are installed at the top frame of the disc. They are extremely robust and are coated with innovative wear protection material. The scrapers reach into the process room to prepare a base layer of fine material on the bottom of the disc. Furthermore, in order to meet the customer's requirements, each scraper's height adjustment feature allows for an adjustment of the layer thickness at the bottom. This autogenous wear protection guarantees an extended life time and trouble-free operation. Due to the adjustable angles of the disc's scrapers, an optimal material flow can be realized.

The granulometry of the pellet products are influenced by several

parameters such as disc inclination, disc speed and side wall height. HAVER® PELLETIZING DISCS offer the adjustment of these parameters manually or automatically during operation. The disc inclination angle can be varied through an adjustment spindle between the base frame and the upright support columns.

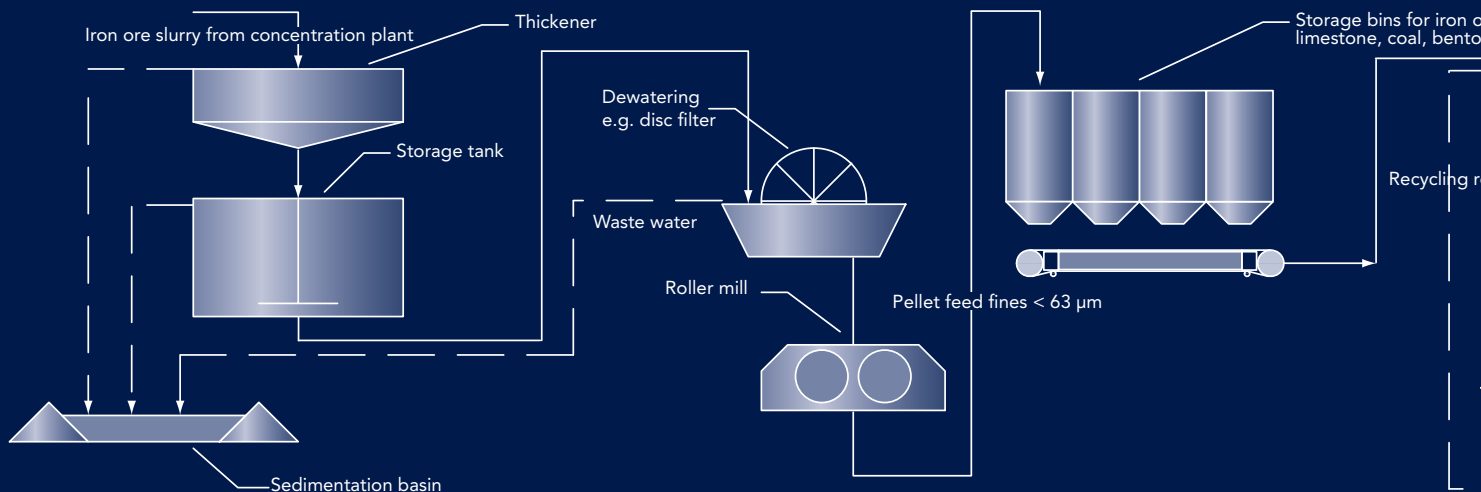
The disc itself is supported on a rotating assembly. The triangular arrangement of the support frame, disc and inclination adjustment allows an inclination pivot point that is up close to the pellet discharge. A flexible discharge chute at the pellet discharge is installed at the upright support columns underneath the rotating disc, and adjusts to match the inclination angle of the disc.

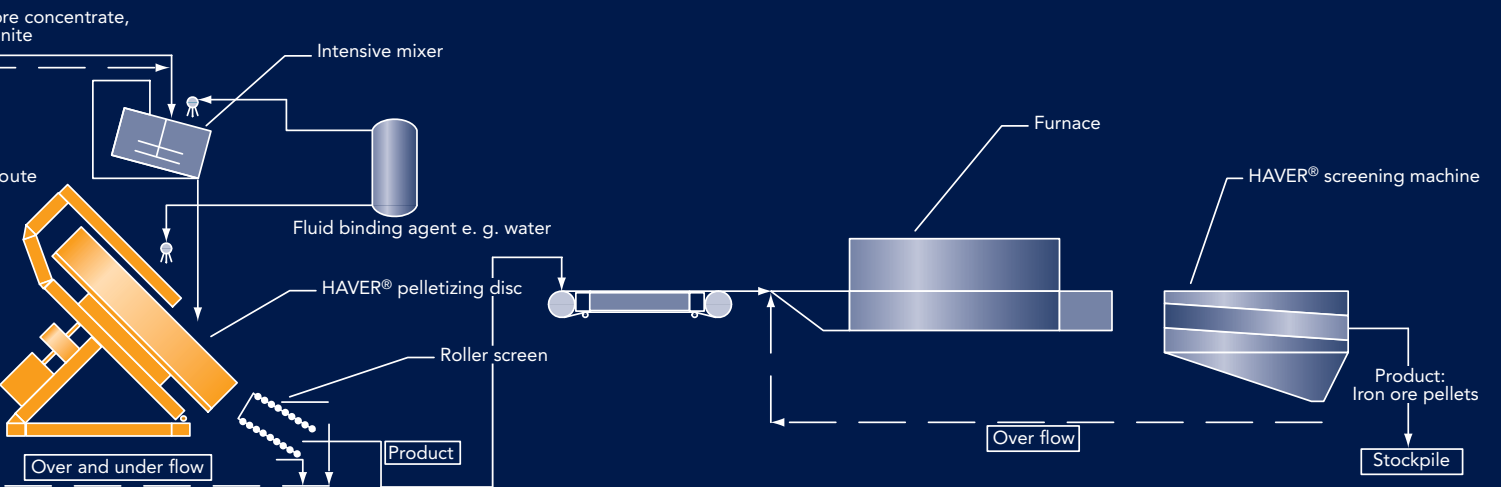
The drive system and frequency converter make a fully loaded start-up possible while preventing damages to shaft and slewing bearing in case of abrupt disc stops,

power blackouts or emergency stops. The frequency converter enables a continuous drive speed control and the automatic inclination allows a continuously variable adjustment while the disc is running. The central lubrication system supplies all greasing points of the disc automatically. No further service is necessary.

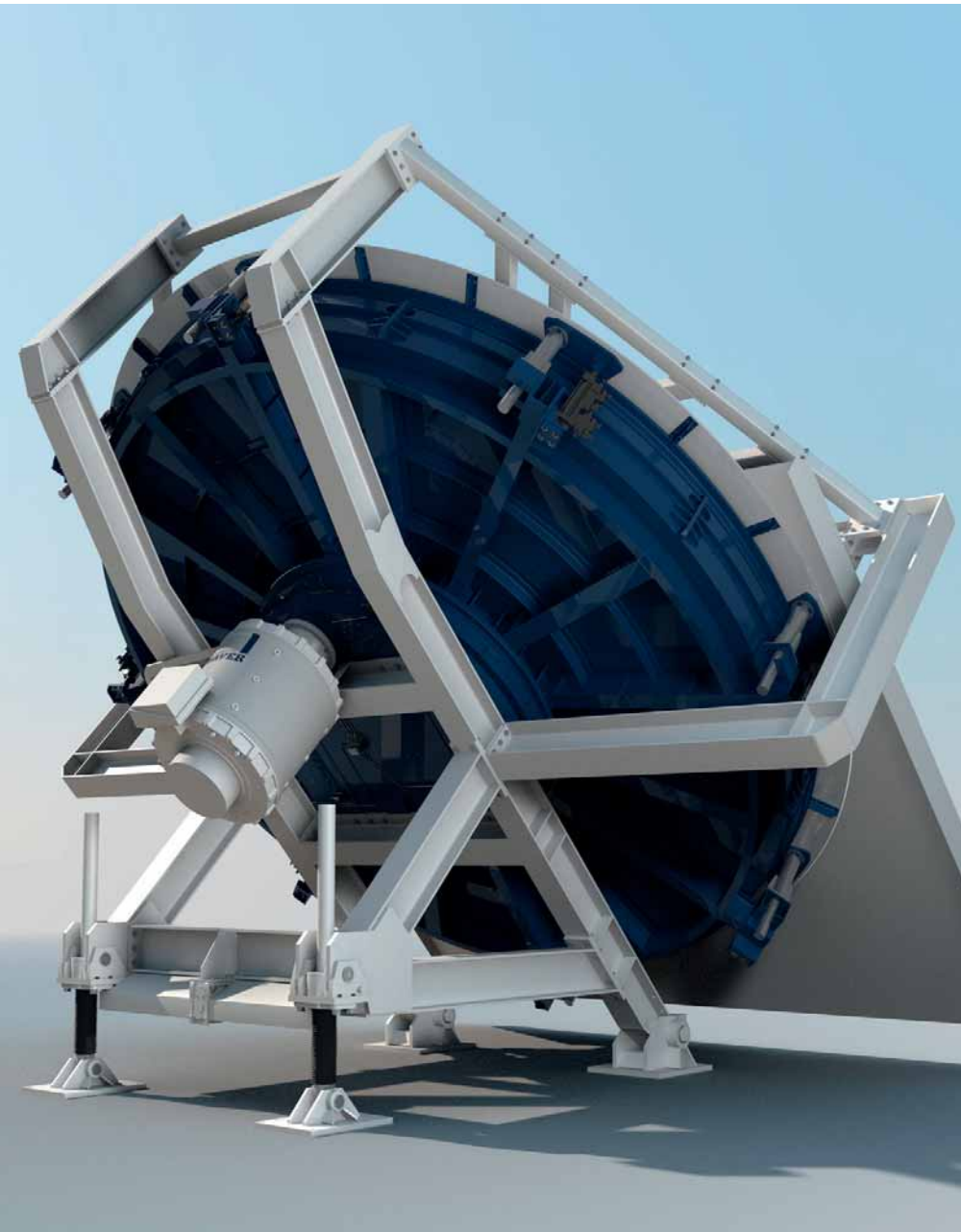
The water spray system is adaptable to the product needs and to moisturize the nuclei zone in the disc to obtain the optimum agglomeration results. Compared to a pelletizing drum, a pelletizing disc offers a greater range of variable setting options as well as complete flexibility in regards to:

- Drive speed
- Inclination
- Side wall height
- Water rate
- Water spray point
- Feed point
- Feed rate



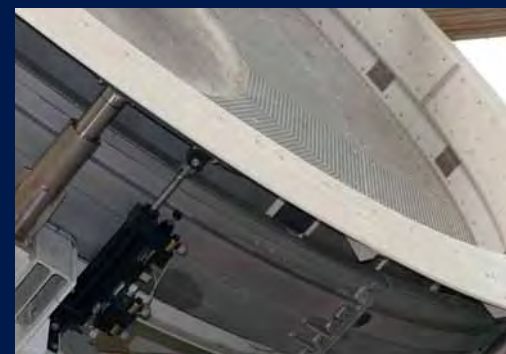
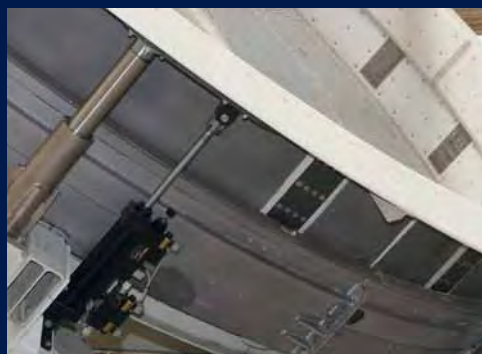


HAVER® PELLETIZING DISCS



Advantages:

- Heavy-duty construction
- Flexible operation
 - starting under full load
 - stepless drive speed control during operation
 - side wall height adjustment during operation
 - inclination adjustment during operation
 - autogenous wear protection
 - narrow particle size distribution and minimum recirculation load
 - low specific energy consumption of approx. <math>< 1.0 \text{ kWh / t}</math> (iron ore)
- Vibration free operation
- Precise rotation
- Bottom and side wall scrapers (metal or ceramic)
- Flexible water spray system
- Central lubrication



RESEARCH AND DEVELOPMENT

HAYER ENGINEERING Meißen (HEM) is a subsidiary of **HAYER & BOECKER**, located in Meißen, Germany. HEM is an associated institute of the **Technical University Bergakademie Freiberg**, the oldest and most renowned scientific mining and ore university in the world.

HEM provides:

- Test facilities for agglomeration processes, including 400 mm and 1000 mm pelletizing discs, mixers, dosing equipment and moisture measurement
- Material characterization
 - chemical
 - physical
 - mineralogical
- Pellet analysis in accordance with international standards
- Screening studies
- Dimensioning studies
- Basic engineering
 - custom-made process solutions
 - research and development for individual customer requirements



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