



News from Norway: Commissioning for JOEST screening plant starting soon

Preparations are in full gear for the commissioning of a turnkey conveyor and screening plant for the largest Scandinavian iron ore producer.

In 2014, JOEST won the biggest contract in the company's history to build a turnkey conveying and screening plant for a major customer in northern Scandinavia.

Beside extensive belt conveyor and shredding technology, the centerpiece of this project are six double-deck screens with a length of 9,200 mm and a width of 3,000 mm. With a total throughput of 10,000 t/h, the screens are fed with iron ore pellets from a large storage hopper.

The outer shell of the screening plant was closed just in time for the cold weather and short days of the Scandinavian winter, and the finishing work was carried out successfully. Currently, the facility's overall control system is being tested by experienced JOEST commissioning engineers and electricians.

Cold start-up is scheduled for January 2016 and hot commissioning will begin as early as two months later. Despite the complexity of the system, JOEST is keeping to the ambitious schedule with no delays.



The Year 2015

Dear employees
and valued customers,

A difficult year is coming to an end. Economic downturns in various parts of the world, dropping commodity prices, uncertainty in the steel and automotive industry and unresolved issues concerning refugee flows and terrorism have dominated this year.

And even though the outlook for 2016 is hardly one of „rejoice and be glad“, we would like to wish all our employees and valued customers a peaceful and Merry Christmas.

We look forward to the challenges of the coming year. We wish you a successful and healthy 2016 and continuation of our partnership and constructive mutual cooperation. We are there for you!

Dr. Hans Moormann und Dr. Marcus Wirtz



Visit us next year at our booths.



POWTECH (Nuremberg)
April 19 - 21, 2016
Hall 1, Booth 145 & 143



IFAT (Munich)
May 30 - June 3, 2016
Hall C1, Booth 321

Large scale drying

Vibrating fluid bed dryer for a Polish customer for the production and drying of fertilizer



JOEST vibrating fluid bed dryers for bulk materials transfer the heat energy required for drying by convection, i.e. via direct heat transfer, so that the heat transfer medium comes directly into contact with the product. The heat transfer is typically performed using temperature-controlled warm or hot air. A subdivision into different zones for drying and cooling is possible.

This particular JOEST vibrating fluid bed dryer is part of a granulation plant for soil improvement for the processing of limestone dust. The limestone and filter dust are bonded using molasses and water.

The granulate to be processed has a moisture content of 11.6 % — after the drying process, its maximum residual moisture content will be 0.3 %.

With dimensions of 2,500 x 8,800mm, the fluid bed dryer weighs 18 tons and has a throughput of 20 tons per hour. The dryer is powered by a robust JOEST exciter JR 608. The JOEST fluid bed dryer was delivered in November this year along with an entire air processing system, including an electric throttle valve for fresh air regulation.

Fluidized Bed Dryer for Polish end customer

JOEST received another order for a fluidized bed dryer for the thermal processing of mineral granulates.

The scope of supply includes the complete control and process air technology, as well as the piping, a heating-gas generator and a highly efficient exhaust recirculation. The fluidized bed dryer with a total weight of 19 tons has a dimension of 2.500 x 8.800 mm.

The delivery to the Polish end customer is scheduled for late 2015.



JOEST Spiral Conveyor with water-fed cooling base for a Chinese customer

Vertical conveying and thermal treatment of plastic granules combined in one machine.

JOEST spiral conveyors combine the many advantages of gentle, vertical conveying of bulk materials by vibration feeding technology and can either be used just for conveying or simultaneously for thermal treatment of bulk materials. The conveying is achieved via a micro throwing movement, which is well known in vibration feeding technology, and is individually matched to each application and machine type through the adjustment of amplitude, frequency and articulation (throw angle).

The customer's requirements meant overcoming a height difference of 4.5m and cooling the granules during the conveying process within a confined space. JOEST designed a spiral conveyor with water-fed cooling discs made of stainless steel, which is able to cool the material from 160°C to 45°C during the conveying process.

The design of the spiral discs, which were developed by JOEST, enables efficient heat transfer. The discs board's welded wall results in a high level of mechanical stability as well as a long service life. The low-wear design reduces maintenance requirements to a minimum. Optimum machine operation is ensured by the frequency converter, adjustable unbalance-type vibrators and adjustable oscillation amplitudes.



Perfect separation of rubber and textile with the JOEST Air Separation Table

JOEST solutions for used tires recycling.

The JOEST Air Separation Table is the ideal solution for used tires recycling and is ideal for the separation of rubber, textile and rubber fabric composites. The characteristics of the air separation table are two unbalanced drives using a linear motion principle, the special designed fluid and the single chamber system. This design results in a most efficient and effective use of the separation table, while ensuring a continuous operating condition.

The single chamber system prevents dirt from accumulating inside the machine which is a significant advantage, particularly for dusty products. Through the micro perforated fluidizing plate, the air flows from the bottom upwards providing consistent air distribution. The product can not pass through the screen and stays clean much longer compared to conventional types.

The screening surface is easy to clean to access and with the high separation rate and high value end products can be processed without further processing steps. The massive and robust design of the JOEST Air Separation Table makes it a perfect solution for dry bulk solids and is especially in the recycling industry capable of handling grain sizes up to 20 mm.

The illustrated JOEST Air Separation Table for used tires recycling Type LUS has a screening area 1,200 mm wide and has a throughput capacity of about 1.5 t / h. For other applications, a variety of JOEST Air Separation Table sizes with a processing width of 450 to 1200 mm are available.



USA relies on JOEST Zig-Zag Sifters for ASR processing

JOEST sifter technology impresses the American recycling industry for Automobile Shredder Residue (ASR) and large household appliances.

The crushing of cars produces a mixture of ferrous metals, non-ferrous metals (e.g. alloys of copper and aluminum), stainless steel and shredder waste — so-called Automotive Shredder Residue (ASR). JOEST zigzag sifters are not only suitable for ASR treatment, they can even be used to treat large household appliances such as washing machines and dryers.

JOEST sifters are commonly used between the separation of iron and aluminum components by an Eddy Current separator and optical sorting machines. The starting material is fed into the zigzag-shaped sifter channel via a special vibrating conveyor. Here, lighter objects are separated from heavier ones using multiple cross-flow sifting methods. The air required for the separation process flows through the sifting channel from bottom to top. Lightweight particles such as foam, textile fibers and thin-walled plastic are carried away by the air stream. In general, zigzag wind sifter systems are operated in recirculation mode, with the purified air recirculated via a fan in the sifter's base.

The JOEST sifter separates around 50 percent of lightweight components by volume in this way, including

dust. The remaining heavier and free-flowing particles fall downwards against the airflow and are discharged over the entire working width of the sifter's base.

After this process, the heavy material is passed on to the optical sorting system, in which stainless steel components are removed in the first stage and copper in the second. The complete removal of the dust and bulky components greatly improves the efficiency of optical sorting and results in a significantly higher output quality.

JOEST zigzag sifters guarantee very high separation rates and a special design which has been specifically optimized by JOEST for these applications — multi-stage cross-flow sifting. In addition to a robust, highly wear-resistant design, JOEST sifters are unique by their ease of use and easy cleaning via special openings.

For many years, the vast majority of well-known American scrap processors have relied on JOEST sifter and vibration technology, enabling JOEST to become the market leader in this area.

Coal power plant in Vietnam relies on JOEST screening technology

JOEST received an order from a Vietnamese customer for two large banana screens for the coal preparation.

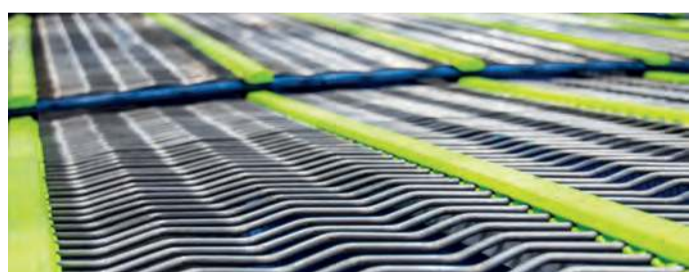
JOEST has designed and built two banana screens with special screen decks for a large coal power plant in Vietnam. The customer is using the screens for the preparation of the coal before the furnaces. These high-performance screens process coal with a maximum granulation of 20-40mm, ensuring it is optimally prepared for the combustion process.

The customer is using the screens on two furnace feed lines. The banana screens each have a screening area of 25 sqm and a throughput of 1,400 t/h. With a length of nearly 10m and a width of almost 3m, transporting the screens from Dülmen to Vietnam presented a considerable logistical challenge. The installation in a very narrow screening plant was a challenge JOEST had to manage. Thanks to JOEST's long-standing experience as one of the world's leading manufacturers of industrial screens, these difficulties were successfully overcome by experienced JOEST personnel on site.

During the rainy season in Vietnam, the coal's moisture content is higher than normal. Therefore, a combination of a special finger screen and a screen deck with a self-cleaning function was chosen for optimal screening. This combination improves the screening efficiency by allowing fast screening of the smaller material.

The banana screens are equipped with a completely dust-tight cover, dust extraction nozzles and large inspection openings. The transfer points for both fine and coarse material were also completely sealed.

Once more JOEST could offer a tailored and efficient solution by many years of experience and expertise.



JOEST Circular Motion Screen

Everyone knows the principle from the sandbox:

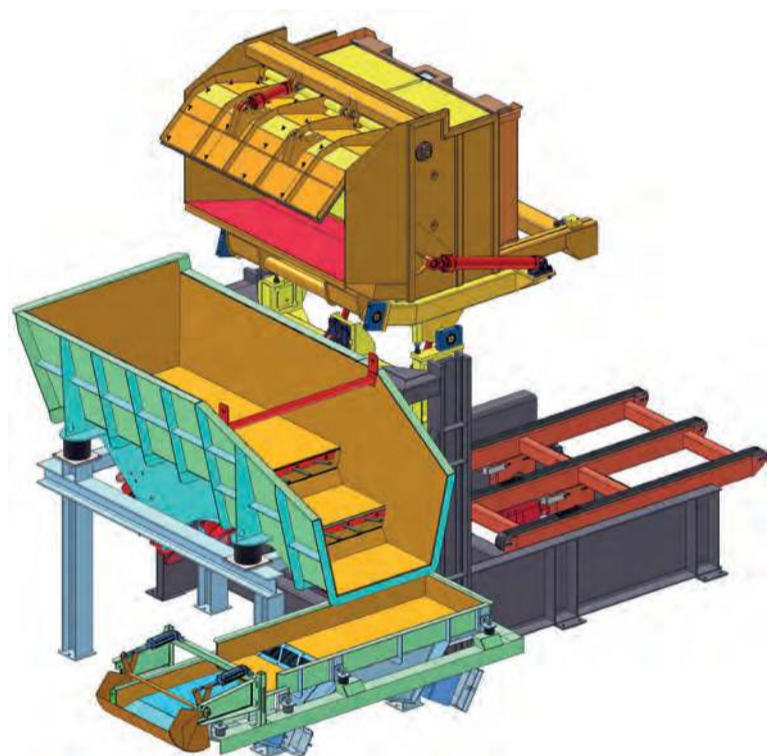
Circular movements help screening. This circular motion screen with three upon the other lying screen decks is just one of many screening solutions from JOEST.

Circular motion screens are used for hard rock and sands up to coal and any kind of ores. JOEST Vibration Technology offers screening, feeding and separating solutions also for the recycling, chemical and food industries.



Automated feeding system with a special design for the electroplating industry

The tailor-made feeding system was designed by DIETERLE specifically for the gentle tipping, transport and separation of small metal parts with a wide range of different properties.



The DIETERLE feeding system consists of a special MUCKI hydraulic lifting and tipping device with integrated chain conveyor and scale, as well as a downstream vibrating conveyor system. This consists of a high-capacity channel and two oscillating conveyor troughs, whereby the two vibrating channels are also weighed. The combination of these individual systems forms a highly coordinated unit, which can be adapted to provide the optimum feeding and separation process for each product type via the adjustment of parameters.

Assignment

Gentle product feed from seven different container types on a pallet system and separation by weight into the customer's tanks for further use in the downstream electroplating plant. The system has to process an extremely wide range of small metal parts, such as screws and nails, furniture, window and building hardware, as well as long, delicate pieces that are prone to jamming.

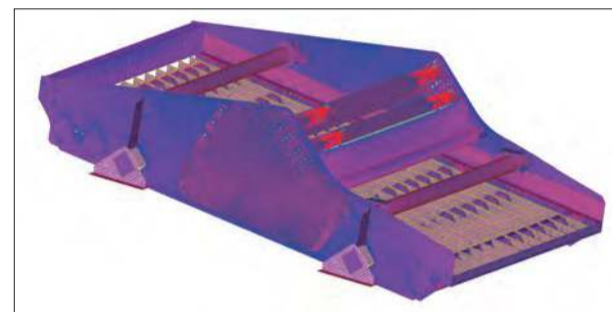
System concept

The system is equipped on-site with various container sizes on a system pallet. The supply and removal of the containers to and from the MUCKI's lifting device is carried out by means of a chain conveyor. This has an integrated scale for gross/net weighing of the system pallet. The MUCKI feeds the high-volume channel, which is equipped with extra high sidewalls and serves as a product hopper.

The MUCKI's lifting device has a tipping angle of up to 180 degrees, which enables complete emptying of the containers. The gentle tipping process is supported by a hydraulically operated lid, whose movement can be controlled in a product-specific manner. An additional feature of the MUCKI allows the drop height to be reduced even further. It is thus possible to make the transfer process even gentler on the products by hydraulically lowering the lifting device into the high-capacity channel. This movement can also be controlled differently for each product type.

After tipping, the product is conveyed on the high-capacity channel, where special fixtures enable improved separation of products that are prone to jamming. Monitoring of the material cone prevents overfilling of the high-capacity channel.

The product is then fed through two vibrating conveyor chutes into the customer's tank. Both vibrating conveyor chutes are equipped with a weighing unit. This enables uniform dosage of the product into the customer's tank based on the desired batch size and system cycle time. Unwanted material is prevented from entering the customer's tank by a special flap at the end of the feeding system.



Major order for a bunker discharge system with two screening machines

JOEST received an order for a bunker discharge system with two screening machines for a German steel plant.

The scope of supply includes two screening machines with the dimensions of 1,900 x 5,500 mm, two oscillating conveyors and the bin outlet chutes. The first screening machine has already been successfully installed.

The very high quality standards of the customer have been monitored continuously by the customer over the entire production process of the screening machines. These included ultrasonic testing of welds up to the machine's coat of paint which were accompanied and approved by external auditors of the customer. With JOEST high quality standards there were no complaints at all.

The screening machines with a weight of 9 tons each are driven by a robust JOEST exciter and – as a protection against wear – screens and vibrating conveyors were equipped with a ceramic lining, thus allowing a very long service life time of the plant.



Product conveyance distance about 47 meters? JOEST has the solution!

47 meter-transport of waste slag with JOEST Vibrating Trough Type Feeder



The JOEST Vibrating FSM Trough Type Feeder for European customers will be used for the evacuation of burned slag to an ash bunker. This feeder will be positioned beneath two waste incineration furnaces.

The vibrating trough type feeder works on the basis of mass compensated resonance – the induced vibrations and the dynamic forces are caught by active vibration dampers. Through this the power transmission to the foundations and the steel construction are reduced.

The 47 m long feeder is placed under the furnace in the basement of an incinerator, through here there is a special installation situation.

The plant was designed and manufactured in such a way that it is possible to separate it into sections. The entire machine was lowered down through a narrow shaft into the basement and assembled after. The drive station has been produced that a quick exchange is possible.

Under the lead-in-area to the furnaces, each section of the vibrating trough type feeder is covered with a hood. Inspection platforms are placed at regular intervals along the entire length of the machine. To ensure a long life, a special, corrosion-resistant surface coating was applied.



One conveyor channel – Two applications

A direct comparison of two JOEST vibrating conveyors for shot blast media

One type of machine to convey the same material but with different installation situations and requirements? No problem for JOEST – we compare two of the company's vibrating conveyors for transporting blasting media and accumulating residual sand with subsequent control screening.

In both machines, the oversize material is removed with the help of an integrated screen section before the filtered material is transferred to a bucket conveyor via a lateral outlet connection. Both conveyors consist of a trough, trough frame, leaf spring retainers, working springs and a counter-oscillating frame. The resonance of the trough and counter-oscillating frame are matched via the working springs. The counter-oscillating frame is virtually vibration-isolated on rubber buffers, thus the residual dynamic forces affecting the substructure are very low in both conveyors.

The choice of either conveyor depends on the customer's requirements. „Customer one“ required the machine to be very flat due to the very narrow and winding installation location. „Customer two“ needed a conveyor with very high performance. Weight and size were not a priority.

The small version of the vibrating conveyor has a maximum output of 144 t/h. The entire trough is made of wear-resistant material and can be fully exchanged if necessary. No additional carrier material is required, which saves on weight. Due to the lighter trough, a very flat design is possible.

The trough of the large conveyor is made of mild steel with a bolted-on wear-resistant lining. The service life of the machine is thus increased considerably, since the individual wearing plates can be very easily replaced as necessary. Due to the heavy construction, this conveyor can guarantee a high throughput of approximately 360 t/h over a prolonged period.

Castings and sand transport with the JOEST Vibrating Through Type Feeder

Type FSM as a heavy version with vibration width regulator

The vibrating through type feeder is positioned after a pre-shakeout feeder. The 1,400 mm wide and 12,600 mm long type feeder delivers the cast iron parts to baskets, which are attached to a suspension track, via a manipulator. The remain sand deduction runs parallel.

The vibrating through type feeder relies on the mass compensation resonance principle. The vibrations and dimensional forces are compensated by active vibration dampers. The result is that transmission of vibration to the foundational steel construction is minimised. The heavy duty vibrating FSM feeder differs mechanically from the common trough type feeder. Some parts are manufactured from solid material when manipulators

are used, in contrast to the common feeder. The extra durable trough, which is fixed on top, is stabilised by additional suspension arms and stiffening. These additional suspension arms ensure a clean and straight output of the 600 Grad cast iron parts, despite rough conditions caused by the manipulator.

The 13,8 t feeder's efficiency is due to its 7.5 kw electric motor. The modularity of the parts allows for an easy assembly even in restricted spaces. The vibrating feeder is equipped with a vibration width regulator so different products or product sizes can be accommodated. The machine delivers up to 116 t of sand per h.



New innovation for precise controlled sand compaction in foundries

The lost-foam process enables the production of complex casting geometries through the use of positive models made from styrofoam. During the filling process, the binder-free molding sand must fill all the cavities in the styrofoam model completely and perfectly. Even cavities which contain several bends must be one hundred per cent filled.

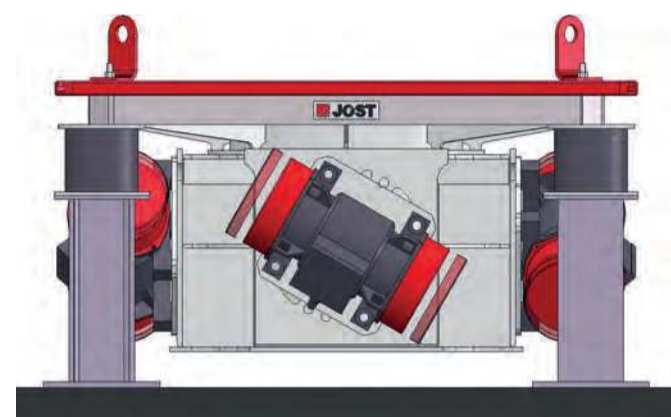
Due to these complexities, the centerpiece of a lost-foam system is the special compaction table. The use of a normal vibrating table is not possible, as this produces a purely vertical mode of vibration. For proper filling of horizontal cavities and to achieve forward movement of the sand into the cavity, a defined, horizontally oriented vibration component is required.

As a result, JOEST has developed a special compaction table — the JOEST VECTOR multi-coordinate compaction table. Unlike standard vibrating tables, the VECTOR is able to vary the vibration vector in the X/Y/Z axis with a freely preselected angle, frequency and amplitude at

New opportunities in the lost-foam process with the JOEST VECTOR.

any time via real-time control of multiple unbalance motors. Optimal mold filling and mold material compaction are thus ensured. Cavities which cannot be filled with conventional technology can be reliably filled using this system.

The orientation of the conveying vector can also be varied as a function over time, making it possible to direct the sand into the contorted indentations of complex inner contours.



In addition, the temporal sequence of the vector's orientation is stored individually in the controller for each model number, making it reproducible.

A further advantage of the JOEST VECTOR is its vibration and self-resonance-free ramp-up from zero to the desired frequency. This unique solution is patented by JOEST.


JOEST®

Exhibitions 2015



Two trainees - four weeks in England

A report by Miriam Homann and Luisa Reckmann,
two trainee industrial clerks from the JOEST group.

“Through our vocational school, we became aware that Erasmus is enabling vocational students to undertake an internship abroad for the first time this year, in order to improve their language skills. Erasmus is a support program administered by the European Union and this auxiliary program provides financial support for the exchange students to help facilitate their stay abroad.

Of course, the training company also plays an important role here, because without their consent our stay would not have been possible. At this point we would like to sincerely thank the company’s management and the Human Resources department for their support and assistance.

On 17 October 2015, we were packed and ready for our four weeks in England — a truly memorable experience! Our internship was in a charity in Preston (North West England) which provides secondhand books and other media such as magazines, videos, DVDs, etc. in exchange for a small donation. This organization is supported by the Healthy Planet Foundation, based in London, which develops eco-friendly

initiatives designed to reduce the level of waste disposal, especially with regard to books. Our tasks included customer service and customer support, management of financial resources and the sign-in and sign-out lists. In addition, we were responsible for the design of new posters and billboards.

We were provided with an apartment by the placement agency, which we shared with two French guys. In our spare time, we explored many places, including Blackpool, Liverpool and Manchester, with Blackpool proving to be the most fascinating for us. Each fall, Blackpool is transformed into “Lightpool” as more than a million lights are placed along a ten kilometer stretch of coast.

In conclusion, we can say that it was a great experience and a formative time that we would recommend to anyone.

Cheers!”

Miriam Homann und Luisa Reckmann



Fresh faces in the JOEST group

In August this year, nine young men and women began their training within the JOEST Group. Over the coming years, they will train to become industrial clerks, mechatronics engineers, technical product designers and construction mechanics. Currently, the JOEST Group has 31 young apprentices starting their professional life. JOEST looks forward to the new team members and the additional enthusiasm they bring into the company.



Girl’s day at JOEST 23.04.2015

The Girls’ Day offers young girls the opportunity to gain insight into predominantly technical and manual professions for one day. The two students Sara and Lilian from the Marienschule in Duellen spent their Girl’s day at JOEST GmbH + Co. KG. After a tour of the factory premises the trainee Alexander Zukovski showed them some areas of his work. Thus the girls received a first impression in the daily work of a construction mechanic. Thereafter, the two could lend a hand and edit an aluminum plate. This included the filing, marking, graining and stamping of their name.

Social Media

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