

GRIMME

Shaping, separating, planting: Innovative cultivation in 1 and 3 beds



Im verbundenen Einsatz:

- Bedforma BF or BSF
2000 / 6000
- Separator Combi-Star
CS 1500 / 1700 / 6000
- Planting machine
GL 32B / 36B

With this cultivation system it is possible to grow high quality potatoes in non sievable soils

*"Potatoes in extreme stone and
clod free soils?: Those who start
in the spring time with the
Grimme-Bed system will har-
vest well shaped and evenly
grown potatoes without stones
and clods in the Autumn."*

Know how since 1975

Over recent years more and more potato growers start their season on stone and clod free soils thanks to the successful separation system. Grimme has played a leading role as a innovation leader from the beginning and has prepared a complete system for 1 or 3 beds:

1. Bed shaping

with the bedforma BF or BSF 2000 / 6000

2. Separating

with the separator CS 1500 / CS 1700 / CS 6000

3. Potato planting

with the bed-planting machines GL32B / GL 36B

Thinking about the harvest quality

The Grimme Bed system gives the even on extremely stony and clod

The advantages at the cultivation

- ◆ The potatoes are planted in 25 – 30 cm of loose soil. Because of the shaping and separating the usual soil cultivation is unnecessary.
- ◆ Through the lifting and intensive sieving of the soil it warms up by about one or two degrees above the normal temperature and gets air in it at the same time.
- ◆ Faster emergence of the potatoes because of ideal growing conditions in loose, trash free and warm soil.
- ◆ The precise central discharge of the seed potatoes and the high volume of soil in the ridges reduce the risk of green potatoes.
- ◆ The ridging body behind the planting machine forms complete ridges, making the use of a ridging hiller or rotary hiller after planting unnecessary.
- ◆ The bed technology with the fixed wheel tracks ensures that the area where the potatoes grow will not be driven over or get compressed. This improves the watering of the plants because of good long roots to the bottom as a basis for a higher yield.

The advantages at harvest

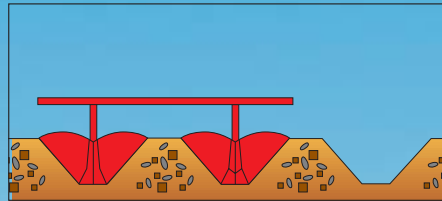
- ◆ Visibly more saleable crop because of:
 - less green potatoes
 - less distorted potatoes
 - less smaller or bigger sized potatoes because of the even growing
 - less damage of the potatoes because of clods and stones
- ◆ Dramatically reducing of the picking costs or even no picking costs at all
- ◆ More efficient harvesting because the soil is more easily sieved, making best use of suitable weather conditions
- ◆ The use of a harvester with complicated separation systems on stony and cloddy soil is not necessary. The harvester plus bed-forma plus separating machine may in most cases be a cheaper solution than the conventional cultivation technology and than other comparatively more expensive "manned separating operations"
- ◆ Lower maintenance and repair costs because of less wear from stones and clods and consequently less down time during harvest
- ◆ Result: More success because of higher yields and more commercially acceptable potatoes

Planting starts in the spring time: Best options for heavy soils

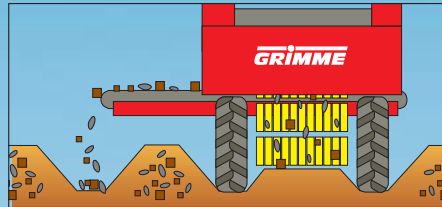


The Grimme bed-system

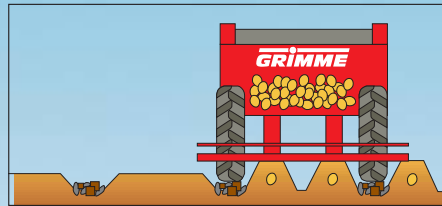
Medium or highly stony or cloddy soils with ample topsoil



The bedforma shapes 1 to 3 beds:
The track and bed widths will be determined.

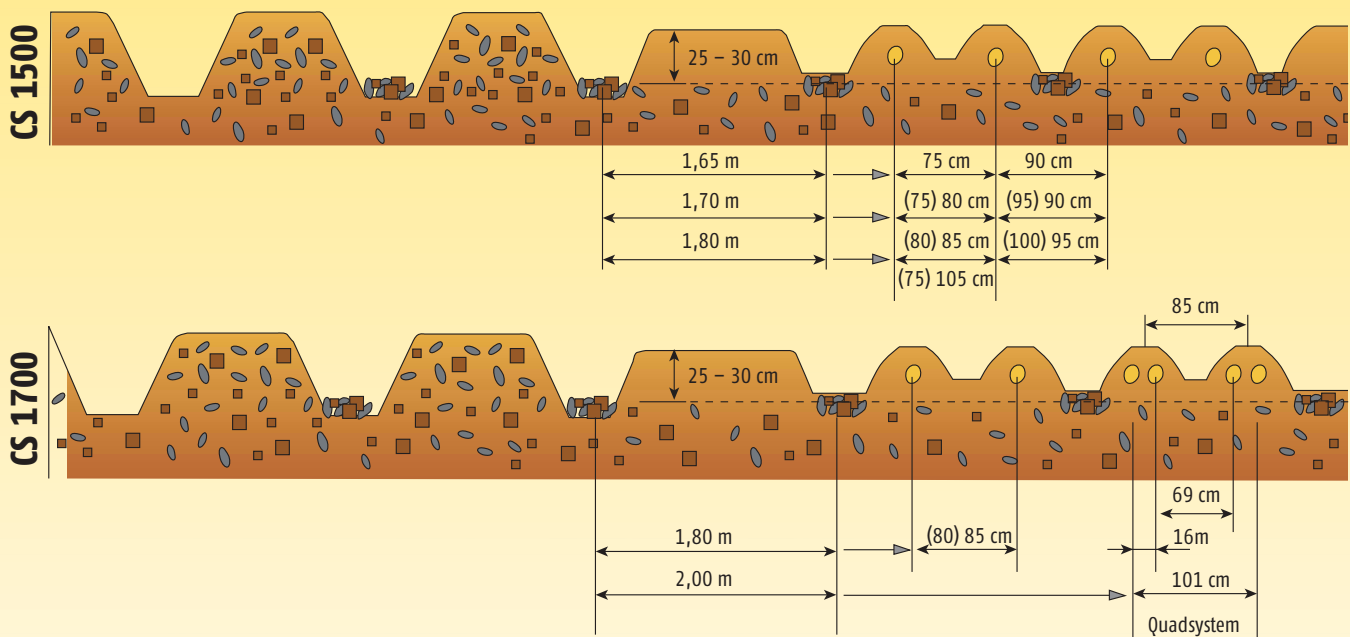


Bed separating with the Combi-Star:
The separator lifts the whole bed width and completely sieves the soil.



Potato planting with the bed system:
Planting starts straight after the separating with the 1 or 3 bed system.

Conventional bed and row width to suit the required regimes of the farm



The first Step with the Grimme Bed-system: Bed forming with the Bedforma BF 2000 / BF 6000 or the Bed-Shapeforma BSF 2000 / BSF 6000

The first step of the separation system is to set up the beds. The shaping of the beds is a decisive first working step. The track and bed width is determined by this step. – Grimme offers two basic models:

1. **Bedforma BF** for use especially on heavy soils (Pictures right)
2. **Bed-Shapeforma BSF** for use on light to medium soils and for shaping behind a rotary tiller (Pictures below):
 - Dieser hinterlässt eine breite Furche mit viel Platz für Kluten und Steine
 - Durch die mitlaufenden Druckrollen wird der lose Boden im Beet gehalten und fällt nicht in die Furche zurück. Damit steht dieser Boden zum Dammaufbau zur Verfügung
 - Der Former baut ein volles und zwei halbe Beete auf

BF 2000 und BSF 2000 each have two ridging bodies. Each crossing of the field two beds are formed: one between the bodies and two half beds on the sides.



BF 6000 und BSF 6000 have four ridging bodies. The outer bodies are mounted to the frame via a parallelogram. Each crossing of the field three or four beds are formed depending to the adjustment of the parallelogram. The outer ridging bodies are hydraulically foldable for the road transport.



Special equipment

- Depending on the requirements there is the choice between a shearbolt system or an automatic hydraulic stone protection system
- Bed loosening rigid tines or subsoiler tines in front of the shares with shearbolt protection
- Different types of bed loosening tines



Rotary tiller RT 2000 / RT 6000

It makes sense to crumble the clods after the use of a bedforma with a rotary tiller on soils with big hard clods. This not only increases the performance of the separator but also increases the amount of loose soil in the beds. The tillers are available with the option of either speed blades or tines.

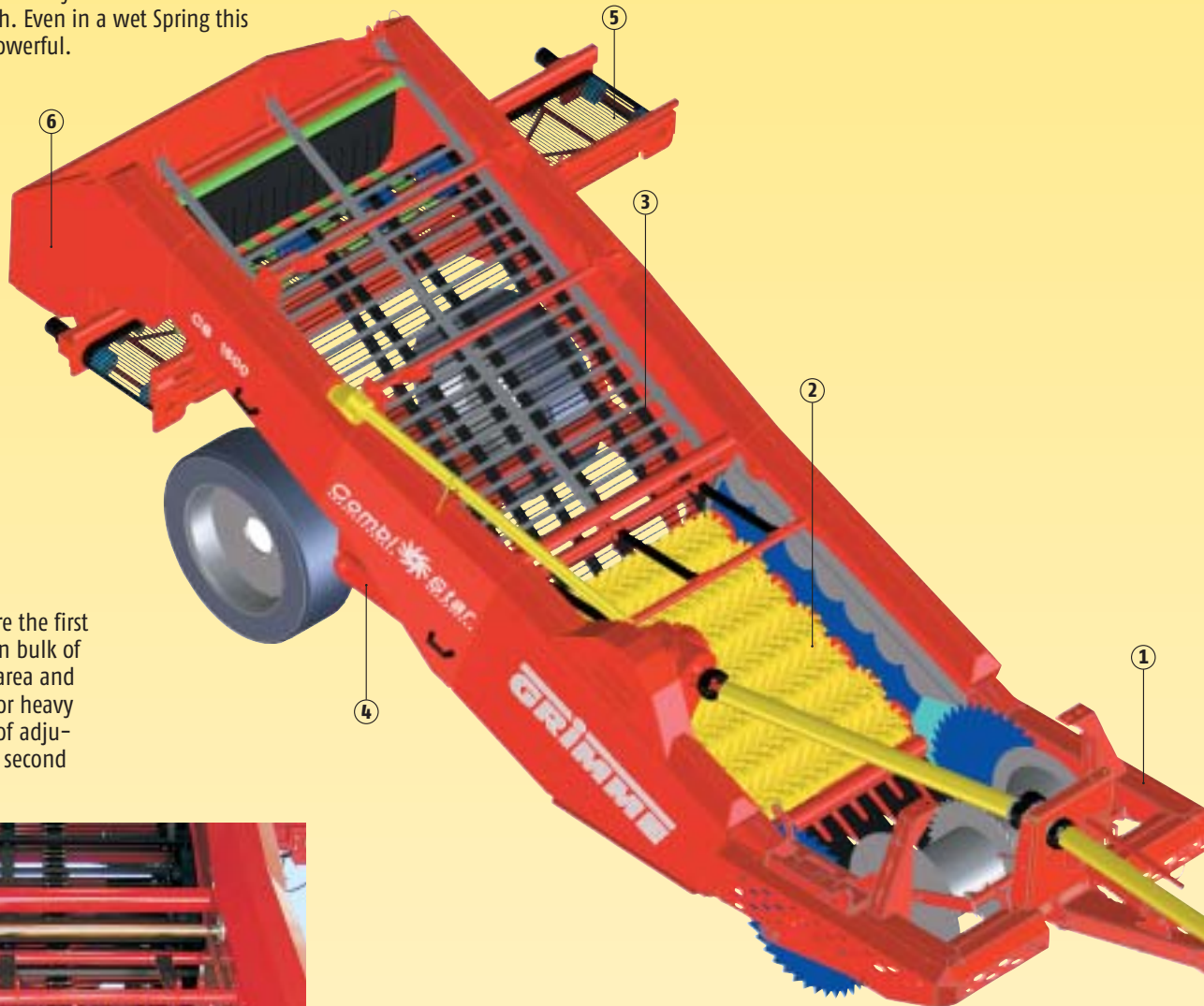
The second step in the Grimme Bed-system: Bed separating with the Combi-Star CS 1500 / CS 1700:

Two different machines of modular build

[2.1] Combined 7 rows of stars / One Main web model

For use on heavy, wet and sticky soils or under conditions with a high level of organic trash. Even in a wet Spring this machine is strong and powerful.

Seven rows of stars before the first main web unit. The main bulk of the soil is sieved in this area and soft clods are crushed. For heavy soils there is the option of adjusting the height of every second row of stars.



A newly designed, low-maintenance belt drive system with p.t.o. shaft allow a higher working load and save service time. Greasing of the bearings is from a central point, allowing fast and easy maintenance.



The Grimme modular build system GMS

- ① Front frame with hitch and intake
- ② 2.1 l/h-side: 7-star-roller separation
2.2 r/h-side: Web separation
- ③ Main web unit with clod mat
- ④ Axle with power lift
- ⑤ Discharge web
- ⑥ Stone box with star roller or tine comb sorting

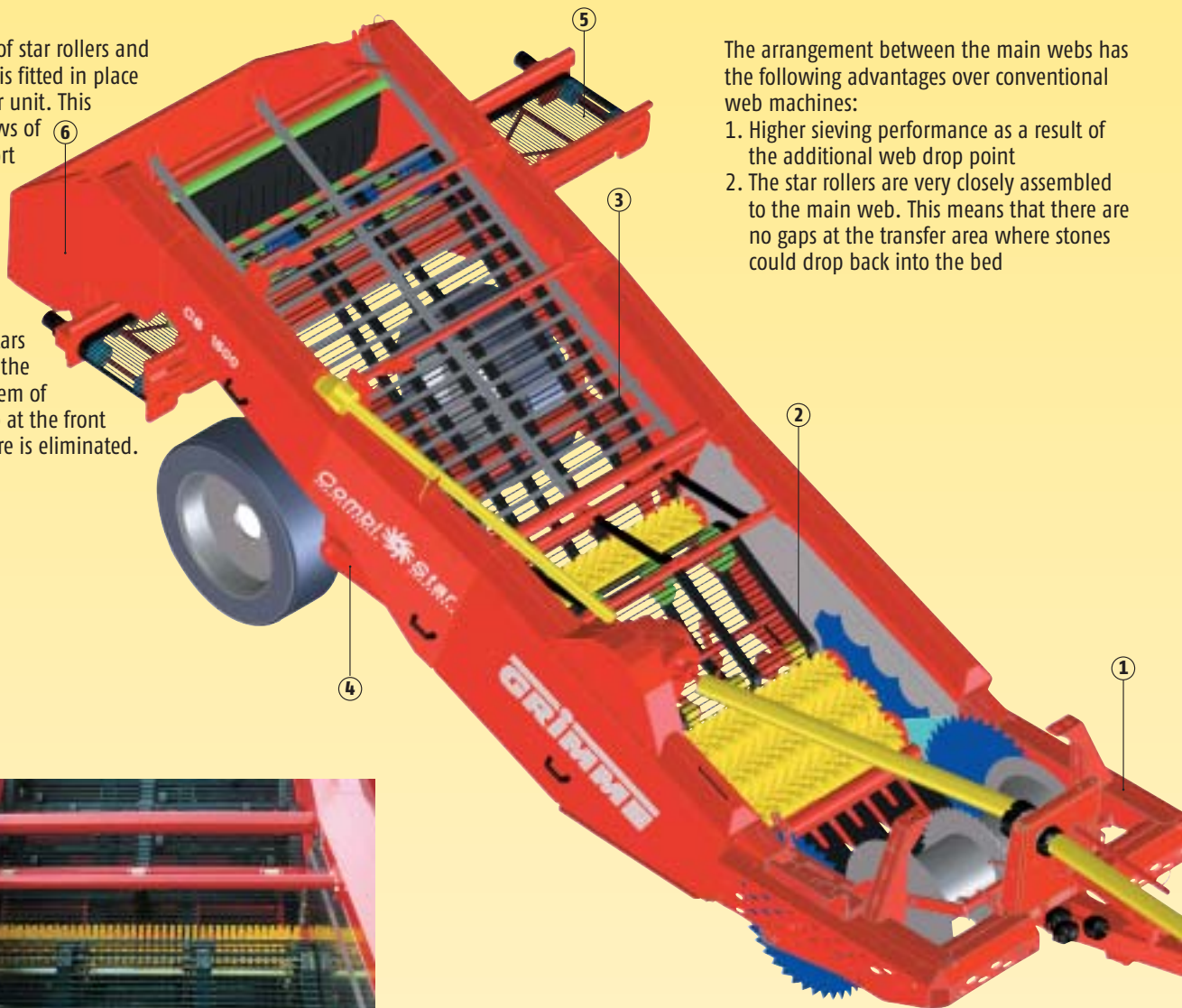
[2.2] Combined 3 rows of stars / 2 Main webs model

For use on sandy soils.

A combination of star rollers and main web unit is fitted in place of the star roller unit. This consists of 3 rows of stars and a short main web, followed by a transfer star roller. Because of the new arrangement of the 3 rows of stars directly behind the share the problem of soil building up at the front and on the share is eliminated.

The arrangement between the main webs has the following advantages over conventional web machines:

1. Higher sieving performance as a result of the additional web drop point
2. The star rollers are very closely assembled to the main web. This means that there are no gaps at the transfer area where stones could drop back into the bed



This machine is also equipped with the newly designed, low-maintenance belt drive system with p.t.o. shaft.



**The extra class of the Grimme bed-system:
Grimme CombiStar CS 1500 / CS 1700.
How they work and what they do.**





The intake (135 to 160 cm)

Depending on the required bed width and the volume of stone the CS 1500 with 1,35 m or 1,45 m and the CS 1700 with 1,45 m or 1,60 m intake width between the disc coulters are available:

CombiStar CS 1500
for bed-width 150 to 180 cm

CombiStar CS 1700
for bed-width 180 to 200 cm

The difference between both machines is only the width of the first sieving unit, everything else is similar.

"Strong shoulders with great power." The Combi-Star takes in almost 3 tons with one "bite" with the wide separation and web channel. That is handling about 5,000 to 6,000 tonnes of soil per hectare, from which it is common to separate 500 tonnes of stones.

Picture below l/h-side: The intake of the separating beds is with a single or multi-bladed share followed by a steel roller which transfers the soil to the star rollers.

Picture below centre: Large pulled and spring loaded disc coulters (105 cm Ø) keep the soil in the bed and ensure a clean bed section separate from the already discharged stones. The disc coulters are serrated to avoid slipping in heavy soil.



Picture below r/h-side: The depth control of the shares works with an automatic regulation system. The sensor is fitted to the wide spring loaded Diablo roller. This ensures for an even separating depth even with different furrow/track depths which may occur because of different volumes of discharged trash in the furrows. The separating depth is steplessly adjustable from the tractor via the electronic operator control box.



Picture l/h-side: The Combi-Star leaves a well separated bed without stones and clods for the bed planting machine. – All functions for the machine can be operated with the operator control box from the tractor.



The extra class of the Grimme bed-system: Grimme CombiStar CS 1500 / CS 1700. How they work and what they do.

The 2nd main web with clod mat

A main web 1,66 m width and 2,30 length with overlaying clod mat has the following characteristics and functions:

- Sieving of the loose soil
- The clods get broken or crunched between the main web and the clod mat. If there are many clods in the field an extra heavy clod mat is available.
- If the soil in the field has different conditions the clod mat can be used as a buffer (for star machines) to create a continuously even flow of the soil on the star rollers.
- The clod mat is hydraulically adjustable to adjust the mat to the chosen position. PU rollers on some bars reduce the wear.
- The clod mat prevents bigger stones from rolling back.



The cross conveyor

The cross conveyor, which is driven by hydraulic motors positioned at both ends, is fitted behind the main web. The conveyor can be moved to the right or left hand side of the machine by the means of a double acting hydraulic ram. Stones and clods are conveyed over the adjacent bed, in front of the soil separating operation, to be deposited in the trench between two beds. The cross conveyor can be folded for transport using the side shift hydraulic ram and manually locked for safety. (Picture right)





Grimme CombiStar CS 1500 / CS 1700: Options for more power and more comfort

Hydraulic drawbar stone protection

If the share hits a large buried stone or other obstruction, the oil pressure in the pulling ram is increased. When the pressure set on the pressure relief valve is exceeded, the oil flows into the two accumulators. This means that the first impact is dampened, because of the telescopic extension of the drawbar (up to 240 mm). The pressure at which the pressure relief valve is triggered is adjustable.



Hydraulic lateral levelling

Using this attachment, the operator can ensure that, when working on sidling ground or with uneven furrow depths on either side of the machine, the machine is kept in a horizontal position to utilise the full width of the separating area and produce an even height of the soil across the finished bed. Further option: automatic hydraulic lateral levelling



Hydraulic star roller height adjustment

For operating in very cloddy soils is a patented hydraulic height adjustment for the 2nd, 4th and 6th rows of stars of the 7-star roller unit, available as an option. This adjustment can be made on the move. The advantages are more sieving power because of more drops.



Stone separating

Two sorting systems are available for separating stones and clods of different sizes and for keeping them in the bunker or discharging them into the trench:

3-star roller separating with hydraulically operated boulder box



A steel tined comb-type grader (adjustable distances) with hydraulically operated boulder box



Grimme CombiStar CS 1500 / CS 1700: Options for more power and more comfort

Large stone box

An alternative use is for example the re-cultivation, on golf fields, for the re-claiming of land, for asparagus cultivation: If the stones and clods are not to be discharged into the furrow there is a large stone box with 2,5 t capacity available instead of the cross conveyor web plus stone box. Two star rollers between the 2nd main web and the large stone box are sifting the left soil.



Loading elevator

A loading elevator (loading height approx. 200 cm) is available for situations where the stones and clods are not to be discharged into the trench. It is attached to the end of the cross conveyor on the right-hand side of the machine.



Deflector plates

Deflector plates under the star roller or under the 2nd main web are especially for small beds to avoid that the separated soil gets lost into the furrow.



Further options

- Automatic axle steering
- Tyres 14.5-20 AS
- Cross conveyor web pitch 22 mm
- Monitor with 2 cameras over the stone box or mounting kit for existing camera
- Additional back holding comb over separating unit for big stones
- Heavy clod mat
- Brakes conditional to national laws



Technical data

	7-star roller separation	Main web separation
Type	● single-axle modular system	
Axle	<ul style="list-style-type: none"> ● Bremsanlage lt. jeweiliger Landesgesetzgebung ● track width CS 1500 1,5 – 1,8 m CS 1700 1,8 – 2,0 m (declare with ordering) ● Hydraulic steering axle with steering angle up to 37° ● Hydraulic lifting device for rear of chassis (+/- 5°) ○ Self-centring steering (option) ○ Hydraulic, lateral levelling (option) ○ Automatic, hydraulic lateral levelling (option) 	
Tyres	<ul style="list-style-type: none"> ● 12.5 / 20 AS ○ 14.5 – 20 AS (option) 	
Intake	<ul style="list-style-type: none"> ● Share blade CS 1500 1350/1450 intake 6 blades CS 1700 1450/1600 intake 6 blades (a one piece share blade is available) ● Large diameter serrated disc coulter (105 cm Ø) complete bed intake ○ Hydraulic drawbar stone protection (option) 	<ul style="list-style-type: none"> CS 1500 1350/1450 intake 6 blades CS 1700 1450/1600 intake 6 blades (a one piece share blade is available)
Depth control	<ul style="list-style-type: none"> ● Electrically controlled, automatic depth control system using a unique Diablo roller ● depth adjustable from tractor cab control box 	
Separation	1st section	<ul style="list-style-type: none"> ● Steel transfer roller with feed-in bars ● 7 rows of stars ● Width of star unit CS 1500 = 1500 mm CS 1700 = 1660 mm ● Star spacing: 40, 45, 48, 50 or 55 mm ○ Hydraulic height adjustment for star rows 2, 4 and 6 (option)
	2nd section	<ul style="list-style-type: none"> ● Steel transfer roller with feed-in bars ● 3 Star roller, star spacing 40, 45, 48, 50 or 55 mm ● 1st main web: Pitch 32, 35, 40, 44 or 50 mm ● Star roller behind 1st main web, star spacing 35 mm ● Web width CS 1500 = 1500 mm CS 1700 = 1660 mm ● Web bars 11 mm special spring steel
Clod mat	<ul style="list-style-type: none"> ● Light hydraulically adjustable clod mat ○ Heavy duty hydraulically adjustable clod mat (option) 	
Discharge	<ul style="list-style-type: none"> ● Cross conveyor for windrowing stones and clods to the left or right-hand side of the machine ● Hydraulic motors, one on each end of the cross conveyor give positive and infinitely variable conveyor speed ● Double acting hydraulic ram for cross conveyor positioning to the left or right of the machine ● Hydraulic folding mechanism for the cross conveyor web ● Cross conveyor width 570 mm ● Web pitch 28 mm (40 mm to special order) ● Web bars 10 mm special spring steel ○ Cross conveyor web pitch 22 mm (option) ○ Boulder – box with comb-type grader (option) ○ Boulder – box with star-type grader (option) ○ Large stone box (2,5 tons) in lieu of cross conveyor (option) ○ Loading conveyor at the end of cross conveyor (option) 	
Mechanical drives	<ul style="list-style-type: none"> ● Tractor p.t.o. shaft 540 rpm, using a heavy duty p.t.o. shaft drives ● Low-maintenance drive with p.t.o. shaft and belt drive 	
Hydraulics	<ul style="list-style-type: none"> ● Electro-magnetic operation of the control valves, oil flow through each valve separately adjustable 	
Road lights	○ Option	

● Standard equipment ○ optional attachment

High performance on big fields: The Grimme 3-bed system



The **Bedforma BF 6000 / BSF 6000** make with four ridging bodies three (or four) beds with accurate measurements for each crossing of the field.

Separating of three beds in one go: The **Combi-Star CS 6000** is made for high output in big fields



Planting machine GL 36 B: This product range is especially developed for the 3-bed system on big fields. It meets all the needs that the quality-conscious potato grower has for large scale farming.

Potato technology for field and storage

GRIMME

Grimme Landmaschinenfabrik GmbH & Co. KG
Hunteburger Str. 32, D-49401 Damme
Tel. +49 (0) 54 91/6 66-0
Fax +49 (0) 54 91/66 62 98
www.grimme.com, grimme@grimme.com

GRIMME
0700-47466333
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