

Starscreenmachines and their possible applications




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Screening, separating, mixing

Backers Maschinenbau GmbH manufactures star screening and mixing technology for stationary and mobile applications. The portfolio also includes pre-separators such as bar grates and grizzly screens, as well as separation technology with magnetic separators and air classifiers.



Assembly hall for the production of stationary and mobile star screens at the Twist site.



The starscreens are manufactured with an electric or hydraulic drive. In addition, Backers offers many custom-made products.



2 starscreendecks in series with an electric drive.



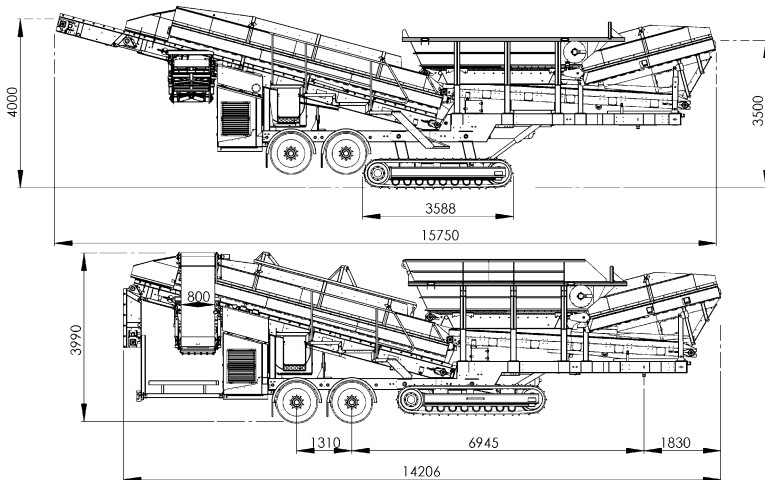
Starscreen with 1.7 m screen width as a protective screen for a sewer excavation feed pump. Screening is implemented at a diameter of 60 mm and a maximum length of 180 mm. The fine fraction is delivered 500 - 800 m by 3 concrete pumps.

Starscreen in compost



Starscreen 3-mta

For compost, 2- or 3-fraction starscreens can be used. For such materials, the machine can be equipped with hopper elevation and a suction device. In addition to the standard star screen width of 1.2 m, Backers also offers a version with a 1.7 m screen width for organic materials.



Waste wood preparation for incineration



2 breakwaters of performance class 50t/h with starscreen 2-tb17

Backers starscreens are also used for screening organic materials. Here, the procedure consists of first breaking and then sifting.

Heavy and very strong, slow-running roller breakwaters crush the waste wood. This process produces relatively low dust emissions, as well as low fuel consumption and wear. Door locks, hinges and even bicycles are no problem for these heavy breakwaters. Metal is removed by an overband magnet.

However, the slow-moving breakwaters cannot reduce the waste wood to the desired length in one operation. The starscreen sifts out the fine material and conveys the excess lengths back into the breakwater.

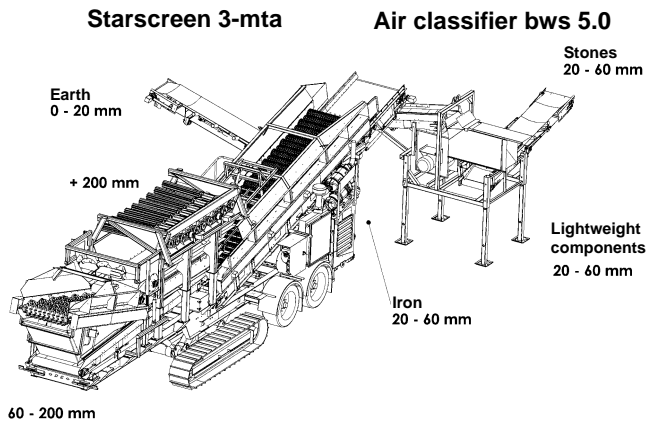


2 breakwaters of performance class 30t/h with starscreen 2-sbe

6-fraction processing plant for soil-stone mixture



The mobile 3-fraction starscreen 3-mta with grizzlyscreen and magnet can separate contaminated soil into 6 fractions in combination with air classifier bws 5.0. The combination can be used on site after a short setup time and operated at 100 - 150 t/h. With this plant, mobile processing of soil with RC products is possible. An excavator fills the grizzlyscreen, which sorts out components larger than 200 mm. The material is then screened on the coarse star screen, e.g., at 60 mm. In this way, the material flow of 0 - 60 mm is loosened up in two stages until it is sifted again on the 6.7 m long fine star screen, e.g. at 20 mm. The 20 - 60 mm fraction is cleaned very well by multiple and intensive screening.





When these fractions are transferred to the air classifier, iron is removed by a magnetic roller. The air classifier then blows out lightweight components with an adjustable, strong air flow. Processing takes place without manual separation.

The wheel and track mobile starscreen 3-mta can be used in combination the air classifier bws 5.0 on at construction sites as of 700 m². The screened soil is reused on site; if possible, the cleaned stones in a fraction of 20 - 60 mm are also used. The iron fraction is recycled and the lightweight fraction is sent to a landfill or reprocessed again. Fractions > 60mm could be crushed and then be reused either separately or after another pass on the processing plant with the fraction of 20 - 60 mm. The processing plant is preferably operated with ab excavator and wheel loader (wheel loader only is also possible).

Structural and civil engineering companies can conserve resources with this process and, according to German regulation BBodschV (Soil Protection and Contaminated Sites Ordinance), use up to 90% of the products produced on site. Many transports and work steps are eliminated, as only a small amount must be sent to a landfill. The starscreen from Backers is also suitable for use in overburden made up of a soil mixture with roots.

The mobile starscreenmachine is driven by diesel or electrohydraulic power. Air classifier bws 5.0 is electrically powered with a 32 amp plug connection.

Soil recycling with 2- and 3-fraction starscreens

Overburden, clay soils and red layer are easily cleaned with the starscreen and then crushed with an impact breakwater. This produces clean and easily recyclable material flows. Screening first, followed by crushing.



Starscreen 2-ta with impact breakwater

The newly developed “grizzlyscreen” on the material feed hopper is equipped with strongly mounted, rotating rollers. It is filled by an excavator or wheel loader and separates material larger than 200 mm. Cohesive soil is loosened at the same time and then sifted on starscreen 2-ta at a separation size of 22/25 mm. The cleaned stones are then fed to the impact breakwater and crushed. In this way, very clean material is produced with very high output in a single operation. The well-cleaned stones from the clay soil can therefore be used as a frost layer. The screened soil can be used as fill material (on site).



Starscreen 3-tbl+ (with bar grate and longer coarse screen)

Soil stabilisation



Starscreen 3-mtbc

If the soil needs additional conditioning, the 3-fraction starscreen can be turned into a screening- and mixingmachine using a binding agent container instead of the fine screendeck. Cohesive soil can also be stabilised. The soil is first roughly screened and then stabilised. The strength of the soil is adjusted to the desired soil pressure by means of a quantity of binding agent. The recycling of the soil promises high CO₂ and energy savings with minimum construction costs and construction time.

The capacity for screening or stabilising soils can be 200- 300 t/h. Soil recycling with exact addition of binding agents makes sense with regard to the environment and pays off.



Starscreen 3-mtac

Fluidised soil

With additional equipment, the machine can also produce fluidised soil.



Starscreen 3-mtbc

The starscreen is used to screen out larger stones. The loosened soil is then weighed using belt scales and mixed with an appropriate amount of binding agent. Agglomerates are then crushed using a hammer roller and the soil is mixed with the binding agent. During the transfer into the truck mixer, a predetermined amount of water is conveyed into the truck mixer at the same time.



Starscreen 3-mtbc

The binding agent is conveyed by compressed air from the storage silo into the binding agent container of the screening- and mixingmachine. The documentation is carried out in batches. A liquid soil system with performance for on-site use = short distances, sustainability and compliance with German regulation BBodSchV.

Starscreen technology for pipeline construction with starscreen 2-ta and SPM17



Starscreen 2-ta can be used as a 2-fraction starscreenmachine for different materials and as a padder in pipeline construction. A bar grate or “grizzlyscreen” is placed above the material hopper to separate large stones, presorting large stones and loosening up the material to be screened. Starscreen 2-ta sifts at 20 mm, for example, and conveys the fine material back into the pipe trench. The machine moves along the pipe trench under radio control.

For larger applications, Backers has developed star screen padder machine SPM17.



Padder SPM17 is a starscreenmachine that runs on crawlers, with material pick-up by an elevator chain. The safety cab is equipped with heating, air conditioning, safety glass and a video system. The cabin is additionally secured by a tubular frame. A monitor with 4 cameras supports the driver, who operates the machine from the left or right. All operating levers, joystick and machine monitoring are moved to the respective position (left or right) with the ergonomic and rotatable driver's seat, enabling clear and relaxed work in all weather conditions, even in the dark. The fine grain belt is coupled with the starscreen and the collector belt and discharges the screened material to the side. It is moved sideways and can convey to the left or right for more or less the same distance (1-5 m next to the machine).

Starscreen hook lift



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