

# Screening Machines Process Equipment



Circular and elliptical motion screens  
Double counterweight screens

# Modern Classification

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Double counterweight screen BHG, for pre-classifying raw washed coal

Classification, the dividing of granular material into various size groups, is one of the most important steps in the production process.

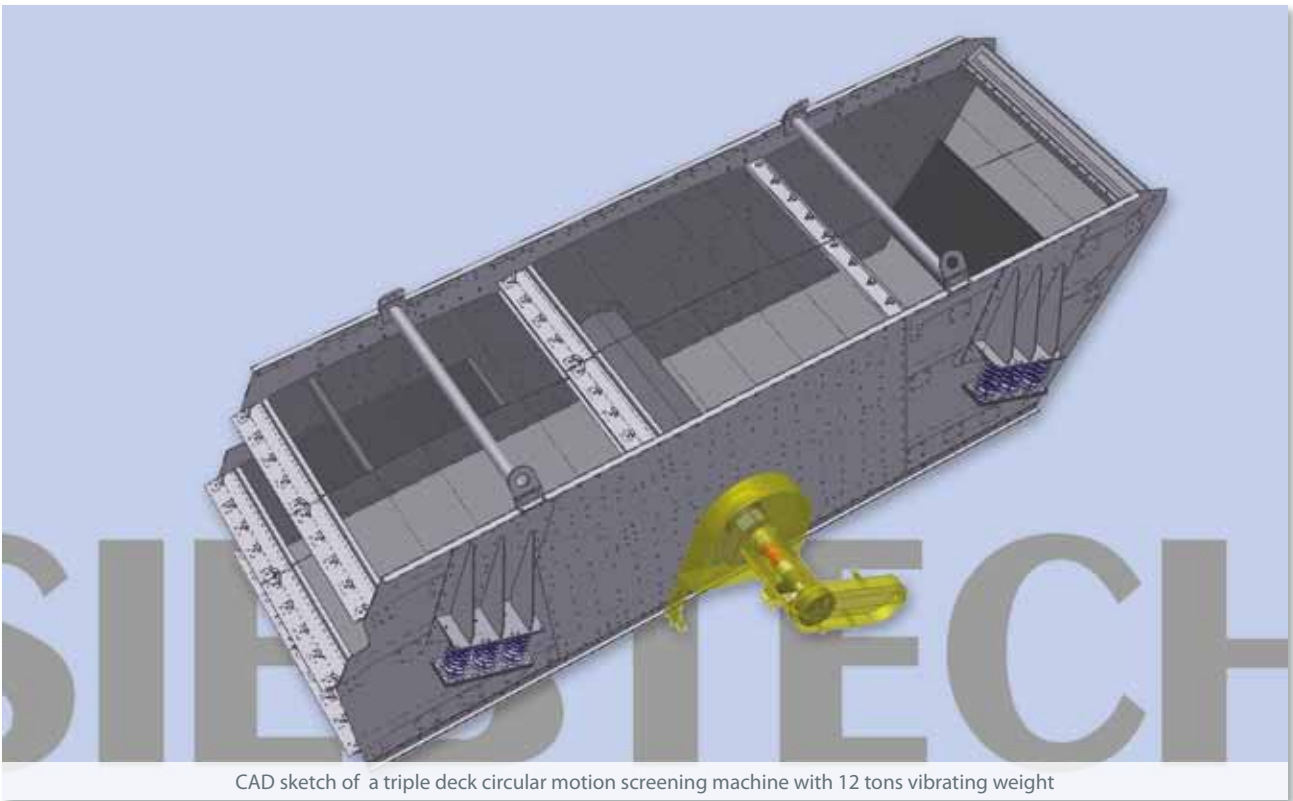
Screening in the broader sense also encompasses thickening, pre-screening, control screening, dewatering and deslurrying. The screening result depends on the correct assessment of the material to be screened, the choice of mesh and the execution and adjustment of the screening machine.

The success of screening is determined by the quality of the product obtained, ie. the proportion of undersized/oversized particles in the various grades.

It is evident that the best result cannot be achieved cost effectively with just one type of screening machine for all applications. The requirements are too demanding and materials too numerous.

It is therefore advisable to refer your problem to a specialised screening machine manufacturer. SIEBTECHNIK does not only have an extensive range of machines in its delivery program but has also qualified staff with worldwide experience in your particular field.

Furthermore SIEBTECHNIK is exemplary with respect to After-Sales-Service and the quick and sustainable supply of wear and spare parts also for older machines.



CAD sketch of a triple deck circular motion screening machine with 12 tons vibrating weight

Modern screening plants are judged by the quality of material produced, specific throughput, sustainability, rigid design, availability, power consumption and personnel required, in other words, the overall economy.

The ever increasing demand for higher throughputs, calls for larger machines, not least because they are more economical. Having recognised this trend decades ago, SIEBTECHNIK started to develop and manufacture „large screening machines“, for preparation plants with high capacities.

The SIEBTECHNIK screens with widths up to 5.5 m and lengths up to 11 m have been used successfully in the important industrial and mining nations.

At the same time, our wide range of screening machines for small and medium capacities is also being developed further using up to date technology. We build and supply specialised screening machines for pre-screening, underwater screening and sand-screening.

They can be mobile, stationary, with dust covers, or for classifying under inert gases etc.

According to process requirements crosswise and longitudinally tensioned wire meshes, pressure welded grids, polyurethane panels of all leading suppliers, punch plates as well as stepped grizzly grids can be applied on our machines.

All machines are designed with modern CAD-Systems and present off the shelf or tailor made solutions for almost any screening problem.



# Circular motion screening machine "REKORD"



Circular motion screen REKORD, with 2 decks

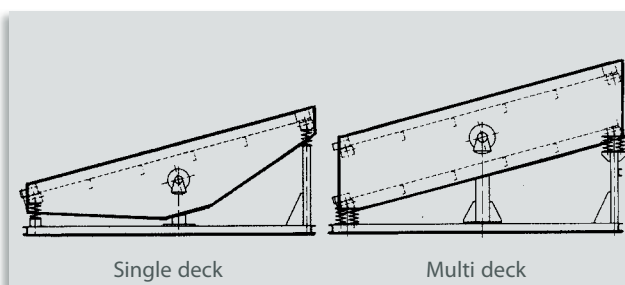
## Applications

- sand and gravel, building materials
- rocks, crushed stone, chippings
- minerals, copper and iron ores, pellets, sinter
- coal, coke, petrol coke
- chemical products, fertilizers, granular materials
- salts, sugar
- compost, refuse, refuse slags

## Operational characteristics

SIEBTECHNIK circular motion screens are freely vibrating. This means that the amplitude is self regulating depending on the relationship between the weight of the screen itself and the counterweight.

Circular motion machines have a steep angle of throw and therefore require an inclination of  $10^\circ - 18^\circ$ . Exceptions are the dewatering screen at  $3^\circ - 5^\circ$  and steep screens, for example when screening sand at an angle of  $20^\circ - 40^\circ$ .



## Machine details

The screen frame, consisting of side plates and cross-members, absorbs all static and dynamic forces. The drive shaft with counter weights runs in 2 roller bearing which are positioned at the centre of gravity. Drive is either via V-belts or flexible coupling.

Larger machines can be additionally equipped with a primary shaft and centrifugal coupling. Lubrication of the bearings is either by oil or grease.

The screen frame with 4 sets of springs rests on the support construction and can be manufactured to accept lengthwise or crosswise tensioned sieves as well as flat panels.

For dusty materials we can supply the machines with either a dust hood or a complete dust enclosure.

### Technical Data

Effective width	mm	from	400	up to	2700
Effective length	mm	from	800	up to	8000
Inclination	degree	from	8	up to	40
Speed	min <sup>-1</sup>	from	800	up to	3000
Amplitude	mm	from	2	up to	12
Angle of throw	degree	from	75	up to	85
Vibrating weight	t			up to	14

We reserve the right for technical changes.

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## Circular motion screening machine "REKORD"

Circular motion screen REKORD, in two deck execution with water sprays on both decks, for washing and classifying uncrushed gravel. Separation 8 mm and 4 mm.



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## Linear motion screening machine type HR/HR-E

For applications requiring smaller linear motions screens up to 1.500 mm in length and 4.000 mm in width (e.g. dewatering of sand or gravel, drilling mud, combustion chamber slag) we design horizontal, inclined or declined linear motion screens with unbalanced motors fixed at the top or below the screen deck.





# Double counterweight screening machine "HG" \_\_\_\_\_



Double counterweight screen HG, with 3 gearboxes, size 41 S

## Applications

- sand and gravel, building materials
- rocks, crushed stone, chippings
- minerals, iron and copper ores, pellets, sinter
- coal, coke, petrol coke
- chemical products, fertilizers, granular material
- salts, sugar
- compost, refuse, refuse slags
- aggregates and limestone

## Operational characteristics

SIEBTECHNIK double counterweight screening machines are freely vibrating with a linear motion. The angle of throw is determined by the construction and application but is usually 35° - 60°.

The counterweight can be adjusted in stages from 50 - 100 %. In this way the amplitude can be adjusted to meet the operational requirements.

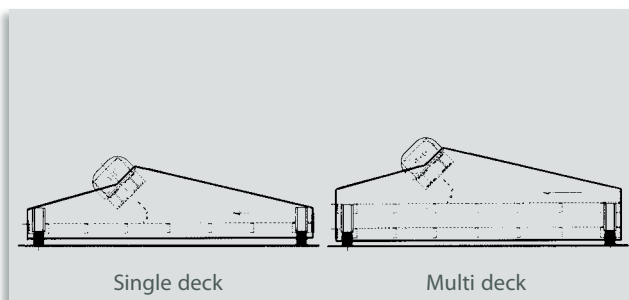
## Machine details

The screen frame, consisting of side plates, cross-members and drive, will absorb all static and dynamic forces. In most cases but not always the double counterweight drives (exciters) are located above the screen panel on rigid support beams. Six gearbox sizes allow a good selection for a specific application.

The drives are easily and quickly changed. The exciters are designed, manufactured and if required maintained by SIEBTECHNIK. Power transmission from the motor is via coupling or V-belts.

4 spring units connect the machine to the support construction. Recoil action is minimal. Nonetheless SIEBTECHNIK designs, manufactures and delivers tailor made isolation frames for further reduction of dynamic loads if required.

The screen frame can be manufactured for lengthwise or crosswise tensioning as well as flat decks.



## Technical Data

Effective width	mm	from	800	up to	5500
Effective length	mm	from	1900	up to	11000
Inclination	degree	from	0	up to	40
Speed	min <sup>-1</sup>	from	700	up to	1000
Amplitude	mm	from	6	up to	16
Angle of throw	degree	from	35	up to	60
Vibrating weight	t			up to	> 30

We reserve the right for technical changes.

## Double counterweight screening machine "HG"

Double counterweight double deck screen HG, equipped with 3 SIEBTECHNIK exciters size 31 for the classification of washed coal.



A row of 6 closed double counterweight screens HG-C with drive below the screen deck for the treatment of refuse incineration residues.



Double counterweight screen HN, with dustproof, insulated enclosure, for classifying asphalt aggregates at nearly 400 °C to be assembled on top of an asphalt mixing plant.



# Double counterweight screening machine "BHG" \_\_\_\_\_



Double counterweight banana screen for dewatering in a potash mine

## Applications

- coal, raw and washed
- iron and copper ores, minerals, granular material, pellets
- potash and halite
- aggregates, limestone
- sand and gravel, building materials

## Operational characteristics

SIEBTECHNIK „Banana“ screens are high speed screening machines. Due to the steep screen inclination, high transport speeds are achieved. A very fine layer is formed and a large proportion of the fines pass through the elongated apertures. The inclination is less in the middle and discharge sections, which reduces the transport speed. In these sections a good separation, even of marginal particles, is achieved.

SIEBTECHNIK "Banana" screens achieve a very accurate separation, even with extremely high feed rates and difficult material. Originally „Banana“ screens were developed for two separations and have proved themselves in that field.

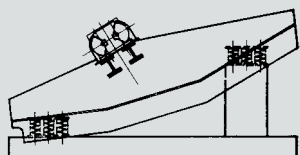
However they have also been used successfully many times on multiple separation applications.

## Machine details

"Banana" screens of type BHG are double counterweight screening machines the same as the type HG described on page 6 and have therefore the same technical characteristics. We manufacture these screens as single or double deck machines, of two to five sections with gradually flattening inclination. E.g. In the steep part it might be 25° - 40°, in the middle sections 15° - 25° and 0° - 15° towards the discharge. The effective screening areas can be up to 50 m².

The quantity of inclination sections and their degree of slope can be designed according to specific requirements (e.g. restrictions in height of the steel structure of the processing plant).

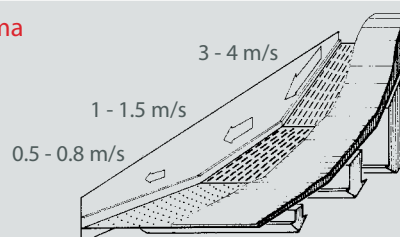
### Technical Data



Effective width	mm	from	800	up to	5500
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Inclination	degree	from	0	up to	40
Speed	min <sup>-1</sup>	from	700	up to	1000
Amplitude	mm	from	6	up to	16
Angle of throw	degree	from	35	up to	60

We reserve the right for technical changes.

### Working schema





## Double counterweight screening machine "BHG"

Double counterweight single deck screen BHG for screening of iron ore pellets and sinter at a feed rate of up to 2000 t/h and a cut point of 5.6 mm.



5 double counterweight single deck screens BHG, size 2.2 x 4.8 m, for the wet classification of diamond bearing rock.

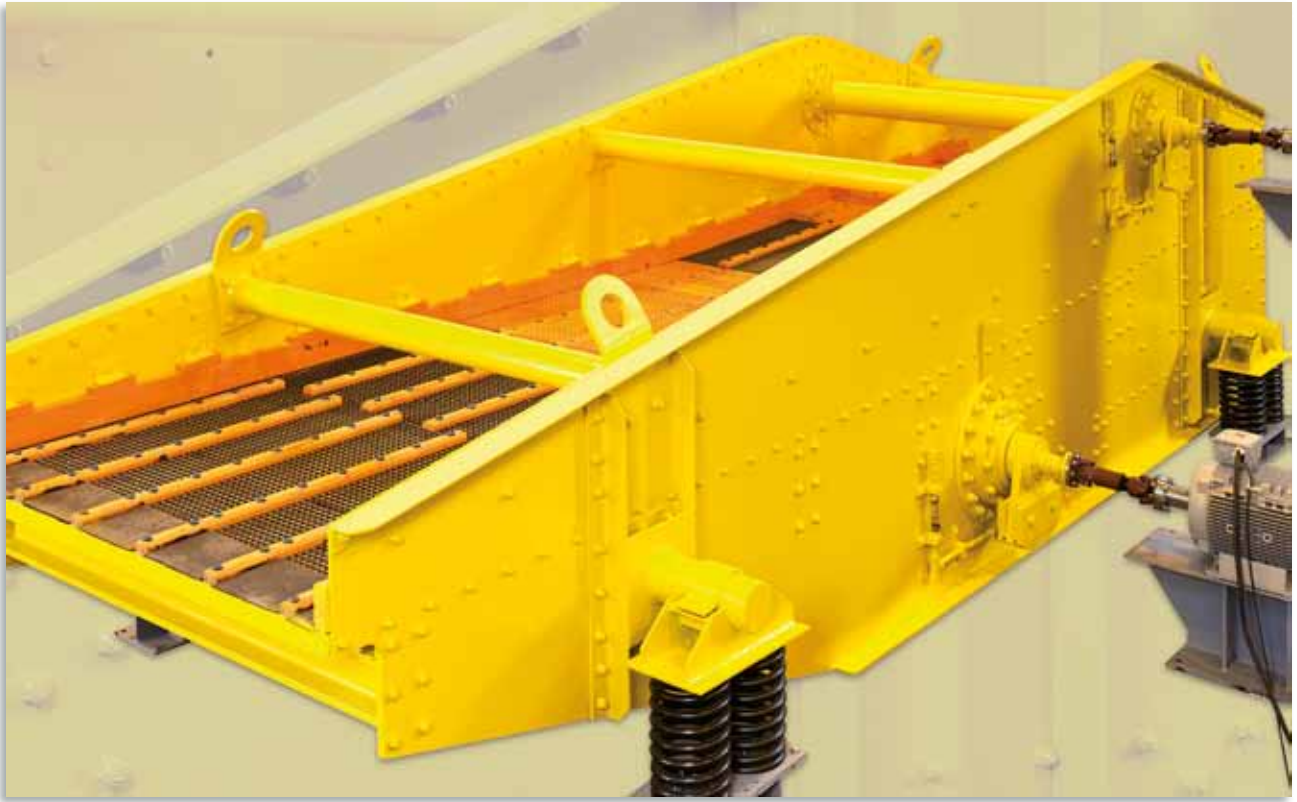


Double deck banana screen type BHG 27/73 II for a copper mine in Chile.



## Elliptical motion screens

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The elliptical motion screening machine combines the advantages of circular and linear motion screens thus ensuring higher specific throughputs and less blinding. Based on robust engineering and proven SIEBTECHNIK components the double shaft drive with electronic control utilises the master/slave principle.

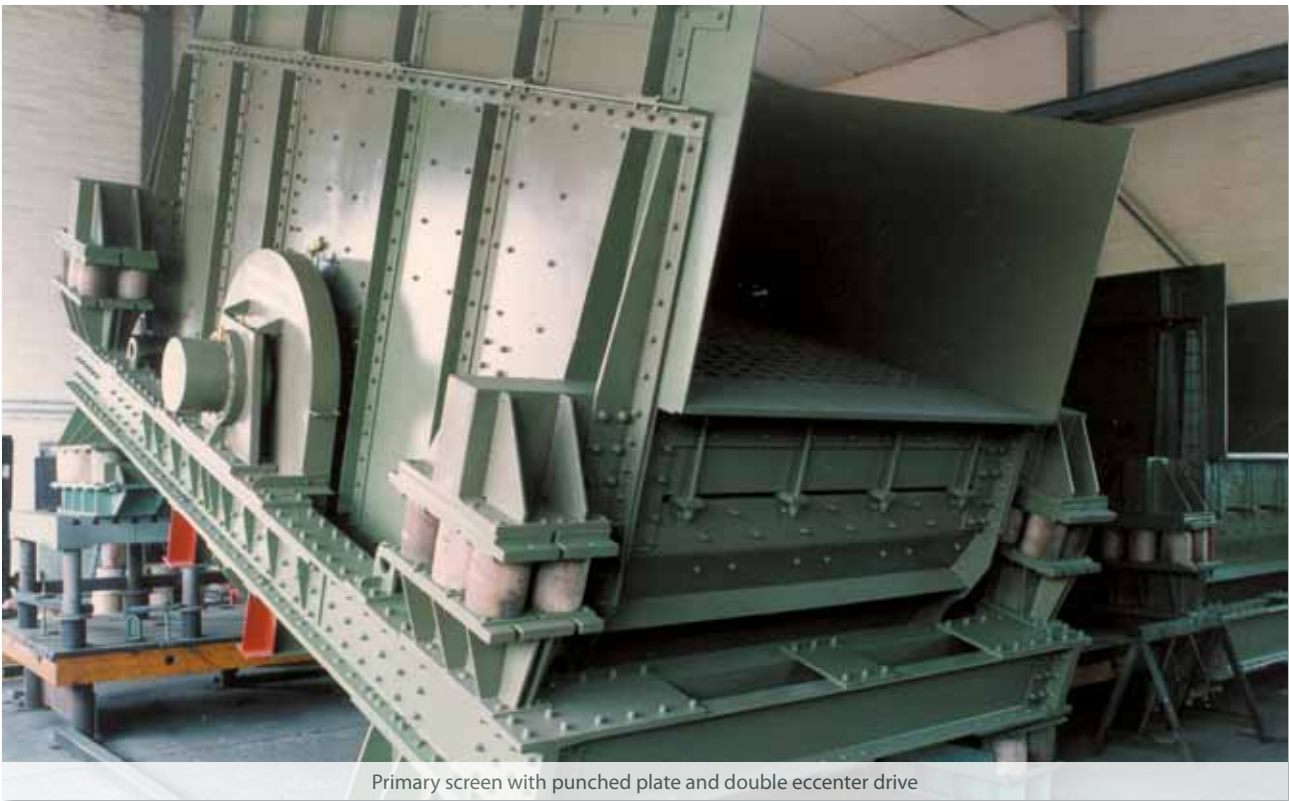
The infinitely variable angle of throw as well the vibrating frequency can be adjusted during operation just by pushing a button to optimise efficiency, thus saving valuable production time.

With a profi Bus interface connection to the customer's plc it is possible to program certain acceleration and elliptical parameters according to varying feed conditions. It is also possible to program a cleaning run with vertical Ellipsis and maximum acceleration in order to eject near mesh grains. This prevents blinding and reduces downtime caused by otherwise necessary manual cleaning.

The design of the drive system within the machine frame enables you to install the machine even in narrow installation situations with little available height.







### Primary screens

- with punched plate or stepped grids
- Circular motion  
**Type: REKORD**
- Linear motion  
**Type: HG**  
with SIEBTECHNIK-double counterweight exciter
- Eccenter drive  
**Type: VS**

SIEBTECHNIK primary screens with heavy punched plate or stepped grids have for years been very successful under the most arduous conditions.

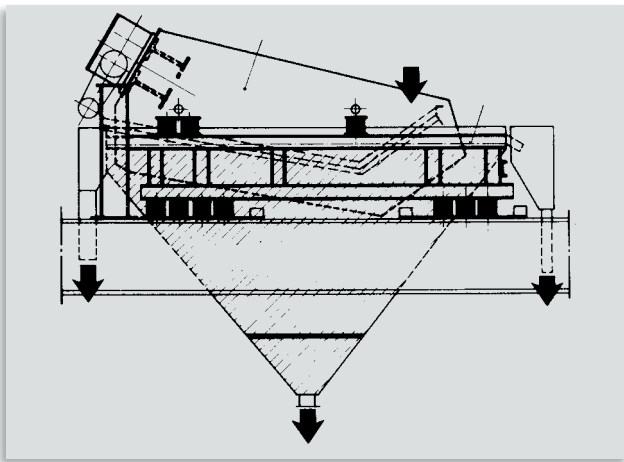
The screens are mostly used prior to the first crushing stage in limestone or hard rock-quarries, ore mines and slag preparation plants. The stepped decks achieve a good tumbling action for the material.

Where the feed material tends to peg, we suggest stepped grids with slots that widen towards the discharge end. We build these machines with a width of up to 2000 mm and a length of 4000 mm.





## Double counterweight screening machine "UHG" \_\_\_\_\_



SIEBTECHNIK underwater screening machines type UHG, have proved successful for the precise classification of minerals. The screen deck of this type of machine has a steep incline at the feedend which is immersed in the watertank, and rises at a flatter angle towards the discharge end.

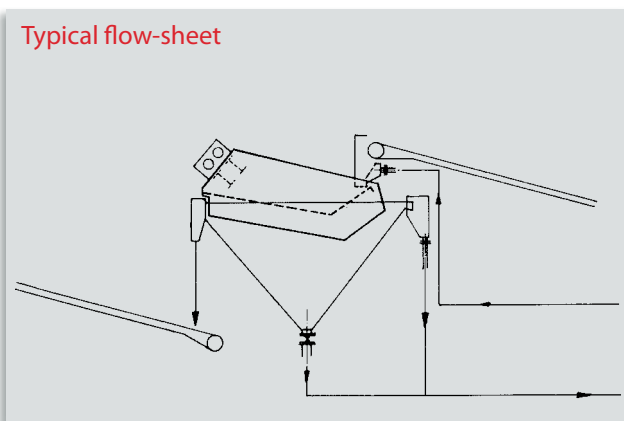
It emerges from the water after about 2/3 of the machine length. The material is already intensively mixed with water before reaching the submerged deck, at which point it becomes a slurry and will be classified.

The intensive linear vibrations ensure the breakdown of any agglomerates, separation of sticky particles and a very clean cut. The oversized material is transported upwards towards the discharge end and is dewatered on the last third of the screening deck.

A pump at the bottom of the watertank regulates the water level / overflow and also extracts the undersized material.

We build underwater screens in widths of 1000 - 2000 mm and one uniform length of 4000 mm. We can achieve cuts as small as 0.5 mm.

### Typical flow-sheet



# Sand screening machines



Mobile sand screening plant consisting of circular motion screening machine, feed hopper, belts and chassis.

## Sand screening machines

- with circular motion

**Type: REKORD**

- with linear motion

**Type: HG**

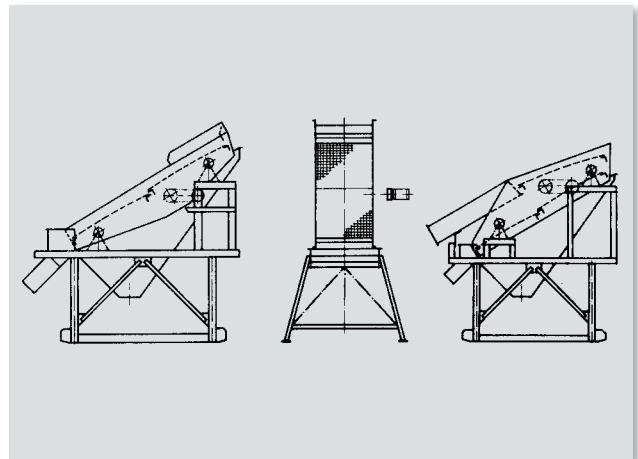
For materials with a critical moisture content or a small clay content, such as naturally moist sand which would blind normal screening machines, we recommend our sand screening machines with an inclination of 25° - 40°. The circular motion machines operate on the contra-flow basis, whereas the throw is almost vertical on the linear motion machines.

The specific feed capacity of these sand screens is determined mainly by the moisture, clay content, size and shape of the material, together with the size and shape of the aperture. We find harps with thin wires or long slots particularly successful.

We can supply sand screens complete with chutes and hoppers, on skids or fully mobile, with 1 or 1 1/2 decks. They are available in the following effective screen sizes:

- |                  |                  |
|------------------|------------------|
| • 1000 x 2500 mm | • 1000 x 3000 mm |
| • 1200 x 2500 mm | • 1200 x 3000 mm |
| • 1600 x 3000 mm | • 1600 x 4000 mm |
| • 2000 x 4000 mm |                  |

Special executions on request.



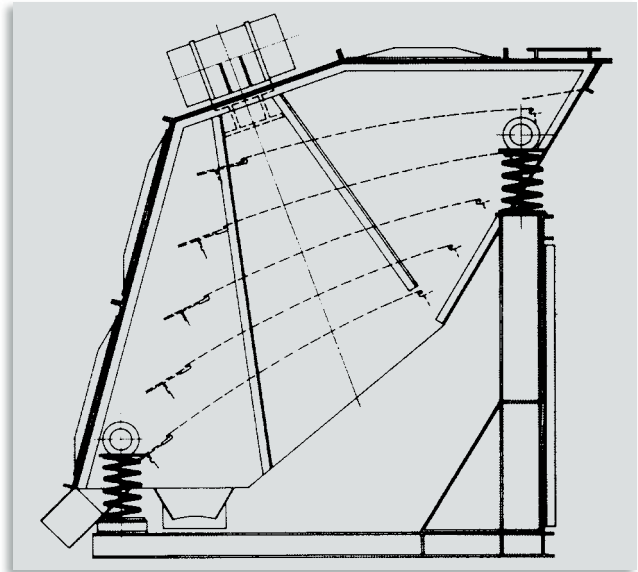
Sand screening machine, type HG



## Multi deck screening machines "MDS"



Multi deck screen, type MDS, in a rock quarry



High capacity in a small area. For pre-classifying, thickening, and classifying difficult materials we recommend our multi deck screening machines with up to 5 decks, for applications with a relatively high content of marginal particles and acritical moisture. The steep angle, particularly on the lower decks, provides „thin layer“ screening, allowing high throughputs and accurate cuts even with smaller apertures.

## Special screening machines

We supply screening machines in light executions for classification, filtration, control screening or for smaller feed rates:

- as single and multiple deck screens
- of normal steel, stainless steel or aluminium
- stationary, on skids or mobile
- with or without dust enclosures
- gastight for inert gas purging

Screening machines for industrial and domestic waste, refuse compost and other areas of refuse removal and recycling, have been part of our delivery program for many years. Even for apparently impossible screening problems you should contact us. A well trained team of engineers and more than 80 years experience are at your disposal.



Circular motion screen REKORD for screening of cattle food



## Screening machines for all screenable materials



**Double counterweight screen HG**  
for de-watering



**Circular motion screen REKORD**  
size 1.6 x 4.0 m, for screening wet sand



**Double counterweight screen HG**  
for the classification of scrap metal in a shredder installation



**Circular motion screens REKORD**  
size 1.4 x 4,5 m, for dewatering of insulation material



**3 circular motion screens REKORD**  
for classifying sand and gravel in a preparation plant



**Linear motion screen type HR-C**  
for screening of drilling mud

# Delivery Program

## Screening Machines Process Equipment

circular and elliptical motion screens  
double counterweight screens  
multideck horizontal screen  
round screens  
jigs

## Sampling Systems, Airtube Systems, Size Reduction Machines, Laboratory Equipment, Control Screening Machines and Automation

individual units and complete installations  
for sample taking and preparation  
airtube systems  
jaw crushers  
roller mills  
hammer and hammer impact mills  
eccentric-vibrating mills and ball mills  
control screening machines  
analytical screening machines  
splitter  
testing drums  
automation

## Centrifuges

scroll-screen centrifuges  
pusher centrifuges  
sliding discharge centrifuges  
vibratory centrifuges  
decanter centrifuges