

PANTHER 2S



ROPA



The manoeuvrable and agile Panther

- Economical due to high harvesting efficiency
- Lifting at low rotational speed due to more than sufficient power reserves of the diesel engine
- Advanced technology for professional use
- Assistance systems for harvesting the whole beet crop
- Workhorse for non-stop harvesting and loading
- Chassis concept with hydraulic slope compensation
- Panorama cabin with two 12.1 inch R-Touch displays
- Low fuel consumption and high power
- High reliability – sturdy construction
- Low wear and operating costs
- Durable and with excellent residual value

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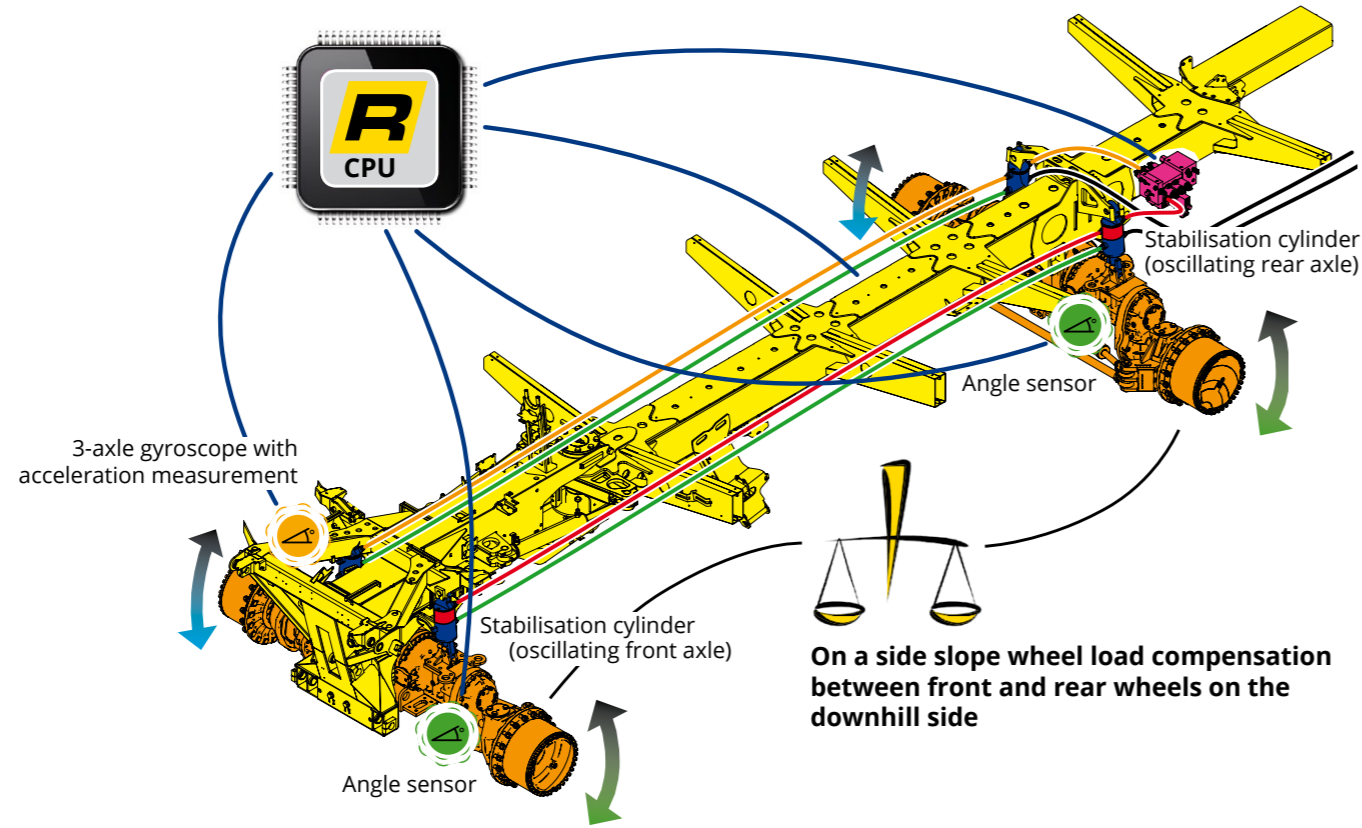
R-Balance

Hydraulic chassis with slope compensation

The ROPA Panther 2S has an innovative chassis concept with 2 floating axles in combination with 4 stabilising cylinders. Compared to conventional chassis of 2-axle beet harvesters this **reduces the sway of machine by 50 per cent**. The reason for the improvement is the hydraulic connection of the stabilising cylinders at the front and rear axles on one side, so unevenness at one wheel at a different level only affects the frame by 50 per cent compared to the previous system. Thanks to the reduction of the chassis swing, the row and depth control is improved simultaneously, as the frame is averaged to the position of both axles.

Uneven surfaces (e.g. when driving along a wheeling) are transmitted to only half the frame thanks to **roll stabilization of the chassis!**

Optimal surface contour adaptation with two swing axles with stabilisation cylinders - **cabin, bunker and chassis remain in horizontal position.**



On a side slope wheel load compensation between front and rear wheels on the downhill side



Stabilization cylinders of the front axle



Stabilization cylinders of the rear axle

Roll stabilisation with fully automatic hydraulic wheel load and slope compensation

- 2 swing axles with 4 stabilisation cylinders
- 50% less rolling motion on chassis and three point for more precise row guidance and less damage to beets
- Reduced material wear, extended service life
- Hydraulic connection of stabilisation cylinders from each side
- Compensation of wheel loads between front and rear axles
 - ▷ better traction and soil protection
- Greater slope stability, less risk of tipping over
- Better lifting depth control, less soil pickup
- Large-sized Michelin Ultraflex CerexBib2 tyres with very low pressure
- Better driving comfort even on steep descents and headlands
- 3-axle gyroscope with acceleration measurement for centrifugal force compensation for even finer slope control

Fully automatic slope compensation +/- 7 percent

On a side slope the chassis is inclined to the slope. When the three-point suspension is lowered, the lifting unit is guided parallel to the front axle and thus to the slope. It's of a great advantage, as the correct lifting depth is achieved over the entire working width starting from the first tuber.





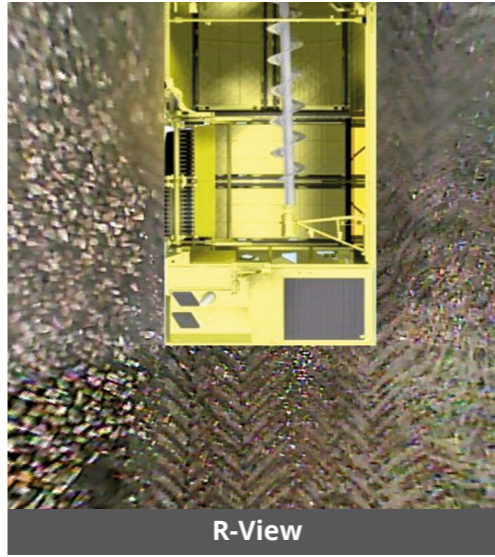
First class driver's seat

Ergonomic and comfortable

The panoramic cabin is designed for driver's convenience and comfort and creates a generous sense of space. The pleasant, attractive and easy-care interior of the new cabin guarantees the most comfortable operation. There are generously dimensioned shelves, storage compartments and plenty of space around the driver. Standard equipment of the Panther 2S includes a ROPA Evolution Grammer comfort seat with heating and active ventilation, a cool box under the comfortable passenger seat as well as a DAB+ radio with hands-free set. Extremely powerful fully LED working lights at the driver's cab turn night into day.

R-View video system

The rear part of the machine is displayed on the monitor in the bird's eye view. Obstacles are visible and collisions can be avoided.

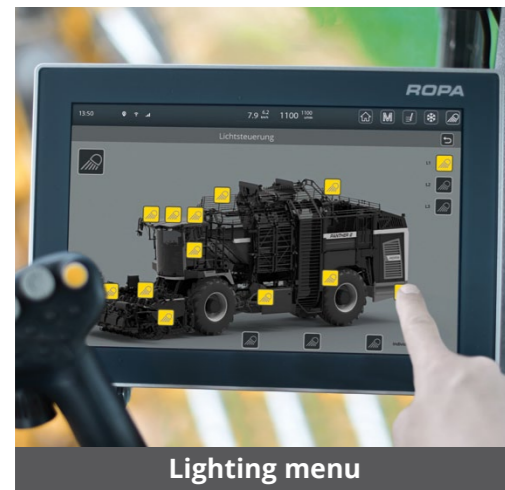


R-View



Terminals and operation

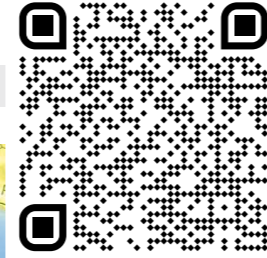
The Panther 2S has two 12.1 inch operating terminals with high pixel density resulting in even sharper resolution. Operation at the terminal with interactive buttons highlighted by the clear colour composition on the modern flat design is even more intuitive and has the same logic as tablets and smartphones. Intentionally used contrasts improve legibility and usability. The Panther 2S can be fully operated via the two rotary switches R-Direct and R-Select as an alternative to the touchscreen.



Lighting menu



Online video instructions



High resolution video display

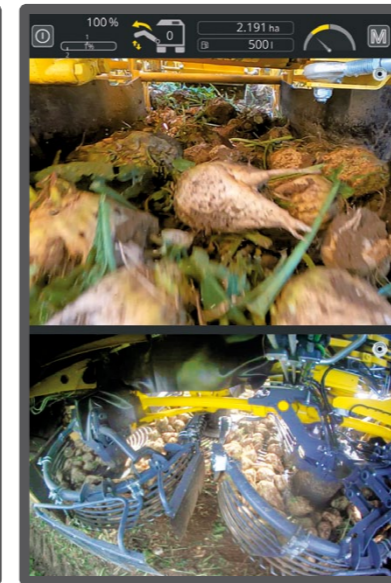
In addition to the machine functions, the camera images and the status indications of the unload conveyor and bunker unloading can also be displayed on the left terminal.

The relevant camera image is automatically displayed on the left terminal when driving backwards or unloading the bunker.

The image quality of the high-resolution digital cameras installed as standard in the Panther 2S is significantly better. An additional Ethernet network was integrated into the machine to handle the resulting greatly increased volumes of data. Additional cameras can be installed optionally.



Rear view camera / R-View



Infeed conveyor / cleaning



Unloading conveyor camera / R-View



R-Connect online portal

R-Connect telematics module and remote diagnostics as standard equipment



The ROPA Panther 25 comes with the efficient telematics hardware including SIM card for online access as standard equipment. The telematics module is thus the basis for proactive Service 4.0, particularly for predictive analytics and fast assistance and diagnostics if service is required on any continent. If service is required, the service technician can link directly to the terminal and the machine controller to assist the driver with resolving the problem.

The dashboard shows the current status of your machines and the daily output. The location, road and harvesting travel along with the current harvesting progress of each machine can be viewed in the individual view along with detailed data. Finished orders are transmitted to the R-Connect portal where they can be viewed and evaluated by the machine schedulers as well as downloaded.



R-Connect in the myROPA portal is a perfect tool for drivers and schedulers for online order processing and for optimisation of machines and fleets.

Now, the scheduler can be present virtually "live" on the machine with the help of online facilities. A diesel supplier, for example, can also be granted access to the current location of the machine and the fuel level as well as AdBlue level, if provided.

The ROPA R-Connect online portal can be opened via a web browser on any device (PC, tablet, smartphone).



R-Connect monitor offers intelligent and fully automatic image documentation during the sugar beet harvest. While harvesting, the optional camera on the cabin roof captures images of the beet crop state with assigned location. While emptying the bunker, pictures tagged with the location are taken at the pile and allocated to the harvest order in the R-Connect portal automatically.

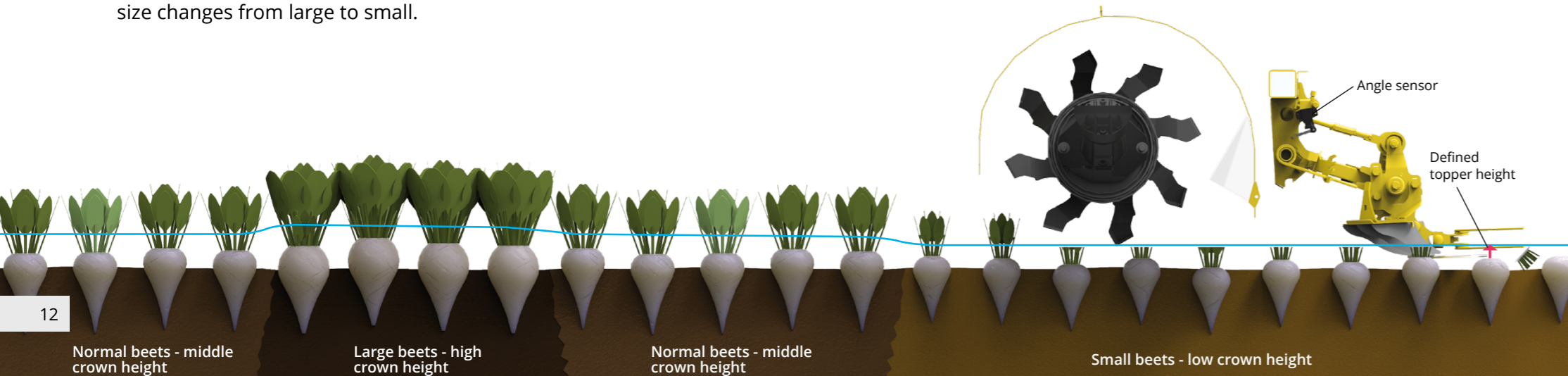
R-Trim and R-Contour

Automatic topper height adjustment and ground contour sensor system for better quality of the harvested beets combined with a significant ease of operation

Both systems adapt their working depth to the changing conditions in the beet crop throughout the field. The automatic systems react to different crown heights or to ground unevenness crosswise to the direction of travel. The measuring system on the scalper has been extended by an additional measuring system with ultrasonic sensors to record the ground contour directly at the beet rows. A powerful on-board computer on the lifting unit of the Panther 2S reads all measured values within a split second and changes the topper height or the lifting depth for the individual rows. The combination and interaction of both systems significantly relieve the driver. Topping losses are avoided despite the reduction in the size of cut-off leaf stalks without any stress for the driver. This prevents not only the unnecessary pickup of soil by the lifting share and increased fuel consumption due to excessively deep lifting, but also root fracture of the beet if harvesting too flat.

R-Trim automatic topper adjustment

The Micro-Topper comb detects the crown height of the topped beets. The height profile (blue line in the chart) is calculated from the average values of these crown heights. The height of the topper shaft is constantly adjusted to this profile. This prevents too intensive topping of the beet crowns, e.g. when the beet crop changes from small to large. Furthermore, too large leaf stalks are avoided when the beet size changes from large to small.

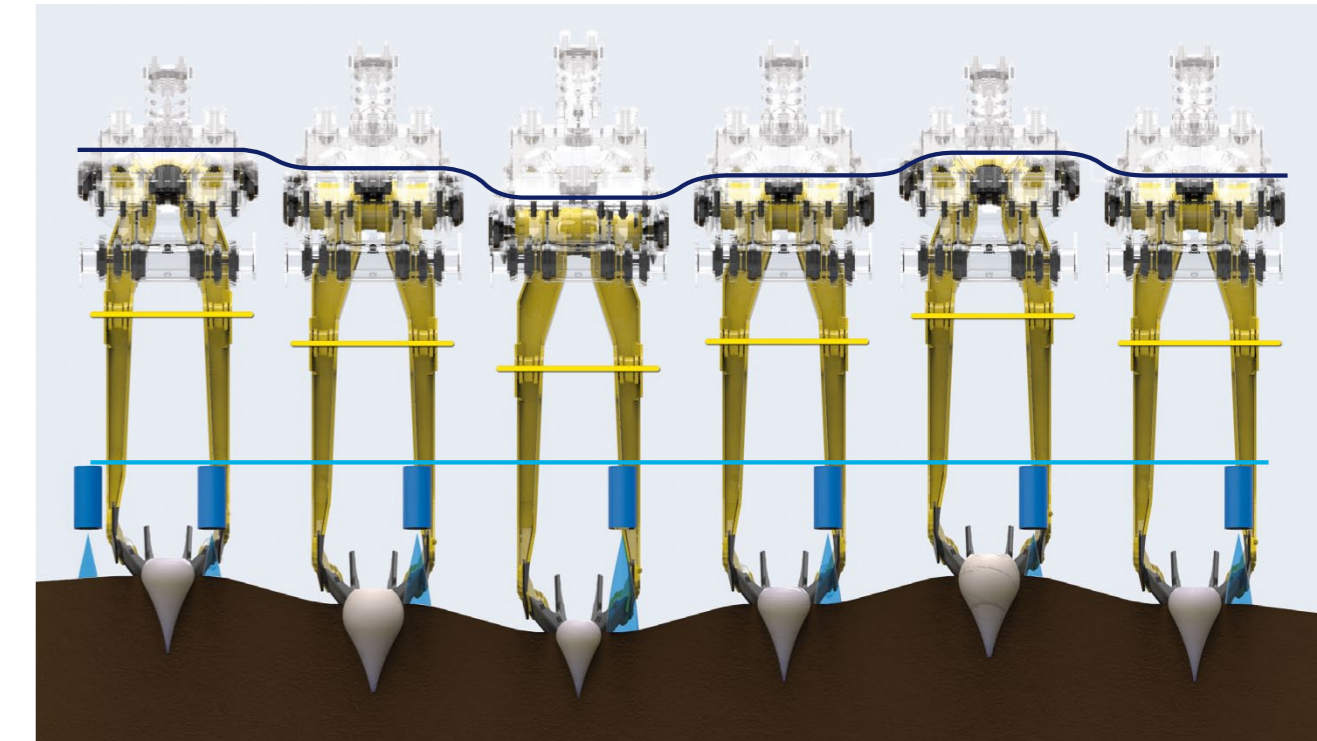


R-Trim

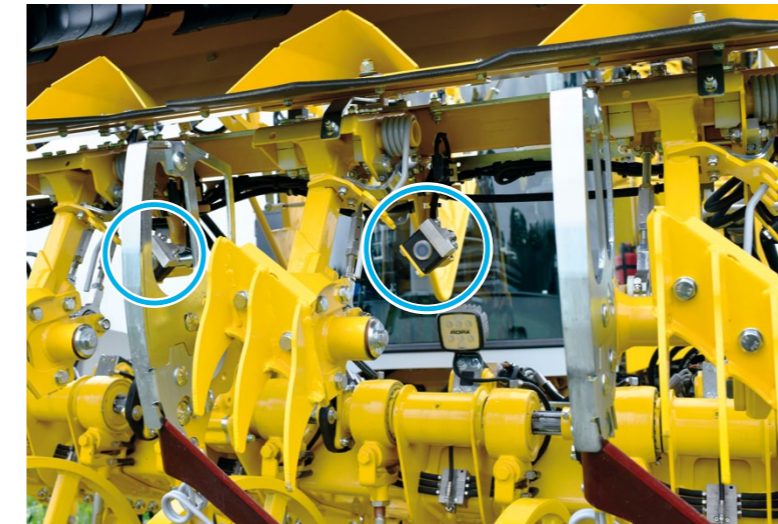
The driver sets in the menu the desired **height of the defoliator shaft over the cutting height of the scalper flail** (red arrow in the chart). This setting defines the average length of the stalks remaining on the beet after the topper knives. An **angle sensor on each Micro-Topper** records the crown height of each beet row. In the case of differences in the crop growth (e.g. dry areas) the activated R-Trim automatically corrects the height guide of the topper shaft depending on the highest beet.

R-Contour - automatic share depth adjustment of the individual rows at the RR lifting unit

The machine operator uses the joystick to set the lifting depth as required and thus defines how deep the lifter share will penetrate the soil. Ultrasonic sensors beside every beet row record the ground surface contour. Powerful on-board computers process the measured values and ensure that the lifting depth is maintained in accordance with the ground contour. Compared to the previous systems for automatic adjustment of single rows, this system has many advantages, particularly with higher growth in beet rows beside lanes.



Automatic share depth adjustment for uneven ground contour
Ultrasonic sensors beside every beet row record the ground surface contour



R-Contour

The driver activates the R-Contour (ground contour sensor system) in the terminal. It adapts the share depth to the ground contours. The activated R-Contour prevents root fracture of the beet if harvesting too flat or unnecessary pickup of soil if harvesting too deep. The share depth adjustment is displayed synchronously on the terminal.



Topper

ROPA integral topper - standard model for normal harvesting conditions

Leaves from the beet crowns are mulched with robust topper knives and spread between the rows. Therefore, beet leaves with all their nutrients are evenly delivered to the soil, the optimal basis for further soil cultivation as green waste is quickly converted to humus. The integral defoliator is available with depth-control wheels and manually foldable leaf sensor or without depth-control wheels with a hydraulically foldable leaf sensor.



Also available with combined shaft



ROPA rubber-topper

The speed and height of the two fully hydraulically powered and counter-rotating cleaning rotors can be independently adjusted – unique! The front shaft designed as a combined shaft is fitted with steel blades and cleaning rubbers, the second topper shaft is fitted with cleaning rubbers only.



ROPA Micro-Topper 2

The comb of the Micro-Topper scans every beet head individually, adjusting the trimming gap to the size of the head, so that the beet is cut not too much or too less. Nothing is lost and the quality is better than ever.

ROPA all-round topper Integral leaf-layer or leaf ejector

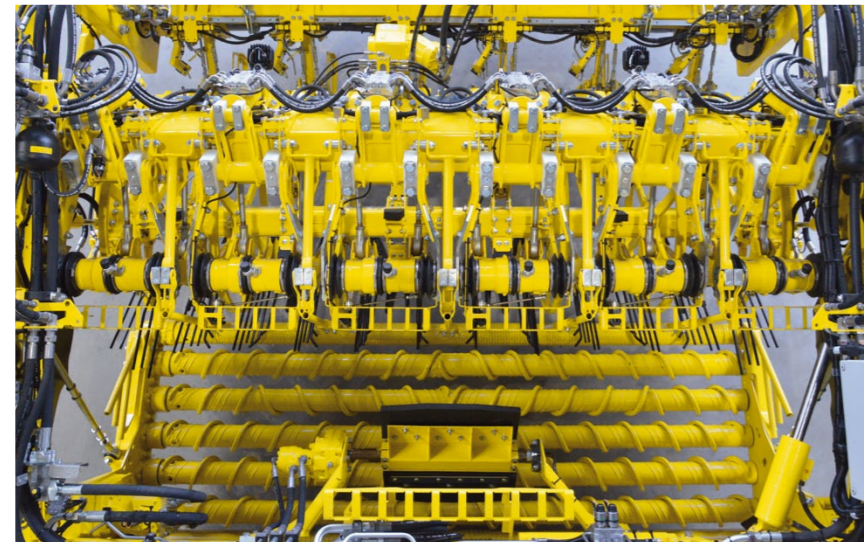
The integral leaf layer shreds the beet leaves and deposits them between the rows. A press of the button in the cabin switches the machine between topping modes. When operating with leaf ejection the shredded beet leaves are spread over the harvested area by a leaf-spreader with a leaf auger feeding the leaves to it. Optionally, it can have 4 rigid depth-control wheels without switch-over function as well as a leaf pile conveyor for harvesting beet leaves (biogas or dairy cattle).



RR lifting unit

RR lifting unit with automatic share depth adjustment of the individual rows and hydraulic stone protection

The RR lifting unit is equipped with counter-rotating oscillating shares, seven lifting rollers, hard welded as standard with extremely abrasion-resistant, carbide containing hard-coated wire "Ropa Screwtec", completely maintenance-free hydraulic stone protection and single-row adjustment of the share depth. Simple and fast exchange of the lifting rollers for varying conditions (different diameters, outfeed, infeed, etc.) The 850 mm large depth-control wheels combined with the intelligent three-point suspension guarantee accurate depth control of the lifter. Maintenance costs are minimised with adjustable taper roller bearings in gear units and the oscillating share drive.



Comfortable maintenance position of the RR lifting unit

The topper and the lifter assembly can be raised hydraulically up to 90° above the lifting unit for service (scalper flails, lifting shares). The driver can do it without leaving the cabin by pressing a button in the cabin or from the ground using the push buttons.



The diesel engine can be started and switched off by pushing a button on the lifting unit.



Panther 2S XL

Panther 2S XL - efficiency and power

The ROPA Panther 2S equipped with 8- or 9-row wide harvesting units of the RR-XL series is capable of covering significantly larger areas at reduced harvesting speed. Advantages of this version are reduced fuel consumption, lower fixed costs and an improved topping quality. With the wide PR-XL lifting units at the front, the front axle of the Panther 2S can use even wider and extremely soil-protective Michelin IF 900/60 R38 CerexBib2 tyres. Fewer passes and manoeuvres also contribute to soil protection.

Significantly higher area performance with reduced fuel consumption leads to lower costs during the profitable and efficient sugar beet harvesting season. Fewer passes and manoeuvres also contribute to better soil protection.



Cleaning

Gentle, efficient and individually adjustable

The hydraulically tensioned continental web conveyor efficiently transports the beets to the first turbine. The portal axis enables maximum throughput without slowing the beet flow or damaging the beets. The driver can steplessly adjust the speed and reverse it if necessary from the cabin. The beet flow monitoring prevents the beets from overflowing the machine. Three turbines equipped with forged tines, which have improved speed adjustment (a separate pressure sensor for each turbine), clean the beets with extreme efficiency and care. The offset carrier tines ensure fast forwarding even at low turbine rotation speeds.



Rotating transfer tube at the turbine intake prevents soil accumulation

The Panther 2S has an enormous cleaning power. The first turbine with a 1,740 mm diameter is followed by two more, each with a diameter of 1,550 mm, before the beets are moved gently into the 1,000 mm wide bunker elevator.



Offset turbine tines

Agitator at the transition to the second turbine

Rotating transfer tube at the elevator intake prevents soil accumulation

Unloading

Extra-long unloading conveyor – faster bunker unloading

The extra-long unloading conveyor is mounted high up between the two axles directly after the articulated joint for the optimum visibility. A great advantage when loading trailers driving alongside, because the transfer is close to horizontal.

The unloading conveyor is 1,600 mm wide and can be folded in 3 places. The Panther 2S impresses with its powerful bunker-emptying mechanism for the fastest truck loading on the move. Gentle polyurethane fingers guarantee high feeding capacity with short unloading times of as little as 50 seconds with a full beet bunker holding around 30 m³. Two ultrasound sensors measure the yield, total the bunker loads, and save the result in the order database.

Fast truck loading, gentle and convenient bunker unloading.



Control element on the left armrest for fine control of bunker unloading



Diesel engine

Volvo Penta TWD1683VE with 796 hp / 585 kW

Volvo Penta has designed this engine specifically for operation in the Tiger 6S and now it is integrated in the Panther 2S. With 16.12 litre capacity, common rail injection, SCR catalytic converter and AdBlue, the power generation of this engine type is even more efficient and cleaner.

This power package with dual turbocharging generates a huge maximum torque of 3,650 Nm. At only 1,000 rpm it already generates 3,550 Nm, enabling the machine to harvest beets longer in the low speed range, i.e. fuel-saving. With its modern technology this diesel engine complies with the EU V emission category and the USA Tier 4f even without exhaust gas recirculation and particle filter.



Volvo Penta TWD1683VE is the basis for greater daily output at less fuel consumption and even more power at lower speeds.



Volvo Penta TAD1643VE-B

Volvo Penta TAD1643VE-B with 768 hp/565 kW

With a capacity of 16.12 litres and pump-nozzle injection (PDE), this engine is the familiar and reliable power package used in the Tiger 6. It does not require AdBlue, SCR catalytic converter or exhaust gas recirculation. A powerful maximum torque of 3,260 Nm is efficiently transmitted by the stepless traction drive. Due to legal regulations, this engine is only available for markets outside the EU and the USA.



Technical data of ROPA Panther 2S

Engine Panther 2Sd:

Volvo Penta TWD1683VE 796 hp/585 kW, 16.12 l capacity, 6-cylinder inline engine, common rail injection, complies with EU level 5, USA TIER 4f, with SCR catalytic converter and AdBlue, maximum fuel sulphur content 15 ppm required to meet emission standards
Max. torque 3,650 Nm, 3,550 Nm from as low as 1,000 rpm, working speed 1,100 rpm, automotive up to max. 1,650 rpm

Engine Panther 2Sa (not for EU/USA/Canada):

Volvo Penta TAD1643VE-B 768 hp/565 kW, 16.12 l capacity, 6-cylinder inline engine, pump injection (PDE), without AdBlue, without exhaust gas recirculation, approved max. fuel sulphur content 5,000 ppm
Max. torque 3,260 Nm, working speed 1,100 rpm, automotive up to max. 1,650 rpm

Cooling system:

Horizontal side-by-side radiator elements for intercooling and water cooling, air-conditioning condenser above (can be lifted off), radiator positioned at top rear for protection from dirt, hydraulic oil cooler with open fan, hydrostatically driven stepless and automatically reversing fan

Traction drive:

1st gear:
0 - 16.5 km/h (at 1,400 rpm of diesel engine)
2nd gear:
0 - 40 km/h (at 1,265 rpm of diesel engine)
Transmission and axle ratios for low speed of straight cardan shafts. Two braked portal axles with cooled differential gears. Planetary final gears with 19-hole bolt pitch circle (500 mm diameter) with 4 planetary gears

Chassis – Anti Shake and Balance System

An innovative chassis concept with 2 floating axles in conjunction with 4 stabilising cylinders

R-Balance slope adaptation:

The chassis can be inclined by approx. 7% to the slope on each side via 4 hydraulic cylinders. Automatic slope compensation by a 3-axis gyroscope with acceleration measurement for centrifugal force compensation (optional)

Chassis roll stabilisation:

Roll stabilisation by hydraulic compensation of the oil level in the stabilisation cylinders on one side of the vehicle

Tyres:

1st axle: Michelin IF 800/70 R38 CerexBib2
2nd axle: Michelin IF 900/60 R38 CerexBib2
Large tyre contact surface protects soil and allows high operating reliability even in wet conditions and on slopes

Hydraulics:

Pump distributor gears with pressurized air lubrication and transmission oil cooling system, Bosch-Rexroth traction drive, high-capacity load sensing hydraulics from Bosch-Rexroth, Bucher and Hydac

Cabin:

Sound-insulated and tinted all-round glass with low-line vision, quiet stepless fan in heating and ventilation system (climate control air-conditioning), air-sprung GRAMMER ROPA Evolution seat with heating and active ventilation, autopilot, cruise control, base console for telephone, AM/FM/CD/USB/Bluetooth/DAB+ radio with external microphone for hands-free system, 14 litre cooling box

Operation:

Two 12.1-inch R-Touch displays on the operating console and the left A-pillar, multifunction joystick on the right with programmable buttons, bunker control with joystick grip on the left armrest, fully integrated machine diagnostics including DM1 error messages of the diesel engine in plain text, 2 LED interior lights, full-surface window wipers

Topper unit:

Integral topper

with leaf spreading between beet rows, with/without depth-control wheels

All-round topper

push-button operation from the driver's seat, can be changed for either integral topping or leaf ejection to the left, with/without depth-control wheels

Topper with leaf ejection

for leaf ejection to the side (left) - with leaf auger and leaf-spreader, 4 rigid depth-control wheels, only available in 45 cm (legally approved only in specific countries)

Rubber-topper

with leaf spreading between beet rows, 2 depth-control wheels

RR lifting unit:

6, 8 or 9-row, 45 cm, 50 cm or variable (6-row only) hydraulic single-row share-depth adjustment, hydraulic stone protection, depth-control wheels with 85 cm diameter, 7 lifting rollers, fast stepless shaking share drive with axial piston motor, adjustable taper roller bearings in shaking share drive and lifting gears, excellent view of lifting unit and scalper without additional cameras, service position allows topper and lifting group to be raised 90 degrees for the best possible inspection and service of topper knives, scalper flails and lifting shares

Cleaning:

Infeed conveyor: 800 mm wide, 50 mm pitch
1st turbine: 1,740 mm diameter
2nd turbine: 1,550 mm diameter
3rd turbine: 1,550 mm diameter
Turbines with forged tines, 6 offset turbine tines in the 1st turbine and 4 offset turbine tines each in the 2nd and 3rd turbines

Sieve grids:

Height independently adjustable at 1st, 2nd, 3rd turbines, guide grids can be replaced with spring tines segment by segment

Elevator: 1,000 mm wide

Electrics:

24 Volt, generator of 150 amps, electronic main battery switch with automatic shut-off after ignition OFF for 5 days

Outlets

In the seat console: 1 power socket 12V, 1 socket 24V, 1 USB double socket 5V/3.6A (USB-A and USB-C)

In the roof console: 2 USB double sockets 5V/3.6A (USB-A and USB-B)

In the engine compartment: 1 socket of 24V

Diagnostic system for all sensors and actuators integrated in both R-Touch displays, warning signals are shown as symbols with text in the corresponding language, software updating via standard supplied USB ports, long-life, water and corrosion protected construction of on-board electrics, use of exclusive, individually protected plugs (AMP, Deutsch), wiring of central electric system with WAGO-spring tightening clips (vibration proof), 4 identical Hydac-TTC-580 controllers and 2 identical Hydac-TTC-30 controllers (interchangeability if pin is not assigned!), cable harnesses with heavy-duty thread protection

Lighting:

Coming-home function
2 pcs. Hella C140 LED main headlights at the front on the topper unit
6 pcs. LED working floodlights (1,700 lumen) Hella LED Oval 90 on cabin roof
18 pcs. LED working floodlights (1,800 lumen) Nordic Lights
4 pcs. LED spotlights for lighting the engine compartment
Rotating beacons Hella RotaLED Compact

Unloading conveyor:

3-way foldable, for even simpler laying of 10 metre piles, beet-protecting PU carriers for high throughput and short unloading times, unloading conveyor width of 1,600 mm for even easier truck or trailer loading, bunker unloading in less than one minute, truck loading height up to 4.00 m

Bunker capacity:

approx. 30 m³ / 21 t

Yield indicator:

2 ultrasound sensors measure the bunker content, full bunkers (and partly loaded bunkers) are added up and automatically recorded in the yield database.

Measurements:

Length: 13.53 m

Height: 4.00 m (transport mode)



Width: 3.00 m (6-rows with 45 cm row),
3.30 m (6-row with 50 cm row and 45-50 cm variable)
> 3.30 m (with RR-XL depending on the size of the lifting unit)

Fuel tank:

1,300 l, fuel consumption displayed in l/ha and l/h on the terminal

AdBlue tank:

145 l (only on Panther 2Sd)

Standard equipment:

Central lubricating system, fuel consumption recording, climate control, 1 digital camera as a back run camera, 1 digital camera for the turbine system, R-Connect telematics module including SIM card, hard-coated scalper flails, welded lifting rollers with hard coating, 40 km/h, R-Balance manual slope compensation

Other equipment options:

R-Balance automatic slope compensation, R-Contour (automatic share depth adjustment of single rows by ground contour detection), R-Trim (automatic topper height adjustment), reinforced topper plate, topper with combined shaft instead of a standard topper shaft, leaf-spreader with stone protection, leaf pile equipment

(only for all-round topper and topper with leaf ejection), inflow sheet with skid on scalpels, Widia forged lifting shares, different versions of lifting rollers, data printer, R-Transfer PROFESSIONAL, R-Transfer BASIC, R-View video system (bird's eye perspective), 1 digital camera for infeed conveyor, 1 digital camera for unloading conveyor, 1 digital camera for beet crop state on cabin roof, R-Connect monitor, non-slip speed measurement, 4 Hella LED high-beam headlights (4,500 lumen each) on mirror brackets, guide grid segments optionally with guide grids or spring tines on turbines 1-3, agitator in the 2nd turbine, 2nd turbine discharge grid in metal, stone protection or spring tine model, level indicator on diesel tank, additional chassis (required in Germany), additional axle on chassis behind the rear axle (required in Germany), reduction of maximum speed from 40 km/h to 32 km/h, chicory equipment, contour marking package

For delivery within the EU/Europe incl. TÜV Certificate according to § 21 German Road Traffic Licensing Regulations. Conforms to Machinery Directive 2006/42/EC (CE marking) and the requirements of the employers' liability insurance association. Subject to technical changes. Existing protective covers have been partially dismantled for better imaging. The machine must not be operated without these covers! Made in Germany.



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