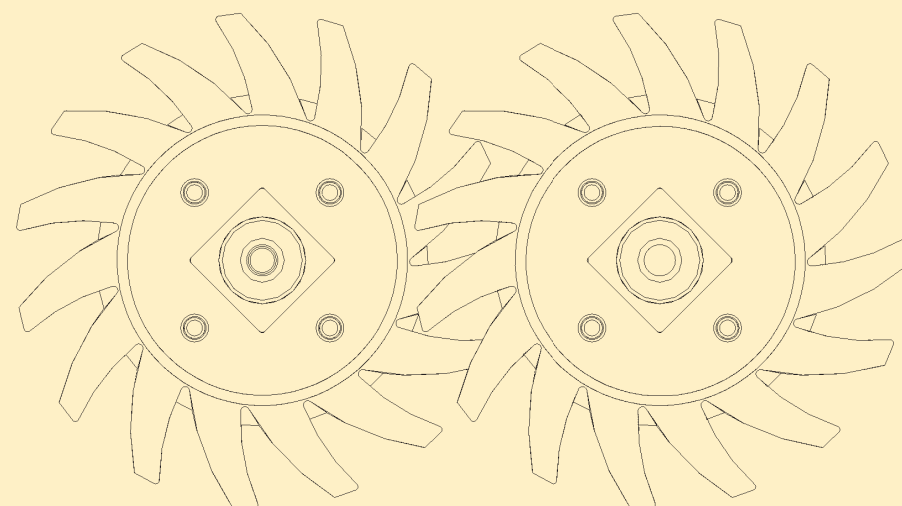


Mineral or organic material is usually part of a mixture, for example earth, gravel, wood chip, compost etc. The respective material can be used only if the different fractions are separated according to size. Starscreen technology is a particularly reliable and efficient solution for such problems.



Starscreens consist of screening stars with elastic fingers fitted to star-screen shafts. During the screening process the shafts rotate in one direction. They draw the material to be screened evenly over the screening stars and loosen it. Fine material turns in the free space between the fingers and falls onto a conveyor belt below. To some extent screens and hubs automatically clean themselves by combing the front and rear shafts with the stars. The elasticity of the screening fingers helps with the self cleaning.

### Main advantages of starscreen technology:

- excellent screening
- low exhaust emissions
- cleaning effect on coarse fraction
- minimizes agglomerates
- fine grain portions length limit
- height gain when screening

Since 1989 Backers Maschinenbau has built up comprehensive know-how in starscreen technology. Equipment is manufactured by the experienced Backers team in our own factory in Twist. Our future product program will be characterised by quality and innovation.

## STARSCREEN 3 FRACTION TECHNICAL DATA

Machine	3-ma	3-mal	3-mta	3-mtal	3-mta17
Length (Work / Transport)	16,22 m / 14,72 m	15,12 m / 14,62 m	16,22 m / 14,72 m	18,12 m / 16,62 m	18,10 m / 16,60 m
Width (Work / Transport)	5,76 m / 2,55 m	5,76 m / 2,55 m	5,76 m / 2,55 m	5,76 m / 2,55 m	6,10 m / 3,0 m
Height (Work / Transport)	4,0 m	4,0 m	4,0 m	4,0 m	4,0 m
Weight (approx.)	25 to	30 to	30 to	30 to	30 to
Motor *	168 kW Perkins	168 kW Perkins	168 kW Perkins	168 kW Perkins	168 kW Perkins
Chassis	Semi-Trailer	Semi-Trailer	Semi-Trailer	Semi-Trailer	Semi-Trailer
Capacity	>200 m <sup>3</sup> /h	>200 m <sup>3</sup> /h	>200 m <sup>3</sup> /h	>200 m <sup>3</sup> /h	>200 m <sup>3</sup> /h
Hopper	3-ma	3-mal	3-mta	3-mtal	3-mta17
Volume	8 m <sup>3</sup>	5 m <sup>3</sup>	5 m <sup>3</sup>	5 m <sup>3</sup>	8 m <sup>3</sup>
Dimensions (l x w x h)	3,9 x 1,2 x 1,0 m	3,9 x 1,2 x 1,0 m	3,9 x 1,2 x 1,0 m	3,9 x 1,2 x 1,0 m	3,9 x 1,2 x 1,0 m
Loading height	3,35 m	3,35 m	3,35 m	3,35 m	3,35 m
Screening deck	3-ma	3-mal	3-mta	3-mtal	3-mta17
Dimensions (l x w) Deck 1	3,2 x 1,2 m	3,1 x 1,2 m	3,2 x 1,2 m	3,2 x 1,2 m	3,2 x 1,7 m
Grain size	>32 mm	>32 mm	>32 mm	>32 mm	>32 mm
Dimensions (l x w) Deck 2	6,7 x 1,2 m	6,7 x 1,2 m	6,7 x 1,2 m	6,7 x 1,2 m	8,1 x 1,8 m
Grain size	>6 mm	>6 mm	>6 mm	>6 mm	>6 mm
Conveyor belt	3-ma	3-mal	3-mta	3-mtal	3-mta17
Fine grain	0,65 x 3,7 m (r)	0,65 x 3,7 m (r)	0,65 x 3,7 m (r)	0,65 x 3,7 m (r)	0,65 x 3,7 m (r)
Middle grain	0,65 x 3,7 m (l)	0,65 x 3,7 m (l)	0,65 x 3,7 m (l)	0,65 x 3,7 m (l)	0,65 x 3,7 m (l)
Over grain	Discharge at 1. stardeck (f)	Discharge at 1. stardeck (f)	Discharge at 1. stardeck (f)	Discharge at 1. stardeck (f)	Discharge at 1. stardeck (f)

Machine	3-ta17	3-mb	3-mbl	3-mtb	3-mtb17
Length (Work / Transport)	17,83 m / 17,60 m	13,66 m	5,52 m	13,66 m	16,53 m
Width (Work / Transport)	7,25 m / 2,55 m	5,39 m / 2,55 m	5,39 m / 2,55 m	5,39 m / 2,55 m	6,83 m / 3,0 m
Height (Work / Transport)	4,0 m	4,0 m	4,0 m	4,0 m	4,0 m
Weight (approx.)	25 to	30 to	30 to	30 to	30 to
Motor *	168 kW Perkins	168 kW Perkins	168 kW Perkins	168 kW Perkins	168 kW Perkins
Chassis	Tracks	Semi-Trailer	Tracks	Semi-Trailer + Tracks	Semi-Trailer + Tracks
Capacity	>200 m <sup>3</sup> /h	>200 m <sup>3</sup> /h	>200 m <sup>3</sup> /h	>200 m <sup>3</sup> /h	>200 m <sup>3</sup> /h
Hopper	3-ta17	3-mb	3-mbl	3-mtb	3-mtb17
Volume	8 m <sup>3</sup>	5 m <sup>3</sup>	5 m <sup>3</sup>	5 m <sup>3</sup>	8 m <sup>3</sup>
Dimensions (l x w x h)	3,9 x 1,2 x 1,0 m	3,9 x 1,2 x 1,0 m	3,9 x 1,2 x 1,0 m	3,9 x 1,2 x 1,0 m	3,9 x 1,2 x 1,0 m
Loading height	3,35 m	3,35 m	3,35 m	3,35 m	3,35 m
Screening deck	3-ta17	3-mb	3-mbl	3-mtb	3-mtb17
Dimensions (l x w) Deck 1	3,2 x 1,7 m	3,2 x 1,2 m	5,1 x 1,2 m	3,2 x 1,2 m	3,2 x 1,7 m
Grain size	>32 mm	>32 mm	>32 mm	>32 mm	>32 mm
Dimensions (l x w) Deck 2	8,1 x 1,8 m	6,7 x 1,2 m	6,7 x 1,2 m	6,7 x 1,2 m	8,1 x 1,7 m
Grain size	>6 mm	>6 mm	>6 mm	>6 mm	>6 mm
Conveyor belt	3-ta17	3-mb	3-mbl	3-mtb	3-mtb17
Fine grain	0,65 x 3,7 m (r)	0,65 x 3,7 m (r)	0,65 x 3,7 m (r)	0,65 x 3,7 m (r)	0,65 x 3,7 m (r)
Middle grain	0,65 x 3,7 m (l)	0,65 x 3,7 m (l)	0,65 x 3,7 m (l)	0,65 x 3,7 m (l)	0,65 x 3,7 m (l)
Over grain	Discharge at 1. stardeck (f)	Discharge at 1. stardeck (f)	Discharge at 1. stardeck (f)	Discharge at 1. stardeck (f)	Discharge at 1. stardeck (f)

Machine	3-mtbl	3-mtbc	3-sb	3-tb	3-tbl
Length (Work / Transport)	15,52 m	13,66 m	16,22 m / 14,72 m	13,66 m	15,52 m
Width (Work / Transport)	5,39 m / 2,55 m	5,39 m / 2,55 m	5,76 m / 2,55 m	5,39 m / 2,55 m	5,39 m / 2,55 m
Height (Work / Transport)	4,0 m	4,0 m	4,0 m	4,0 m	4,0 m
Weight (approx.)	25 to	30 to	15 to	30 to	30 to
Motor *	168 kW Perkins	168 kW Perkins	168 kW Perkins / electrical	168 kW Perkins	168 kW Perkins
Chassis	Semi-Trailer + Tracks	Semi-Trailer + Tracks	stationary	Tracks	Tracks
Capacity	>200 m <sup>3</sup> /h	>200 m <sup>3</sup> /h	>200 m <sup>3</sup> /h	>200 m <sup>3</sup> /h	>300 m <sup>3</sup> /h
Hopper	3-mtbl	3-mtbc	3-sb	3-tb	3-tbl
Volume	5 m <sup>3</sup>	5 m <sup>3</sup>	5 m <sup>3</sup>	5 m <sup>3</sup>	5 m <sup>3</sup>
Dimensions (l x w x h)	3,9 x 1,2 x 1,0 m	3,9 x 1,2 x 1,0 m	3,9 x 1,2 x 1,0 m	3,9 x 1,2 x 1,0 m	3,9 x 1,2 x 1,0 m
Loading height	3,35 m	3,35 m	3,35 m	3,35 m	3,35 m
Screening deck	3-mtbl	3-mtbc	3-sb	3-tb	3-tbl
Dimensions (l x w) Deck 1	5,1 x 1,2 m	3,2 x 1,2 m	3,2 x 1,2 m	3,2 x 1,2 m	5,1 x 1,2 m
Grain size	>32 mm	>32 mm	>32 mm	>32 mm	>32 mm
Dimensions (l x w) Deck 2	6,7 x 1,2 m	6,7 x 1,2 m	6,7 x 1,2 m	6,7 x 1,2 m	6,7 x 1,2 m
Grain size	>6 mm	>6 mm	>6 mm	>6 mm	>6 mm
Conveyor belt	3-mtbl	3-mtbc	3-sb	3-tb	3-tbl
Fine grain	0,65 x 3,7 m (r)	0,65 x 3,7 m (r)	0,65 x 3,7 m (r)	0,65 x 3,7 m (r)	0,65 x 3,7 m (r)
Middle grain	0,65 x 3,7 m (l)	0,65 x 3,7 m (l)	0,65 x 3,7 m (l)	0,65 x 3,7 m (l)	0,65 x 3,7 m (l)
Over grain	Discharge at 1. stardeck (f)	Discharge at 1. stardeck (f)	Discharge at 1. stardeck (f)	Discharge at 1. stardeck (f)	Discharge at 1. stardeck (f)

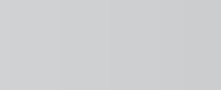
\*Alternatively also available with electric, diesel-electric or electric-hydraulic drive



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3-ma • 3-mal • 3-mb • 3-mta • 3-mta17 • 3-mtb  
3-mtb17 • 3-mtbl • 3-sb • 3-tb • 3-ta18



Backers Maschinenbau is a 7th generation family-run company based in Twist, in the Ems region of Germany. The trademark, the yellow star, signifies the company's focus: Starscreen technology. Backers has been manufacturing starscreen equipment for over 20 years. Mobile and stationary systems for mineral and organic materials are used nationally and internationally, for example in environmental technology, road building and the construction industry.

The company does not just focus on manufacturing the highest quality screening equipment. Backers experts continue to develop and optimise products and components - starscreens, scrapers, cleaning devices, CAN BUS controllers.

Heinz Christian Backers has been managing the company since 1989.

### The family firm's historical milestones:

- 1816 Backers forge established in Twist
- 1956 Development and production of a white turf cutting machine
- 1989 Starscreen technology for the turf cutting industry and foundation of the limited company
- 1991 Mobile 2 fraction starscreen
- 1996 Mobile 2 fraction starscreen with rising screen deck
- 2003 Mobile 3 fraction starscreen - coarse and fine screening
- 2004 Mobile 3 fraction starscreen with wheels / crawler tracks
- 2005 Starscreen and limestone/cement mixer
- 2006 Starscreen with hook lift
- 2008 Starscreen 2-ta with adjustable inclination
- 2009 Stationary screening equipment



## BACKERS 3 FRACTION STARSREEN MACHINE FUNCTIONALITY

The 3-fraction starscreen machines use two screening decks to grade material. They sort out fine grain, medium grain and over-sized grain from the input material. Optionally the 3 fraction screening machines can be equipped with a gridded or vibrating grid.

The material comes out of the hopper into the coarse screener. Here it is loosened for the fine screening deck - an important step for quality. Medium and fine grain arrive in batches and above all evenly on the lower belt, which transports them to the fine starscreen. This layer grades the remaining two fractions.

The optimum size of particles for screening is  $>6$  mm.



The grain size is determined by the size of the screening stars and spacers as well as by the speed of rotation.

### STARSREEN 3-ma

Material drop height over 2.60 m  
Material discharge from the right and the rear.

Environment of the machine can be cleared well.

Recommended, if the machine is to be placed directly by the material or by a wall.

### Green waste

### STARSREEN 3-mal

Version I means: Longer coarse screener.

This version is used if screening between 30 and 45 mm.  
Biomass, bark etc.

Manufactured as semi-trailer and three-axle trailer.



Screened earth  
0-20 mm

STARSREEN 3-mb (three-axle trailer)  
Material discharge to left and right sides.  
Two screening fractions can be deposited in series on the heap by the starscreen.



Wood in  
3 fractions



Compost



Magnetic roll

Air separator

Compost

### STARSREEN 3-ma

Screening solution with air separator and magnetic rolls

### STARSREEN 3-mtb

Maximum flexibility Wheels and crawler tracks



10-60 mm screened wood chips 0-10 mm



Green waste  
0-14 mm

Green waste  
14-60 mm

Green waste  
up to 60 mm



Loamy earth 0-18 mm



60 mm

0-14 mm

Green waste  
14-60 mm



Green waste  
0-14 mm

>60 mm

Precise grading in all three screeners with continually highest throughput.



Thoroughly cleaned  
railway ballast



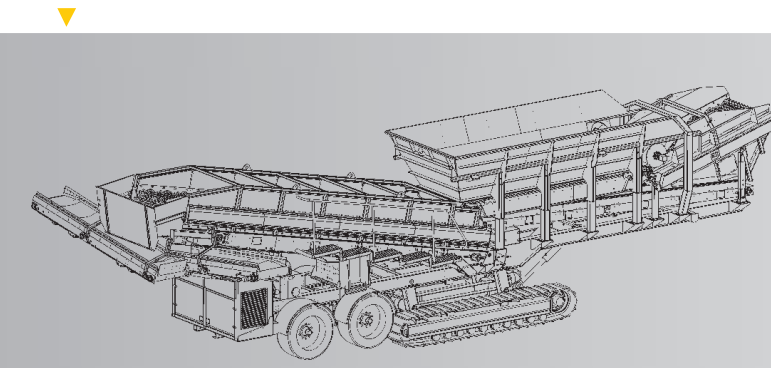
Stones 18-60 mm

Loamy soil 0-18 mm



### STARSREEN 3-mtb17

With 12m<sup>3</sup> hopper. Screening of organic material



### STARSREEN 3-tb

Pure crawler tracked star screening machine which is also developed for requirements in difficult terrain.



### STARSREEN 3-mtb

When screening organic material the hopper is fitted with a dosage screw. Feeding evenly increases the screening quality. By using the crawler tracks, the screened material can be stored in heaps.

### STARSREEN 3-mtb

The grid (or vibrating grid) eliminates large, heavy parts in advance. With additional mixing unit can also be used as starscreen 3-mtbc for earth stabilisation and fluidised soil manufacturing.

Can be driven on roads without a special permit!

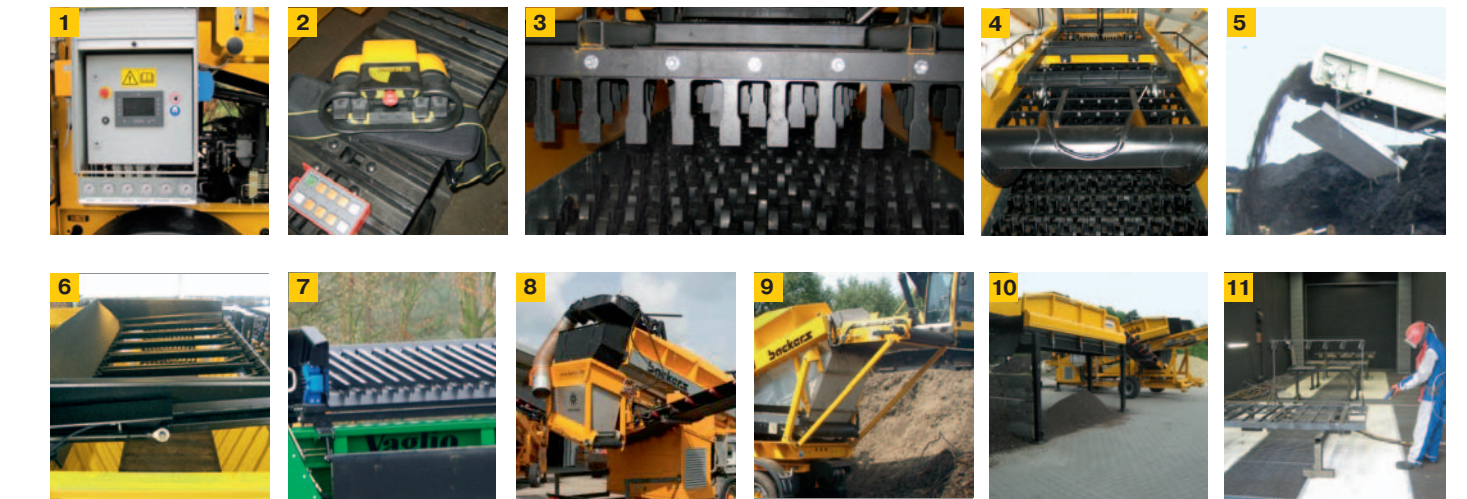
Assembly time: 15 min

### STARSREEN 3-TA17 (Tiger) with 1.7 m screening width and 2.99 m vehicle width

Large dimension crawler track design starscreen technology (25 m<sup>2</sup> screening surface).



### ADDITIONAL COMPONENTS



1. Control unit with special function, 2. Remote control, 3. Cleaning system, 4. Dosing screw and cleaning system, 5. Magnetic rolls, 6. Grilled grid, 7. Vibrating grid, 8. Air separator, 9. Oversized grain discharge transport belt, 10. Auxiliary screener, 11. Sand blasting + 2K paintwork are standard

### ADVANTAGES OF BACKERS STARSREEN MACHINES

- Service and maintenance friendly components.
- Service friendly and centrally arranged engine compartment, this means short hydraulic distances and wiring which leads to optimal operating temperatures.
- Integrated, large hydraulic system.
- Motor and hydraulics from Rexroth and Danfoss. Press and return filter with level shut-off additional optional finishing with Cleanfix-ventilator is available for very dirty materials.
- Specifically developed CAN BUS system for monitoring and programming working processes.
- Improves planning as the whole material is only passed over the short/coarse screening deck instead of the fine starscreen.
- High quality screening through coarse and fine screening. When coarse screening, the fine fraction falls through the screening deck. This thoroughly loosens and homogenises it.
- Better medium and fine grain results through regulated input of material.
- Air separators can be integrated on both screening decks.
- Very hard screening material can be automatically screened with the cleaning system.