

allmineral



alljig[®] | allflux[®] | allair[®] | allgauss[®]

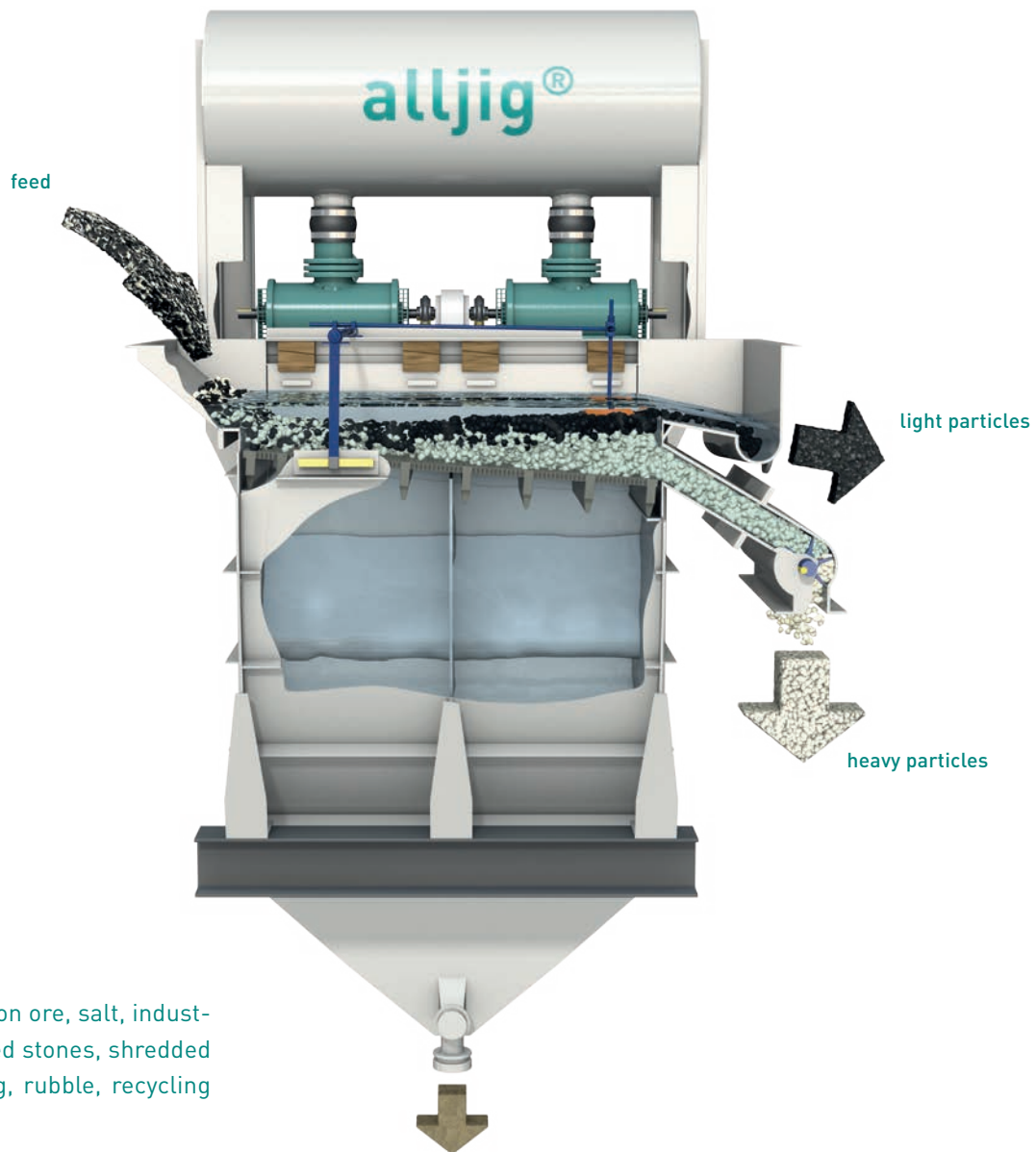
Product Information

Keys to a successful future

allmineral solutions are oriented on the individual demand of our customers, the market situation, and the quality of the raw materials. Our qualified staff develops tailor-made solutions in close cooperation with our customers. The result: economically and technically perfect processes.

Particular attention is directed to the primary process: i.e. separation, which determines the quality of the end product. We have developed a number of patented machines which have proven themselves worldwide in a variety of beneficiation processes for raw and waste materials. The following pages provide more information about the **alljig®**, **allflux®**, **allair®** and the **allgauss®** systems.

All these systems, which offer unsurpassed efficiency and flexibility, make intelligent use of the laws of physics and the natural elements of air and water.



alljig®

Applications

Gravel, sand, coal, iron ore, salt, industrial minerals, crushed stones, shredded material, metal, slag, rubble, recycling materials

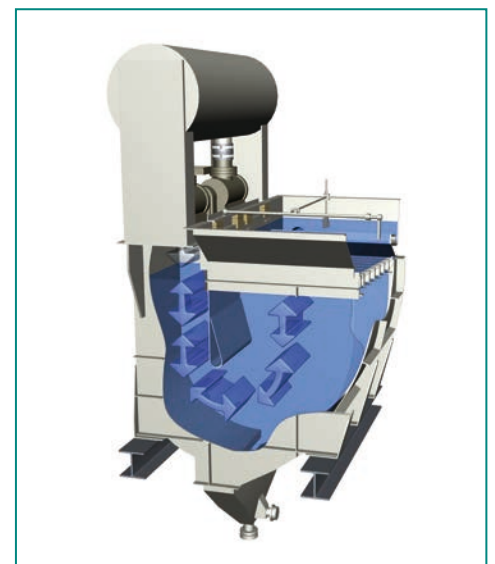
Advantages

High efficiency, low maintenance, large feed size range, high capacity, sharp separation, reduced energy and investment costs, reliability, easy to operate

Technology

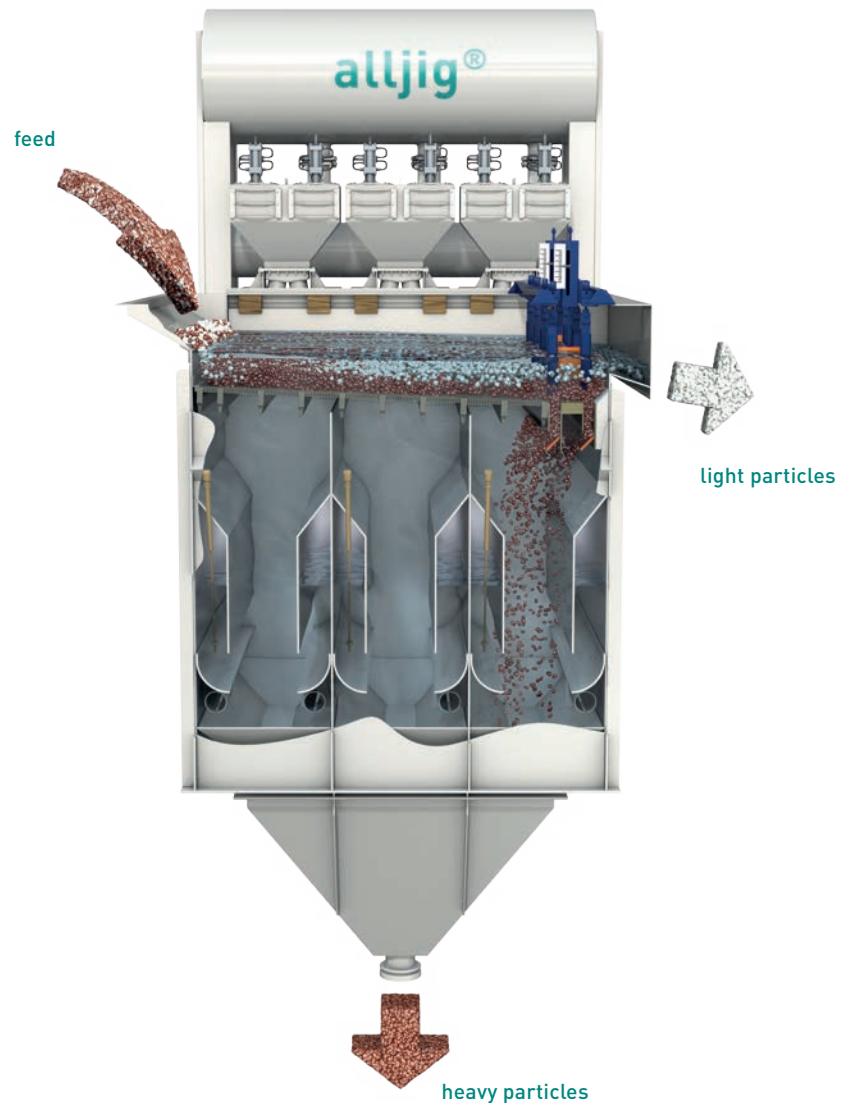
- Air-pulsed jig with minimum energy consumption
- jigging stroke control by rotary or poppet valves
- fully automatic operation with analog measurement of bed depth
- operation parameters adjustable during operation
- throughput rates of 5 - 700 t/h per machine
- particle size ranges from 150 mm (6") to less than 1 mm (16 mesh)

alljig®
side pulsed jigging machine





alljig®
underbed pulsed jigging machine



Separation of minerals in jigging machines is based on the fact that particles will stratify in pulsating water. The upward and downward currents fluidize and compact the grains into relatively homogenous layers. Low density pieces stratify on the surface, while specifically heavy grains settle to the lower level of the bed.

alljig® jigging machines are air-pulsed, and therefore the pulsation of the water may be achieved nearly wear-free and so the stroke-motion (frequency, amplitude and shape) can be adjusted within wide parameters during operation.

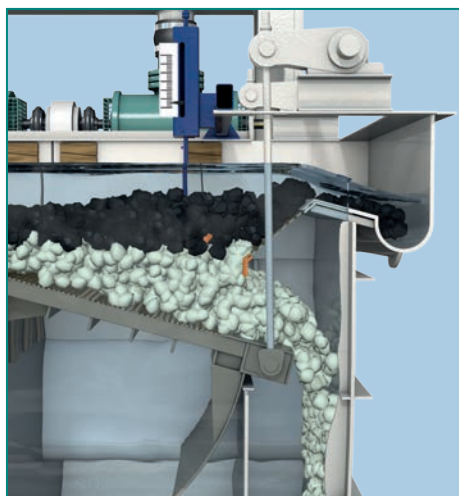
The second main criteria for excellent jigging results is the discharge of the heavy product out of the stratified material. The product is always discharged out of a reserve layer. Stratification and discharge of **alljig®** jigging machines are controlled by an analogue measurement system which allows simple and exact detection of gravity horizons and its continuous discharge.



Depending on the application and the feed particle size, the discharge is realized by means of a movable bed, bottom gate, star gate or vibrating feeder discharge.

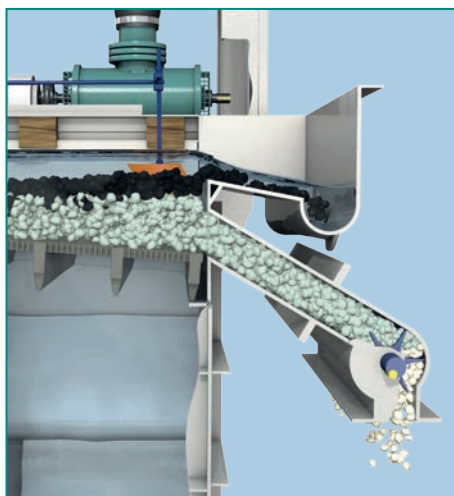
The operating parameters of **alljig®** jigging machines can be adjusted and optimized according to feed characteristics during operation.

alljig®-jigs are in operation for the cleaning of different raw and recycling materials. The only prerequisite is a difference in the particle density.



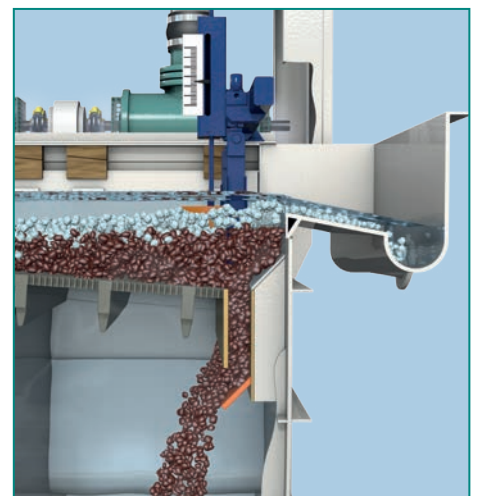
Movable bed

grain size max. 150 mm (6")



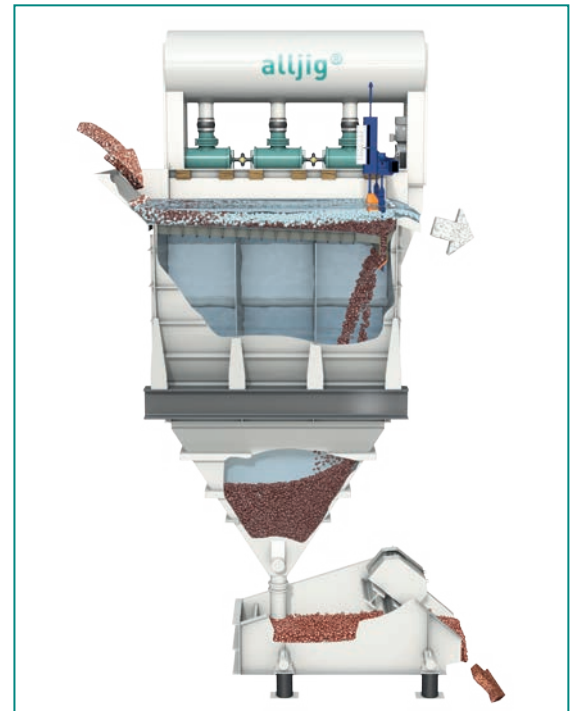
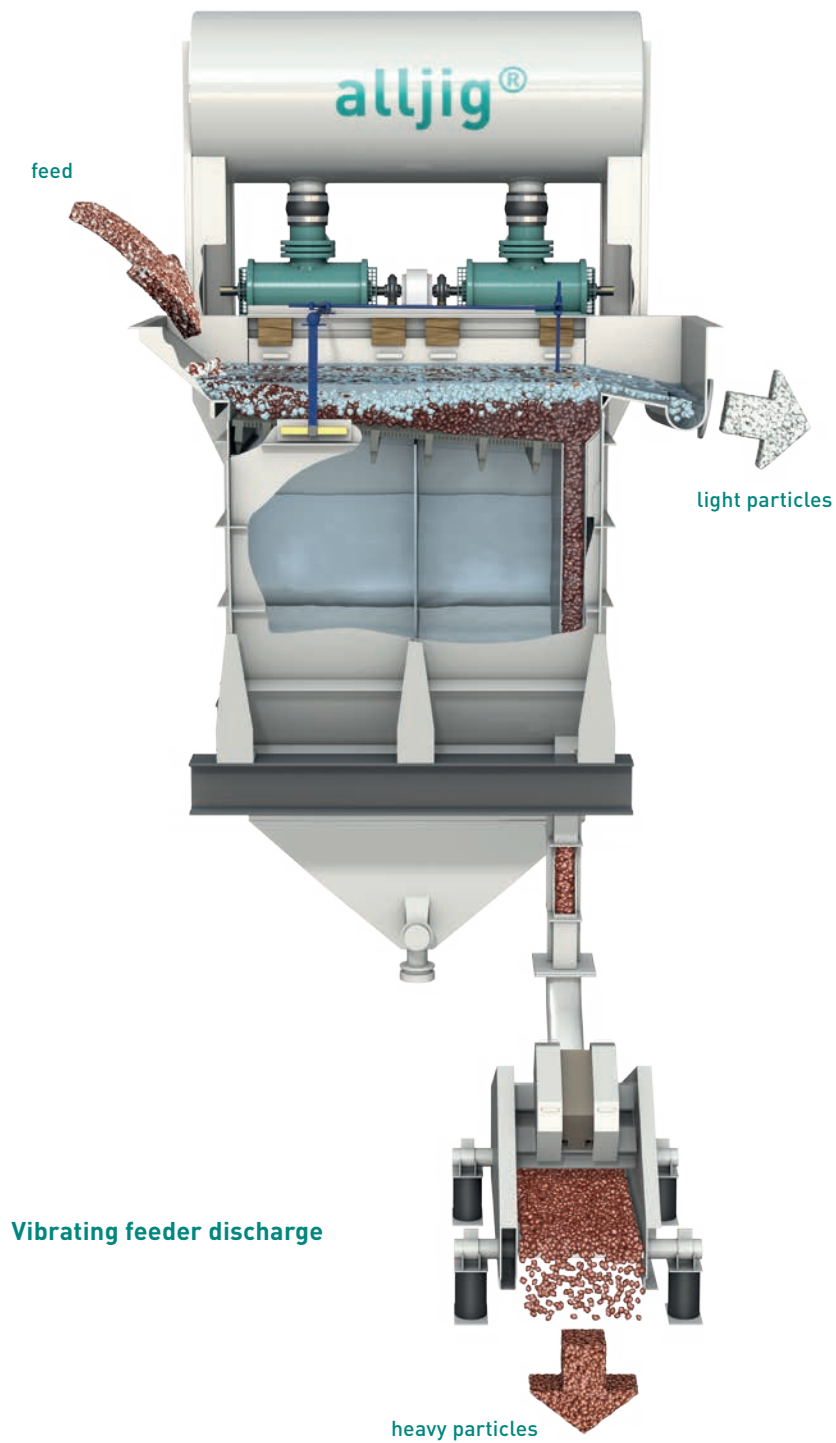
Star gate discharge

grain size max. 60 mm (2")

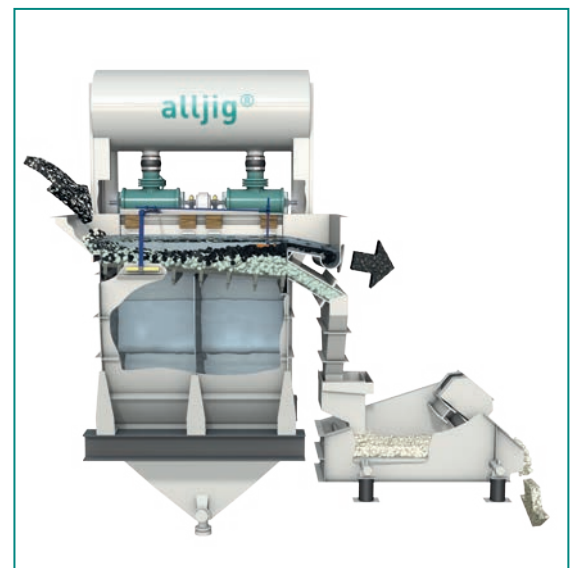


Bottom gate

grain size max. 25 mm (1")



Vibrating feeder discharge



alljig® - GR
grain size max. 100 mm (4")



allflux®

Applications

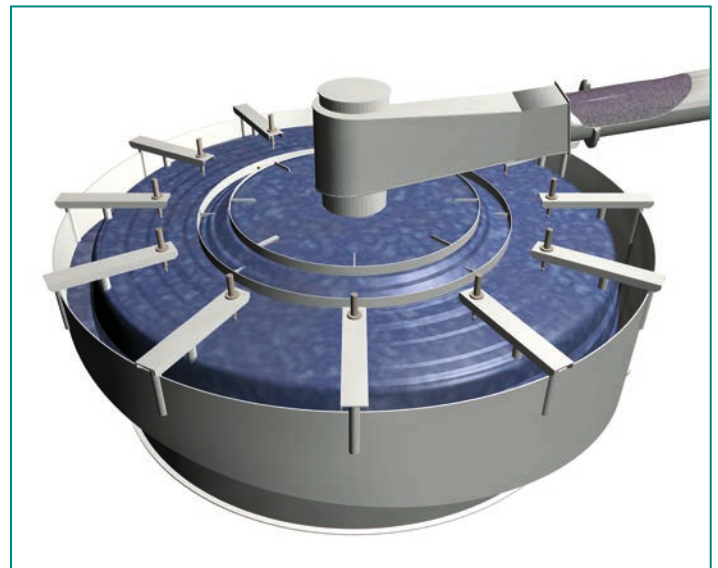
Sand, ore, coal, heavy mineral sands, slag

Advantages

Classifying, separating, thickening and desliming in one step, high efficiency, high capacity in a single unit, online or offline production of customized sand, wide ranges in feed solids concentration, low maintenance, low energy costs

Technology

- fluidized bed separator for the production of 3 classified products
- fluidized bed with autogenous heavy media
- particle size ≤ 4 mm (3/16")
- throughput rates of up to 2000 m³/h (8000 gpm) in a single unit
- separation of light particles from fine materials
- fully automatic process control
- no moving parts
- production of customized sand by blending online or offline



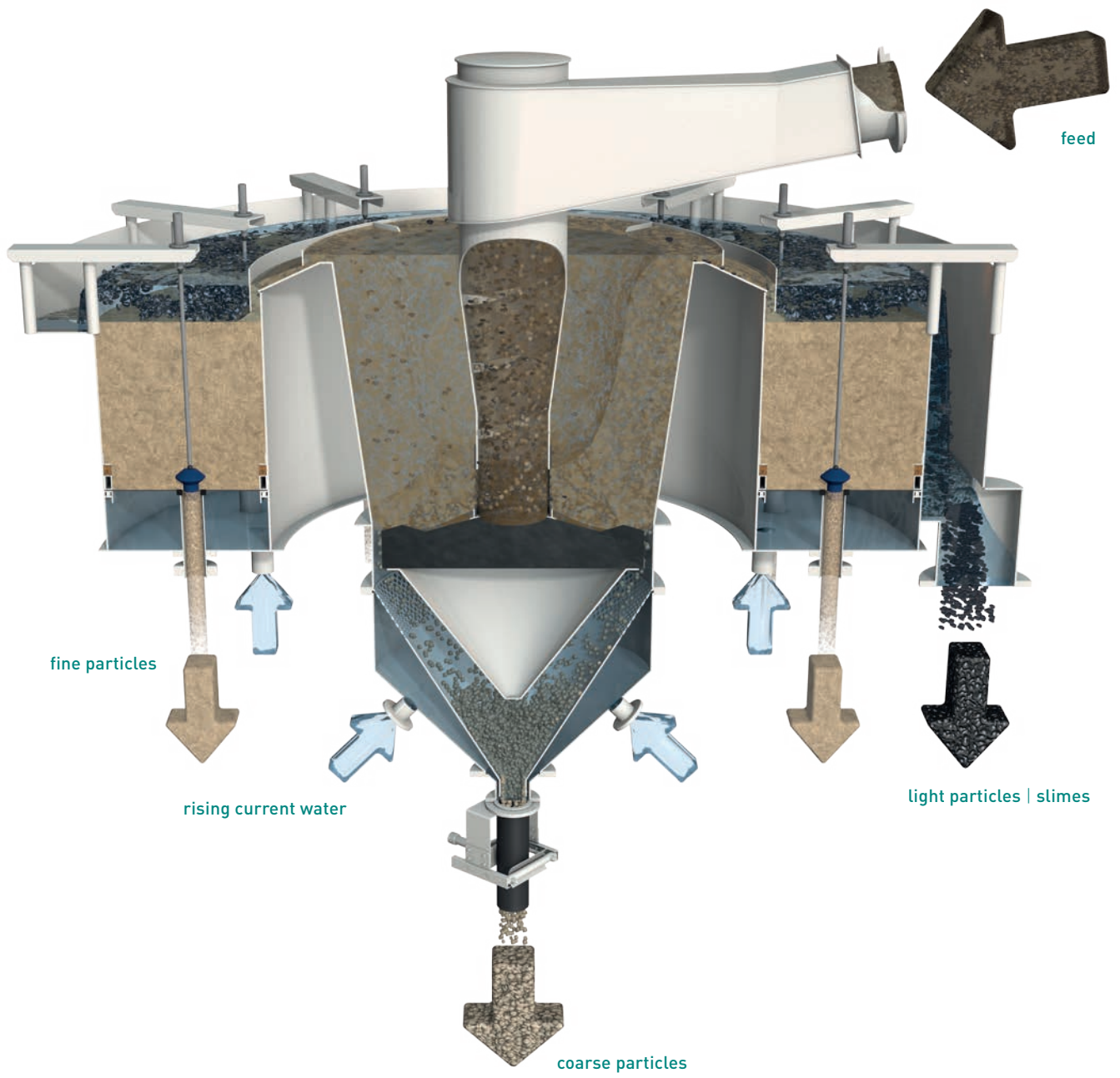
The **allflux®** separator uses fluidized bed technology for the separation and hydraulic classification of slurried fines. The two-step process permits the handling of slurries without pre-thickening. The coarse and heavy particles are separated in the coarse section.

The discharge of coarse material out of the central hopper is automatically controlled by an analog system utilizing a density probe and a pinch valve. Fine material and low-density particles overflow the coarse separation section.

In the peripheral ring, called the fine section, the separation of light particles from the fines and desliming takes place. Particles of a lower specific gravity than the fluidized bed will remain above the fluidized bed and will overflow with most of the process water to the overflow chute.

Due to a number of improvements and new control-software, the **allflux®** separator is not only able to separate light organic particles from sand, but also automatically blend the coarse and fine discharges to produce customized particle size distribution products.

Since the introduction of the **allflux®** technology to the concrete and sand industry many more applications have been discovered. Fine coal recovery from ponds, iron ore and mineral sand concentration and high quality glass sand sizing are just a few examples of this unique technology.



allair®

Applications

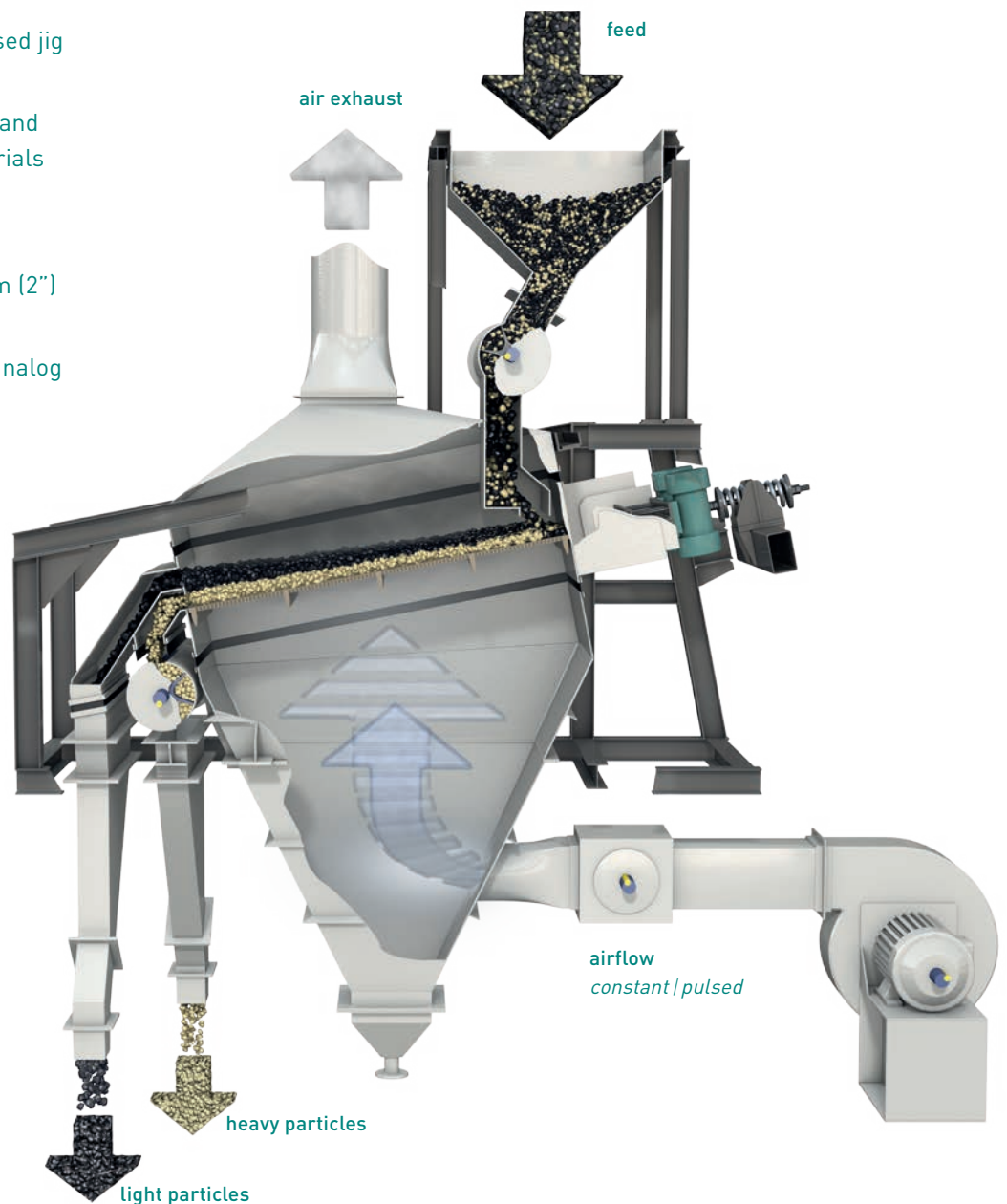
Coal, recycling materials

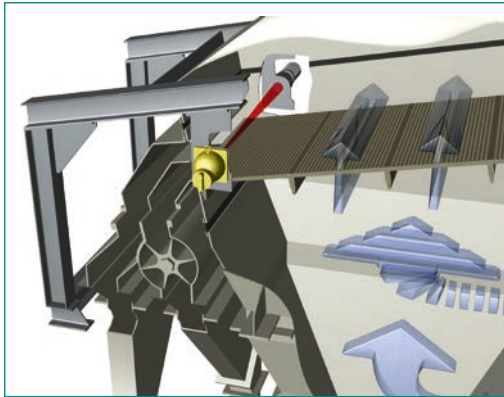
Advantages

High efficiency, dry density separation, sulfur and ash reduction of coals without moisture gain, no need for process water, clarified water or water purification, no fines dewatering, no slurry impoundment, simple permit requirements, high productivity, large feed size range, high capacity, low capital and operating costs, reliability, easy to operate

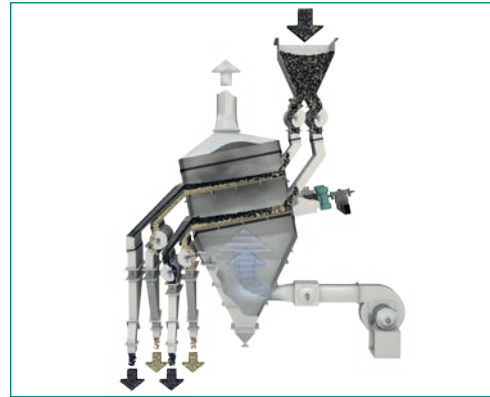
Technology

- completely dry working air-pulsed jig with high efficiency
- separation of different primary and secondary raw and waste materials
- throughput rates of 20 - 100 t/h per machine
- particle size ranges from 50 mm (2") to less than 1 mm (16 mesh)
- fully automatic operation with analog measurement of bed depth





allair® | electronic densitometry



allair® - MP

The **allair®**-jig was invented for dry upgrading of coal. The advantages of jigging processes are combined with the advantages of dry beneficiation processes; e.g., no need for process water, clarified water or water purification, no fines dewatering, no slurry impoundment.

The calorific value of coals can be increased significantly by dry processing with the **allair®**-jig. The sulfur and ash content of coals is reduced simultaneously without moisture gain.

The **allair®**-jig also separates Pyrite from the coal and thus contributes to reducing SO₂ emissions. At the same time the maintenance costs at the power plant can also be reduced.

For coal producers the **allair®**-jig is an innovation that may improve productivity as well as quality. The possibility of reducing ash and sulfur content without increasing moisture in the process contributes both to the best possible use of natural resources and to significant profitability increases.

Power plants can reduce their maintenance costs and increase the calorific value of the coal.

The **allair®**-jig can process particle size ranges from 50 mm (2") to less than 1 mm (16 mesh). The **allair®**-jig can either be integrated with the existing coal handling system at the mine or installed downstream from the primary crusher at the power plant.

The **allair®**-jig is also suitable for the cleaning of different raw and recycling materials like rubble or slag. The only prerequisite is a difference in the particle density.



allgauss®

Wet High Intensity Magnetic Separator

Applications

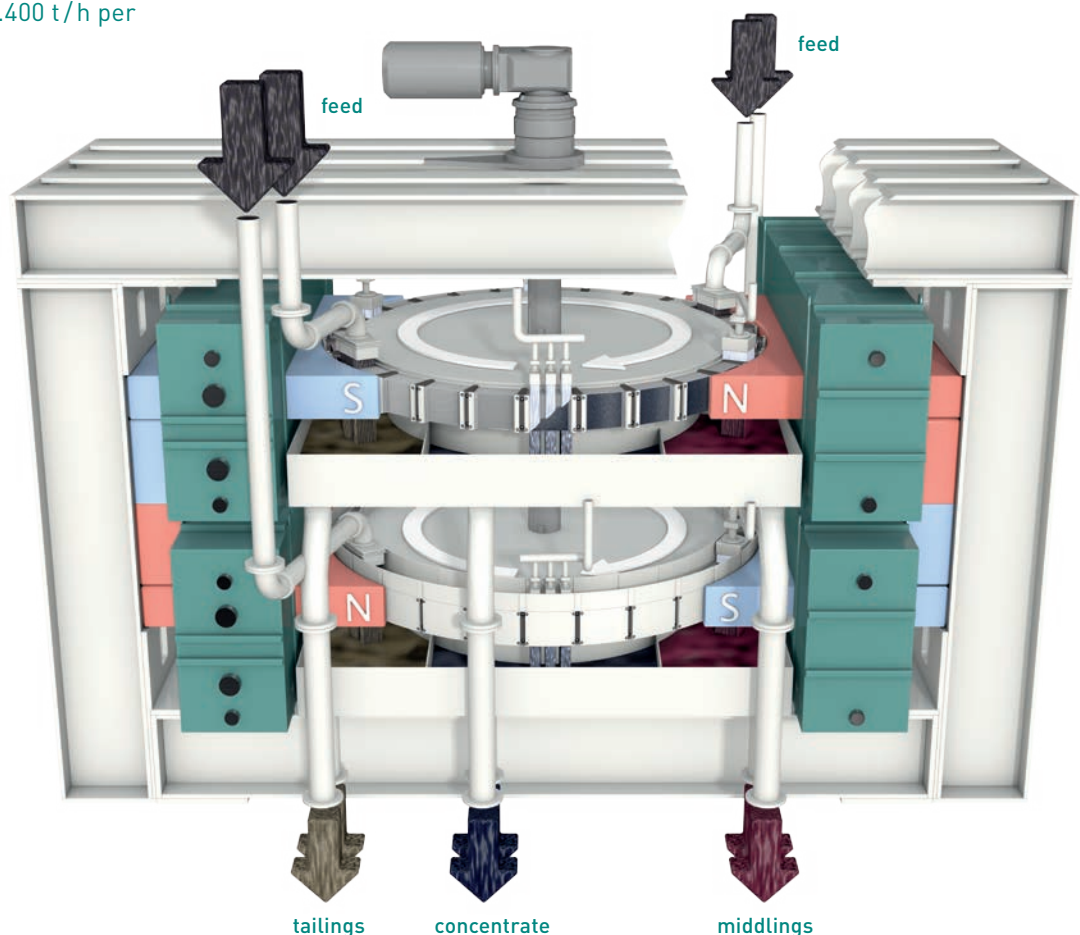
Iron ore (hematite, goethite), ilmenite, chrome ore, manganese ore, tungsten ore and other paramagnetic resp. feebly magnetic minerals

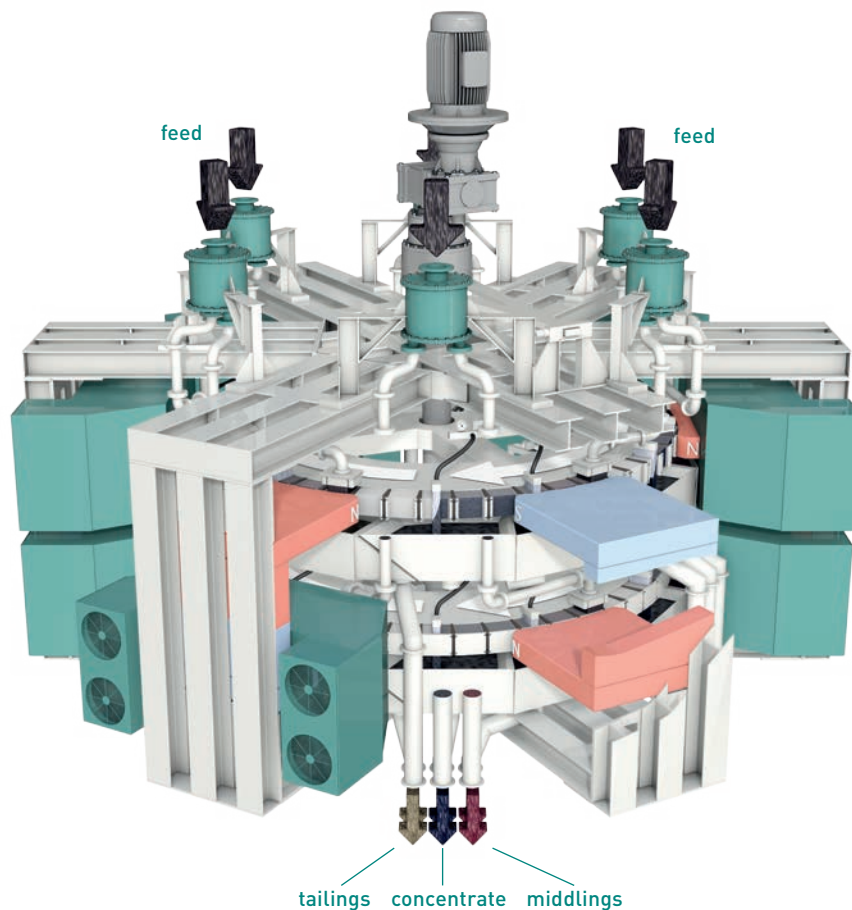
Advantages

High efficiency, high flexibility, sharp separation, reliability

Technology

- Wet High Intensity Magnetic Separator with a maximum of flexibility
- separates ores and other paramagnetic and feebly magnetic minerals with a particle size up to 3 mm.
- the high gradient magnetic field is independently adjustable for each rotor through AC/DC converters.
- the rotor speed is adjustable from 3 to 7 rpm through a frequency inverter.
- throughput rates of 6 to 1.400 t/h per machine.





allgauss® | Hexagon

Throughput rates of 630 to 1.400 t/h per machine

The allgauss® | Hexagon series offer several technological innovations

High Tech Coils

Electricity Saving

- up to 50% compared to the existing equipments in the market. *(for the same magnetic field intensity)*

Air Cooling system with magnetic stability

- no water needed for the cooling of the coils.
- the magnetic field remains constant at the level adjusted. *(Closed Loop DC Control)*

Easy Maintenance

- larger space for maintenance and operation. *(especially between the rotors)*
- automatic Lubrication System.
- field instrumentation

Project Outlines

- 8 feeding points per equipment. *(4 points per rotor)*
- 8 electromagnetic coils. *(4 per rotor - tetra polar)*
- coil arrangement in X shape.

Water Saving

- no water needed for the cooling of the coils.

Easy Operation and Processing

- equalized feeding through feeding boxes with individual flow control.
- equipment supplied with water filter.
- adjustable rotor speed from 3 to 7 RPM through frequency inverter.
- option to magnetize the top and bottom rotors at different magnetic intensities by means of two separate AC/DC Converters to feed the coils. This feature enables two processing stages to take place *(rougher + cleaner / rougher + scavenger)* in one unit.

Economical Advantages

- lower specific CAPEX and OPEX per ton of feed.
- less ancillary equipment required.
- simplified processing flow sheet and plant layout, e.g. reduced footprint and building costs.

Areas of application

Ore beneficiation

In the field of ore processing high efficiency and high capacity systems are necessary for an economic production. **alljig®** jigging machines upgrade ores to marketable products in a single step, best examples are various installations for iron ore upgrading from low grade run of mine and/or dump ores.

The **allgauss®** wet high intensity magnetic separator offers high separation efficiency and enormous flexibility in the upgrading of hematite iron ores.

The **allflux®**-system is utilized for both ore upgrading as well as ore classification (desliming).

The **alljig®** and the **allflux®** can also reduce grinding costs in those cases, where a pre-separating of high density materials is possible.

Gravel and sand processing

For the separation of deleterious substances, such as organic matter (*wood, roots and lignite*) or alkali reactive particles (*opal, sandstone, chalk and flint*), **alljig®** jigging machines are used to process gravel and/or sand in grain sizes of up to 100mm (4") down to 0mm.

The **allflux®**-system is used for the separation of organic particles from sand by means of fluidized bed sorting. Simultaneous automatic »On line« or »Off line« blending of coarse and fine sand products permits customized particle size distribution products.

With the **allgauss®** wet high intensity magnetic separator one can increase the quality of industrial sand by reducing the content of feebly magnetic impurities.

Recycling

Recycling materials, including rubble and excavated matter contain light components that limit or prohibit their utilization. **alljig®** jigging machines produce excellent quality products at high throughput rates. Acceptable feed sizes range up to 150mm (6") which can eliminate the need for hand sorting.

Sands containing impurities can be successfully sorted and fractionized by the **allflux®** fluidized bed separator.

The **allair®**-jig is the best choice for the dry separation of light components.

Slag beneficiation

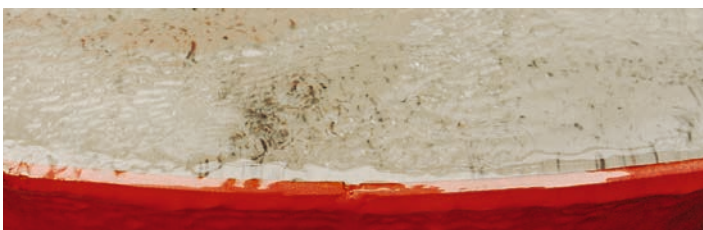
The recovery of metal from slag with **alljig®** and **allflux®** systems contributes both to the best possible use of natural resources and to significant profitability benefits. Due to the required high specific gravities of separation, the **alljig®** is often the only economic option for recovering metal particles. Stainless steel, ferro-chrome and ferro-manganese and other valuable metals have been recovered with circuits employing allmineral equipment. At many plants, the separated slag can be sold as aggregate. Thus, two revenue streams are created from a discarded waste.

Hard Coal and Lignite processing

Sorting of hard coal is the classic application for **alljig®** and **allflux®** technologies. A special feature of the **alljig®** jigging machines is the compound stroke motion which extends the feed size range and capacity, when processing finer sized coal.

The **allflux®**-system allows beneficiation with a high capacity in a single unit.

The latest innovation for the separation of pyrite and rock from coal without the use of water is the **allair®**-jig.





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