

# GRASSLAND HARVESTING

Product range of rakes



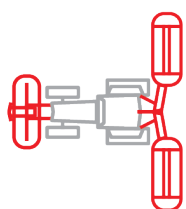


# SPECIALIST IN MOWING AND GRASSLAND HARVESTING

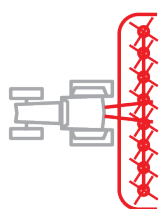
SIP is a Slovenian manufacturer of agricultural machinery with a long tradition. We are experts in the technologies of mowers, tedders, rakes and pick-up rakes. Our vision is to become a leading specialist in mowing and grassland harvesting systems.

## Our main program includes:

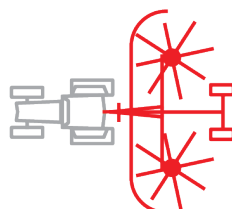
- mowers



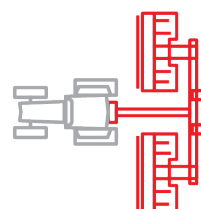
- tedders



- rakes



- pick-up rakes



SIP's agricultural machines are recognised for their ease of use, uniquely robust design and innovative solutions. The state-of-the-art grassland harvesting program offers professional technologies for **three agricultural segments**:

- **mountain farms** and farms in transitional and flat areas, where safe, light, and agile machinery is needed;
- **medium-sized farms and contractors** who need durable and efficient machines to operate in large areas with an excellent price-quality ratio;
- **large agricultural companies** where high performance, reliability and maximum productivity are key to ensuring the highest income.

**Our sales network** is spread globally in more than 45 countries, with France, Austria, Switzerland, Germany, and Italy leading the way.

**Our mission** is to become leading specialists in mowing and grassland harvesting systems.



# MORE THAN **65 YEARS** OF KNOWLEDGE AND EXPERIENCE

By choosing SIP, you have opted for a robust, simple and proven machine that can handle any work regardless of the complexity of the terrain: from large plains to varied mountain areas with larger slopes.

## PROFESSIONAL APPROACH

- professionally qualified multidisciplinary staff,
- cooperation with agricultural experts,
- cooperation with the most demanding users,
- cooperation with our partners,
- gathering insight and data analysis.

## TESTED IN THE MOST DEMANDING CONDITIONS

- testing polygon,
- performance testing,
- endurance testing.

## CONNECTED WITH END USERS

To develop reliable and durable machines, we are in constant contact with our end users, who test our machines in a wide variety of conditions. We use the valuable experience gained in this manner to develop useful, advanced and simple technologies

## QUALITY COMES FIRST

We use quality components and materials from renowned world manufacturers as we want the most loaded parts of the machines to work flawlessly.

**The result is a wide range of excellent machines, durable and adapted to all types of terrain.**

We are responsive and quick to provide spare parts and support.







### 3-year warranty

Years of testing, 100% quality control and selected suppliers guarantee reliable and robust machines.



### Lightweight

The lightweight construction enables linkage to tractors with lower power and reduces energy consumption.



### SIP walking tandem axle (SIP patent)

The exceptional responsiveness of the rotor chassis with a walking tandem axle ensures 50% less rotor oscillation when working on rugged terrain.



### EE - Energy Efficiency

Increased productivity with lower energy consumption.



### Transport safety

The system prevents oscillations or rotation of the rotors during transport and ensures maximum safety.





# ROTARY RAKES

## STAR ALP

The **light** and **agile** rakes with their specific design enable **safe work on slopes** and ensure the harvesting of **clean and quality forage**. The rakes are stable, very useful and easy to maintain.



# STAR ALP TECHNOLOGIES

## WELDED ROTOR ALP

The single-rotor rakes with light construction, low centre of gravity and welded rotors are suitable **for light tractors** and enable **efficient work on steep terrain and slopes**.

**1**  
**Ball bearings** on the connecting rod of the spring arm holders, traveling inside the cam track.

**2**  
**Gear pair** with a large module for easier power transmission.

**3**  
**Robust gear** housing.

**4**  
**The double bearing** of the vertical rotor shaft.

**5**  
**Cam track** made of ductile iron.

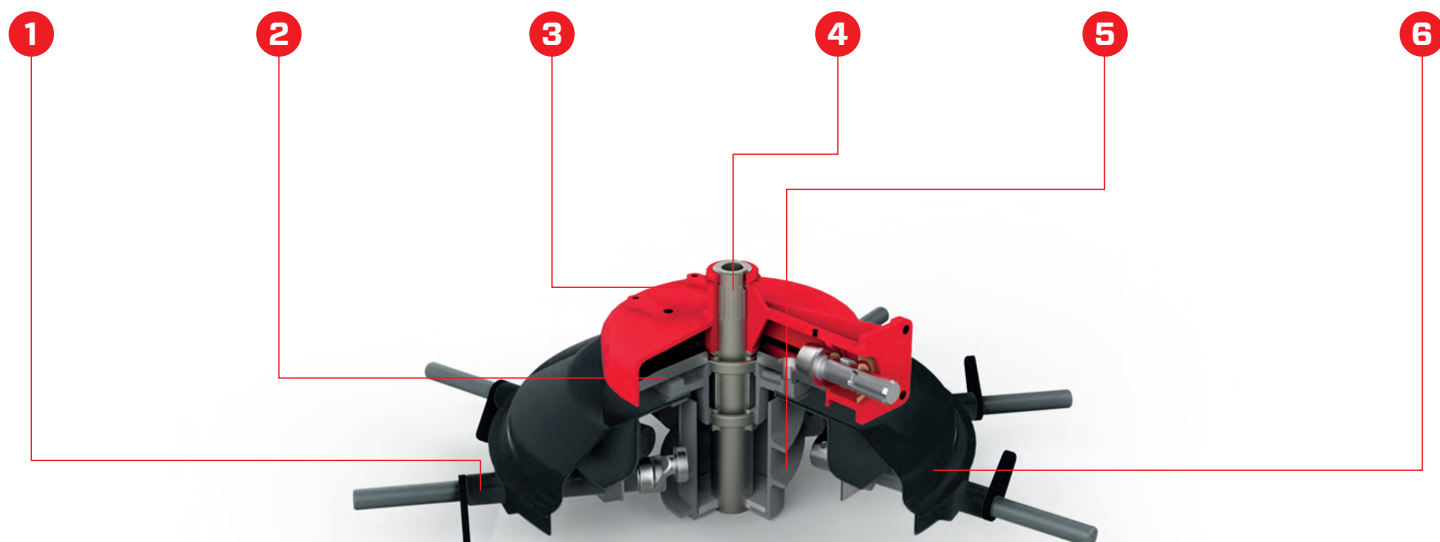
**6**  
**Minimal maintenance** and **long service life**.



Four double spring tines per holder.



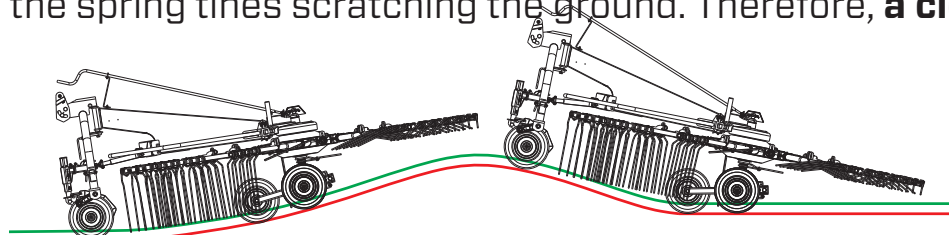
Cam track made of ductile iron.





## ADAPTATION TO THE TERRAIN

The jockey wheel enables **step-by-step tracking of the ground** and thus even more efficient work on varied terrain without damaging the spring tines and holders. It ensures that **the working height is always set correctly**, thus preventing the spring tines scratching the ground. Therefore, **a clean swath is guaranteed**.

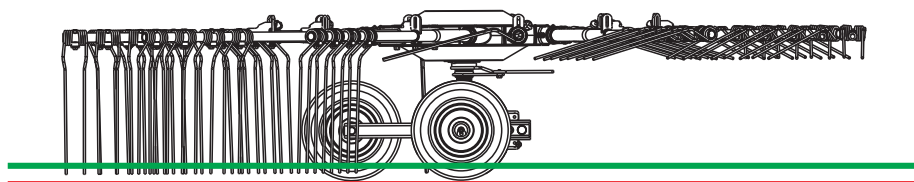


With a jockey wheel, the rake follows the ground step by step. The turf stays undamaged, the swath is clean, and the spring tines have a longer lifespan. An additional jockey wheel is especially recommended for working on slopes.



## WORKING HEIGHT ADJUSTMENT

The working height of the spring tines is adjustable, so **the turf remains undamaged** during raking. The swath is clean and free of soil and sand.



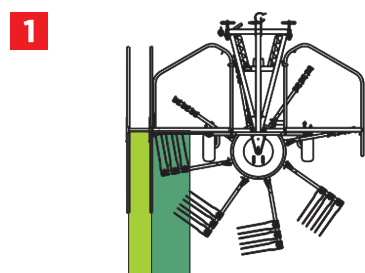
The working height of the spring tines is adjustable, so the turf remains undamaged.



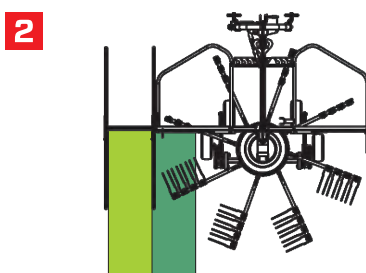
The working height of the rotor is adjustable from the tractor.

## SWATH WIDTH ADJUSTMENT

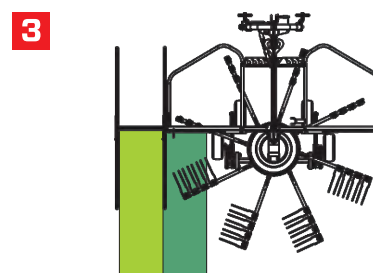
The swath width is set **according to the quantity of the forage** and **the working width of the pick-up device** behind the rake.



STAR 300|8 ALP  
Swath width: 0.50 m - 0.80 m



STAR 320|8 ALP  
Swath width: 0.60 m - 1.20 m



STAR 350|8 ALP  
Swath width: 0.60 m - 1.20 m



# ROTARY RAKES

## STAR 300|8 ALP, 320|8 ALP, 350|8 ALP

The **single-rotor** rakes, with their **lightweight and robust design**, ensure smooth and even raking on very **steep terrain and slopes**.

Pivoting linkage

Continuous height adjustment

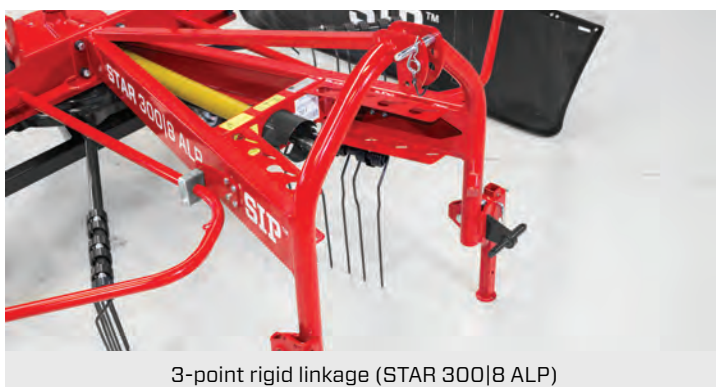
Walking tandem axle on STAR 350|8 ALP (SIP patent)

Mechanical or hydraulic (optional) stabiliser

Welded rotor



3-point pivoting linkage (STAR 320|8 ALP, 350|8 ALP)



3-point rigid linkage (STAR 300|8 ALP)



Robust gearbox housing with permanent gears, lubricated with semi-liquid grease, ensures easy and long-lasting running.







Adjustable working width according to the quantity of forage and pick-up unit.



The walking tandem axle (SIP patent) enables optimal adaptation to terrain, higher working speed, and transfer of lower loads to the machine (STAR 350 | 8 ALP).



The additional hydraulic shock absorber enables easier following of the tractor (optional at STAR 320 | 8 ALP, 350 | 8 ALP).



Flexible wheel and adjustable raking height (STAR 300 | 8 ALP, 320 | 8 ALP).



The working height of the spring tines is easily adjustable from the tractor.

The **STAR ALP** rakes with a lightweight construction are ideal for working on smaller and steep areas.

The spring tines are prevented from scratching the ground with working height adjustment and the use of a jockey wheel. This protects the turf and ensures clean swaths and less wear of the machine.



# TECHNICAL DATA AND EQUIPMENT

## ROTARY RAKES STAR ALP

TECHNICAL DATA	300 8 ALP	320 8 ALP	350 8 ALP
Working width (m)	3.00	3.20	3.50
Swath width (m)	0.50 - 0.80	0.60 - 1.20	0.60 - 1.20
Number of tine arms per rotor	8	8	8
Num. of double spring tines per arm	3	3	4
Rotor diameter (m)	2.60	2.60	2.80
PTO rotation speed (rpm))	540	540	540
Recommended PTO rotation speed (rpm)	350 - 450	350 - 450	350 - 450
Weight (kg)	338	379	417
Required tractor power (kW/HP)	13 / 18	22 / 30	22 / 30
Capacity (ha/h)	2.50	2.50	4.00
Safety clutch (Nm)	600	600	600
Machine width (m)	2.79	2.79	2.96
Transport width (m)	1.44	1.36	1.68
Machine height (m)	1.22	1.42	1.42
Transport length (m)	3.00	3.12	3.22
Tyre size - rotors	15 x 6.00	15 x 6.00	15 x 6.00

### SERIAL EQUIPMENT

Hitch	3-point rigid linkage Cat. I and II	3-point pivoting linkage Cat. II	3-point pivoting linkage Cat. II
PTO shaft	Safety clutch		
Hydraulic connection	/	/	/
Swath curtain	YES	YES	YES
Working height adjustment	Mechanical		
Chassis	Single axle	Single axle	Walking tandem axle
Shock absorber	/	Mechanical	Mechanical

### OPTIONAL EQUIPMENT



Additional mechanical shock absorber (available with STAR 320|8 ALP, 350|8 ALP).



Hydraulic shock absorber (available with STAR 320|8 ALP, 350|8 ALP).



Road safety equipment









### 3-year warranty

Years of testing, 100% quality control and selected suppliers guarantee reliable and robust machines.



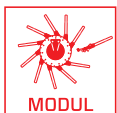
### 3D rotor mounting

Special 3D mounting allows the rotor to be adjusted in all directions and ensures smooth raking even on rugged terrain.



### Sequential rotor lift

Lifting kinematics with 3D rotor mounting and the centre of gravity located backward allows sequential lifting of the rotors.



### Modular rotor

The robust rotor design, in which each part is individually replaceable, ensures easy maintenance.



### SIP walking tandem axle (SIP patent)

The exceptional responsiveness of the rotor chassis with a walking tandem axle ensures 50% less rotor oscillation when working on rugged terrain.



### Hydraulic working width adjustment

The working width can be easily adjusted using the tractor's hydraulics.



### CAM - Cam track adjustment

Adjusting the cam track curve by  $\pm 30^\circ$  allows the optimal shape of the swath according to the harvesting machinery.



### Y-DRIVE

The Y-drive allows smaller working angles of the PTO shaft.





# ROTARY RAKES

## STAR

**Innovative technologies, easy operation and excellent manoeuvrability** of the rotary rakes result in clean, even and airy swaths. The robust design of one-, two- and four-rotor rakes and the use of quality materials ensure **excellent performance** and **a long service life**.

# STAR TECHNOLOGIES

## MODULAR ROTOR

The rotary rakes with innovative SIP technologies such as a **modular rotor** and **walking tandem axles**, ensure efficient raking and clean and even swaths.

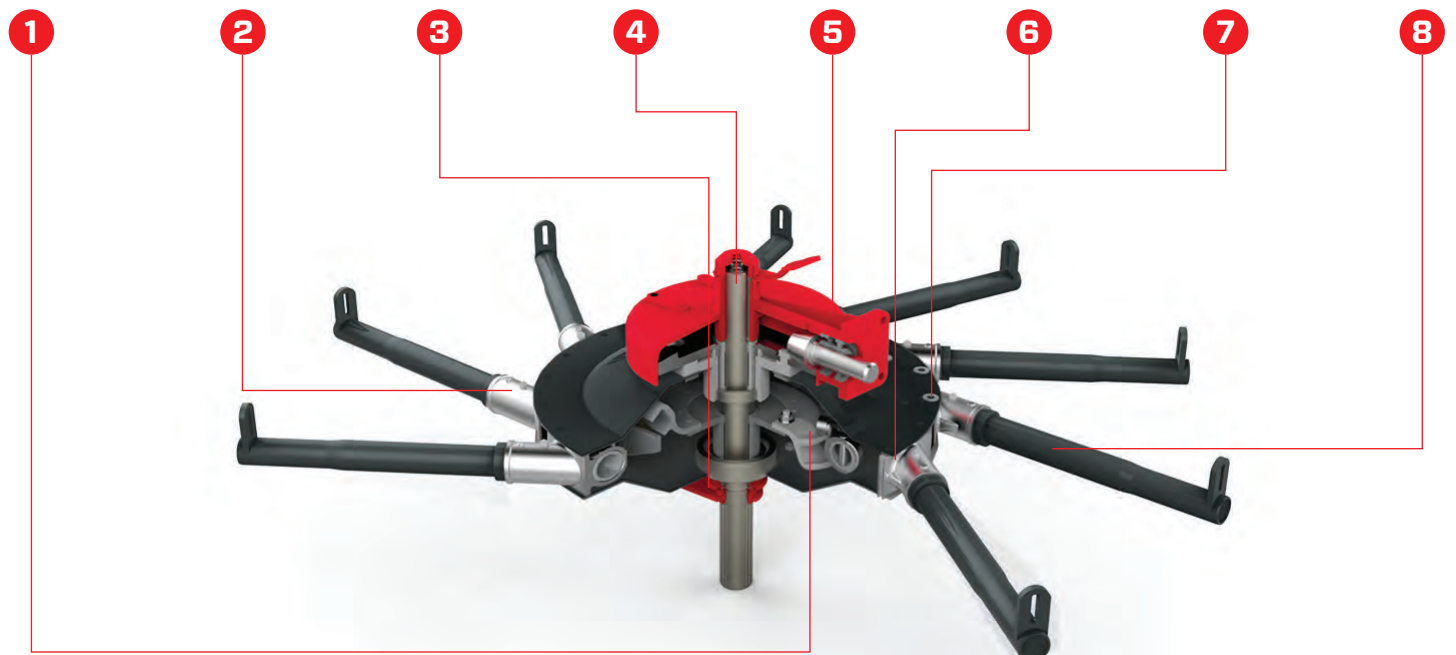
- 1**  
**Cam track** diameter of 42 cm.
- 2**  
**Aluminium casting** of the spring arm holders.
- 3**  
**Continuously adjustable** cam track.
- 4**  
**The double bearing** of the vertical rotor shaft.
- 5**  
**Gear pair** with a large module for easier power transmission.
- 6**  
**Spring tine holders** with two teflon bushings.
- 7**  
**Robust mounting** of the holder with three screws.
- 8**  
**Individually replaceable** double-bearing spring tine holders.



Individually replaceable spring tine holders with two bushings and nipples.



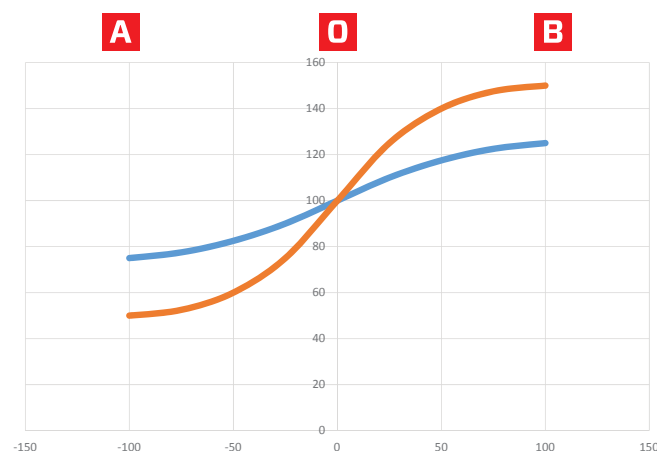
The cam track with a larger diameter is heat-treated against wear.



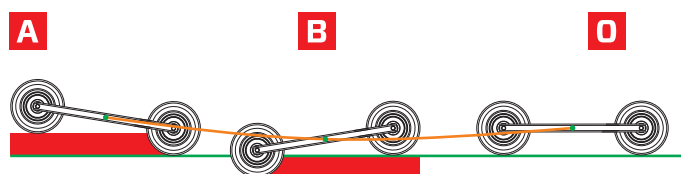
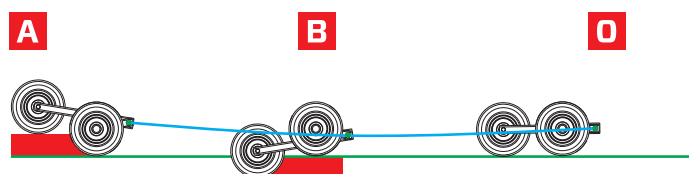


## SIP WALKING TANDEM

Thanks to the rotation axis, the rake with a walking tandem axle **follows the ground up to 50% more smoothly and evenly** compared to the standard tandem. It enables **optimal adaptation to terrain**, a higher working speed and lower transfer of loads to the machine.



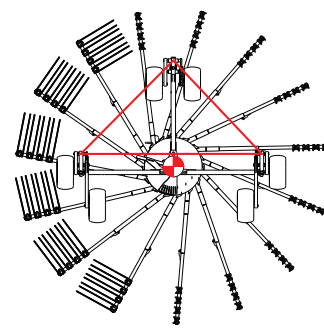
The difference between the movement of the pivot points on the SIP walking tandem (blue) and the standard tandem (orange).



Difference in pivot point movement on the SIP walking tandem (left) compared to standard tandem axle (right).

## WALKING TANDEM AXLE COMBINATION

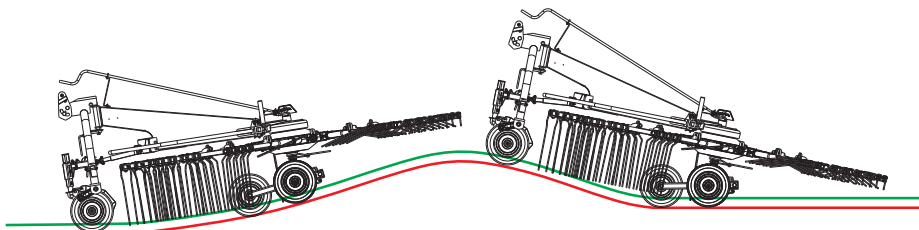
The combination of a walking tandem on the rotor chassis at the front and rear axle allows for **excellent adaptation to terrain**. The working speed can be higher while the turf remains undamaged.



The centre of gravity of the walking tandem mounting is located at the front of the rotor (picture on the left). Yet the wheels remain close to the spring tines providing maximum rotor stability even at higher speeds and on steep terrain.

## ADAPTATION TO TERRAIN

The jockey wheel on the rake enables **faster work on varied terrain** without damaging the spring tines and holders. **An even and clean swath** is guaranteed.



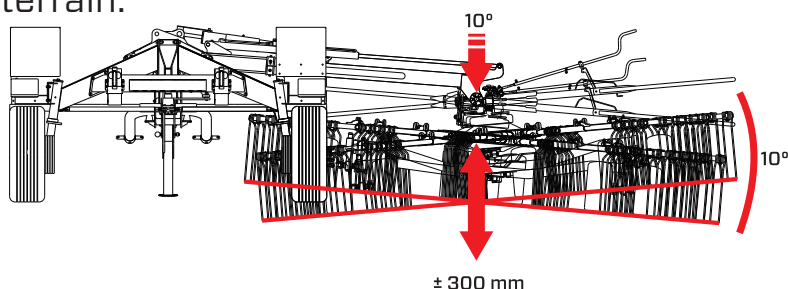
The jockey wheel in front of the rotor ensures perfect ground tracking without the tines touching the ground. This ensures that the working height is always set correctly. The turf stays undamaged, the swaths are clean, and the spring tines and holders have a longer lifespan. An additional jockey wheel is recommended for working on slopes.



Special double-jockey wheel (available with STAR 430|12 T and 600|20 T).

## 3D GROUND TRACKING

Special 3D mounting allows **free movement of the rotors** and ensures **complete ground tracking**, regardless of the chassis position and a clean swath even on rugged terrain.



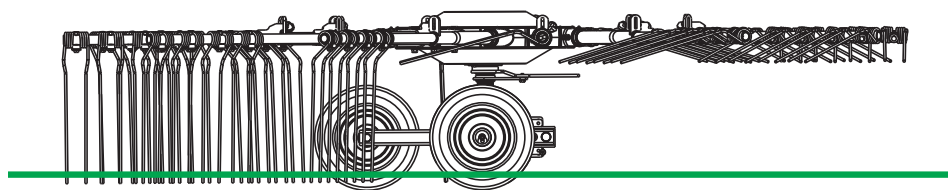
The special cross-shaped hinges on the rotors enable perfect 3D ground tracking independently of the chassis. The spring tines always stay parallel to the ground, which ensures clean swaths even at higher working speeds.



Robust 3D pivoting hinge in front of the rotor.

## WORKING HEIGHT ADJUSTMENT

The working height of the spring tines is adjustable, so **the turf remains undamaged during raking**, and the swath stays clean, free of soil and sand contamination. Hydraulic working height adjustment is available on several models.



The working height of the spring tines is adjustable, so the turf remains undamaged.

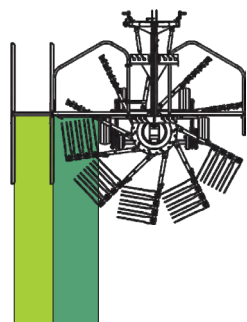


Working height is adjustable from the tractor.

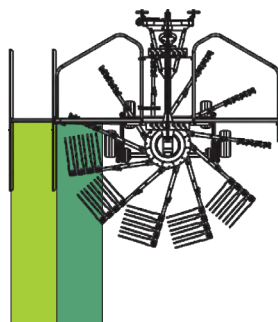


# SWATH WIDTH ADJUSTMENT

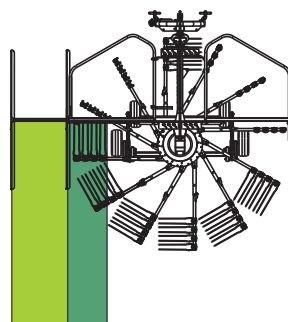
The swath width is set according to the quantity of forage and the width of the pick-up device.



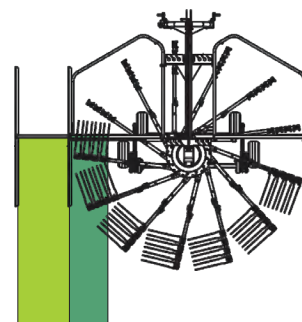
STAR 360|10  
0.70 m - 1.40 m



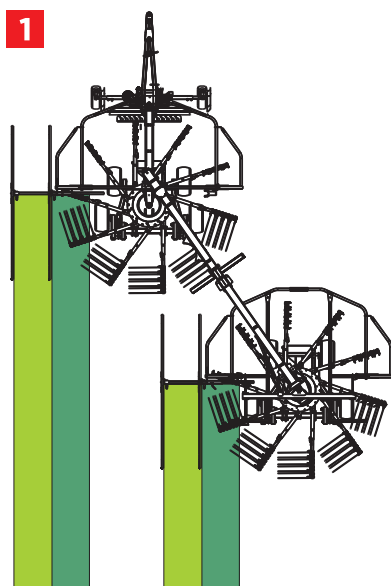
STAR 400|11  
0.70 m - 1.40 m



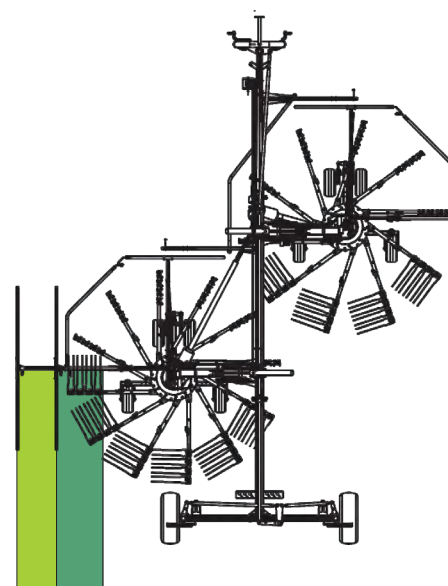
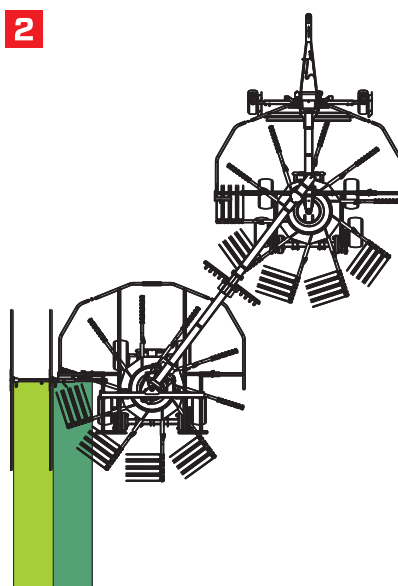
STAR 430|12 / 430|12 T  
0.60 m - 1.40 m



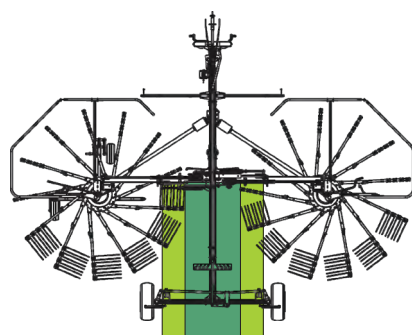
STAR 470|13  
0.60 m - 1.40 m



STAR 600|20 T  
Hydraulic control of rear rotor with an option of two single swaths (1) or double left side swaths (2). Swath width: 0.60 m - 1.20 m.

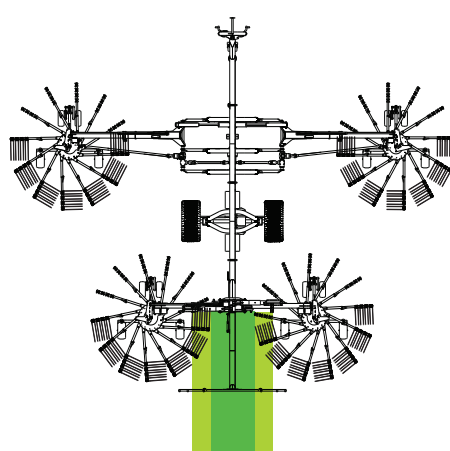


STAR 700|22 T  
Double left side swath: 7.00m  
Swath width: 0.70 m - 1.30 m.



Adjustable double central swath

Swath width:  
STAR 650|20 T - 0.90 m - 1.60 m  
STAR 720|22 T - 1.30 m - 1.85 m  
STAR 850|26 T - 1.15 m - 2.13 m  
STAR 1000|30 T - 1.38 m - 2.50 m



STAR 1250|50 T  
Adjustable double central swath  
Swath width: 1.30 m - 2.20 m.

# ROTARY RAKES

## STAR 360|10, 400|11, 430|12, 470|13

The **single-rotor** rakes with a modular rotor and SIP walking tandem axle enable smooth raking and evenly shaped, airy swaths.

Pivoting linkage

Working height adjustment

Walking tandem axle (SIP patent)

Modular rotor

Continuously adjustable cam track



Adjustable cam track  $\pm 15^\circ$  depending on the quantity and moisture of the forage.



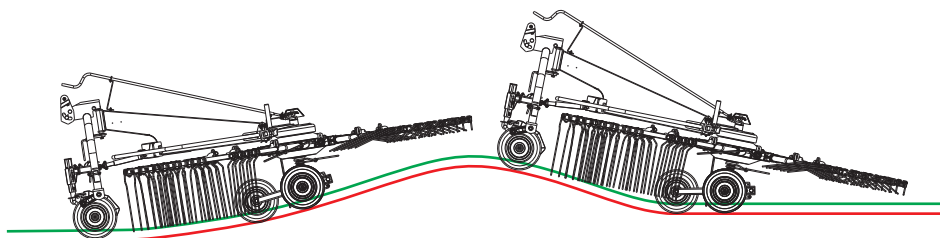
The advantages of the modular rotor are individually replaceable spring tine holders, a large cam track, quality materials, minimal maintenance and a long service life.



Pivoting linkage with shock absorbers for good tractor following.







The jockey wheel provides better ground tracking and a clean swath. The spring tines do not scratch to the ground, and their service life is thus longer and the turf stays undamaged.



Easy storage with folded spring tine holders and side guards.



The pivoting linkage with stabilisers ensure comfortable machine handling.



Simple design of the release bracket for tine arms holders.



Jockey wheel



Rotor angle adjustment for a cleaner swath.



All rakes are equipped as a standard with a SIP walking tandem axle (SIP patent). It enables optimal adaptation to terrain, higher working speeds, and lower load transfer to the machine.

The **STAR single-rotor rakes** with four double spring tines on the holder ensure even and clean swaths.

With pivoting linkage, they are extremely agile, follow the tractor optimally and have a small turning circle. They adapt perfectly to terrain and enable professional raking even on rugged terrains.



# ROTARY RAKES

## STAR 430|12 T

The **trailed single-rotor** rake ensures smooth raking and evenly shaped, clean swaths. The parallelogram frame in combination with the patented SIP walking tandem axle enables transport speeds of up to 30 km/h.

Parallelogram drawbar

Modular rotor

Hydraulic rotor lift

Continuously adjustable cam track

Walking tandem axle (SIP patent)



Special double-jockey wheel.



Adjustable cam track  $\pm 15^\circ$  depending on the quantity and moisture of the forage.



The advantages of the modular rotor are individually replaceable spring tine holders, a large cam track, quality materials, minimal maintenance and a long service life.



The hitch ring is controlled by parallel linkage. The hydraulic arm on the drawbar maintains the leading rotor parallel to the ground as it is lifted and lowered.





Easy storage with folded spring tine holders and side guards.



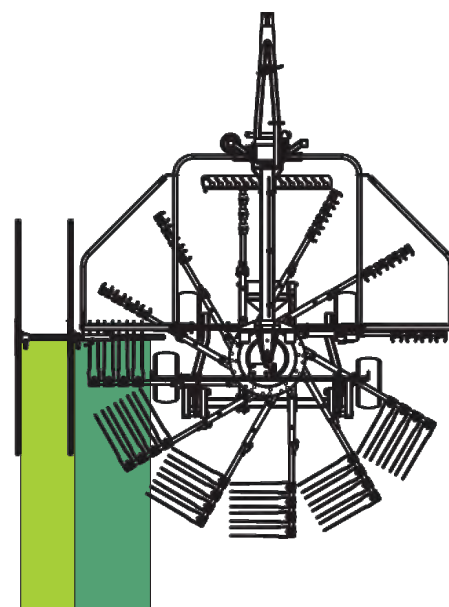
The hydraulic lifting system enables a 500 mm rotor lift when turning or driving over the swaths.



All rakes are equipped as a standard with a SIP walking tandem axle (SIP patent). It enables optimal adaptation to terrain, higher working speeds, and lower load transfer to the machine.



Easy and simple rotor height adjustment with a threaded bolt.



Swath width: 0.70 m - 1.20 m.

The trailed rake **STAR 430 | 12 T** combines economy and excellent transport properties.

With four double spring tines on the holder, it ensures the formation of even and clean swaths. Its innovative walking tandem axle enables excellent adaptation to the ground and transport speeds of up to 30 km/h.



# ROTARY RAKES

## STAR 600|20 T

The **trailed two-rotor** rake delivers **two single swaths** or **one double swath on the left side**. The walking tandem axle with parallelogram mounting ensures smooth and even raking and transport speeds of up to 30 km/h.

Modular rotor

Walking tandem axle (SIP patent)

3D rotor mounting

Hydraulic control of rear rotor

Hydraulic rotor lift



The hitch ring is controlled by parallel linkage. The hydraulic arm on the drawbar maintains the leading rotor parallel to the ground as it is lifted and lowered.

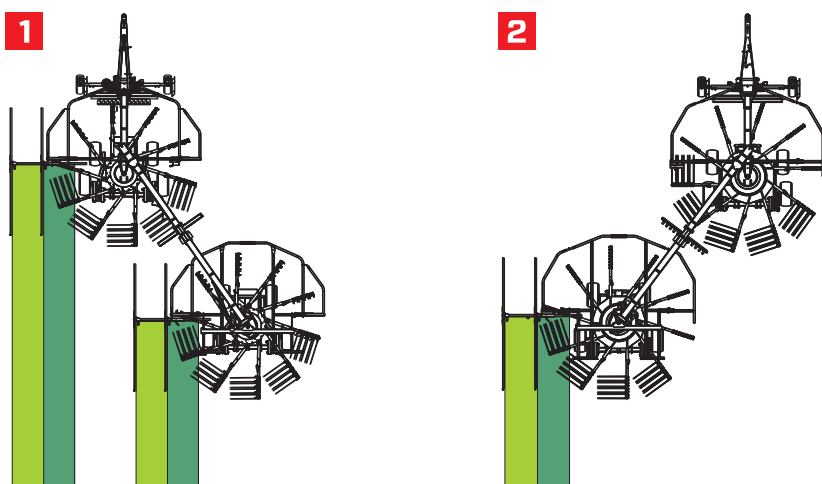


The advantages of the modular rotor are individually replaceable spring tine holders, a large cam track, quality materials, minimal maintenance and a long service life.



Easy and simple rotor height adjustment with a threaded bolt.





Hydraulic control of the rear rotor with an option of two single swaths (1) or a double swath on the left side (2).



The front rotors are equipped as a standard with a SIP walking tandem axle (SIP patent), which enables optimal adaptation to terrain, higher working speed and lower load transfer to the machine.



Spare wheel on the back of the machine as part of the standard equipment.

The double-rotor rake **STAR 600 | 20 T** is designed for ease of use and high productivity.

The modular rotors with four pairs of spring tines on each holder allow forming two single swaths or one double swath. The innovative walking tandem axle and height-adjustable double-bearing rotors ensure ground tracking and efficiency in all working conditions.



The 3D pivoting mounting of the rear rotor on the parallelogram frame undercarriage allows perfect ground tracking. The rear rotor is operated hydraulically for quick and efficient raking.



# ROTARY RAKES

## STAR 700|22 T

The **trailed two-rotor** rake with the SIP patented walking tandem axle enables smooth and clean raking and forms **a single side swath**.

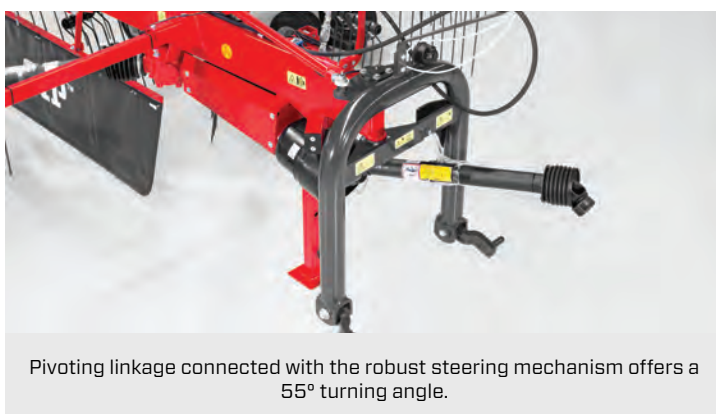
Sequential rotor lift

Walking tandem axle - front (SIP patent)

Modular rotor

3D pivoting rotor mounting

Robust wheel steering mechanism



Pivoting linkage connected with the robust steering mechanism offers a 55° turning angle.



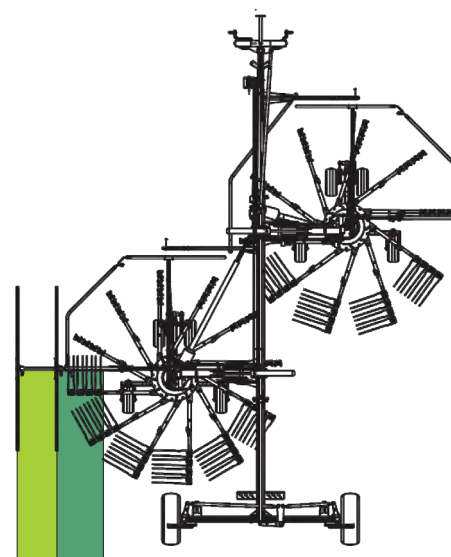
The sequential lift of the rotors (TAKEOFF) via a one-way hydraulic connection ensures excellent manoeuvrability and easy operation.



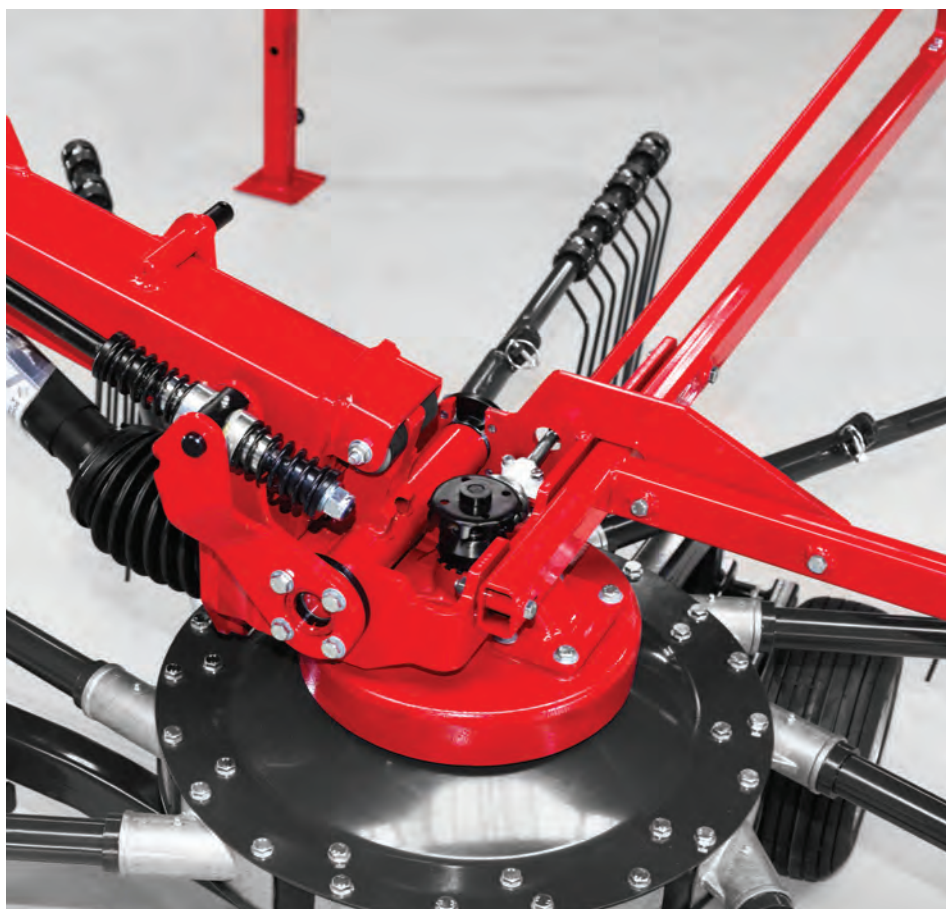
The robust steering mechanism makes it possible for the machine to follow the tractor while turning, despite the length of the machine.



The walking tandem axle in front of the rotor ensures tracking to the terrain and higher working speeds. The wide chassis with 4 or 6 wheels (tandem option at the rear part) placed close to the spring tines allows for even and clean raking.



Double left side swath: 7.00m  
Swath width: 0.70 m - 1.30 m.



The modular rotor with 3D mounting allows excellent adaptation to the ground. The spring tines do not scratch the ground, so the turf remains undamaged. The swath is clean without soil and sand contamination.



Adjustable cam track  $\pm 15^\circ$  depending on the quantity and moisture of the forage.

The trailed two-rotor rake **STAR 700 | 22 T** is a robust and efficient machine that enables long-term use.

It is ideal for larger farms and agricultural service providers who need powerful and reliable machinery with low maintenance costs.



# ROTARY RAKES

## STAR 650|20 T, 720|22 T, 850|26 T

The **trailed two-rotor** rakes are durable and efficient machines. Despite the large working width, these rakes are suitable for lighter tractors, saving time and energy. They form a clean and evenly distributed **central swath**.

Pivoting linkage with a 110° turning angle

Robust external steering mechanism

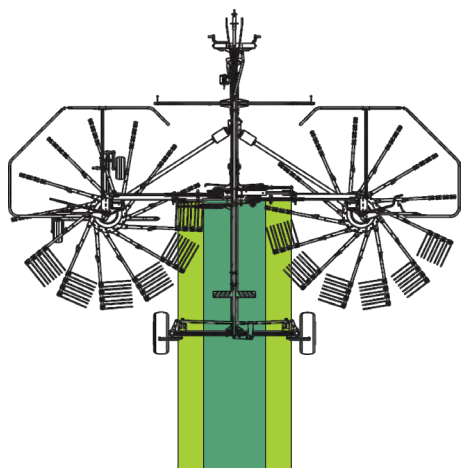
Y-gearbox

Walking tandem axle - front (SIP patent)

3D pivoting rotor mounting



Both rotors move independently of the chassis, allowing 3D tracking on uneven surfaces. The spring tines remain parallel to the ground at all times, ensuring clean swaths at all working speeds.



Adjustable double central swath

Swath width:  
 STAR 650I20 T - 0.90 m - 1.60 m  
 STAR 720I22 T - 1.30 m - 1.85 m  
 STAR 850I26 T - 1.15 m - 2.13 m



Electro-hydraulic separate rotor lift (optional) for easy operation when driving over the swaths or turning at the headlands.



The transport height of all models is below 4 m. With folded protections and spring tine holders, it is between 3.2 and 3.5 m.



Walking tandem axle (rear - option) for excellent ground tracking and higher working speeds. The wide chassis with 4 or 6 wheels placed close to the spring tines allows for even and clean raking.



Hydraulic continuously adjustable swath width (standard with STAR 850 | 26 T, optional with 72022 T and 650I20 T).



The combination of the optimally adjusted rotor curve and the swath curtain results in evenly shaped trapezoidal swaths. The rake curtain additionally prevents forage from intertwining between the rotors.

The trailed central delivery two-rotor rakes **STAR 650I20 T, 720I22 T** and **850I26 T** offer perfect stability and an exceptional increase in productivity.

The 3D pivoting rotor mounting, in combination with the hydropneumatic suspension and walking tandem, ensures excellent adaptation to terrain and an even, airy and clean swath. Easy operation is provided by the electro-hydraulic steering system.



# ROTARY RAKES

## STAR 1000|30 T

The **trailed two-rotor** rake from the HD line with a working width of 10 m significantly increases performance when working on larger areas. The durable and efficient rake puts forage into an even and clean **central swath**.

Linkage with a 150° turning angle

Robust external steering mechanism

Hydro-pneumatic suspension (HPS)

Walking tandem axle (SIP patent)

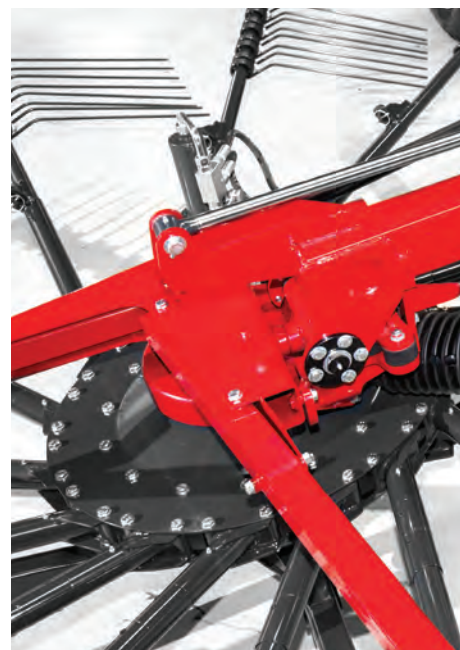
3D pivoting modular rotor



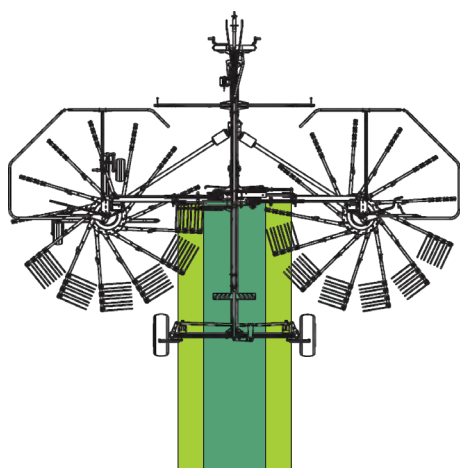
The robust steering mechanism offers a +/- 75° turning angle that allows the tractor to be followed perfectly.



The Y-drive of the rotors enables a lower working angle of the PTO shafts ensuring a longer lifespan of the PTO shaft.



The hydraulically adjustable rotors move independently of the chassis allowing 3D tracking on uneven surfaces. The spring tines remain parallel to the ground at all times, ensuring clean swaths at all working speeds.



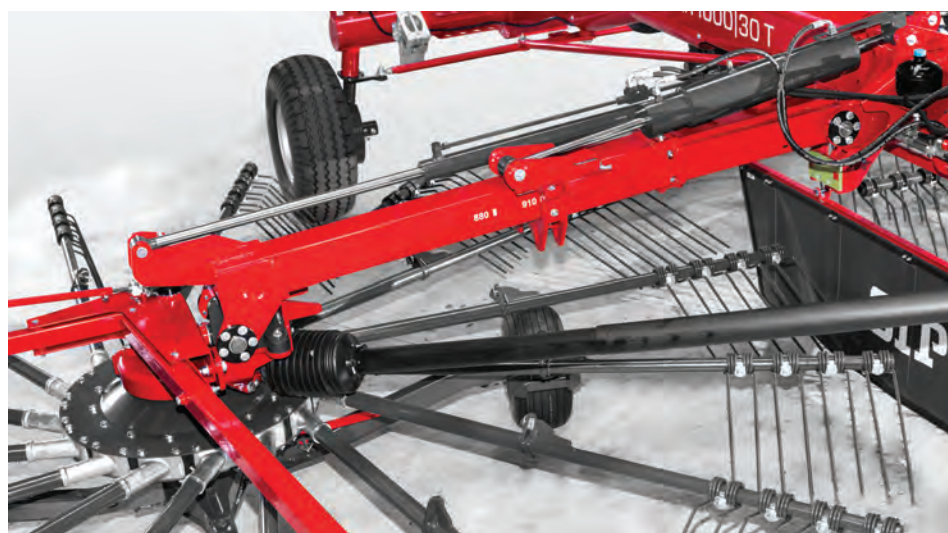
Double central swath.  
Swath width: 1.38 m - 2.50 m.



Electro-hydraulic control for working height adjustment of the rotors, automatic folding in working and transport positions, and separate or partial lifting of the rotor.



The transport height with folded protections and spring tine holders is 3.99 m.



The combination of the optimally adjusted rotor curve and the swath curtain results in evenly shaped trapezoidal swaths. The rake curtain additionally prevents forage from intertwining between the rotors.



Walking tandem axle (rear - option) for excellent ground tracking and higher working speeds. The wide chassis with 4 or 6 wheels placed close to the spring tines allows for even and clean raking.



Hydropneumatic suspension and 3D mounting of the rotors in combination with a walking tandem axle allows perfect ground adaptation without forage contamination.

The rotary rake **STAR 1000 | 30 T** with a working width of 10 m ensures high productivity.

The 3D pivoting mounting of the rotor, in combination with the hydropneumatic suspension and the walking tandem axle, ensures excellent adaptation to terrain and an even, airy and clean swath. Easy operation is provided by the electro-hydraulic control system.



# ROTARY RAKES

## STAR 1250|50 T

The **trailed four-rotor** rake from the HD line with a working width of 12.5 m and productivity of 18.5 ha/h is designed for a professional raking. The durable and efficient rake delivers an even and clean **central swath**, making it easy to harvest and saving energy and time.

Hydraulic working height adjustment

Linkage with a 150° turning angle

Hydro-pneumatic suspension (HPS)

Wheels 620/40-R22.5

3D pivoting modular rotor



The robust 2-point pivoting linkage offers a wide +/- 75° turning angle that allows perfect tractor following.



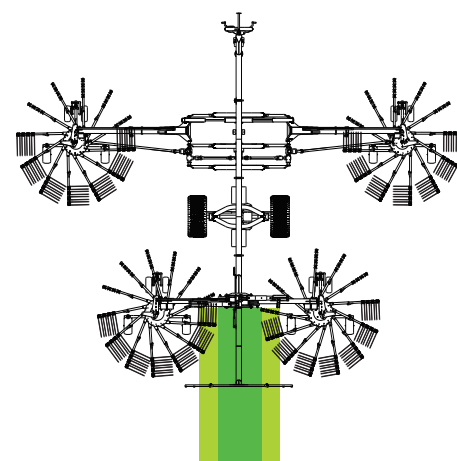
The hydraulically adjustable rotors move independently of the chassis allowing 3D tracking on uneven surfaces. The spring tines remain parallel to the ground at all times, ensuring clean swaths at all working speeds.



Ensuring a longer service life, the loads on the PTO rotor drives are minimal thanks to the special pivoting gears that drive the front pair and the Y-gear that drives the rear pair of rotors.



The combination of the optimally adjusted rotor curve and the swath curtain results in evenly shaped trapezoidal swaths. The rake curtain additionally prevents forage from intertwining between the rotors.



Adjustable double central swath  
Swath width: 1.30 m - 2.20 m.



Electro-hydraulic control for working height adjustment of the rotors, automatic folding in working and transport positions, and separate or partial lifting of the rotor.



The chassis design allows sharp turns with lowered rotors with improved stability and terrain adaptation.



The hydro-pneumatic suspension and 3D pivoting mounted rotors in combination with walking tandems allow the machine to adapt perfectly to terrain without contamination of the forage.

The rotary rake **STAR 1250 | 50 T** with a working width of 12.5 m ensures high productivity.

The 3D pivoting mounting of the rotor, in combination with the hydro-pneumatic suspension and the walking tandem axle, ensures excellent adaptation to terrain and even, airy and clean swaths. The exceptional agility and rake efficiency are the perfect solutions for large farms and contractors.



# TECHNICAL DATA AND EQUIPMENT

## ROTARY RAKES STAR ROBUST - SIDE DELIVERY

TECHNICAL DATA	360 10	400 11	430 12	470 13
Working width (m)	3.60	4.00	4.30	4.70
Swath width (m)	0.70 - 1.40	0.70 - 1.40	0.60 - 1.40	0.60 - 1.40
Number of rotors	1	1	1	1
Number of tine arms per rotor	10	11	12	13
Number of double spring tines per arm	4	4	4	4
Rotor diameter (m)	2.83	3.15	3.34	3.56
PTO rotation speed (rpm))	540	540	540	540
Recommended PTO rotation speed (rpm)	350 - 450	350 - 450	350 - 450	350 - 450
Weight (kg)	495	550	564	575
Required tractor power (kW/HP)	22 / 30	22 / 30	22 / 30	30 / 40
Capacity (ha/h)	4.50	5.00	5.50	6.20
Safety clutch (Nm) (left / right)	600	600	600	600
Transport width (m)	1.68	1.99	2.20	2.20
Machine height (m)	1.50	1.50	1.60	1.60
Transport length (m)	3.30	3.70	3.80	4.02
Tyre size - rotors	16 x 6.50 - 8	16 x 6.50 - 8	16 x 6.50 - 8	16 x 6.50 - 8

### SERIAL EQUIPMENT

Hitch	3-point pivoting linkage Cat. II			
PTO shaft	Safety and free wheel clutch			
Hydraulic connection	/	/	/	/
Swath curtain	YES	YES	YES	YES
Working height adjustment	Mechanical			
Chassis	Walking tandem axle			
Rotor lift	/	/	/	/

### OPTIONAL EQUIPMENT



Road safety equipment



Lightning equipment



Jockey wheel

For more information, please contact the seller.

# ROTARY RAKES STAR ROBUST - SIDE DELIVERY

TECHNICAL DATA	430 12 T	600 20 T	700 22 T
Working width (m)	4.30	3.40-6.00/6.20	6.88
Swath width (m)	0.70 - 1.20	0.60 - 1.20	0.70 - 1.30
Number of rotors	1	2	2
Number of tine arms per rotor	12	10 (20)	10 + 12 (22)
Number of double spring tines per arm	4	4	4
Rotor diameter (m)	3.34	2.85	3.25
PTO rotation speed (rpm))	540	540	540
Recommended PTO rotation speed (rpm)	350 - 450	350 - 450	350 - 450
Weight (kg)	710	1480	1950
Required tractor power (kW/HP)	20 / 27	30 / 40	37 / 50
Capacity (ha/h)	5.50	8.00	9.00
Safety clutch (Nm) (left / right)	600	900	600 G / 900 D
Transport width (m)	2.08	2.25 - 2.99	2.99
Transport height (folded protection railing) (m)	1.20	1.50	3.99 (3.20)
Transport length (m)	5.00	7.64 - 8.23	7.63
Tyre size - rotors	18 X 8.50 - 8	18 x 8.50 - 8	16 x 6.50 - 8

## SERIAL EQUIPMENT

Hitch	Parallelogram drawbar	Parallelogram drawbar	2-point trailed linkage Cat. II
PTO shaft	Wide angle PTO shaft with a safety clutch	PTO shaft with a safety clutch	Wide angle PTO shaft with a safety clutch
Hydraulic connection	1x single-acting(1SA)	1x single-acting (1SA), 1x double-acting (1DA)	1x single-acting (1SA)
Swath curtain	YES	YES	YES
Working height adjustment	Mechanical		
Chassis	Walking tandem axle	Walking tandem axle	Walking tandem axle (front)
Rotor lift	Hydraulic		

## OPTIONAL EQUIPMENT



Wheel with tractor profile (available with STAR 430|12 T, 600|20 T)



Frame stabiliser (available with STAR 600|20 T)



Walking tandem axle - rear (available with STAR 700|22 T)



# TECHNICAL DATA AND EQUIPMENT

## ROTARY RAKES STAR ROBUST - CENTR. DELIVERY

TECHNICAL DATA	650 20 T	720 22 T	850 26 T	1000 30 T
Working width (m)	6.00 - 6.60	6.60 - 7.15	7.24 - 8.30	8.82 - 9.94
Swath width (m)	0.90 - 1.60	1.30 - 1.85	1.15 - 2.13	1.38 - 2.50
Number of rotors	2	2	2	2
Number of tine arms per rotor (per machine)	2 x 10 (20)	2 x 11 (22)	2 x 13 (26)	2 x 15 (30)
Number of double spring tines per arm	4	4	4	4
Rotor diameter (m)	2.86	3.15	3.55	4.26
PTO rotation speed (rpm))	540	540	540	540
Recommended PTO rotation speed (rpm)	400 - 500	400 - 500	400 - 500	400 - 500
Weight (kg)	1700	1800	2100	3300
Required tractor power (kW/HP)	40 / 55	40 / 55	40 / 55	60 / 80
Capacity (ha/h)	8.50	9.50	10.50	15.00
Safety clutch (Nm) (left / right)	900 L / 900 R	900 L / 900 R	900 L / 900 R	1200 L / 1200 R
Transport width (m)	2.55	2.55	2.99	2.81
Transport height (folded protection railing) (m)	3.88 (3.24)	3.99 (3.46)	3.99 (3.20)	4.80 (3.99)
Transport length (m)	5.25	5.51	5.82	7.00
Tyre size - rotors	16 x 6.50 - 8	16 x 6.50 - 8	16 x 6.50 - 8	18 x 8.50 - 8

### SERIAL EQUIPMENT

Hitch	Transport frame with 2-point linkage			
PTO shaft	Wide angle PTO shaft with a safety clutch			
Hydraulic connection	1x single-acting (1SA)	1x single-acting(1SA)	1x single-acting (1SA), 1x double-acting (1DA)	1x single-acting (1SA), 1x double-acting (1DA)
Swath curtain	YES	YES	YES	YES
Working height adjustment	Mechanical	Mechanical	Mechanical	Hydraulic
Chassis	Walking tandem axle (front)			
Rotor lift	Hydraulic	Hydraulic	Hydraulic separate	Electric-hydraulic separate

### OPTIONAL EQUIPMENT



Walking tandem axle  
- rear



Hydraulic swath width adjustment (stand-  
ard at STAR 850|26 T, 1000|30 T)



Separate rotors lifting (standard at  
STAR 1000|30 T)

# ROTARY RAKES STAR HD - CENTR. DELIVERY

TECHNICAL DATA	1250 50 T
Working width (m)	9.90 - 12.50
Swath width (m)	1.30 - 2.20
Number of rotors	4
Number of tine arms per rotor (per machine)	2 x 12 + 2 x 13 (50)
Number of double spring tines per arm	4
Rotor diameter (m)	3.33
PTO rotation speed (rpm))	540
Recommended PTO rotation speed (rpm)	400 - 500
Weight (kg)	5150
Required tractor power (kW/HP)	60 / 80
Capacity (ha/h)	18.50
Safety clutch (Nm) (left / right)	900 L / 1200 R
Transport width (m)	2.99
Transport height (folded protection railing) (m)	3.99 (3.30)
Transport length (m)	9.50
Tyre size - rotors	16 x 6.50 - 8
Tyre size - transport frame	620/40 R22.5

SERIAL EQUIPMENT	
Hitch	Transport frame with 2-point linkage
PTO shaft	Safety clutch
Hydraulic connection	1x Load Sensing (1LS)
Swath curtain	YES
Working height adjustment	Hydraulical
Chassis	Walking tandem axle (front)
Rotor lift	Electric-hydraulic separate lift





### **3-year warranty**

Years of testing, 100% quality control and selected suppliers guarantee reliable and robust machines.



### **EE - Energy Efficiency**

Increased productivity with lower energy consumption.



### **Lightweight**

The lightweight construction enables linkage to tractors with lower power and reduces energy consumption.





## BELT RAKES FAVORIT ALP

Belt tedders/rakes with innovative left-right pivoting linkage are useful for **quality spreading, turning or raking** of fresh or dry forage.



## BELT RAKES

### FAVORIT 234 /F, ALP, 254 /F ALP, 274 /F ALP

The belt tedders/rakes with innovative left-right pivoting linkage enable quality spreading, tedding or raking of fresh or dry forage. They can be adapted for **the front or rear linkage** to the tractor.

Pivoting linkage

Swivel jockey wheel

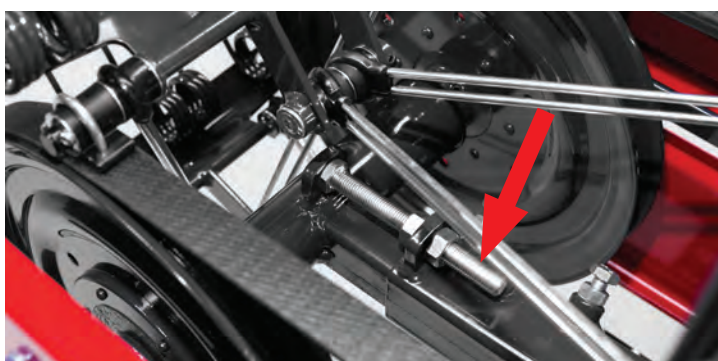
Four double spring tines on the holder

Hay remover

Adjustable swath curtain



Pendular 3-point left-right linkage  $\pm 6^\circ$  enables adaptation to terrain.

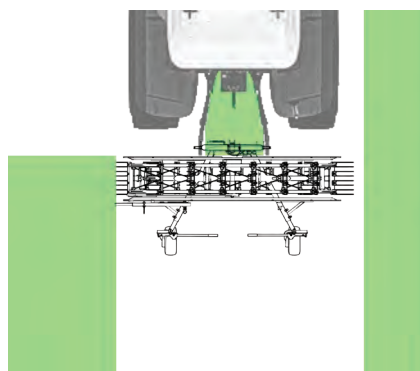


Simple tensioning of the belts with tensioning screws on the sides.

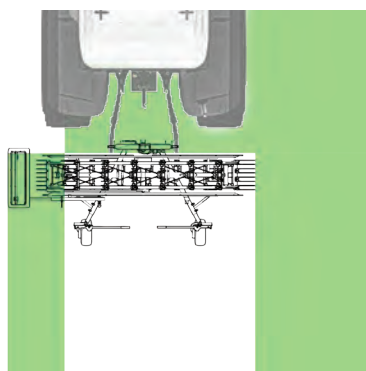


Adjusting wheel height is fast and easy with the lever.



**TEDDING**

When spreading or turning forage, the ejection side of the machine is slightly lifted.

**RAKING**

When raking into the side swath, the height of the machine is uniform and the curtain is set according to the width of the swath.



The double jockey wheel provides excellent adjustment to the ground, especially on very steep and rugged terrains.



With hydraulic (optional) or mechanical adjustment of the swath curtain, forage can be turned or raked.



When raking or tedding hay, a hay remover is available as an option to prevent forage from accumulating on the machine.

The belt tedders/rakes **FAVORIT** are a great choice for farms that need small, useful, and robust machines for spreading, turning, or raking forage.

Damage to the turf and the entry of soil and sand into the forage is prevented because the spring tines never touch the ground.

**TECHNICAL DATA****234 ALP / 234 F ALP****254 ALP / 254 F ALP****274 ALP / 274 F ALP**

Attachment	rear/front	rear/front	rear/front
Working width (m)	2.30	2.50	2.70
Length (m)	1.00	1.20	1.20
Width (m)	2.75	2.95	3.15
Height (m)	1.00	1.00	1.00
Weight (kg)	285	295	300
Number of spring tines per bracket	4	4	4
Required tractor power (kW/HP)	15 / 20	15 / 20	15 / 20
PTO rotation speed (rpm)	540	540	540
Tyre size	15 x 6.00 6PR	15 x 6.00 6PR	15 x 6.00 6PR
Capacity (ha/h)	2.30	2.50	2.70

**SERIAL EQUIPMENT**

Hitch	3-point linkage Cat. I and II- rear mounted / 3-point linkage Cat. I and II- front mounted
Drive	PTO shaft
Swath curtain	Mechanical











# PRODUCT RANGE

## DISC MOWERS **SILVERCUT DISC**

### Front mowers

7 discs	8 discs	9 discs
300 F ALP / <b>S</b> -FLOW		
300 F / <b>S</b> -FLOW	340 F / <b>S</b> -FLOW	380 F <b>S</b> -FLOW
300 F FPC / <b>S</b> -FLOW	340 F FPC / <b>S</b> -FLOW	
300 F FSC / <b>S</b> -FLOW	340 F FSC / <b>S</b> -FLOW	
300 F RRC / <b>S</b> -FLOW	340 F RRC / <b>S</b> -FLOW	



### Side mowers

6 discs	7 discs	8 discs	9 discs
	300 S	340 S	380 S
	300 S FPC	340 S FPC	
	300 S FSC	340 S FSC	
270 S RRC	300 S RRC	340 S RRC	



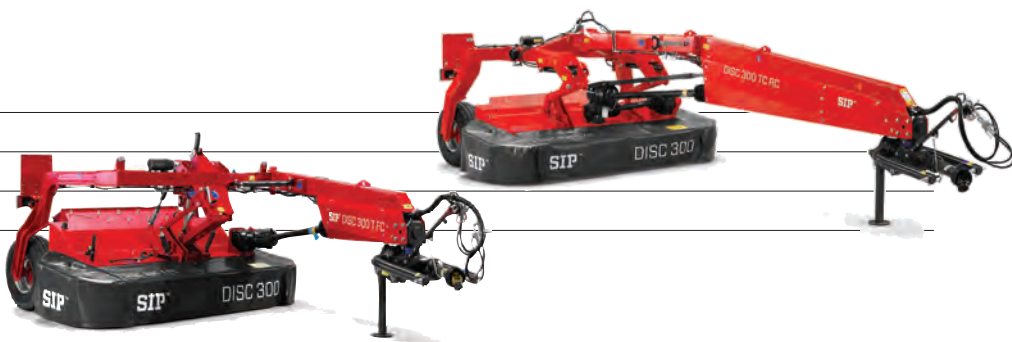
### Mower combinations

8 discs	9 discs
900 C (2x8 discs)	1000 C (2x9 discs)
900 C FPC (2x8 discs)	
900 C FSC (2x8 discs)	
900 C RRC (2x8 discs)	



### Trailed mowers

7 discs	9 discs
300 TS FPC	380 TC FPC
	380 TC FSC
300 TC RRC	380 TC RRC
300 TS RRC	



### Trailed mower combinations

8 discs
1500 T (4x8 discs)
1500 T FPC (4x8 discs)
1500 T FSC (4x8 discs)
1500 T RRC (4x8 discs)



# TEDDERS **SPIDER**

## ROBUST LINE

	4-rotors	6-rotors	8-rotors
3-point linkage	455 4 555 4	615 6 685 6 775 6	815 8 915 8
Trailed			815 8 T



## HEAVY DUTY LINE

	8-rotors	10-rotors	12-rotors	14-rotors
3-point linkage	900 8	1100 10		
Trailed	900 8 T	1100 10 T	1300 12 T	1500 14 T



# PICK-UP RAKES **AIR**

Front	Trailed
300 F	500 T
350 F	900 T



\* T - trailed, F - front.



# RAKES STAR

## 1 - rotors

360 10	400 11	430 12	470 13
		430 12 T	




## 2 - rotors with side swath

600 20 T	700 22 T
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## 2 - rotors with central swath

650 20 T	720 22 T	850 26 T	1000 30 T
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## 4 - rotors with central swath

1250 50 T
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\*T - trailed

# ALP PROGRAM

## DISC MOWERS **DISC ALP**

### Front

5 discs	6 discs	7 discs
220 F ALP	260 F ALP	300 F ALP



### Side

5 discs	6 discs	7 discs	8 discs
220 S ALP	260 S ALP	300 S ALP	340 S ALP



## TEDDERS **SPIDER ALP**

	4-rotors	6-rotors
3-point linkage	350 4 ALP 400 4 ALP	
Trailed	400 4 ALP	600 6 ALP



## RAKES **STAR ALP**

### 1 - rotors

300 8 ALP	320 8 ALP	350 8 ALP
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## BELT RAKES **FAVORIT ALP**

Front	Side
234 F ALP	234 ALP
254 F ALP	254 ALP
274 F ALP	274 ALP







## 3 Years WARRANTY



1

### Counselling

Our skilled dealers and distributors will advise you as to which machine is the best choice for you in accordance with your needs and desires.



2

### Machine purchase

When you buy the machine, we start it up for you for the first time.



3

### Start-up

Before using the machine for the first time, we give you advice about how to use the machine and provide you with tips on proper machine maintenance.



4

### Use

You can always contact our customer support during your use of the machine.



5

### Service

30 days before the expiry of the 2-year warranty, have your machine serviced by an authorised repairer.

## 2 YEARS



6

### Flawless machine

For a technically flawless machine, we add an extra year of warranty without restriction.



7

### Extended guarantee 2 + 1

An extended warranty of one additional year means an additional year of protection against the unexpected cost of repairing the machine.

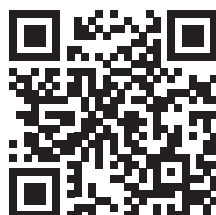


8

### Online complaint filing

Complaints filling via the online form for end users.

## + 1 YEAR



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