SIEBTECHNIK TEMA

Screening and processing machines

Circular- and elliptical-motion screening machines
Linear-motion screening machines
Banana and excenter screening machines
Pulsator jigs and channel conveyors

MODERN SCREEN CLASSIFICATION

Elliptical-motion screening machine, type E, electronically controlled

Modern screening and processing machines for your individual requirements

Constantly increasing quality demands on raw materials and end products in industry require modern technologies and the precise specification of production processes.

SIEBTECHNIK not only has a broadly diversified product portfolio and a staff with outstanding expertise, but also worldwide and industry-specific experience.

In the industrial treatment and processing of liquids and solids of various types, the quality of the screening material, the choice of screening method and the technology of the screening machine play a decisive role.

Modern screening plants are judged by the screening quality, the specific throughput per m^2 of screening surface, the availability, the power requirements, the personnel expenditure and last but not least by the economic efficiency.

SIEBTECHNIK has the right solution for every task. Our screening machines are suitable for breaking down granular bulk goods into different grain classes. Screening in the broader sense includes not only exact separation according to grain size but also pre-screening, control screening, dewatering and desludging.

A reliable and clean separation of heavy, light, large, small, dry, dusty or even wet, sticky screening material is always guaranteed.

Whether circular-, linear- or elliptical-motion screening machines, large screening machines, screening machines in laboratory use or special screening machines for your individual requirements: thanks to their efficiency and economy, our screening machines offer a high degree of benefit for our customers.

We also manufacture and supply special screening machines such as pre-separators, underwater screening machines, sand screens, machines for all screenable materials, semi-mobile, stationary, with dust cover, for the classification of hot chippings and much more.

Depending on the task, transversely and longitudinally tensioned screen fabrics, system screen panels of all popular makes, perforated plates as well as heavy screens can be used on our machines.

SIEBTECHNIK screening and processing machines are user-friendly, uncomplicated in maintenance and, above all, future-proof - thanks to our specialised service personnel and a reliable spare and wear parts service, even for older machines.

LINEAR-MOTION SCREENING MACHINES

Our robust solution for “large and coarse" requirements

The SIEBTECHNIK linear-motion screening machine is used to screen and dewater grainy bulk materials. They are driven by either double unbalance gear units (type HG, HG-E, UHG), dual-shaft drives (type DWS, DZS, HN) or by unbalance motors (type HR, HR-E, MHR).
We build linear-motion screening machines with top or bottom-mounted drive units for extreme requirements. This applies to wide machines (up to 5.5 m wide) or to extremely coarse-grained feed material (e.g. granite with an edge length of approx. 1.2 m). Also high temperatures of the feed material and the demand for low residual moisture can be realised with these machines.

Gear-driven screen type HG

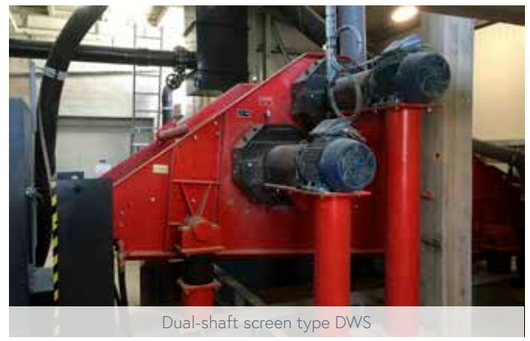
Gear-driven screens

We manufacture gear-driven screens in single- or multi-deck versions. Different gear unit sizes enable outstanding setting-up to suit your specific application. The balancing masses and rotational speeds are adjustable in steps. This enables the linear vibration amplitude and acceleration of the screen frame to be optimally adjusted to suit the technical process requirements.
Our SIEBTECHNIK gear units are quick and easy to install and offer a high availability of the screening machine.
We recommend this drive concept e.g. for crusher relief screening, i.e. as a so-called pre-screen for high feed rates or coarse separation cuts.

Screen with unbalance motors of type HR

Unbalance motors

An economical alternative to double unbalance gear units or the dual-shaft solution is a drive provided by two unbalance motors – specifically in the area of small nominal widths.
Two unbalance motors are operated in opposite directions. The resulting motion of the screen frame is therefore linear - as with the gear-driven screen or the dual-shaft system. These rather smaller linear-motion screens are used, for example, in the dewatering of sand, gravel, ore, drilling mud, slag or in recycling.



Dual-shaft screen type DWS

Dual-shaft screens

The drive concept of dual-shaft screens is based on the proven vibration generation of our circular-vibrating machines - but in a dual design variant. Two bearing-mounted drive shafts with unbalances are operated in opposite directions. The resulting movement of the screen frame is therefore linear - as with the gear-driven screens.
We recommend this drive concept, for example, for multi-deck screening of chippings at temperatures of up to 450 °C in the production of asphalt and for the low-pressure dewatering of sand.

CIRCULAR-MOTION SCREENING MACHINES

Our solution for classic applications

A SIEBTECHNIK circular-motion screening machine is the classic solution for technical processing tasks in screen classification.
These are free-swinging screening machines with a circular oscillating motion, which are mounted on helical compression springs. Screen frame and unbalance are optimally matched in terms of their mass ratios.
In this way, a harmonic oscillating movement can be transmitted to the screening material at all points of the screening machine. The rotational speed and vibration amplitude of the machine can be varied according to the product and thus ensure a permanently perfect screening result. The robust design using and combining standard components ensures high flexibility and enables customer-oriented solutions. In addition, machines with low-maintenance operation and a long service life are produced.

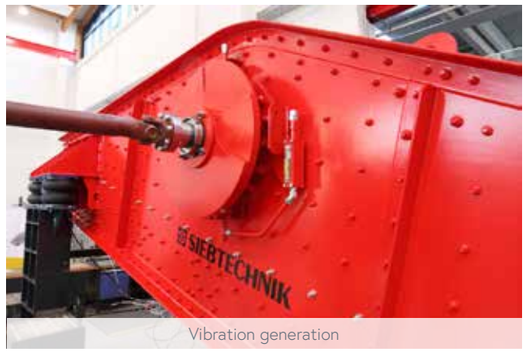
Circular-motion screening machine type V

Our screening machines of the series V (shaft with unbalance), VZ (cell drive) and VR (unbalance motor) offer separation sizes from 0.8 to 300 mm and a screening surface from 0.5 to approx. 60 m².
The inclination of the screen panel is between 10° and 30°, depending on the requirements, and the screening media can comprise between one and three screening decks.

Screen lining with special accessory

Pneumatic suspension

The screen frame is optionally equipped to accommodate longitudinally or transversely tensioned screen panels or for flat screening fields and of course also for system screen linings by various different screen lining manufacturers. In case of dusty screening material, we supply circular-motion vibrating screens with a dust hood or a closed dust enclosure on request. Optionally, screening aids in the form of tapping devices or spraying systems can also be supplied with individual adaptations.



Vibration generation

Depending on the product, the machines can be designed for a vibration amplitude of 2 - 14 mm.

Unbalances with oil level indicator

ELLIPTICAL-MOTION SCREENING MACHINES

The top class in classification and up to any task - mechanical or electronic

The elliptical-motion screening machine combines the advantages of linear- and circular-motion vibrating screens with space-saving horizontal installation and high material throughput.

Both the mechanical and the electronic elliptical-motion screens can be specifically varied and adapted to the operating conditions. This is done, among other things, by changing the throwing angle, which is essential for the transport velocity, and by adjusting the parameters important for the acceleration of the machine, such as vibration amplitude and rotational speed.

The electronic elliptical-motion screening machine allows the rotational speed and the throwing angle to be adjusted during operation. The change can be made manually on a touch panel or fully automatically, via Profibus, integrated into the plant control system - without any downtimes!

Our electronic elliptical-motion screening machines react to changing operating situations easily and without human intervention. Therefore fluctuating feed rates, automatic cleaning and ejection of jamming particles in programmed cycles are no problem at all. A constant screening performance is permanently guaranteed. The electronic components have been carefully selected for the usual harsh operating conditions and are not susceptible to faults.

The mechanical elliptical-motion screening machine is just as flexible as the electronic elliptical-motion screening machine, but its main vibration parameters can only be changed when the machine is at a standstill.

SIEBTECHNIK elliptical-motion screening machines guarantee flexibility in the production process and ensure constant product quality.

Elliptical-motion screening machine, type E, electronically controlled

Gear-driven screen, type BHG, banana screening machines used for the screening of potash salt in China

High-speed screens with excellent separation efficiency

The SIEBTECHNIK banana screening machine is used for screening granular bulk materials. They are driven either by double unbalance gear units (type BHG), circular-motion vibrating drives (type BV) or by unbalance motors (type BHR).

The SIEBTECHNIK banana screening machine achieves good separation efficiency at extremely high feed rates and with materials difficult to screen. Compared to conventional vibrating screens, the banana screen can handle a considerably larger feed rate with the same screening surface.

SIEBTECHNIK banana screening machines are cantilever machines, which means that the stroke is freely adjustable according to the mass ratio of screen frame and unbalance. Banana screening machines either have a steep (approx. 75°) or flat throwing angle (approx. 40°) depending on the selected design variant. This degree of flexibility makes it possible to realise different screen panel inclinations in one screening machine, ranging from steeply falling (approx. 40°) to horizontal to slightly rising (approx. 5°). Examples are combined classification and dewatering screens for salt applications (thin-layer screening with subsequent dewatering).

SIEBTECHNIK banana screening machines are high-speed screens in terms of their operating behaviour.

Due to the steep inclination of the screen panel a high transport velocity is achieved. A very thin layer is formed, with most of the fines being screened out via the long meshes. Screen inclination decreases in the centre and on the discharge-side part, which reduces the transport velocity. In this part of the machine, a good near-mesh sized particle screening is achieved.

For example, the screen panel inclination can be 25° to 40° in the steep section, 15° to 25° in the centre section and 0° to 15° or even + 5° rising in the flat section. The number of inclination levels and their angles can be determined individually as required (e.g. in case of restrictions by existing steel structures).

Our screening machines of the series BHG (double unbalance gear unit), BV (circular-motion vibrating screen) and BHR (unbalance motors) offer separation sizes from 0.5 to 150 mm and a screening surface from approx. 1 to approx. 40 m². Depending on the product, the machines can be designed for a vibration amplitude of 2 - 14 mm. The screening media may comprise between one and two screening decks.

BANANA SCREENING MACHINE

Gear-driven screens

We manufacture gear-driven screens in single- or multi-deck versions. Different gear unit sizes enable outstanding setting-up to suit your specific application. The balancing masses and rotational speeds are adjustable in steps. This enables the linear vibration amplitude and acceleration of the screen frame to be optimally adjusted to suit the technical process requirements.
Our SIEBTECHNIK gear units are quick and easy to install and offer a high availability of the screening machine.
We recommend this drive concept e.g. for classifying a feed material with a high undersized grain content.

HG

Unbalance motors

A drive using one or two unbalance motors can be an economical alternative to the double unbalance gear unit or to the design with one or two drive shafts - mainly within the range of narrow nominal widths.
The resulting motion of the screen frame is therefore either linear or circular. These rather smaller banana vibrating screens are used, for example, for classifying sand, grit or in recycling.

BHR

Circular-motion vibrating screens

The drive concept of this banana screening machine is based on the proven vibration generation of our circular-vibrating machine.
One bearing-mounted drive shaft with unbalances is operated in opposite directions. The resulting motion of the screen frame is therefore circular - as with the usual circular-motion vibrating screen.
We recommend this drive concept e.g. for the control screening of fine sand to exclude any unwanted oversized grain.

BV

BHG

BHG

EXCENTER SCREENING MACHINES

Come what may - screening performance will always be constant

The SIEBTECHNIK excenter screening machine is always ready for anything with its fixed vibration amplitude. As pre-separators with heavy perforated plates arranged in steps or a robust stepped grate, excenter vibrating screens have proven themselves in many years of use under harsh conditions.
In contrast to the freely vibrating circular-motion vibrating screens, excenter vibrating screens are rigidly mounted. This has the positive effect that the circular vibration diameter is permanently maintained and is not reduced by too much feed material. Feed fluctuations or strong jolts from individual pieces of rock are accepted quite casually by our excenter screening machines - it simply does not interest them. Mounting by means of rubber buffers on a frame, which in turn is mounted in isolation from the steel structure, provides for a reduced transmission of vibration to the steelwork.

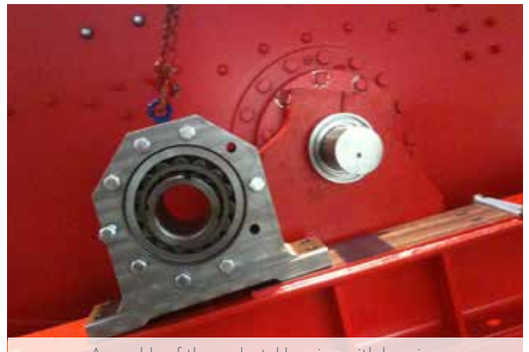
By using components that are also used in other screening machines, a long-lasting and reliable pre-separation is guaranteed with our excenter screening machines.

Pre-separators are preferably used ahead of the first crushing stage in quarries, ore mines and slag processing plants. Due to the screening surface arranged in steps, a good redistribution of the screening material is achieved.
In the case of feed material with stalky and square pieces that tend to get jammed, we recommend a stepped grate with gaps that widen in the direction of transport for optimum results. Two-deck solutions are also possible and complement the classification process.

We build our excenter screening machines for you with nominal screen widths up to 2100 mm and screen lengths up to 6000 mm.
For efficient pre-screening with perforated plates or stepped grates.

Excenter screening machine, type VS

VS for a pre-screening facility



Assembly of the pedestal bearing with housing

V-belt drive

MULTI-DECK SCREENING MACHINES

High performance in a confined space

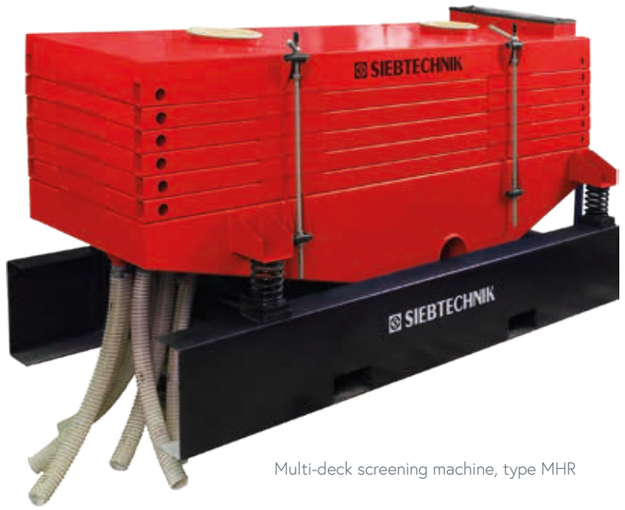
The SIEBTECHNIK multi-deck screening machine is used as a control or classification screen for pourable, dry or granular bulk materials. Due to its compact design, we achieve a long service life with reduced maintenance.

SIEBTECHNIK multi-deck screening machines are available in two versions:

MHR multi-deck screening machine

Whenever dry material is to be classified into several fractions as accurate as possible, the MHR screen is the ideal choice. The high number of almost vertical throws, the lighter load on the decks and the large screening surface enable to obtain finished products in analysis screen quality.

The test screening machine with a size of 500 x 1400 mm with up to 7 decks is located in our technical centre in Mülheim a.d. Ruhr or available as a rental screen for customer trials.



Multi-deck screening machine, type MHR

MDS multi-deck screening machine

For the pre-separation, enrichment and classification of mineral bulk materials that are difficult to screen. Even with a relatively high percentage of near-mesh sized particles, we recommend our multi-deck screening machines with up to 5 screening decks one above the other. The predominantly monogranular screening, due to the very steep screening deck inclination especially in the lower section, allows high specific screening capacities and good classification accuracy even with small screen openings. The stainless steel material can be selected as an alternative to the usual standard steel.

Multi-deck screening machine, type MDS made of stainless steel

Multi-deck screening machine, type MDS

ROUND SCREENING MACHINES

MDS multi-deck screening machine

The SIEBTECHNIK round screening machine CONFLUX type C offers excellent adaptability to the highest requirements and is used in fine and ultra-fine screening technology. It is suitable for classifying, dedusting, dewatering and control screening.

The CONFLUX is a tumbler screening machine with variable screening media and a resonant drive motor with adjustable vibration generator. The vibration patterns can be optimally adjusted to the screening material and to the required screening performance by simply moving the unbalance weights of the lower vibrator cell.
Depending on the number of required grain-size fractions, up to three rotary screen drums can be mounted on top of each other, thus achieving a maximum of 3 separation cuts or 4 grain size fractions. Oversized and undersized grain is drawn off at the sides via separate discharge outlets.

Round screening machine
Type CONFLUX

CHANNEL CONVEYORS

Our vibration machines for material transport, completely without screening function

SIEBTECHNIK channel conveyor are used for conveying granular bulk materials. They are driven either by double unbalance gear units (type FG, FG-C) or by unbalance motors (type FR, FR-C).
We build channel conveyors with drive units arranged at the top or bottom for extreme frame sizes.
The conveying of coarse-grained or very hot feed material or the uniform feeding of a downstream screening machine with feed material can be easily controlled with these vibrating machines.

Channel conveyor type FG on site

Channel conveyor with double unbalance gear units

Different sizes of the double unbalance gear units allow for an excellent adjustment to your specific application. The balancing masses and rotational speeds are adjustable in steps, allowing the vibration amplitude and acceleration of the machine to be optimally adapted to the product-specific requirements. Our SIEBTECHNIK double unbalance gear units are quick and easy to install and offer a high availability of the channel conveyor. We recommend this drive concept e.g. for product distribution chutes that uniformly feed downstream screening machines with feed material or for discharge chutes for coarse-grained material from material bunkers e.g. in primary crushers.

Channel conveyor with two unbalance motors

A drive using two unbalance motors can be an economical alternative to double unbalance gear units - mainly in the area of channel conveyors with smaller nominal widths. Two unbalance motors are operated in opposite directions whereby the resulting motion of the vibrating machine is also linear. These rather smaller vibration machines are used, for example, for conveying sand, gravel, ore, slag or in recycling.

PULSATOR JIGS

Pulsator jig SK

The SIEBTECHNIK pulsator jig is specifically designed for the separation of light material from heavy material in grain size >1 mm. This includes the separation of harmful substances from e.g. sand and gravel, slags, construction waste and contaminated soils, but also the sorting of different ores. Available in various widths and lengths for individual adaptation to different feed rates and for numerous applications.

Float, light material chute, and heavy material discharge

Mechanical excenter drive performs the lifting work

Semi-mobile jigging machine plant in the recycling sector

Pulsator jig, type SK

Density separation is an essential part of mineral processing and recycling. When separating according to density (especially for substances with a small difference in density), simple rinsing in a countercurrent process is usually not sufficient for effective separation. Rather, it is required to apply a vertically pulsating flow through the settling bed is required.
The mechanical excenter drive sets the lower tank filled with water into harmonious vibrations, the water thus pulsates to the rhythm of the vibrations and performs the lifting work required for separation.
The feed material moves towards the outlet due to the inclination of the settling bed, the lifting work and the flow of the head water.

Jigging machine on its way to the customer

Screening machines for a wide range of applications have been part of our manufacturing programme for many years.

Even with seemingly unsolvable screening problems you should consult us. A well-trained team of engineers and over 90 years of industry experience are at your disposal.

For example, we have the following special designs in our program:

Linear-motion screening machine, type HR

Hot standard screening machines

Stationary, semi-mobile or mobile asphalt mixing plants are used for the production of asphalt-bonded base and surface courses in compliance with standards. These essentially consist of the drying drum, bucket elevator, screening machine, aggregate silos, weighing and mixing equipment and the loading plant.

In the burner-heated dryer drum, the aggregates, which make up about 80 - 90% by weight of the respective asphalt recipe, are heated to the required temperatures. The quality of the asphalt layer depends, among other things, on the quality of the binding agent and the right composition of the granular aggregates, the largest proportion in terms of quantity. For this reason the screening machine is of particular importance.

Fast access to the screening decks

Hot standard screening machines, type HN

The SIEBTECHNIK screening machine type HN has the advantage that the bearing of the drive unit is located outside the fixed dust cover and thus outside the heat area. Hot chippings with temperatures of up to 450 °C were reliably screened with this system in numerous applications.

The correct selection of the screen lining and the type of screen lining tension is also important.

The good accessibility of the machines in combination with dust protection hoods, which enable a rapid temperature reduction, are an important prerequisite for low downtimes in case of maintenance or repair. The dust protection in a new, split design with a fully extendable chute carriage, available since the beginning of 2001, brings a further improvement compared to earlier systems.

Low-pressure dewatering screening machine

For special requirements regarding the residual moisture of e.g. sand, our low-pressure dewatering screening machine is an interesting alternative. It provides lower residual moisture levels than linear-motion screening machines that are usually used for dewatering.
This machine is based on the drive concept of a "dual-shaft screening machine", as higher rotational speeds can be achieved with this type of vibration generation. Higher rotational speeds combined with a pneumatic low-pressure system have a significant effect on achieving lower residual moisture.

Low-pressure dewatering screening machine, type DWS-UE

Sand dewatering

Sand dewatering

CURVED-SCREEN SYSTEMS

Our non-vibrating systems for the processing of suspensions

SIEBTECHNIK curved-screen systems (type ZB or ZBB) are dynamic dewatering and classifying screens, although they do not contain any mechanically moved parts.

They consist of a stationary housing, which is equipped with a concave-curved screen lining.

Curved-screen system, type ZB

They have been specifically developed for the separation of solids from process or waste water and achieve optimum results at low cost.

Material is pressurelessly fed into the machine either by the static height or by an external sludge pump. The suspension is fed into the feed chamber in such a way that a uniform feed is ensured over the entire width of the curved screen. The slotted openings of the screen lining, which run transversely to the transport direction, separate the liquid from the solids. Solids, which are smaller than half the gap width, mainly enter the lower course with the water, whereby classification is achieved. The dewatered solids are discharged at the end of the curved screen. Curved-screen systems and screen linings are usually made of material 1.4301, but can also be made of material 1.4571 on special request.
Motor-driven brush systems are optionally available for the cleaning of linings.

There is a comprehensive range of accessories available for all SIEBTECHNIK screening machines. Whether spraying systems, wear protection, drive brackets, pneumatic suspension, counter-vibration frames, dust protection, dust hoods, double unbalance gear units, hybrid suspension or special screen linings - thanks to decades of experience SIEBTECHNIK achieves the best result for your task.

Of course, our machines can be perfectly combined with each other and offer the optimum solution in a package.

Drive bracket

Motor or drive brackets are made of sectional steel and are designed with a base plate for attachment to the platform or support layer. By accommodating the three-phase motor, primary reduction gear, V-belt drive unit and protective hoods, they form a compact unit that meets safety-related requirements.

Drive bracket

Spraying system

With support structure and consisting of collecting pipe, manifolds per deck and with one shut-off valve each and fan nozzles in staggered arrangement as well as the necessary spray water seals.

Fan nozzles

Air Spring Systems

As an option, SIEBTECHNIK offers air spring systems instead of the usual vibration insulation by means of helical compression springs. It consists of air bellows including base plates and adapter plates. Passive buffers ensure safe shifting during maintenance or when the machine is at a standstill for longer periods. Control systems and a compressor are supplied in an aluminium protection box for individual parameter setting and monitoring. A hose kit provides the necessary air supply to the air bellows at the suspension points.

Pneumatic suspension

Hybrid suspension

The hybrid suspension consisting of spiral compression springs and rubber buffers provides good vibration insulation with a safety feature against the springs "sticking".

Counter-vibration frame

A well-known alternative to the optimised vibration insulation is provided by counter-vibration frames. These also provide extensive vibration insulation. We also offer this variant, which is made of sheet steel and sectional steel, as a variant for the pneumatic suspension system. It is designed to accommodate the screening machine and is mounted on rubber springs and shock absorbers.

Counter-vibration frame

ACCESSORIES FOR SCREENING MACHINES

Dust hood

The dust hood is only installed above the screening machine. It consists of roof-shaped segments from which rubber curtains usually project into the screen frame. This type of dust seal has a simpler design than the dust protection, but also offers - especially in combination with a dust removal system - a significant reduction in dust emission from the screening machine.

Wear protection

Crossbeams receive a partial rubber coating, whereby the surfaces coming in contact with the screening material are protected e.g. with 4 mm or 8 mm thick wear-protection rubber.
Increased wear protection is optionally achieved by foaming the grooves of the crossbeams to prevent material accumulation and protecting them with 4 mm wear-protection rubber. The rear walls are often protected with 8 mm thick wear-protection rubber.
Alternative versions made of wear-resistant steel, ceramic or polyurethane can also be selected.

Special screen linings

Stepped gap grate in segmental design with conical gap width for coarse cuts and robust applications. The stepped gap grate is mainly made of S235JRG2, however, the upper flanges exposed to the material are made of HARDOX or similar material.
The finger grate as a system component is individually manufactured for materials that are difficult to screen. Double-nosed perforated plates can screen slags with wires without clogging. Perforated plates are manufactured in a customer-specific design. For material that is difficult to screen, vulcanised rubber coatings and wire screen linings in different design details are suitable. Conical stainless steel coatings provide a high dewatering capacity.

Wire screen lining, longitudinally tensioned

Dust protection

Dust protection

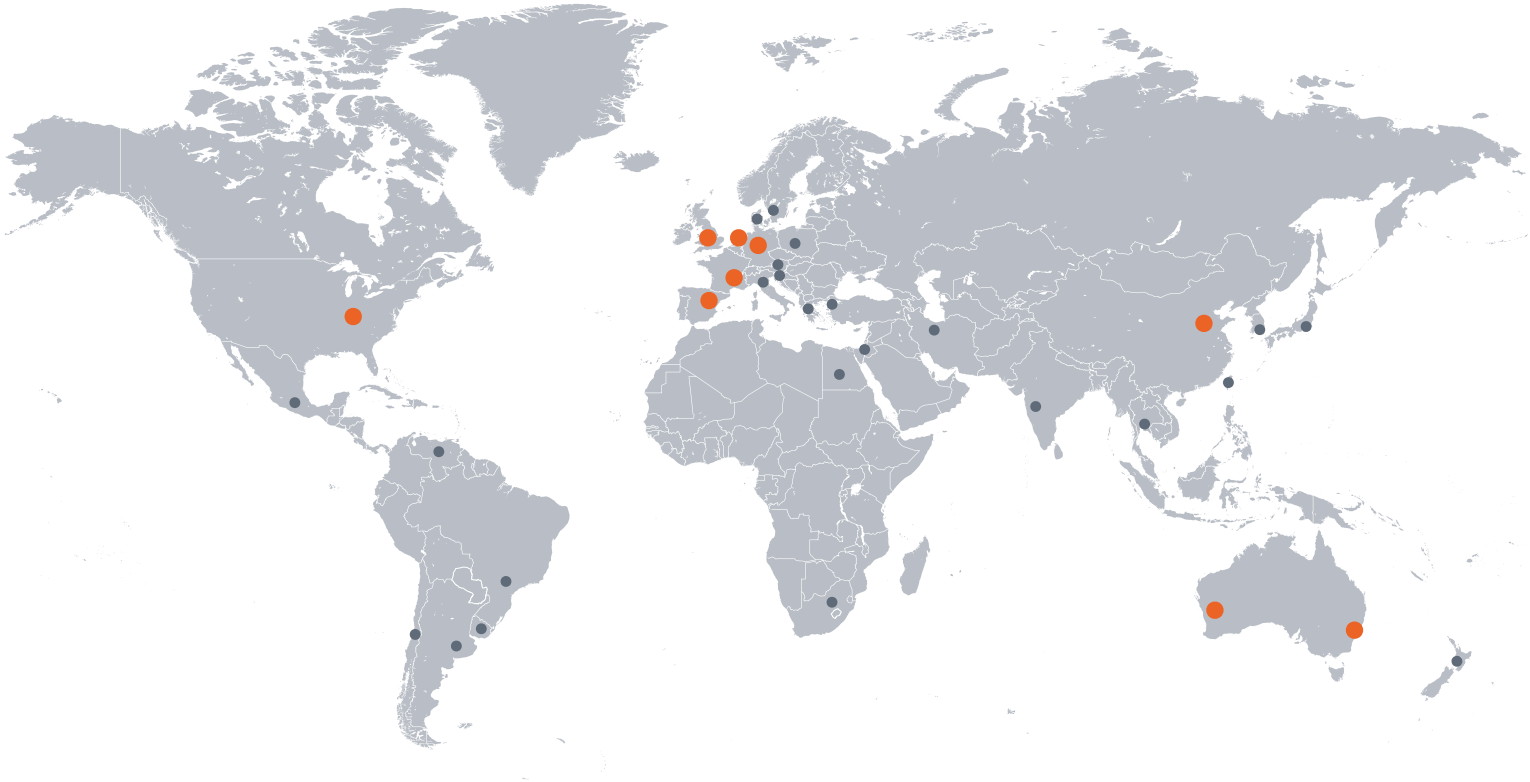
Dust protection signifies an enclosure of the entire screening machine. The aim is to avoid the escape of dust to the largest extent possible. Either the screening machine is supported by a frame, which also supports the dust protection made of steel segments, or the dust protection is designed so robustly at the suspension points that it supports the screening machine. Access to the screening machine is ensured through doors on the feed and discharge sides. The non-vibrating underflow collection hopper can be bolted to the base frame of the dust protection housing and thus also offers excellent protection against any escaping dust.

Double unbalance gear units

A SIEBTECHNIK double unbalance gear unit provides the necessary working torque for the desired vibration amplitude of the screening machine. The number and form of the unbalances can be adjusted in steps and can be operated over a rotational speed range agreed with us.

Double unbalance gear units and stepped gap grate

One Solution. Worldwide.



SIEBTECHNIK TEMA provides more than 50 local support offices worldwide as well as main sites located in:

Mülheim an der Ruhr, Germany | Rijswijk / The Hague, The Netherlands | Madrid, Spain
Daventry, Great Britain | Mundolsheim, France | Sydney & Perth, Australia | Cincinnati, USA
Tianjin, China

We are experts in the field of solid-liquid separation and the processing of bulk materials

Automation | Channel conveyors | Crushing & Milling Equipment | Control Screening Machines
Decanter | Dryers | Laboratory Equipment | Pneumatic Tube Systems | Preparation Systems
Process Equipment | Pulsator Jigs | Pusher Centrifuges | Sampling Systems | Screening
Machines | Screen Worm Centrifuges | Sliding Centrifuges | Vibrating Centrifuges

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