Einböck

MACHINES FOR GRASSLAND CARE, RESEEDING,
UNDERSEEDING AND SEEDING

GRASS-MANAGER
PNEUMATICSTAR
PNEUMATICSTAR-PRO
GRASS-STAR

GRASS-MANAGER

The GRASS-MANAGER is designed to **maintain pasture**, where it is not necessary to overseed. A pneumatic seeder box can be retro-fitted easily.

A GRASS-MANAGER with a pneumatic seeder box mounted is called the PNEUMATICSTAR.

Page 4, 6-15

PNEUMATICSTAR

The PNEUMATICSTAR is designed to **maintain pasture** and for **under- and overseeding**, as well as new seeding. It is a universal machine also suitable for mechanical weed control.

Page 5, 6-15, pneumatic seeder 28-35

PNEUMATICSTAR-PRO

The PNEUMATICSTAR-PRO is the perfect machine for maintaining pasture and for under- and overseeding, as well as new seeding. It has been designed especially for **contractors, communities, big farms** as well as hilly areas with a large amount of molehills.

Page 16-24, pneumatic seeder 28-35

GRASS-STAR

The GRASS-STAR was developed for **direct re-seeding** into pasture, without the need of ploughing first.

Page 25-27, pneumatic seeder 28-35

GRASSLAND MAINTENANCE
WITH GUARANTEED SUCCESS

Good crops of older grassland are in a sensitive balance, which depends on the type of soil, weather and cultivation. Only pasture with high yield of nutritious crop forms the basis for foodstuff with high energy content. Maintained and fertilized pasture gives more than double nutrient content in the foodstuff compared to extensively farmed fields.

When after winter, molehills or other damage in the turf appear the pasture needs to be whipped into shape. Drought in the previous year, increase in farming intensity or mistakes in cultivation can harm the grassland too. Underseeding can be done annually as prevention. The usual harrows, used in spring, are not at all up to date and just work the surface. The risk to compact the soil where molehills or other open spots appear is very high. Furthermore, they do not open the turf and do not prepare the surface for over or underseeding.

In pasture an aggressive turf and soil scratching cultivation is necessary to provide good pre-conditions for over or underseeding. Holes in the turf are closed with valuable grass seeds. It needs to be particulary analyzed if new seeding is necessary or if an over or underseeding is sufficient. Holes in the turf reduce productivity and provide space for weeds to germinate. Already in the 90's Einböck concentrated on the topic grassland maintenance and overseeding. Many years of experience make us specialists in grassland care, the product range to improve pasture is versatile and the machines can be utilized universally.

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GRASS-MANAGER

GRASSLAND NEEDS SPRING-CARE
IT'S IMPORTANT WHEN THE JOB IS DONE

During long winters, mice and winterkill harm the pasture. Levelling of molehills, dethatching of the turf as well as spreading of manure and slurry are the most important jobs to be done in spring as soon as the grass starts germinating. Simple levelling in high yield pasture is not sufficient and not up to date. The GRASS-MANAGER was designed for these jobs and gives the optimal result!

Consider the following in spring work:

- don't work when it's too wet
- dethatch the turf and if necessary collect moss, lost crop etc.
- don't work before the grass starts to germinate
- work molehills with levelling boards
- choose the correct tines for your soil

If the GRASS-MANAGER is equipped with a pneumatic seeder box, we call this combination the PNEUMATICSTAR. Therefore the technical details mentioned on the following pages 6 to 13 are valid for GRASS-MANAGER and PNEUMATICSTAR.

You can find technical details for the PNEUMATICSTAR-PRO on pages 16 to 24, for GRASS-STAR on pages 25 to 27. The pneumatic seeder, way of working and technical details, are described on pages 28 to 36.

PNEUMATICSTAR

QUICKLY CLOSE HOLES
COLLECT HIGH YIELDS

Even when you are satisfied with the yield on your pasture you should maintain and overseed your grassland to keep or further improve it. When you realized during analyzing your pasture that it can be improved by overseeding, then the Pneumaticstar is the ideal machine for you. **Holes in the turf** reduce productivity and provide space for weeds to germinate. Therefore they **need to be filled up with seeds of nutritious grasses**. Crops felted with rough stalked meadow grass can be rehabilitated by proper operation with the Pneumaticstar.

Good conditions for overseeding:

- areas with wet summers:
  after the first cut, because of sufficient rainfall, during summer and up to the beginning of September
- areas with dry summers:
  after the first cut (this should be done early), mid to end of may in order to have sufficient humidity in the soil

The PNEUMATICSTAR is also suitable for underseeding. **Seeding of clover or clover/grass into grain can collect up to 100 kg nitrogen/ha.** Fields with cover crops are very environmentally friendly due to the good nitrogen balance. Underseeding of grass in maize provides the following advantages:

- improved practicability during harvest or fertilizing
- control of late germinating weeds
- collection of nitrogen in autumn, therefore good utilization of slurry after harvesting of maize
- improved richness of the soil
- reduced need to utilize herbicides

In front of the weeder section a levelling plate can be mounted, which is overload-protected by a leaf spring. This **levelling plate** is height adjustable and ensures an excellent **distribution and levelling of molehills**. In addition, it distributes and levels manure and slurry. It can easily be retro-fitted.

For small molehills which appear in a small number, **grassland sheets** which are bolted directly onto the tines can be used.

The **pipe carrying the tines** is stable and does not twist. This guarantees the same adjustment of the tines over the full length of the pipe, which again ensures an **equal aggressiveness of the tines** in working position. This is extremely important, especially in hard soil conditions.

GRASS-MANAGER PNEUMATICSTAR

NEW MACHINES

PROVIDE SPACE FOR FRESH GREEN

The GRASS-MANAGER and PNEUMATICSTAR are designed with steady frames and are, depending on the working width, rigid, mechanically or hydraulically (European retraction system) folding.
Using high-quality materials and through the special, solid construction you can put additional pressure on the 6-row tine sections in hard soil conditions.

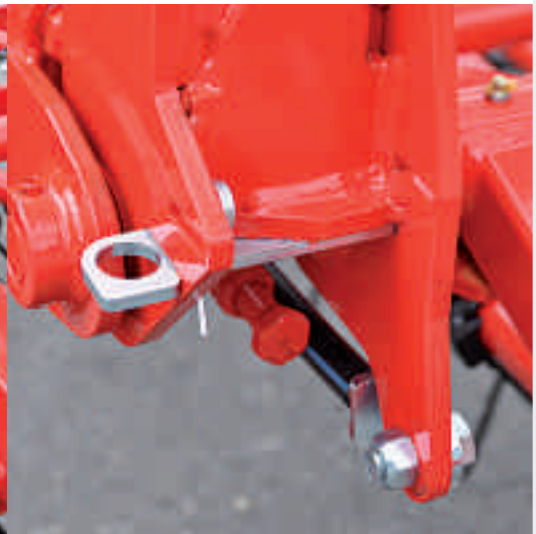
TECHNICAL DETAILS

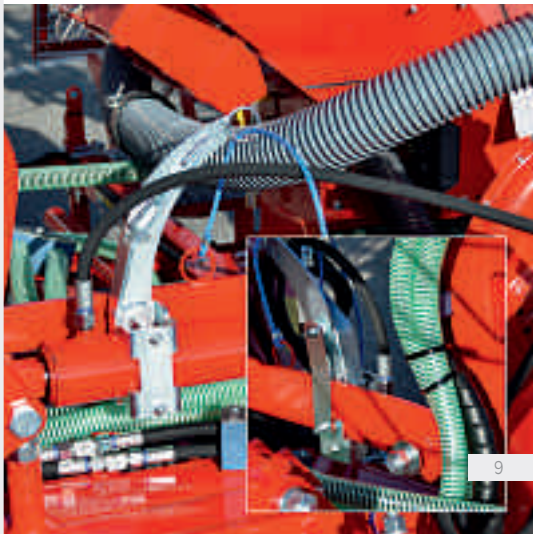
WITH POWER TO CONVINCE

The aggresiveness of the spring tines can be adjusted via a **central lever** per each section in 5 different positions. When folding to the transport position the tines should be adjusted to the flattest position.

By taking away or mounting of the stop bar on the wing (only on machines without shear retraction) the machine **follows the contours of the land surface** perfectly.

The **transportation lock** is unlocked via a rope pull (only on machines without shear retraction).





The **hydraulic tine adjustment** makes adjustment to the GRASS-MANAGER or PNEUMATICSTAR in **changing soil conditions** easier. Also, folding to the transport position is more convenient as you can easily put the tines into a flat position. The possibility to retro-fit the hydraulic tine adjustment is self-understanding.

Depending on the working width, the GRASS-MANAGER, or respectively the PNEUMATICSTAR, is guided by two or four pneumatic rubber **support wheels**. The support wheels prevent the springtines from entering the soil too deep in light conditions and are adjustable in the half-breadboard.

The PNEUMATICSTAR is also available with **reconsolidation rolls**. These are made from farmflex-rubber and cannot get stuck with soil. The rolls are mainly used for new seeding or to re-seed large bare spots in the turf to establish seed/soil contact.
The short pressing rolls (3 units for every 1.5 m working width) with axle-pendular mounting follow the surface of the turf very precisely.

The **6 row weeder section** carries 60 tines on 1.5 m working width; this equals a **line spacing of 2.5 cm**. This narrow line distance ensures a good effect in dethatching of the soil and excellent result.

The **weeder sections**, which are mounted pendular, can follow the surface of the turf very precisely. The plastic tine holders ensure an exact guiding of the tines during work. This keeps the tines in driving direction and **improves the vibration effect**. The holders make sure the tines won't twist or get loose. The spring of the tine is situated underneath the holder, therefore the tines have more freedom to vibrate and every movement is made by the spring.

Technical Data GRASS-MANAGER

Type/ working width in cm	Number of tines	Support wheels	Folding rigid	Folding mechanic	Folding hydraulic	Transport width/m	Sections	HP/KW	Weight kg appr.
GRASS-MANAGER 150	60	2	•			1.5	1	20/15	140
GRASS-MANAGER 200	84	2	•			2	1	25/18	160
GRASS-MANAGER 300	120	2	•			3	2	30/22	250
GRASS-MANAGER 300 SR	120	2	•			3	2	30/22	350
GRASS-MANAGER 450	180	4		•	•	2.6	3	40/29	400
GRASS-MANAGER 500	204	4		•	•	2.6	3	50/37	450
GRASS-MANAGER 600	240	4			•	3	4	60/44	550
GRASS-MANAGER 600 SR	240	4			•	3	4	60/44	800
GRASS-MANAGER 750	300	4			•	2.6	5	70/51	700
GRASS-MANAGER 900 [1, 3]	360	4			•	3	6	80/59	1,050
GRASS-MANAGER 1200 [2, 3]	480	4			•	3	8	90/66	1,290

[1] can be extended to 12 m working width
[2] can be reduced to 9 m working width
[3] shear retraction
SR heavy frame for contractors or communities

Technical data PNEUMATICSTAR

Type/ working width in cm	Number of tines	Tankvol./ litres	Support wheels	Seeding rollers [6]	Farmflex-rollers	Deflector plates	Folding rigid	Folding hydr.	Transport width/m	Sections	HP/kW	Weight kg appr.
PNEUMATICSTAR 200 [1]	84	300	2	B,E		8	•		2	1	25/18	210
PNEUMATICSTAR 250 FW [1]	96	300	2	B,E	6	8	•		2.6	2	40/29	650
PNEUMATICSTAR 300 [1]	120	300	2	B,E		8	•		3	2	30/22	320
PNEUMATICSTAR 300 SR [1]	120	300	2	B,E		8	•		3	2	30/22	420
PNEUMATICSTAR 300 FW [1]	120	300	2	B,E	6	8	•		3	2	50/37	670
PNEUMATICSTAR 500 [1]	204	300	4	C,E		8		•	3	3	50/37	530
PNEUMATICSTAR 600 [1]	240	300	4	C,E		8		•	3	4	60/44	620
PNEUMATICSTAR 600 SR [1]	240	300	4	C,E		8		•	3	4	80/59	870
PNEUMATICSTAR 600 NR	240	500	4	C,F		8		•	3	4	80/59	1,000
PNEUMATICSTAR 600 FW [1]	240	300	4	C,E	12	8		•	3	4	90/66	1,410
PNEUMATICSTAR 900 [2, 3, 5]	360	300	4	G,H		12		•	3	6	80/59	1,200
PNEUMATICSTAR 1200 [2, 4, 5]	480	300	4	D,F		16		•	3	8	90/66	1,400

[1] double electric fan 12 Volt
[2] mechanical fan with PTO-shaft (540 or 1000 r.p.m.)
[3] can be extended to 12 m working width
[4] can be reduced to 9 m working width
[5] shear retraction
SR heavy frame for contractors and communities
NR with mechanical fan, suitable to distribute fertilizer (dosing unit and deflector plates made from stainless steel), stronger gearbox, no European retraction, heavy frame
[6] see photo of the seeding rollers, page 31

Standard equipment base machine GRASS-MANAGER/PNEUMATICSTAR

- Solid frame
- Hardened and tempered joint bolts, equipped with bushings
- Tines ø 7 mm, 490 mm long
- Tines made from patented pulled spring steel wire
- Non-twisting tine pipe – weeder sections 6-rows with central tine adjustment per section
- Improved vibrating effect because of special tine holder
- Free movement of the tine (no danger of breaking)
- Plastic protection of the weeder forks (no wear and tear of the steel pipes)
- Line spacing 2.5 cm
- Large, bearing mounted support wheels, track width 1.40 m Dimension 16 x 6.50/8 (shear retraction: 18 x 8.50/8 on the mainframe, track width 1.5 m)
- Automatic folding of the wings through parallel guiding
- Parking support
- Machines with shear retraction require 2 double acting hydraulic remotes
- Transport width 1.50 m – 3.00 m
- Greasing points on all joints
- Pneumatic seeder with stirring shaft and separate section on the seeding roller for every hose (only on PNEUMATICSTAR)
- Wear-resistant, elastic, environmentally friendly 2-component varnish
- Operator's manual

Optional equipment base machine GRASS-MANAGER/PNEUMATICSTAR

- Tines 490 mm long, ø 8 mm per section instead of standard tine
- Tines 490 mm long STRAIGHT, ø 8 mm per section instead of standard tine
- Tines 490 mm long, ø 10 mm per section instead of standard tine (only available for frames 300 SR + 600 SR)
- Tines 490 mm long STRAIGHT, ø 10 mm per section instead of standard tine (only available for frames 300 SR + 600 SR)
- Spring mounted levelling plate (only up to 6 m working width)
- Hydr. tine adjustment per section
- Grassland sheets mounted on the tines (only on ø 8 mm tines)
- Hydr. valve, necessary in case the tractor only has 1 double acting valve (for machines with shear retraction)
- Track width 1.76 m (with shear retraction 1.86 m) instead of standard
- Tine loss protection
- Warning signs and lights
- On the GRASS-MANAGER a seeder like PNEUMATICBOX, ROTOSEEDER or P-BOX SPEED (please ask for the special leaflet) can be retrofitted any time

THE BEST GRASSLAND TINES

RELIABLE MACHINES ARE THE RESULT OF LONG LASTING EXPERIENCE

The set-up of the tines and the bottom hook enable the tines to follow the surface, e.g. the tines will also work in tracks. Also grooves will be de-thatched (vertically adjusted tines cannot work the turf on deeper spots).

STANDARD ON THE GRASS-MANAGER AND PNEUMATICSTAR

The standard tine with a diameter of 7 mm and a length of 490 mm is most suitable in **medium conditions**. If the machine mainly works in grassland, the 8 mm tine is recommended.

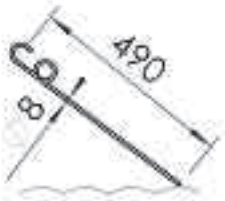
STANDARD ON THE PNEUMATICSTAR-PRO

In heavy soil the tines with 8 mm diameter and 490 mm length should be used.
These tines are most common.

In **heavily felted grassland** or extremely heavy soil, tines with 10 mm diameter and 490 mm length must be used. These tines are ideal to **fight rough stalked meadow grass** in summer.

For **stony soil** and heavily felted grassland, in order not to bring stones to the surface, we recommend the straight tines with a diameter of 10 mm and a length of 490 mm. Tines adjusted "dragging" protect the turf in **wet or boggy grassland**.

For **stony soil**, in order not to bring stones to the surface, we recommend the straight tines with a diameter of 8 mm and a length of 490 mm. Tines adjusted "dragging" protect the turf in **wet or boggy grassland**.



The joints consist of a **hardened bolt** with 35 mm Ø and brass bushings which can be greased.

By changing the position of the stop bar the **wings can even go down**, e.g. not only the tine sections but also the heavy levelling boards follow the surface.

The main frame is made from robust 150x100x6 steel pipes and on the edges it is reinforced with **sheets made from quality steel**.

PNEUMATICSTAR-PRO

GRASSLAND CARE AND UNDERSEEDING

WITHOUT COMPROMISE

The PNEUMATICSTAR-PRO is, like the PNEUMATICSTAR, designed for grassland care, re and underseeding. It has been specially designed for contractors, communities, big companies and for farms which have to work uneven pasture with large molehills.
The PNEUMATICSTAR-PRO can work even more aggressively, which is important when fighting rough stalked meadow grass or de-thatching. Also, the machine works very smoothly in a high working speed.

A **heavy levelling board** which is overload-protected by springs, levels molehills **before the support wheels pass**. It is adjusted "on hold", which lifts the soil and spreads it loose in the turf. Pores in the soil are not smeared up!

The **tine pipe cannot twist** and ensures the same tine position over the full pipe length, therefore **all tines work** with the **same aggresiveness**. The 28 mm long plastic tine holders ensure an exact guiding of the tines during work. This keeps the tines in driving direction and improves the vibration effect. The holders make sure the tines won't twist or get loose. The spring of the tine is located underneath the holder, therefore the tines have more freedom to vibrate and every movement is made out of the spring. In addition, this prevents the tines from scratching on the carrier.

PROFESSIONAL AND STRONG
FOR BEST GRASSLAND QUALITY

The **tine aggresiveness** can be adjusted by a **central lever** per section in 5 positions. On "hold" adjusted tines have a stronger de-thatching effect and fight the rough stalked meadow grass very effectively.

The 6-row weeder section carries 60 tines on 1.5 m working width, this gives a line distance of 2.5 cm. Only this line distance guarantees the **de-thatching effect** and the desired result.

Many tines work and aerate the turf better and support tillering. Thinner tines, like the ones with 8 mm, enter mats better when they are adjusted on "hold". Valuable, deeper rooted grasses are not harmed.

PNEUMATICSTAR-PRO

TOP MACHINES
FOR TOP FOODSTUFF-QUALITY

The effect of the hydraulic pressure regulation:

- Smooth operation in high working speed.
- Working pressure of the section can be adjusted from the tractor cab.
- Pressure regulation for the weeder sections – also in uneven fields equal tine pressure.
- Via the hydraulic system pressure can be put on the tines. In hard conditions the turf is de-thatched ideally. Perfect to fight rough stalked meadow grass in summer.
- Best following of the surface in uneven fields.
- Pivoting forks with hydraulic level control ensure an improved following of the surface.

Standard equipment basic machine PNEUMATICSTAR-PRO

- Robust frame
- Lower and upper links equipped with hardened bushings
- Spring mounted heavy levelling boards, working in front of the support wheels
- Weeder sections parallel guided with hydraulic level control
- Tines ø 8 mm, 490 mm long
- Tines made from patented pulled spring steel wire
- Non twisting tine pipe – weeder sections 6 rows with central tine adjustment per section
- Improved vibrating effect because of special tine holder
- Free movement of the tine (no danger of breaking)
- Line spacing 2.5 cm
- Large, bearing mounted support wheels Dimension 16 x 6.50/8 (on the main frame duals)
- Parking support with filling steps
- Transport width 3.00 m
- Pneumatic seeder with stirring shaft and separate section on the seeding roller per hose
- Wear resistant, elastic, environmentally friendly 2-component varnish
- Operator's manual

Optional equipment basic machine PNEUMATICSTAR-PRO

- Tines 490 mm long, ø 7 mm per section instead of standard tine
- Tines 490 mm long STRAIGHT, ø 8 mm per section instead of standard tine
- Tines 490 mm long, ø 10 mm per section instead of standard tine
- Tines 490 mm long STRAIGHT, ø 10 mm per section instead of standard tine
- Tine loss protection
- Warning signs and lights
- Machine without seedbox (retro-fitting possible)

Technical data PNEUMATICSTAR-PRO

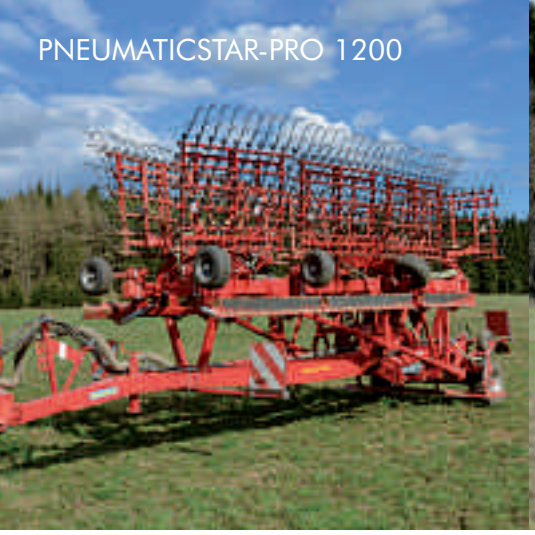
Type/ working width cm	Tines	Tankvol./ litres	Support wheels	Seeding rollers [6]	Deflector plates	Folding rigid	Folding hydr.	Transport width/m	Sections	HP/ kW	Weight kg approx.
PNEUMATICSTAR-PRO 300 [1, 3]	120	300	2	B,E	8	•		3	2	50/37	790
PNEUMATICSTAR-PRO 600 [1, 4]	240	300	6	C,E	8		•	3	4	80/59	1,330
PNEUMATICSTAR-PRO 1200 [2, 5]	480	500	8	D,F	16		•	3	8	170/125	4,280

[1] double eletric fan 12 V
[2] hydraulic fan with oil print manometer (requirements: pressure free return line, maximum capacity of the oil pump must not exceed 50 litres; recommendation: independent hydraulic valve or load sensing system)
[3] 1 double acting hydraulic valve necessary
[4] 1 double acting and 1 single acting hydraulic valve necessary
[5] 3 double acting hydraulic valves and 1 single acting hydraulic valve with pressure free return line necessary
[6] see photo of the seeding rollers, page 31

Six support wheels guide the frame also in high working speed smoothly, without shaking and with exact depth guidance across the grassland.

Warning signs and lights are available as optional extras.

Hardened bushings on the 3-point mounting ensure a long working life of the mounting.



LARGE-AREA
GRASSLAND WEEDER

The PNEUMATICSTAR-PRO 1200 is designed for large-scale farms. The chassis, which is attached to the lower links of the tractor, is carried by two large-dimensioned wheels. When in operation six additional support wheels on the wings will give the machine high operational stability. A stable sectional steel tube frame with cross braces will ensure that the frame of the weeder does not swing forward or backward.

OPTIMUM ADAPTATION TO THE GROUND CONTOUR

The very flexible frame ensures perfect copying of the soil contour of the levelling boards over the full working width – even in uneven terrain! The hydraulic levelling system guarantees an equal pressure on each weeder section. The turf is opened and an optimal seedbed for the subsequently reseeding is made.

GRASS-STAR

STOP MISTAKES

IMPROVE QUALITY OF FOODSTUFF

You are not satisfied with the yield of your grassland and realise after analysis that the only way to improve is new seeding. Has your grassland been spoilt by wild stock and the damage needs to be repaired quickly?

Then the GRASS-STAR is the ideal machine for you.

This direct seeder works the turf with a special tine rotor which keeps the pores of the soil open, unlike a shredder, rotary tiller or rotary harrow. Stones are not brought up to the surface. Mats or thatches, like moss or rough stalked meadow grass are mixed with soil by the tine rotor and provide excellent conditions for germination of the following seed.

The mounted pneumatic seeder distributes the seeds wide-spread in the upper layer of the soil. The advantage of this is that the seeds cover the full surface and new weeds lack space to emerge.

With this seeder various seeds can be distributed up to 300 kg/ha, which gives the opportunity to use the GRASS-STAR universally. The roller made from Farmflex rubber ensures good reconsolidation of the soil.

New seeding is necessary:

- If the crop consists of more than 50 % of inferior grasses such as couch grass, rough stalked meadow grass, etc., as well as mainly consisting of surface rooting weeds
- In case the grassland needs to be adapted in new operational circumstances

The Farmflex rubber roller, depth adjustable via a breadboard and with ø 520 mm, ensures an **optimal reconsolidation.**

Standard equipment basic machine GRASS-STAR

- Solid frame construction
- Lower links of the tine rotor can be adjusted in length
- Tine rotor with high quality gearbox for 1000 rpm
- Line spacing 50 mm
- Rotor tines are specially designed for grassland and do not bring stones to the surface
- PTO shaft with overload protection
- Dual support wheels (dimension 16 x 6.50/8)
- Farmflex roller ø 520 mm with cleaner
- Transport width 3.00 m
- Pneumatic seeder with stirring shaft and separate section on the seeding roller for every hose
- Filling steps
- Operator's manual

Optional equipment basic machine GRASS-STAR

- Gearbox with PTO shaft
- Warning signs and lightning

Technical data GRASS-STAR

Type	Number of tines/ working width cm	Tankvol./ litres	Support wheels	Delivered seeding rollers [2]	Deflector plates	Transport-width/m	HP/kW	Weight approx. kg
GRASS-STAR 300 FW [1]	54/290	300	4	B,E	8	3	100/74	1,640

[1] double electric fan 12 V
[2] see photo of the seeding rollers, page 31

The **seeding roller is driven** by an air wheel which is pressed on the farmflex roller. The seeds are spread in between the rotor (protected by a cover) and the roller.

JUICY AND STRONG

NEW MACHINES PROVIDE FRESH GREEN

The PTO shaft, supplied as standard, runs the **high quality gearbox** with 1000 rpm. The lower links can be adjusted in length.

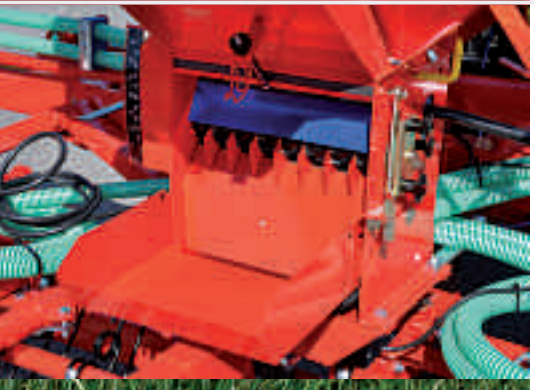
The **rotor tines** - specially designed for grassland and work without problems even in stony soils – ensure that not too many stones are brought up to the surface. The line spacing is 50 mm, which ensures working the full surface in just a 3 cm working depth.

The **cover** between the rotor and roller is spring mounted and height adjustable via a bolt.

The **hectare counter** can be retro-fitted.

A **chain** with tensioner connects the stepless oil bath gearbox with the seeding roller and the stirring shaft.

Mechanical jogging unit for sticky seeds.



The **calibration pan** and cover are standard on the machines.

SEEDERS MOUNTED
ON THE PNEUMATICSTAR
PNEUMATICSTAR-PRO
GRASS-STAR

HIGHEST YIELD
ACHIEVED BY FIRST CLASS GRASSLAND

With our pneumatic seeding boxes you can distribute all standard seeds and mixtures up to a space of approx. 5 mm. Depending on seeding quantity and working speed, you can spread between 1 to 300 kg per hectare. The adjustment of the seeding rate is very simple. A stirring shaft prevents from unmixing and bridging in the tank.

A flexible shaft drives the stepless oil bath gearbox which runs the seeding roller and stirring shaft via a chain. The seeding roller distributes the seeds into 8 separate outlets (6 sections in 9 m working width) which transfer the seeds via PVC-hoses to the deflector plates (which are adjustable). The deflector plates evenly spread the seeds over the full working width. As the seeds are distributed via air, wind is not as important as with mechincal seeders. The airstream distributing the seeds to the deflector plates is produced, depending on the required airstream and working width, by an electric, hydraulic or PTO-driven (via a shaft or directly from the tractor's PTO shaft) fan. The electric fan comes with special cables to be connected directly to the tractors battery. These cables include a control (on/off switch, control bulb) which can be easily mounted in the tractors cab.

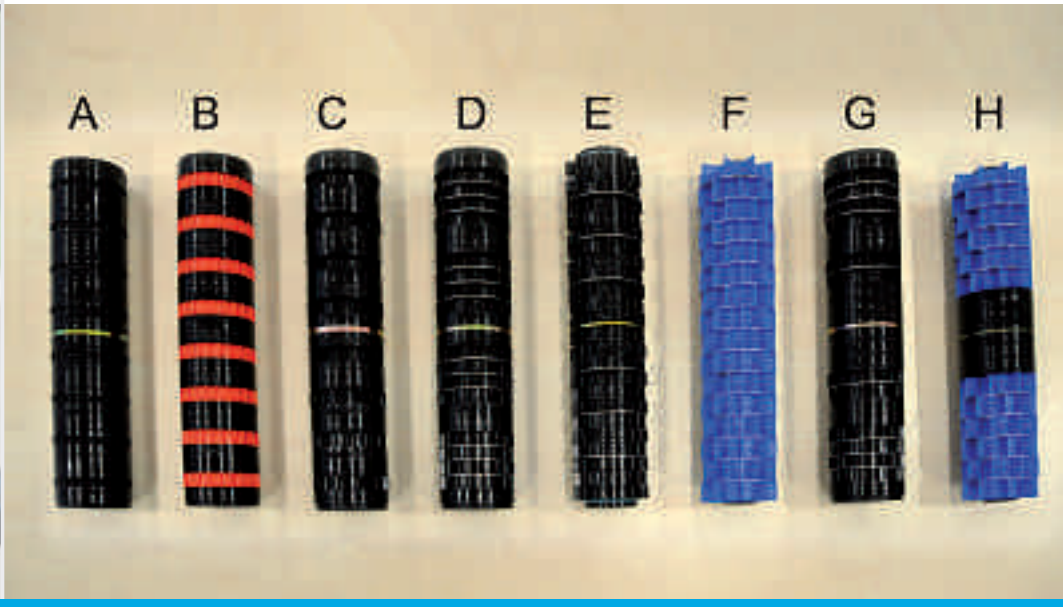
With the standard set up of every machine you can, with the coarse toothed seeding roller distribute grass seeds up to 40 kg/ha with a working speed of 10 km/h. If you want a higher seeding quantity, quicker working speed or if you want to distribute heavier seeds (e.g. grain) we ask you to get in contact with us that we can put together the ideal combination of seeding roller and fan for you.

With the **mechanical fan** you can, due to the higher airstream, distribute heavier seeds up to 6 m working width and you can work with increased working speed. Recommended for communities and contractors.

EXACT MEASURING
FOR GOOD SEEDING AND HIGH YIELD

Via the **control unit**, which can easily be fixed in the tractor cab by a hook and loop fastener, you can switch the electric fan on or off.

One **seeding roller** with fine and one with coarse toothing are included in the standard delivery.



The electronic control module **ETRONIC** makes your work with the seeder easier; the control unit is mounted in the tractor cab by a magnet.

The **deflector plates** are equipped with a splash guard to make sure the seeds are evenly distributed. The holder of the plate can be adjusted stepless.

On the **PNEUMATICSTAR-PRO** the heavy levelling board is mounted in front of the ground wheel. As the levelling bar lifts the soil and throws it over the board, the flexible shaft is connected to the groundwheel via an **angular gear** which protects it as the connecting point is in a higher position.

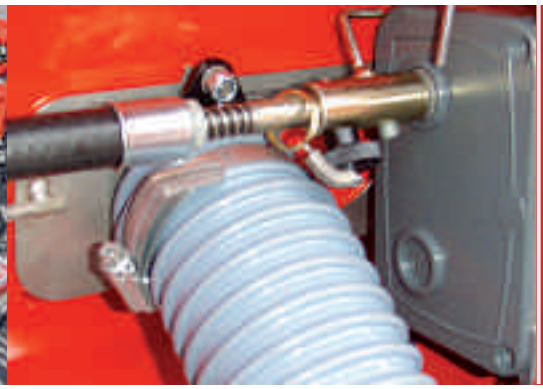
Benefits of the ETRONIC!
Electric adjustment of the seeding quantity during operation.
Sensor control of the seeding roller, airstream, tank level, hectare calculation of fields per day and totally worked area.

Ground drive via the support wheel (PNEUMATICSTAR). The flexible shaft, which runs a stepless oil bath gearbox, is protected by a hose. The information about working speed is provided by the support wheel. There is no additional ground wheel necessary.

The **deflector plates**, which are mounted close to the surface on the third tine row, make sure the seeds are distributed equally in the prepared soil.
The fourth, fifth and sixth tine row slightly work the seeds in the soil.

Steps ease the filling.

In case there are areas you do not want to seed, you can **disconnect the flexible shaft** from the gearbox by taking away the bolt where the shaft enters the gearbox. If you want to do so without leaving the tractor seat, you can get an electric adjustment of the seeding quantity (optional extra) which allows you adjust the seeding quantity to 0.



For heavy seeds we recommend a **retaining plate**, which is mounted on top of the stirring shaft and the seeding roller.

Standard equipment pneumatic seeder on PNEUMATICSTAR/PNEUMATICSTAR-PRO/GRASS-STAR

Stirring shaft
Separate section on the seeding roller per hose
Calibration plate + pan
Electric cable with 3-pin connector for machines with electric fan
Control of seeding quantity via ground drive and stepless oil-bath-gearbox
Specially designed deflector plates with splash guard
Flexible shaft
Bolt to disconnect the flexible shaft from the gearbox
1 seeding roller with course toothing
1 seeding roller with fine toothing
Seeding roller exchangeable without tools
Window to control tank level and opening to empty the tank
Steps for filling
Machines with double electric fan require 3-pin power plug, 12 V
9.00 + 12.00 m machines are equipped with mechanical fan and PTO shaft
Machines are completely assembled (short assembly might be necessary to optimize transport dimensions)
Operator's manual

Optional equipment pneumatic seeder on PNEUMATICSTAR/PNEUMATICSTAR-PRO/GRASS-STAR

Hectare-counter (electronic)
Bigger tank volume
Mechanical fan instead of double electric fan
Hydraulic fan (requirements: pressure free return line, maximum capacity of the oil pump must not exceed 50 litres; recommendation: independent hydraulic valve or load sensing system)
Electric adjustment of the seeding quantity (included in ETRONIC)
Retaining plate for heavy seeds
Stronger gearbox for 6 m machines (to seed heavy seeds like grain, peas, etc.)
Mechanical jogging unit for sticky seeds
Electronic control module ETRONIC (electric adjustment of seeding quantity, control of fan, seeding roller, airstream, tank level, hectare calculation, etc.)
PNEUMATICBOX with seeding unit made from stainless steel instead of standard
Deflector plates made from stainless steel instead of standard
P-BOX SPEED with electric drive of the seeding roller (the working speed needs to be constant to keep the seeding quantity equal) – instead of PNEUMATICBOX with ground drive

WITH EMOTION AND KNOW HOW

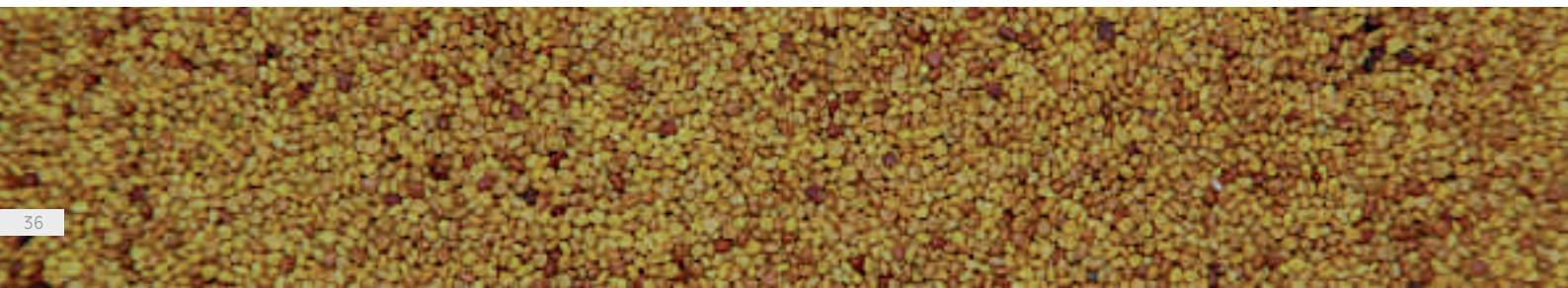
SUCCESSFUL SEEDING

The **rubber sealing** ensures the tank is properly closed. This is necessary for an optimal operation.

To **fully empty the tank** the opening is at the very bottom of the tank. The slider can be opened without any tools.

The PNEUMATICSTAR is also suitable for underseeding. **Seeding of clover or clover/grass into grain can collect up to 100 kg nitrogen/ha.** Fields with cover crops are very environmentally friendly due to the good nitrogen balance. Underseeding of grass in maize provides the following advantages:

- improved practicability during harvest or fertilizing
- control of late germinating weeds
- collection of nitrogen in autumn, therefore good utilization of slurry after harvesting of maize
- improved richness
- reduced need to utilize herbicides



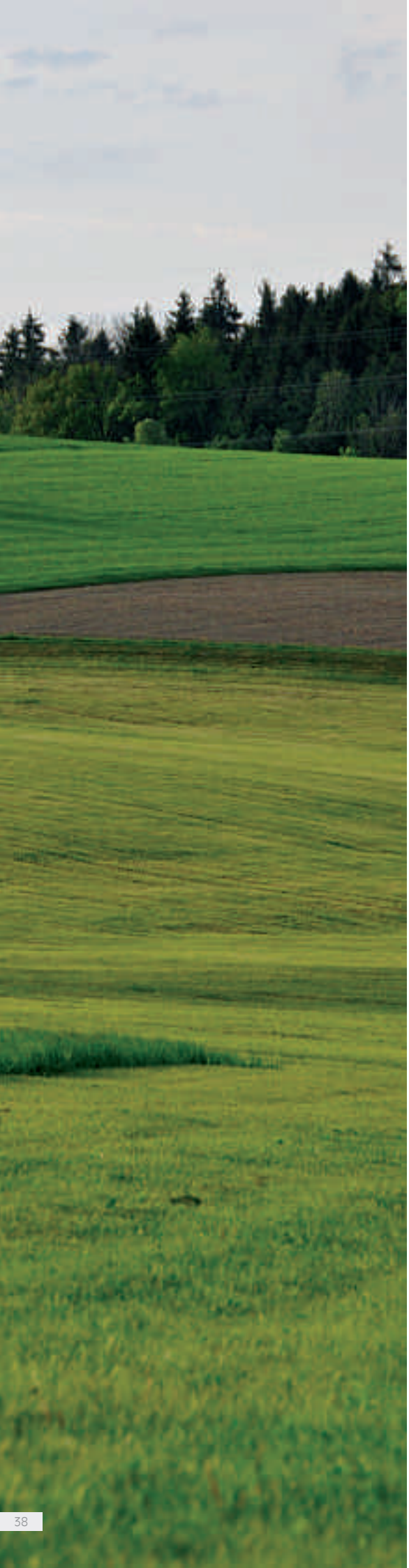
WHICH SEEDS

WITH WHICH MACHINE?

	GRASS-MANAGER	PNEUMATICSTAR							PNEUMATICSTAR-PRO			GRASS-STAR
	1.5 – 12 m	2 – 12 m							3 – 12 m			3 m
		200	250	300	500	600	900	1200	300	600	1200	300
Field beans	The GRASS-MANAGER is delivered without a pneumatic seedbox but it can be retro-fitted later on.											
Buckwheat												
Spelt												
Peas												
Fodder profi KM												
Barley												
Grassland profi B												
Grassland profi NA												
Oat												
Inkarnat clover												
False flax												
Flax seed												
Lupines												
Lucerne /Alfa-alfa												
Poppy seed												
Oil radish												
Phacelia												
Rape												
Rye												
Red clover												
Turnip rape												
Slug pellets												
Mustard												
Soya bean												
Sunflower												
So-vetch												
Triticale												
White clover												
Wheat												

Possible
Not possible
If ordered possible with blue marked options (see page 39)

The above mentioned list of seeds is not complete. With the PNEUMATICSTAR, PNEUMATICSTAR PRO and GRASS-STAR other, similar seeds can be distributed.



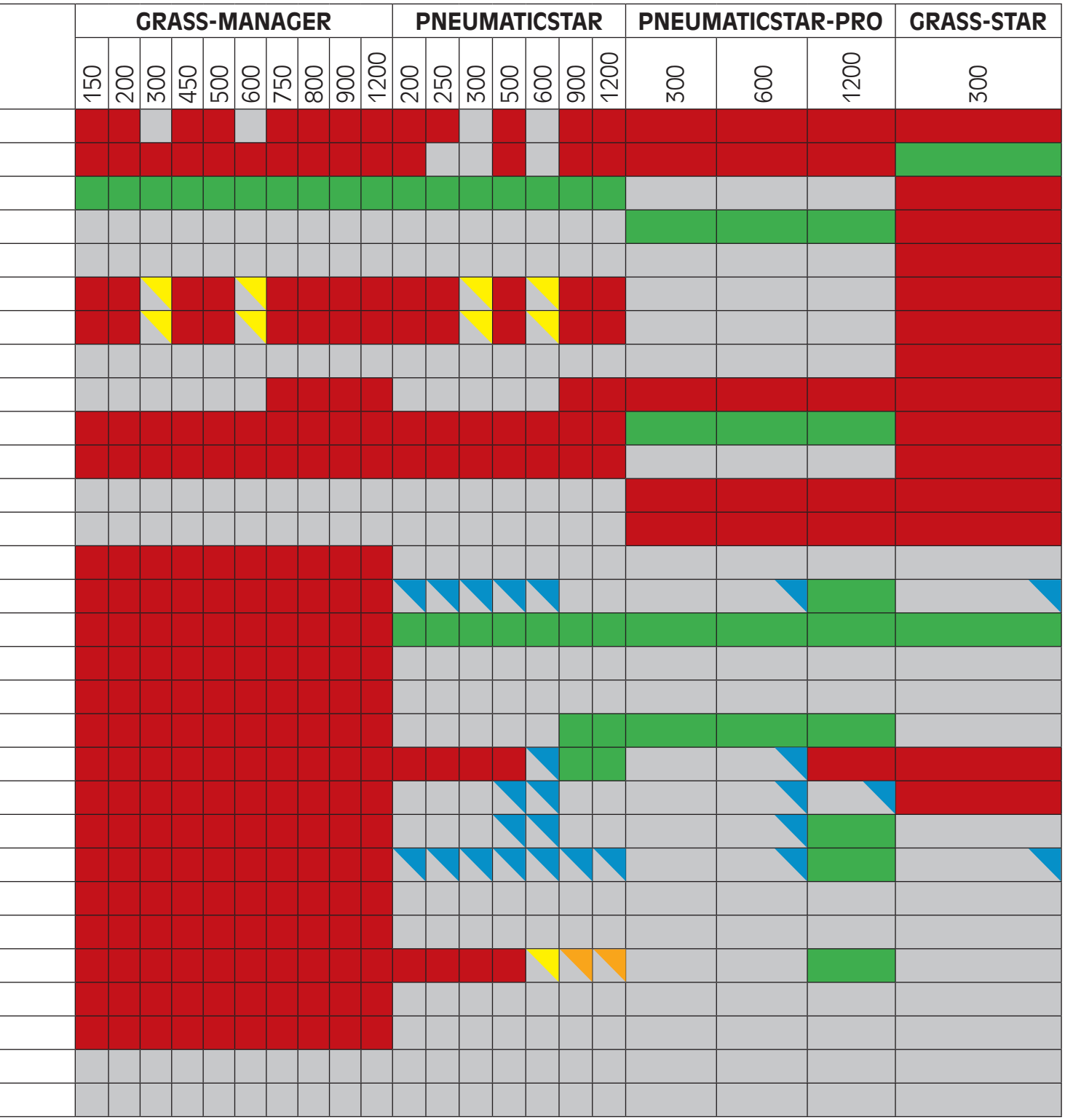
Heavy frame (in short SR)
Reconsolidation rolls (in short FW)
Tines 490 mm long, ø 7 mm
Tines 490 mm long, ø 8 mm
Tines 490 mm long STRAIGHT, ø 8 mm
Tines 490 mm long, ø 10 mm
Tines 490 mm long STRAIGHT, ø 10 mm
Grassland sheets (only on 8 mm tines)
Spring mounted front levelling plate
Heavy front levelling board
Without heavy front levelling board
Hydr. tine adjustment
Track width 1.8 m and 1.4 m (shear retraction 1.8 m and 1.5 m)
Mechanical hectare counter
Stronger gearbox
Filling steps
Electric adjustment of seeding quantity for Pneumaticbox
Electronic control unit ETRONIC
Angle unit for flexible shaft
Mechanical fan fix mounted on the frame
Mechanical fan mounted on the tractor's PTO shaft
Hydraulic fan with oil pressure gauge
Retaining plate
Mechanical jogging unit
P-BOX SPEED instead of PNEUMATICBOX
500 litre tank, stronger gearbox, retaining plate
PNEUMATICBOX with seeding unit made from stainless steel
Deflector plates made from stainless steel
Warning signs and lights to the rear
Warning signs and lights to the rear / front

Possible
Standard
Only in conjunction with SR frame

Not necessary/not neededsiehe See page 37
Only in conjunction with frame extension

OPTIONS

OVERVIEW



Technical data and measurements are non-binding, e.g. changes in construction and equipment remain reserved.

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