

# GRASSLAND TECHNOLOGY

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GRASSLAND TECHNOLOGY

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# PERFEKT W GRASSLAND HARROW

Produkt video



The SAPHIR grassland harrow Perfekt W with its cast star wheels net arranged in three rows it is ideal for the easy-to-pull levelling of molehills and the distribution of cow pats, straw manure and liquid manure. Through combing out of dead grass the W-cast star wheels provide for additional aeration of the green sward.







The grassland harrow Perfekt W is available in working widths of 2.00 – 6.00 metres. The Perfekt 200 W in rigid design. Starting with Perfekt 300 W, the machines for the road transport can be folded in.



The net of three rows with W-cast star wheels weighing approx. 2.5 kg ensures an intensive tillage in only one passage. The heavy W-cast star wheels can be used on both sides: Sharp harrowing and ventilation with the tine side, easy towing to level out cow dung and molehills with the smooth side.



The closed base frame together with the high dead weight guarantees an especially long service life even under the heaviest load conditions due to high portions of earth.



The standard front retainers protect the frame from getting stuck on external obstacles like fence posts or trees.



For the particularly user-friendly change to the transport position, the devices, starting with a 5 metre working width can optionally be fitted with a hydraulic folding device (standard in case of Perfekt 602 W Hydro). For additional safety in road traffic, an optional lighting system incl. warning signs is available for all models.

# PERFEKT W GRASSLAND HARROW

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Technical data	Perfekt 200 W	Perfekt 300 W	Perfekt 400 W	Perfekt 502 W	Perfekt 602 W Hydro
Approx. working width (m)	2,00	3,00	4,00	5,00	6,00
Approx. transport width (m)	2,15	2,10	2,10	2,75	2,75
Hydraulic folding device	Not possible	Not possible	Not possible	Optional	Series
Number of cast star wheels	20	29	40	49	61
Operating speed (km/h)	5-10	5-10	5-10	5-10	5-10
Power requirement approx. (kW/HP)	11/15	14/20	22/30	29/40	36/50
UL pins	Kat. I	Kat. I	Kat. I	Kat. II	Kat. II
Approx. weight in kg	175	240	315	410	530

## Series equipment

- Cast star wheels with a material thickness of 26 mm in the main wear zone for a particularly long service life
- Stable harrow networks with 14 mm thick network rings for robust applications
- W-cast elements arranged in three rows for combing out and ventilating the grain
- Reduced wear of the connecting rings through deburred cast star wheels
- Low transporting width because of folding frame for safe road transport (except Perfekt 200 W)
- Two-sided usage possibility of the cast elements, in order to adjust to the work intensity of the cast star wheels at the site
- Reinforced folding hinges for maximum stability of the frame (starting with the model 502 W)
- Perfekt 602 W Hydro with single-acting hydraulic cylinders, hose packet and stop cock as standard
- Forced levelling through rigid angle iron for the maximum utilisation of the grassland potential
- Powder coating

Model	Order-No.	€/piece
Perfekt 200 W	921.00733.200W-2	760,00 €
Perfekt 300 W	921.00732.300W-2	1.090,00 €
Perfekt 400 W	921.00734.400W-2	1.390,00 €
Perfekt 502 W	921.00735.502W	1.940,00 €
Perfekt 602 W Hydro	921.00736.602W	2.650,00 €

## Note:

Headstock and connecting rods must be fitted. Hydraulic folding device available, if necessary, as a kit of separate parts.

## Runners (loose accessories kit)



Optional extras	Order-No.	€/piece
<b>Runners</b>	921001911-2	50,00 €
Recommended number:		
• Perfekt 200 W = 2		
• Perfekt 300 W = 2		
• Perfekt 400 W = 4		
• Perfekt 502 W = 4		
• Perfekt 602 W Hydro = 4		

## Hydraulic folding device (loose accessories kit)



Optional extras	Order-No.	€/piece
<b>Hydraulic folding device</b>	921140848-2	440,00 €
Suitable for:		
• Perfekt 502 W		

## Lighting system inc. warning signs



Optional extras	Order-No.	€/piece
<b>Lighting system inc. warning signs</b>	921001153-2	360,00 €
suitable for:		
• Perfekt W		
Design: LED		
<b>Note:</b> Fully assembled for initial installation		

**Note:** Spare nets for grassland harrow are given on page 20

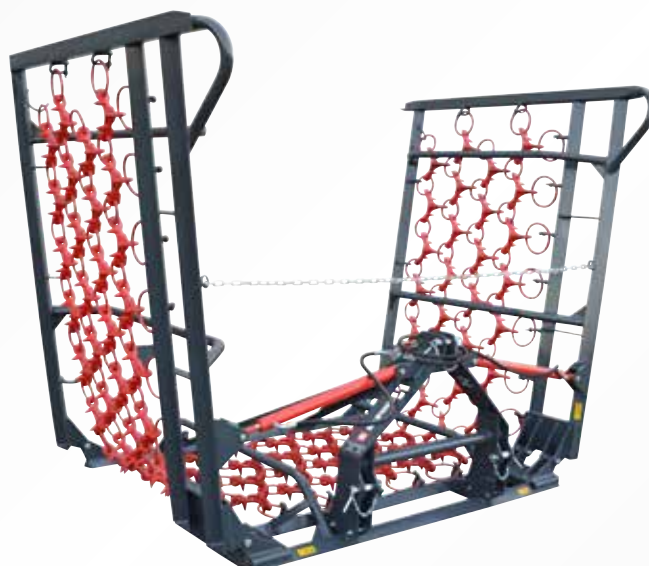


# PERFEKT W4 GRASSLAND HARROW

Product video



The SAPHIR Perfekt W4 grassland harrow with its four-row arrangement of the cast star wheels net is particularly suitable for intensive tillage of grassland. Rough unevenness due to molehills or trampling damages is levelled in only one passage. Through combing out of dead grass the W-cast star wheels provide for additional aeration of the green sward.







The Perfekt W4 grassland harrows have two angle irons arranged one after another in the front of the machine that provide for complete forced levelling of uneven patches and molehills. This reduces wear of the subsequent harvest machines and reduces contamination of the basic feed.



The W cast star wheels arranged in four rows guarantee excellent performance. The cast components can be used on both sides. The tine side for sharp harrowing and ventilation of the greensward; the smooth side for spreading manure and levelling of molehills.



The net is fixed at the front and the side by a shackle. This prevents an unintentional hooking out of the net.



Optional hydraulic retraction system for folding the device in transport position. For the Perfekt 602 W4 model, the hydraulic folding device is included in the scope of delivery as standard.

# PERFEKT W4 GRASSLAND HARROW

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GRASSLAND TECHNOLOGY

Technical data	Perfekt 402 W4	Perfekt 502 W4	Perfekt 602 W4 Hydro
Approx. working width (m)	4,00	5,00	6,00
Approx. transport width (m)	2,75	2,75	2,75
Hydraulic folding device	Zubehör	Zubehör	Serie
Number of cast star wheels	54	66	82
Operating speed (km/h)	5-10	5-10	5-10
Power requirement approx. (kW/HP)	29/40	36/50	44/60
UL pins	Kat. II	Kat. II	Kat. II
Approx. weight in kg	400	490	660

## Series equipment

- Cast star wheels with 26 mm material thickness in the main wearing zone for extremely high service life
- Durable harrow nets with 14 mm thick net rings for robust applications
- W-cast star wheels arranged in four-rows for intensive combing out and ventilation of the greensward
- Reduced wear of the connecting rings through deburred cast star wheels
- Low transport width through foldable frame for safe road traffic
- The cast components can be used on both sides to adapt the site-specific operating intensity of the cast star wheels
- Shackle suspension at the front and the side for safe seat of harrow net
- Reinforced folding hinges for maximum stability of the frame
- Two single acting hydraulic cylinders (in Perfekt 602 W4 Hydro as standard), hose package and cut-off valve to fold the machine from operating position to transport position
- Forced levelling through rigid angle irons for maximum utilisation of the grassland potential
- Powder coating

Model	Order-No.	€/piece
Perfekt 402 W4	921.00841.402W4	1.690,00 €
Perfekt 502 W4	921.00842.502W4	2.050,00 €
Perfekt 602 W4 Hydro	921.00843.602W4-3	3.090,00 €

**Note:** Headstock and connecting rods must be fitted. Hydraulic folding device available, if necessary, in individual parts



## Runners (loose accessories kit)



Optional extras	Order-No.	€/piece
<b>Runners</b>	921001911-2	50,00 €
Recommended number:		
Perfekt 402 W4 = 4		
Perfekt 502 W4 = 4		
Perfekt 602 W4 Hydro = 4		

## Hydraulic folding device (loose accessories kit)



Optional extras	Order-No.	€/piece
<b>Hydraulic folding device</b>	921140848-2	440,00 €
Suitable for:		
• Perfekt 402 W4		
• Perfekt 502 W4		

## Lighting system inc. warning signs



Optional extras	Order-No.	€/piece
<b>Lighting system inc. warning signs</b>	921001153-2	360,00 €
Design: LED		
<b>Note:</b> Fully assembled for initial installation		

**Note:** Spare nets for grassland harrow are given on page 20

# PERFEKT S4 GRASSLAND HARROW

Product video



Through its especially robust headstock and frame, the SAPHIR Perfekt S4 grassland harrow ensures maximum stability. With its freely suspended net, the elevated supporting frame allows very good ground adjustment and hence optimum working quality. Due to its elevated supporting frame, combed out material or solid manure residues can pass through the machine without problems.







The Perfekt S4 grassland harrows have two angle irons arranged one after another in the front of the machine that provide for complete forced levelling of uneven patches and molehills. This reduces wear of the subsequent harvest machines and reduces contamination of the basic feed.



The harrow net can move very freely because of the elevated supporting frame. The S cast components arranged in four rows guarantee optimum operating performance. The S-cast elements can be used on both sides: Sharp harrowing and ventilation with the tine side, easy towing for levelling out of molehills with the smooth side.



The especially robust frame design consists of a heavy headstock and reinforced wide-band folding hinges. Lower and upper link pins sit in stable retaining pockets.



They are delivered as standard with the hydraulic folding device and a safety locking device for operator-friendly locking of the machine in road transport. In general, the machines are delivered as fully assembled.



Optionally, the SAPHIR grassland harrows are equipped with SAPHIR DrillStar overseeding machines. With this, very effective overseeding can be done in one work step (for overseeding machines, see page 26-29).

# PERFEKT S4 GRASSLAND HARROW

01

GRASSLAND TECHNOLOGY

Technical data	Perfekt 502 S4 Hydro	Perfekt 602 S4 Hydro	Perfekt 802 S4 Hydro
Approx. working width (m)	5,00	6,00	8,00
Approx. transport width (m)	2,30	2,30	2,95
Hydraulic folding device	Serie (1 x dw)	Serie (1 x dw)	Serie (1 x dw)
Number of cast star wheels	62	78	102
Operating speed (km/h)	5-10	5-10	5-10
Power requirement approx. (kW/HP)	36/50	44/60	58/80
Lower links bolts	Kat. II	Kat. II	Kat. II
Approx. weight in kg	650	730	1.010

## Series equipment

- Cast star wheels with 26 mm material thickness in the main wear zone for extremely high service life
- Stable harrow nets with 14 mm thick net rings for robust applications
- W-cast star wheels arranged in four-rows for intensive combing out and ventilating the greensward
- Elevated supporting frame to prevent combed out material and solid manure from rolling out
- Low transport width through foldable frame for safe road traffic (1 x dw necessary)
- The cast components can be used on both sides to adapt the site-specific operating intensity of the cast star wheels
- Especially heavy headstock for maximum stability
- Reinforced shackle suspension of the net for long service life
- Broadband folding hinges for ideal power transmission from side to central part
- Hydraulic transport lock with tow rope to prevent unintended folding out in road traffic
- Highly developed A-folding for safe road transport
- Forced levelling by rigid angle irons for maximum utilisation of the grassland potential
- Powder coated
- Kennfixx hydraulic couplings for ergonomic coupling and decoupling

Modell	Best.-Nr.	€/Stück
Perfekt 502 S4 Hydro	921.00852.502S4-3	3.290,00 €
Perfekt 602 S4 Hydro	921.00853.602S4-3	3.540,00 €
Perfekt 802 S4 Hydro	921.00834.802S4-3	5.290,00 €

**Note:** Device is delivered as fully fitted.



## Runners (loose accessories kit)



Optional extras	Order-No.	€/piece
<b>Runners</b> Recommended number: Perfekt 502S4 Hydro= 4 Perfekt 602S4 Hydro = 4 Perfekt 802S4 Hydro = 4	921001911-2	50,00 €

## Lighting system inc. warning signs



Optional extras	Order-No.	€/piece
<b>Lighting system inc. warning signs</b> Suitable for: • Perfekt 502S4 Hydro • Perfekt 602S4 Hydro Design: LED <b>Note:</b> Fully assembled for initial installation	921001378-2	360,00 €
<b>Lighting system inc. warning signs</b> Suitable for: • Perfekt 802S4 Hydro Design: LED <b>Note:</b> Fully assembled for initial installation	921001377-2	360,00 €

## Mounting platform for SAPHIR DrillStar



Optional extras	Order-No.	€/piece
<b>Mounting platform for SAPHIR DrillStar seeding machines incl. assembly</b> (Kit without small seed dispenser - DrillStar models see page 26-29)	921000988-2	890,00 €

**Note:** Spare nets for grassland harrow are given on page 20

# REPLACEMENT NETS

01

GRASSLAND TECHNOLOGY

**Cast star wheel W**  
**Combi star with aggressive tine**  
**Weight: approx. 2,460 g**  
**Item No.: 69500156**



Replacement net W with cast star wheel W, 3-row harrow net for closed frame, depth 90 cm (hook suspension)

Designation	Approx. width (m)	Weight (kg)	Number of cast star wheels	Order-No.	€/piece
Replacement net 200 W	2,00	65	20 (7+6+7)	921140716	330,00 €
Replacement net 300 W	3,00	100	28 (9+10+9)	921140715	450,00 €
Replacement net 400 W	4,00	130	40 (13+14+13)	921140717	610,00 €
Replacement net 500 W	5,00	160	49 (16+17+16)	921140718	740,00 €
Replacement net 600 W Hydro	6,00	200	61 (20+21+20)	921140719	910,00 €

Replacement net W with cast star wheel W, 3-row harrow net for closed frame, depth 90 cm (shackle suspension)

Designation	Approx. width (m)	Approx. weight in kg	Number of cast star wheels	Order-No.	€/piece
Replacement net 502 W	5,00	160	49 (16+17+16)	921140718-2	740,00 €
Replacement net 602 W Hydro	6,00	200	61 (20+21+20)	921140719-2	910,00 €

Replacement net W4 with cast star wheel W, 4-row harrow net for closed frame, depth 110 cm (hook suspension)

Designation	Approx. width (m)	Approx. weight in kg	Number of cast star wheels	Order-No.	€/piece
Replacement net 400 W4	4,00	170	54 (13+14+13+14)	921140871	740,00 €
Replacement net 500 W4 / 501 W4	5,00	210	66 (17+16+17+16)	921140872	930,00 €
Replacement net 600 W4 / 601 W4	6,00	260	82 (21+20+21+20)	921140873	1.140,00 €

Replacement net W4 with cast star wheel W, 4-row harrow net for closed frame, depth 110 cm (shackle suspension)

Designation	Approx. width (m)	Approx. weight in kg	Number of cast star wheels	Order-No.	€/piece
Replacement net 402 W4	4,00	170	54 (13+14+13+14)	921140871-2	740,00 €
Replacement net 502 W4	5,00	210	66 (17+16+17+16)	921140872-2	930,00 €
Replacement net 602 W4	6,00	260	82 (21+20+21+20)	921140873-2	1.140,00 €



Cast star wheel S  
Combi star in reinforced design  
Weight: approx. 2,600 g  
Item No.: 69500152



Replacement net S3 with cast star wheel S, 3-row harrow net with angle bar for closed frame, depth 90 cm

Designation	Approx. width (m)	Approx. weight in kg	Number of cast star wheels	Order-No.	€/piece
Replacement net 400 S3	4,00	140	40 (13+14+13)	921140845	680,00 €
Replacement net 500 S3	5,00	170	49 (16+17+16)	921140846	800,00 €
Replacement net 600 S3	6,00	210	58 (19+20+19)	921140847	930,00 €

Replacement net S4 with cast star wheel S, 4-row harrow net with angle bar for open frame, depth 120 cm

Designation	Approx. width (m)	Approx. weight in kg	Number of cast star wheels	Order-No.	€/piece
Replacement net 500/502 S4	5,00	230	62 (16+15+16+15)	921140856	1.070,00 €
Replacement net 600/602 S4	6,00	290	78 (20+19+20+19)	921140857	1.300,00 €
Replacement net 800/802 S4	8,00	370	102 (26+25+26+25)	921140858	1.725,00 €

# PERFEKT GS GRASSLAND REGENERATOR

Product video



The SAPHIR Perfekt GS grassland regenerator is a universally applicable machine for mechanical weed control and ventilation of the greensward. Furthermore, mounds of earth, as well as organic fertilisers are distributed. By effectively combing out the dead grass and common panicles, empty spaces can occur in the stand, in which new forage grass can be sowed in one work step using the pneumatic small seed dispenser of SAPHIR DrillStar. With 12 runners as standard for a soil-protecting cultivation in case of wet and strongly damaged greenswards. The grassland regenerator can also be used as field regenerator.



Power train optimised frame construction of angle iron with robust headstock and reinforced folding hinges.





The tine sections that can be adjusted by spindles remove common panicles, moss, dead grass and other weeds. The particularly strong 10 mm harrow tines work particularly effectively. The tines are arranged in four rows and have a triple winding.



The angle irons on the frame ensure excellent levelling of molehills. At the same time, manure and organic residues are distributed.

Parking supports for releasing and keeping the spring tension in parked condition.



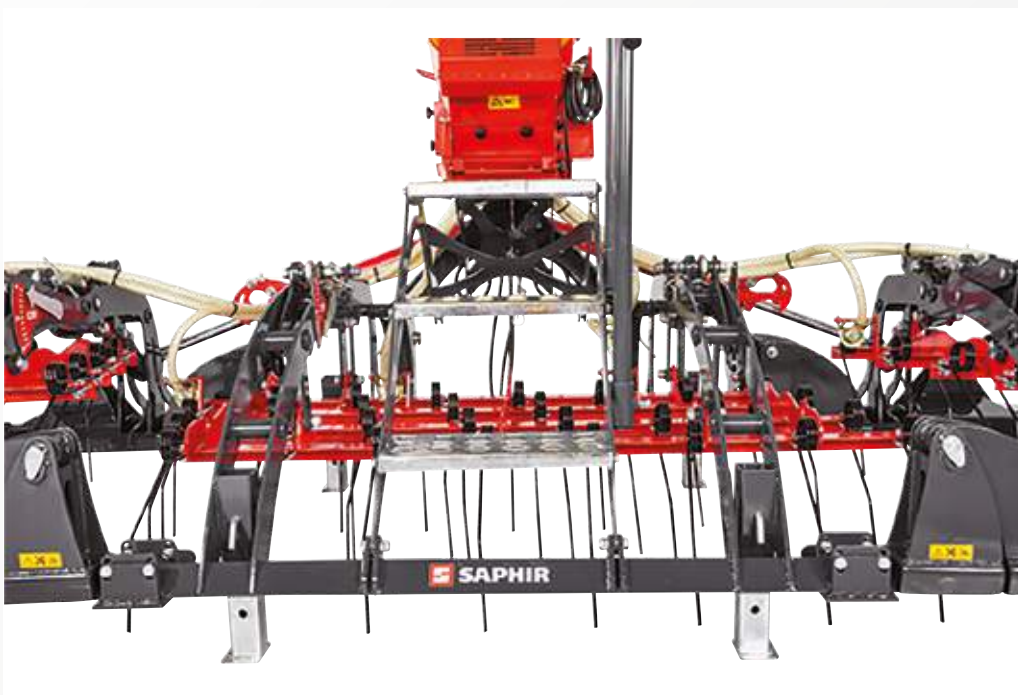
Optionally, the machine can be fitted with a SAPHIR DrillStar. This enables an exact overseeding of forage grass which is not prone to wind in damaged stands.



Fitted as a standard with loss protection of tines.



The scale divisions on the tine fields, provided as standard, enable a homogeneous combing intensity on the whole working width.



The combing segments can be adjusted to up to 250 mm below the rigid frame. Consequently, the grassland regenerator can also be used for the further exploitation of the field, because the machine is held by the hydraulic system. For the effective sowing of catch crops as well as for weed control directly after sowing the main crop (blind combing).

# PERFEKT GS GRASSLAND REGENERATOR


01

GRASSLAND TECHNOLOGY

Technical data	NEW!		
	GS 303	GS 603	GS 803
Approx. working width (m)	3,00	6,00	8,00
Approx. transport width (m)	3,00	2,60	3,00
Hydraulic folding device	-	Series (1x dw)	Series (1x dw)
Number of tines	40	88	114
Number of runners	4	12	12
Operating speed (km/h)	8-12	8-12	8-12
Power requirement approx. (kW/HP)	44/60	59/80	73/100
UL connection	Cat. II	Cat. II	Cat. II
Approx. weight in kg	590	1.500	1.800

## Series equipment

- Rigid frame of angle iron for robust applications
- 12 runners for soil-protecting cultivation on wet surfaces
- Combing tines 10 mm, three-fold winding with high vibration strength and best combing effect
- Tine field four-rows for an intensive tillage of the greensward
- High durability of paint coatings against mechanical loads and weather influences due to powder coating
- Especially heavy headstock for maximum stability
- The adjustment of harrows by 250 mm below the rigid frame allows the use on the field for further exploitation
- Forced levelling through rigid towing bar
- Kennfixx hydraulic coupling for ergonomic coupling and decoupling (Perfekt GS 603 / Perfekt GS 803)
- Loss protection of tines

Model	Order-No.	€/piece
GS 303 	921.00807.GS303-3	3.290,00 €
GS 603	921.00806.GS603-3	6.990,00 €
GS 803	921.00805.GS803-3	8.390,00 €

**Note:** Device is delivered as fully fitted.



## Lighting system inc. warning signs



Optional extras	Order-No.	€/piece
<b>Lighting system inc. warning signs</b> Design: LED <b>Note:</b> Fully assembled for initial installation	921003189	<b>360,00 €</b>

## Mounting platform for SAPHIR DrillStar



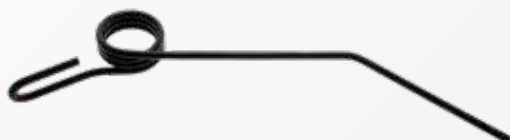
Optional extras	Order-No.	€/piece
<b>Mounting platform for SAPHIR DrillStar</b> <b>incl. assembly costs</b> (Kit without small seed dispenser - DrillStar models see page 26-29)	921002773	<b>890,00 €</b>

## Runner



Optional extras	Order-No.	€/piece
<b>Runner GS303-3</b> <b>Runner GS603-3</b>	921003621	<b>50,00 €</b>
<b>Runnter GS803-3</b>	921003622	<b>50,00 €</b>

## Harrow tines



Optional extras	Order-No.	€/piece
<b>Harrow tines Ø10 mm with 3-fold winding</b>	695921003328	<b>available at Granit Parts</b>

# PERFECT ES EXACT HARROW

01

GRASSLAND TECHNOLOGY

NEW!



*Exact harrow Perfect ES 600 with mounting platform and lighting*

The Saphir Exact Harrow Perfect ES has been specially developed for grassland maintenance with smaller tractors and for very hilly terrain. Thanks to the precise setting options, this series is also suitable for cover crop sowing. Dead old grass and common panicles can be combed out effectively. Molehills are leveled by the spring-loaded impulse rail. Freely rotatable support wheels ensure optimal adaptation to the ground and depth guidance.



*Exact harrow Perfect ES 300 with mounting platform and lighting*



*Exact harrow Perfect ES 800 with mounting platform, SAPHIR DrillStar and lighting*





Molehills can be leveled with the spring-loaded and parallel-guided seal bar.



The Exact Harrow Perfect ES has rotatable tine carriers. The tine aggressiveness is adjusted mechanically using a hole pattern.



Trailing support wheels (with pneumatic tires, freely rotating 360 °) ensure optimum adaptation to the ground and smooth running.



The device can optionally be equipped with a SAPHIR DrillStar. This enables a very precise and wind-insensitive reseeding of forage grasses in damaged stands.

# PERFECT ES EXACT HARROW

01

GRASSLAND TECHNOLOGY

Technical Data	ES 300	ES 600	ES 800
Approx. working width (m)	2,85	6,00	8,00
Approx. transport width (m)	3,00	2,60	3,00
Hydraulic folding device	-	Series (1 x dw)	Series (1 x dw)
Number of tines	44	88	116
Training wheels	2	4	6
Wheel size	13x5.00-6	16x6.50-8	16x6.50-8
Operating speed (km/h)	8 - 12	8 - 12	8 - 12
Power requirement approx. (kW/HP)	44/60	48/65	59/80
UL connection	Kat. II	Kat. II	Kat. II
Approx. weight in kg	400	920	1300

## Series equipment

- Grain-friendly processing thanks to precisely adjustable tools
- High ease of movement and safe handling even on slopes thanks to its low weight
- Harrow tines 10mm with triple winding with high vibration capacity and the best harrow effect
- Four-row tine field for intensive cultivation of the grassland scar
- High resistance of the paintwork against mechanical stress and weather influences thanks to powder paintwork
- Exact harrow adjustment:
- Mechanically adjustable tine aggressiveness using a breadboard
- Mechanically adjustable depth of the tines using pneumatic support wheels
- Leveling of earth debris by means of a spring-loaded impulse rail
- Universal use in the field for catch crop sowing or for blind harrowing
- Standard tine loss protection

Model	Order-No.	€/piece
ES 300	921.00807.ES300	3.230,00 €
ES 600	921.00806.ES600	6.720,00 €
ES 800	921.00805.ES800	8.050,00 €

**Note:** Device is delivered as fully fitted.



## Lighting system inc. warning signs



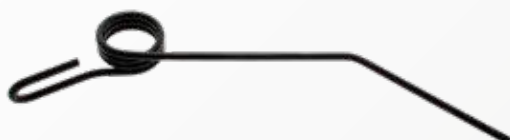
Optional extras	Order-No.	€/piece
<b>Lighting system inc. warning signs</b> Design: LED <b>Note:</b> Fully assembled for initial installation	921003189	360,00 €

## Mounting platform for SAPHIR DrillStar



Optional extras	Order-No.	€/piece
<b>Mounting platform for SAPHIR DrillStar</b> <b>incl. assembly costs</b> (Kit without small seed dispenser - DrillStar models see page 26-29)	921002774	1.390,00 €

## Harrow tines



Optional extras	Order-No.	€/piece
<b>Harrow tines Ø10 mm with 3-fold winding</b>	695921003328	available at Granit Parts

# DRILLSTAR SMALL SEED SOWER



Using the pneumatic SAPHIR small seed dispenser DrillStar and a grassland regenerator/soil cultivation machine of SAPHIR, it is possible to cultivate the soil and sow at the same time in one work step to save time. Seed is distributed accurately without being dependent on the wind thus ensuring more selective, greater success. Through its electrically controlled seed shaft, which continuously regulates the flow of seeds, it is possible to output the desired quantity of the material to be spread.

Do you need a DrillStar with an electrical or a hydraulic fan? To do this, you must at first calculate the necessary output quantity per minute. You can calculate the value with the help of the formula given. Please compare this value with the technical data given on page 28.

In doing so, please pay attention to the compliance of the working widths and the type of seed.



## 1. General:

### a. FORMULA general

$$\frac{\text{Sowing quantity kg/ha} \times \text{working width m} \times \text{speed km/h}}{600} = \text{kg/min}$$

## 2. Case study 1

### a. Geg:

- i. Seeds: Grass seeds
- ii. Sowing quantity = 10kg/ha
- iii. Working width = 6.0mtr.
- iv. Working speed = 12km/h

### b. Calculation:

$$\frac{(10\text{kg/ha} \times 6.0 \text{ mtr.} \times 12\text{km/h})}{600} = 1,2\text{kg/min}$$

### c. Result

- i. Output quantity per minute = 1.2 kg/min > Device recommendation DrillStar with electrical fan and 8 outlets (e.g., DrillStar 200E / DrillStar 300E etc.)

## 3. Case study 2

### a. Geg:

- i. Seeds: Grass seeds
- ii. Sowing quantity = 10kg/ha
- iii. Working width = 8.0mtr.
- iv. Working speed = 12km/h

### b. Calculation:

$$\frac{(10\text{kg/ha} \times 8.0\text{mtr.} \times 12\text{km/h})}{600} = 1,6\text{kg/min}$$

### c. Result

- i. Output quantity per minute = 1.6kg/min > Device recommendation DrillStar with hydraulic fan and 16 outlets (e.g., DrillStar 300H16 / DrillStar 500H16 etc.)

Explanation: The cross distribution with 8 outlets is not adequate (max. 750 mm baffle plate distance) at a working width of 8.0 metres, hence we recommend 16 outlets.

## 4. Case study 2

### a. Geg:

- i. Seeds: Catch crop sowing with beans
- ii. Sowing quantity = 40kg/ha
- iii. Working width = 6.0mtr.
- iv. Working speed = 12km/h

### b. Calculation:

$$\frac{(40\text{kg/ha} \times 6.0\text{mtr.} \times 12\text{km/h})}{600} = 4,8\text{kg/min}$$

### c. Result

- i. Sowing quantity per minute = 4.8 kg/min > recommended device DrillStar with hydraulic fan and 8 outlets (e.g., DrillStar 300H / DrillStar 500H) Suitable DrillStar sowing device 300H / 500H

# DRILLSTAR SMALL SEED SOWER

Basic functions of the control modules 1.2 and 5.2

- Regulation of the seed shaft
- Seed shaft monitoring
- Monitoring of the fan
- Quantity output adjustable electronically during operation
- Drainage function
- Calibration test function

Additional functions of control module 5.2

(standard for DrillStar 300 + 500)

- Total hours counter and daily hours counter
- Total hectare counter and daily hectare counter
- Display kg/ha
- Various equipment sensors can be connected
- Speed-dependent regulation of sowing quantity via sensors

Technical data	DrillStar 200 E	DrillStar 300 E	DrillStar 500 E	DrillStar 300 H	DrillStar 500 H	DrillStar 300 H16	DrillStar 500 H16
Tank capacity approx. (l)	200	300	500	300	500	300	500
Control module version	1.2	5.2	5.2	5.2	5.2	5.2	5.2
Approx. working width (m)	1,00 - 6,00	1,00 - 6,00	1,00 - 6,00	6,00 - 8,00	6,00 - 8,00	1,00 - 8,00	1,00 - 8,00
Fan	Elektr.	Elektr.	Elektr.	Hydr.	Hydr.	Hydr.	Hydr.
Outlets	8	8	8	8	8	16	16
Sowing quantity max. kg/minute	0 - 3,5	0 - 3,5	0 - 3,5	0 - 14	0 - 14	0 - 7* / 0 - 14**	0 - 7* / 0 - 14**
Hydraulic connection	-	-	-	1 x ew	1 x ew	1 x ew	1 x ew
Max. required pressure (bar)	-	-	-	180	180	180	180
Max. required oil quantity (l/min)	-	-	-	38	38	38	38
Approx. height in mm	100	110	125	110	125	110	125
Approx. width in mm	70	77	80	80	80	80	80
Approx. depth in mm	88	100	122	115	125	115	125
Approx. weight in kg	60	70	93	93	116	93	116

## Series equipment

- Complete sowing machine with hoses
- Seed shafts for grass or mustard/phacelia
- Additional stirrer for grass
- Complete wiring
- Calibration sheet
- 16 outlets incl. hoses and baffle plates for each model
- For the models with hydraulic fan, you need a single-acting control device (size 3) and a return without pressure without reduction with size 4 coupling

Name	Order-No.	€/piece
<b>DrillStar 200 E</b>	594PS200E	<b>4.310,00 €</b>
<b>DrillStar 300 E</b>	594PS300E	<b>5.140,00 €</b>
<b>DrillStar 500 E</b>	594PS500E	<b>6.430,00 €</b>
<b>DrillStar 300 H</b>	594PS300H	<b>7.750,00 €</b>
<b>DrillStar 500 H</b>	594PS500H	<b>9.030,00 €</b>
<b>DrillStar 300 H16</b>	594PS300H16	<b>8.440,00 €</b>
<b>DrillStar 500 H16</b>	594PS500H16	<b>9.690,00 €</b>

\* for grass

\*\* for mustard, clover

DrillStar 300 H16 and 500 H16: Not suitable for large and heavy seeds (e.g., catch crop mixtures with beans, peas, etc.), please select then 300 H or 500 H.

### Note:

1. No individual order possible for SAPHIR DrillStar. Only in combination with machines of the SAPHIR brand or for retrofitting of SAPHIR machines.
2. Device is delivered as fully fitted.



## Accessories



Name	Order-No.	€/piece
<b>Extension cable 5 m</b>	59404102015	195,00 €
<b>Calibration button (magnetic)</b> For module 5.2	59404102094	120,00 €
<b>Säwelle feinblind (fb-f-fb)</b> <b>Für Senf, Phacelia</b> <b>(Serienmäßig bei allen DrillStar Modellen)</b>	59440012127	120,00 €
<b>Säwelle grob (f-f-f)</b> <b>Für Gras</b> <b>(Serienmäßig bei allen DrillStar Modellen)</b>	59440012110	115,00 €
<b>Seed shaft fine (f-f-f)</b> For grass, mustard, cress (fine seeds up to 5 kg per ha)	59440012130	120,00 €
<b>Flex seed shaft</b> For grains, peas, beans, vetch	59440002138	210,00 €
<b>Fill level sensor</b> For control module 1.2 and 5.2	594040002269	300,00 €
<b>Radar and lifting gear sensor</b> For module 5.2 - regulates the sowing quantity in ratio to the speed. Automatic switching of the seed shaft at headland.wende.	59403002007	1.490,00 €
<b>Sensor lifting gear upper linkage (accessories kit)</b> For control module 5.2	59404102169	270,00 €
<b>Mounting kit hose coupler</b> (per piece)	59403002215	45,00 €
<b>Additional module for hose coupler</b> <b>(for other soil cultivation machines)</b> (per piece)	59403002216	30,00 €
<b>7-pin signal cable</b> For control module 5.2	59404102006	170,00 €
<b>Accessory kit for 2nd device</b> 1 roll 25 m hose, 8 baffles	59440002310	710,00 €
<b>Control module 5.2</b> <b>(Control module 1.2 not applicable)</b>	59402023218	600,00 € Surcharge for DrillStar 200 E
<b>Control module 5.2</b> Individual purchase price, please pay attention to the series equipment	59402023218	1.230,00 €
<b>Control module 1.2</b> Individual purchase price, please pay attention to the series equipment	59403002201	630,00 €

# KLEINSAMENSTREUER UNISEED MDP

01

GRASSLAND TECHNOLOGY

NEW!



For working  
width up to  
4.5 m  
available!

The multi-doser MDP100M1 is similar in application and function to the pneumatic seeders of the DrillStar series. The MDP is ideal for spreading all common small seeds, seed mixtures and slug pellets as well as for new planting or reseeding in grassland. Thanks to the wide range of mounting options and the simple attachment and conversion to various soil cultivation devices, the MDP can be used several times a year for a wide variety of applications.

The multi-dose is not suitable for large seeds such as broad beans, spelled, etc. In this case we recommend the DrillStar series in connection with a Flex sowing shaft (page 30-33).



Technical data	MDP100M1
Container content approx. (l)	105
Control module version	1.2
Outlets	6
Approx. working width (m)	1-4,5
Approx. height (cm)	105
Width (cm)	55
Approx. depth (cm)	55
Approx. weight in kg	30

## Series equipment

- Complete device with container, dosing unit, frame and fan
- Top link attachment and counter plate
- Calibration bag
- 6 baffles, 3 hexagonal bars of 1.2 m & 25 m hose
- Seed wheel set for 2 seed shafts (Flex, fine and fine-blind seed wheels)
- 6 m cable from the spreader to the control module

Model	Order-No.	€/piece
APV MDP 100 M1 with control module 1.2	594MDP100M1	2.790,00 €

## Accessories



Name	Order-No.	€/piece
Control module 1.2	59403002201	Standard
Control module 1.2	59403002201	630,00 € Single purchase price



Name	Order-No.	€/piece
Control module 5.2 (Steuermodul 1.2 entfällt)	59402023218	600,00 € Surcharge for UniSeed MDP 100 M1
Control module 5.2	59402023218	1.230,00 € Single purchase price

# UNISEED SMALL SEED SOWER

01

GRASSLAND TECHNOLOGY



The SAPHIR UniSeed universal spreader is ideal for sowing catch crops, grass seed, nurse crops, slug pellets and similar pellets. The working width can be infinitely adjustable to cope with the relevant requirements. Also, the sowing density can be adjusted accordingly on the dosing slider to cope with crop production aims.

## Series equipment

- Electrical control module with bracket for the assembly in the cabin
- Adjustable winnowing fans
- Retaining bushes for extending of the agitator for grass
- Upper linkage attachment and counter-plate
- 3 m cable to battery
- 6 m cable from spreader to control module
- Dosing slider at seeder
- Plastic container with low weight



Control modul 2.10 as standard



## Module functions

- Speed monitor, speed measurement and speed control
- Monitoring of spreading disc
- Automatic start with clogged spreading material
- Simple control of spreading width from driver's seat through speed regulation

Technical data	ES 100 M1
Approx. working width (m)	2 - 24
Approx. height (cm)	90
Width (cm)	52
Approx. depth (cm)	60
Tank capacity approx. (l)	105
Approx. weight in kg	30

Name	Order-No.	€/piece
ES 100 M1	59420081000	1.600,00 €

## Accessories

Name	Order-No.	€/piece
Extension cable 5 m	59404102035	90,00 €



Name	Order-No.	€/piece
Control module 2.1	59404202047	Standard
Control module 2.1	59404202047	370,00 € Single purchase price

# LAWN ROLLER ROBUST K



SAPHIR grassland rollers are particularly suitable for use with small tractors in municipalities, service provider companies, horticulture and landscaping, private green spaces and parks, paddocks, sports fields etc. The round drum edges prevent the grass sward from damages when the machine travels in curves. The roller body can be filled with water to increase the weight.

- Stable frame of angle iron with ball bearings that can be lubricated
- Parking support for safe stability when parked and safe coupling and uncoupling
- Water filler nozzles for additional ballast
- Spring-loaded scraper for cleaning of the roller body



Technical data	Robust 100 K	Robust 150 K	Robust 200 K
Approx. working width (m)	1,00	1,50	2,00
Approx. transport width (m)	1,18	1,68	2,18
Cylinder/ Body	1	1	1
Drum Ø (cm)	81	81	81
Approx. unladen weight (kg)	300	410	500
Approx. laden weight (kg)	780	1.140	1.500

## Series equipment

- Frame of angle steel
- Continuous shaft
- Parking support
- Ball bearings that can be lubricated
- Spring-loaded scraper
- Water filler
- Round drum edges
- Running surface wall thickness 8 mm
- Drum diameter 81 cm

Modell	Order-No.	€/piece
<b>Robust 100 K</b>	927.00808.ROBUST100K-2	<b>1.790,00 €</b>
<b>Robust 150 K</b>	927.00809.ROBUST150K-2	<b>2.080,00 €</b>
<b>Robust 200 K</b>	927.00815.ROBUST200K-2	<b>2.590,00 €</b>

**Note:** Device is delivered as fully fitted.

## Lighting system inc. warning signs



Optional extras	Order-No.	€/piece
<b>Lighting system inc. warning signs</b>	594002454	<b>360,00 €</b>
Design: LED		
<b>Note:</b> Fully assembled for initial installation		



# GRASSLAND ROLLERS

01

GRASSLAND TECHNOLOGY



The SAPHIR robust meadow roller serves for rolling of highly frozen grass swards in spring and for removing the trampling damages on grazed surfaces.

For new seeding or reseeding, soil compaction is generated by pressing on the grass seed. This causes optimum conditions for germination.

- Heavy U-steel frame with ball bearings that can be lubricated
- Spindle parking support for safe stability when parked and operator-friendly coupling and decoupling
- Water filler nozzles for additional ballast by filling in water
- The spring-loaded scraper is installed as standard for each roller. If worn, the plate can be turned
- Especially wide tow bar (over the whole frame width). Torsions of the frame are thus practically ruled out
- The optional hydraulic strap brake acts by means of a simple-acting hydraulic cylinder and a linkage system directly on the two brake straps
- Optional lighting system incl. warning signs for a safe road transport



Technical data	Robust 250	Robust 275	Robust 300
Approx. working width (m)	2,43	2,68	2,93
Approx. transport width (m)	2,89	3,14	3,39
Cylinder/ Body	1	1	1
Drum Ø (cm)	123	123	123
Approx. unladen weight (kg)	1.860	1.970	2.010
Approx. laden weight (kg)	4.320	4.680	4.990

## Series equipment

- Spindle parking support
- Spring-loaded scraper
- Heavy U-steel frame
- Middle separating wall (splash guard)
- Self-aligning roller bearings
- Water filler nozzles
- Round drum edges
- Extra strong running surface wall 14 mm
- Continuous shaft
- Drum diameter 123 cm
- Lateral brake rings for hydraulic strap brake

Model	Order-No.	€/piece
<b>Robust 250</b>	927.00802.ROBUST250-2	<b>7.620,00 €</b>
<b>Robust 275</b>	927.00803.ROBUST275-2	<b>8.120,00 €</b>
<b>Robust 300</b>	927.00804.ROBUST300-2	<b>8.370,00 €</b>

## Note:

Tow bar and, if necessary, a connecting rod and springs for the strap brake must be fitted.  
A special approval is required for transport widths above 3 metres.

## Hydraulic strap brake



## Lighting system incl. warning signs



Optional extras	Order-No.	€/piece
<b>Hydraulic strap brake</b> 1 x ew. required	927350825	<b>1.390,00 €</b>

Optional extras	Order-No.	€/piece
<b>Lighting system incl. warning signs</b> Design: LED <b>Note:</b> Fully assembled for initial installation	927003105	<b>360,00 €</b>



# MEADOW ROLLER WITH CHASSIS ROBUST FG

Product video



The SAPHIR meadow roller Robust FG is equipped with an additional chassis. The wheels running near the roller body facilitate road transport and allow the comfortable change of fields.

Optionally, the roller can be equipped with a 2-circuit compressed air system. This allows road transport with water filled in the roller body.

- Heavy U-steel frame with reinforced bearing bushes with self-aligning roller bearings
- Spring loaded scraper (if worn, it can be used on both sides)
- Due to the wheels running very near to the roller body the supported load on the towing vehicle is clearly reduced.
- Standard lighting system warning signs panels for safe road transport
- Centre separating wall as splash guard
- Check valves on the hydraulic cylinders prevent the roller being lowered accidentally when travelling along the road.
- Drum diameter is 123 cm
- The optional 2-circuit compressed air system incl. brake axle, pressure tank and parking brake allows road transport with water filled in the roller body
- The round drum edges prevent the grass sward from damages when the machine travels in curves





Technical data	Robust 251 FG	Robust 276 FG	Robust 301 FG
Approx. working width (m)	2,43	2,68	2,93
Approx. transport width (m)	2,90	3,15	3,40
Cylinder/ Body	1	1	1
Drum Ø (cm)	123	123	123
Approx. unladen weight (kg)	2.550	2.740	2.980
Approx. laden weight (kg)	4.860	5.440	6.000

## Series equipment

- Spindle parking support
- Spring-loaded scraper
- Self-aligned roller bearing
- Water filling nozzles
- Drum diameter 123 cm
- Lateral brake rings for hydraulic strap brake
- Wheels 15.0/55-17 12PR (matches 380/55-17)
- Operating experience (TÜV acceptance) till 25 km/h
- Lighting system LED incl. warning panel
- Road transport without brake axis till max. 3,000 kg
- Permissible maximum speed 25 km/h

Model	Order-No.	€/piece
<b>Robust 251 FG</b>	927.00810.ROB251FG-2	<b>14.350,00 €</b>
<b>Robust 276 FG</b>	927.00811.ROB276FG-2	<b>14.650,00 €</b>
<b>Robust 301 FG</b>	927.00812.ROB301FG-2	<b>14.940,00 €</b>

## Note:

A tow bar and, if necessary, a connecting rod and springs for the strap brake must be fitted. Hydraulic pipes must be screwed onto the tow bar.

Special approval is required for transport widths above 3 metres.

Optional extras	Order-No.	€/piece
<b>Hydraulic strap brake</b> 1x dw necessary (installed with initial equipment)	927350825	<b>1.390,00 €</b>
<b>2-circuit compressed air system</b> Brake axle, pressure tank and parking brake (with TÜV approval up to 25 km/h)	927003103	<b>1.590,00 €</b>

# ROTARY MOWERS KM



The SAPHIR rotary mowers are characterised by robust and proven technology. They have proved to be successful in the field a 1000 times. The strong torsion-resistant gearbox is the heart of all SAPHIR rotary mowers. The mowing drums ensure clean cutting of the feed. Good ground adjustment and low unladen weight are other advantages of these machines. The productive mowing drums quickly transfer the cuttings and lay them down in clean swathes.

- The quick blade lock and the blade lever enable a change of the blade without tools.
- The mechanical starting lock protects against damages caused by obstacles. The mower automatically swivels backwards when running into an obstacle. The work can be continued after a brief reset.
- For transporting, the mowers can be swivelled in the longitudinal direction of travel behind the tractor.
- Optional: The hydraulic lifting device enables folding up on the side in operating position.



Technical data	KM 136	KM 166	KM 186	KM 211
Approx. working width (m)	1,35	1,65	1,85	2,10
Power requirement approx. (kW/HP)	18/25	29/40	44/60	51/70
Approx. output (ha/h)	1,0	1,5	2,0	2,5
UL pins	Kat. I	Kat. II	Kat. II	Kat. II
Drive shaft speed (RPM)	540	540	540	540
Number of drums	2	2	2	2
Blades per drum	2	3	3	4
Approx. weight in kg	330	400	455	555

## Series equipment

- PTO shaft connection 540 RPM
- Drive shaft
- Free wheeling (for KM 136 till KM 186 in the device, for KM 211 with free wheeling drive shaft)
- Starting lock
- Quick blade lock with blade lever
- Tarpaulin in particularly heavy design
- Cutting height adjustment through distancing rings
- Transport in the longitudinal direction of travel
- Chamfered protection plate with surrounding hoop guards
- Drive shaft holder
- Adjustable lower linkage pins

Model	Order-No.	€/piece
KM 136	399.00864.KM136-2	2.540,00 €
KM 166	399.00865.KM166-2	2.980,00 €
KM 186	399.00866.KM186-2	3.480,00 €
KM 211	399.00772.KM211-2	4.270,00 €

## Note:

It is supplied packed in a wooden box. The following steps of assembly are to be taken: Fitting the guard, fitting the headstock and the connecting rods, inserting the blades, inserting the blades and adjusting the cardan shaft (assembly time approx. 3 hours).

Optional extras	Order-No.	€/piece
Hydr. lifting device KM 166	399000098-2	380,00 €
Hydr. lifting device KM 186	399000099-2	410,00 €
Hydr. lifting device KM 211	399000100-2	430,00 €