MACHINE OF THE YEAR 2015

ROPA

Superior class.

The new superior class.

MACHINE OF THE YEAR 2015

ROPA TIGER 5

- ✔ proven innovative design
- ✔ harvesting the complete beet crop
- ✔ **3.00 m width for harvesting without beet losses**
- ✔ excellent reliability – rugged construction
- ✔ **durable and with excellent residual value**
- ✔ new chassis concept - more operational performance in wet conditions
- ✔ levelling on slopes greater driver comfort
- ✔ new user-friendly cabin
- ✔ large tank capacity – high daily performance
- ✔ reduced fuel consumption
- ✔ less wear and tear
- ✔ **increased soil protection**

Soil Protect

2015 International Year of Soil

2015 AGRITECHNICA

Soil-protective hydraulic chassis system with new tyre technology

only 1.4 bar tyre inflation pressure for sustainable land management

R Soil Protect

Applied for patent

Awarded with silver medal at Agritechnica 2015.

R Soil Protect

ROPA R-Soil Protect is a soil-protective, hydraulic chassis system with new MICHELIN CerexBib tyre technology providing for the first time just 1.4 bar tyres inflation pressure for efficient root crop harvesting. Thanks to the networking of all three hydraulically supported axles, wheel load is balanced between all wheels and load peaks on a wheel are consistently avoided. The blend of load-balancing, hydraulic chassis with the new generation tyres; MICHELIN IF1000/55 R32 CerexBib, results in larger contact surface with significantly reduced contact pressure.

ROPA R-Soil Protect Innovations

- ✔ Significantly higher soil protection due to tyres inflation pressure reduced by 1 bar in comparison with euro-Tiger V8-4 - unique for root crop harvesting branch
- ✔ 49 % larger tyre contact area, 33 % less contact pressure thanks to IF1000/55 R32 CerexBib
- ✔ Significant reduction of load peaks by load transfer:
  8 % less on the first axle, 37 % less on the second axle, 43 % less on the third axle
- ✔ Equal load distribution on all wheels by networked hydraulics
- ✔ On slopes, the load and the gravity centre of the slope bottom side are shifted to the slope top side
- ✔ Cleaning elements are guided horizontally also on slopes, providing perfect cleaning performance
- ✔ Soil-protective sugar beet harvesting also on the side slope without additional tyres pressure on soil
- ✔ Maintenance and protection of soil structure, ensuring infiltration capacity and air exchange

Summary: Resources and Soil Protection for Efficient Land Management

ROPA

Superior class.

Hydraulic connection of the stabilization cylinders at front and rear axles from the each side

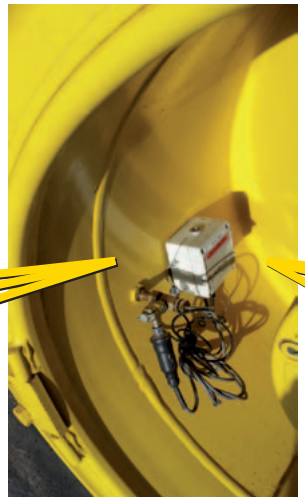
R Soil Protect

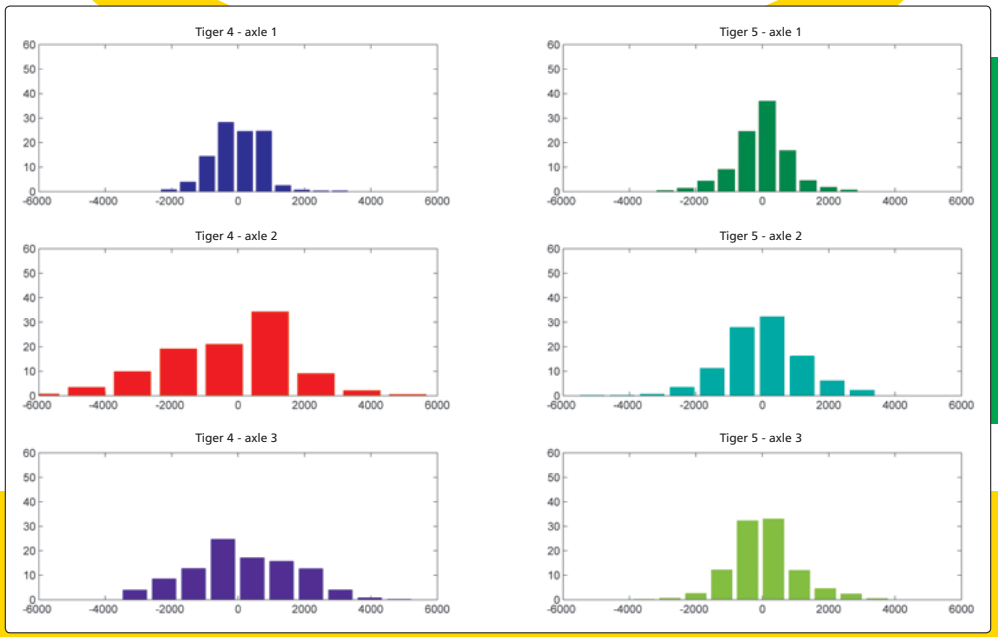
Hydraulic chassis system - roll stabilization with load compensation - applied for patent

Specifically for the Tiger 5, ROPA has developed an innovative chassis concept with an oscillating front axle in conjunction with 2 hydraulically supported rear axles. Compared to previous chassis of 3-axle beet harvesters (the central axle is fixed to the frame) this reduces the sway of machine by one third! It is achieved by the hydraulic connection of the cylinders at the front and rear axles of the one side, so that ground unevenness at the wheel affects the frame only by 33 percent - resulting in roll stabilization of the chassis. Thanks to the reduction of the chassis swing, the row and depth control are improved simultaneously, as the frame is averaged to the position of three axles. The hydraulic connection of the axles distributes the load equally.

The hydraulic chassis system minimizes tyres load and ground pressure, thus ensuring further reduction of tyre inflation pressure.

Measurements made in UK by MICHELIN and ROPA in February 2015. The load peaks, tyre load and load transfer were determined individually for each wheel in practical use. The comparison was performed between euro-Tiger V8-4 chassis with rigid fixed axle and the hydraulic, load-compensating chassis system of Tiger 5. Measurement results determined highly increased damping effect of the Tiger 5 chassis over the Tiger V8-4.





Horizontally: peak loads in kg during lifting at 7 km/h - Vertically: time in %

The new chassis reduces the load peaks by

- **8 % at the 1st axle**
- **37 % at the 2nd axle**
- **43 % at the 3rd axle**

ROPA

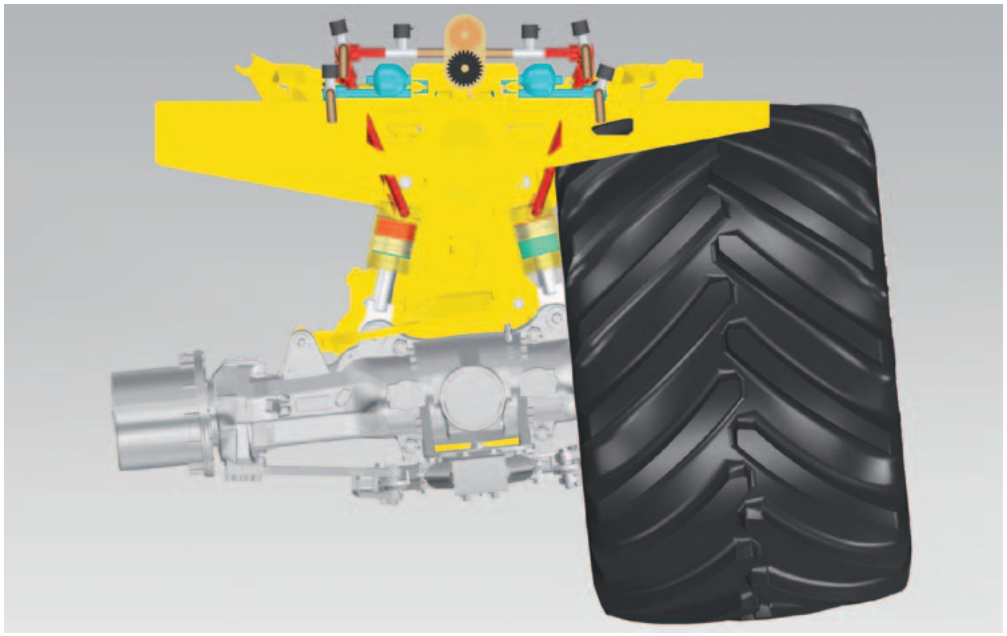
Superior class.

Slope compensation up to 10% - gravity centre / ground pressure are compensated

The automatic levelling system using six hydraulic cylinders and sensors is unique among 3-axle beet harvesters. The chassis is kept completely horizontally for up to 10 percent side slope. The gravity centre and, thus, the load of the wheels on the slope bottom side are shifted to the slope top side. The track depth of the wheels on the slope bottom side is substantially reduced, the infiltration capacity is retained, thus significantly reducing erosion risk during heavy rains.

Slope stability and traction are increase greatly. The risk of tipping over is considerably reduced alongside with increased driving comfort. **Soil-protective sugar beet harvesting on the side slopes without additional tyre pressure on the soil!**

On the slope, the load and the gravity centre of the slope bottom side are shifted to the slope top side: soil-protective sugar beet harvesting also on the side slope!



Hydraulic chassis, automatic slope compensation

10% Left

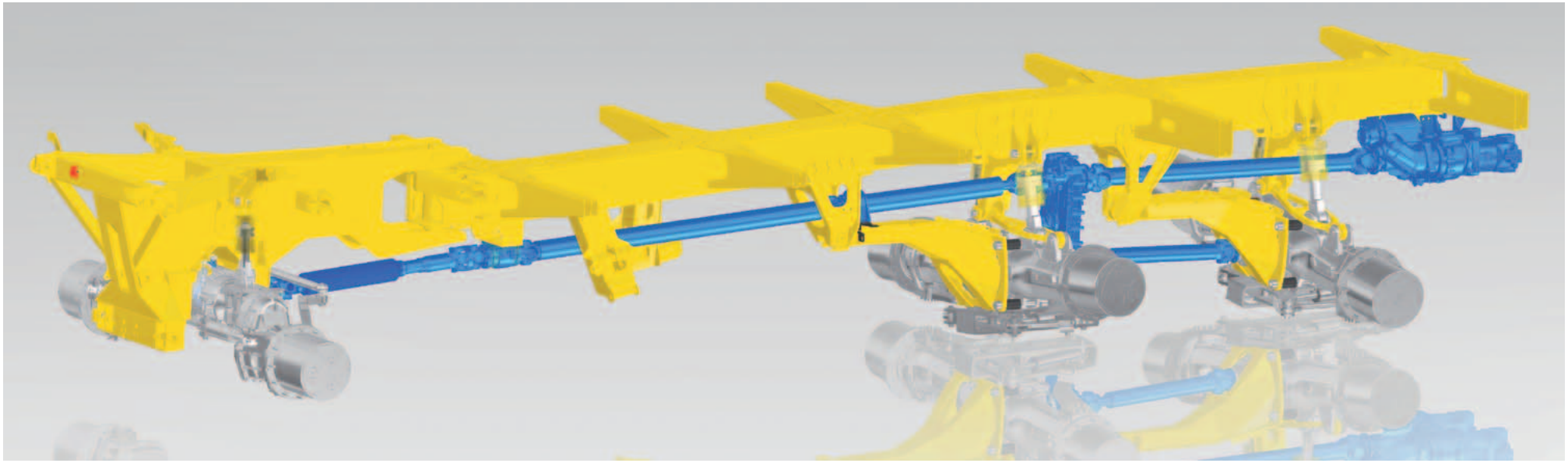
10% Right

ROPA

Superior class.

Direct power transmission with cardan shafts ensures even traction on all wheels at very high torque

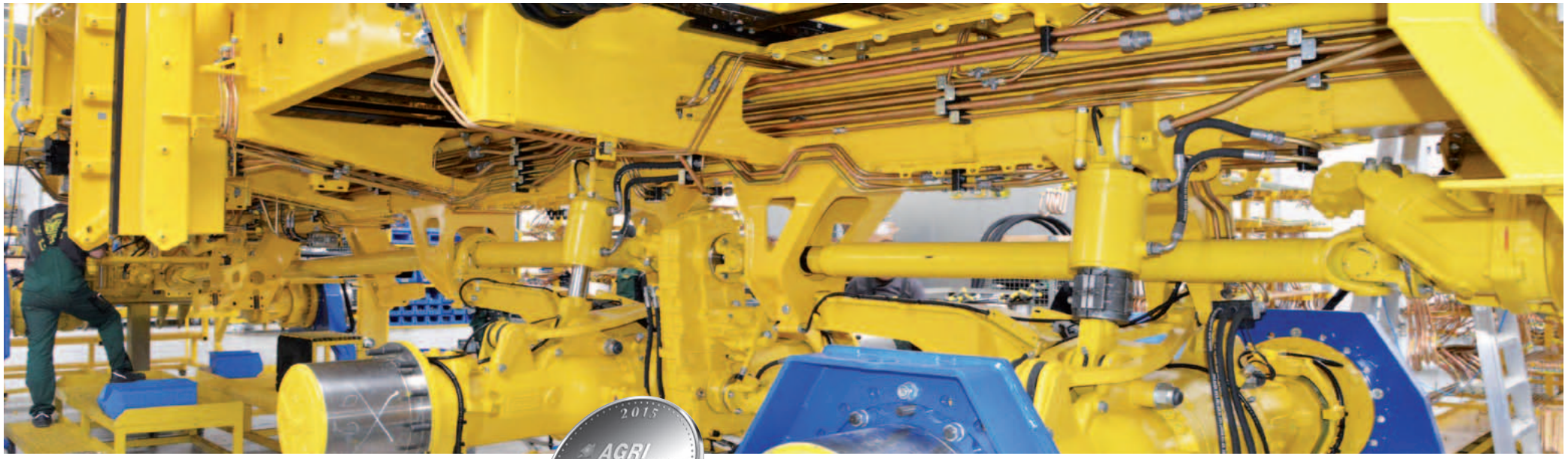
Unique on the market of 3-axle sugar beet harvesters; the Tiger 5 has a direct power transmission using directly linear situated cardan shafts from traction drive to both rear axles and front axle. This is a great advantage for increased traction in changing or difficult soil and harvesting conditions. Thanks to the hydraulic chassis the load is always distributed evenly. Thus, lead or lag between the axles is eliminated.



Stepless CVR gearbox for efficient power transfer

This new stepless traction drive was specifically developed by ROPA, Omsi and Bosch-Rexroth for ROPA Tiger 5 and its high driving power. The "Constant variable ROPA" gearbox (CVR) consists of three hydraulic motors on the compound gearbox and is located between the engine compartment and the third axle.

Even wheel load, uniform rolling circumference of rear wheels, uniform traction distribution -> optimal traction!



Soil Protect

ROPA

Superior class.

Significantly larger ground contact area for sustainable soil protection

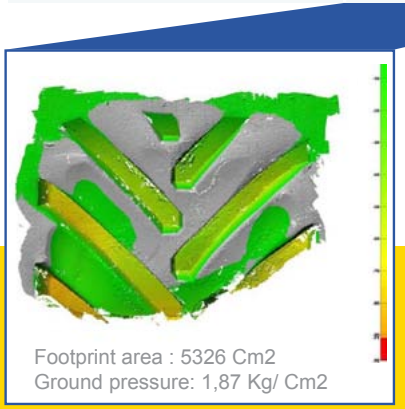
Good soil protection is maintained by Michelin 800/70 R38 Ultraflex tyres at the front axle and optional Michelin CerexBib IF1000/55 R 32 CFO tyres at the rear axles. Even with a full bunker of about 43 m³ / 30 t, the soil is protected along with improved damping characteristics at only 1.4 bar of tyre inflation pressure in all six wheels.

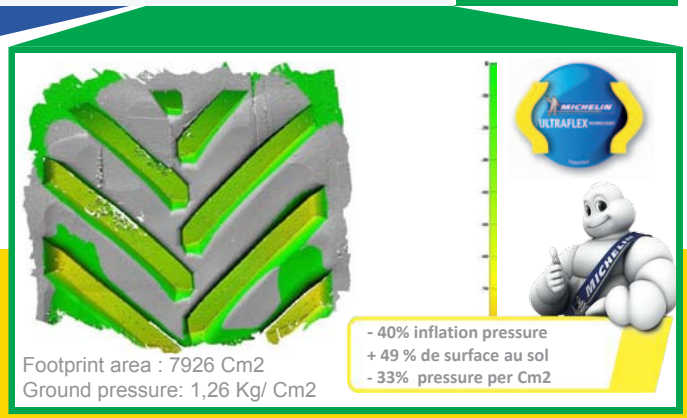
Less ground pressure at the same loading

10800 kg cycl. at 15 km/h	1050/50 R 32 MEGAXBIB	IF 1000/55R32CFO CEREXBIB	Bonus
Tyre inflation pressure	2.4 bar	1.4 bar	1 bar less

Ground contact area measurement at 10,000 kg

	1050/50 R 32 MEGAXBIB	IF 1000/55R32 CFO CEREXBIB	Bonus
Tyre inflation pressure	2.1 bar	1.25 bar	- 40 %
Tyre contact area	5,326 cm²	7,926 cm²	+ 49 %
Ground pressure	1.87 kg / cm²	1.26 kg / cm²	- 33 %





MICHELIN CerexBib IF1000/55 R 32 CFO is a new tyres generation for sustainable soil protection.

MACHINE OF THE YEAR 2015

dlv · Terre-net

ROPA

Superior class.

Master of extreme terrain

ROPA rubber-defoliator PES

The two fully hydraulic driven cleaning rotors can be adjusted in rotational speed and height – unique!
Various settings can be stored and accessed on the joystick using a memory function.

ROPA all-round defoliator
Leaf ejection

ROPA all-round defoliator
Integral leaf-layer

ROPA integral defoliator

TIGER 5

ROPA

Superior class.

Non-jamming PR lifting unit with hydraulic stone protection

The PR2h lifting unit is equipped with counter-rotating oscillating shares and completely maintenance-free hydraulic stone protection.
The 900 mm large depth-control wheels combined with the intelligent three-point suspension guarantee accurate depth control of the lifter. Minimum maintenance costs are required thanks to adjustable taper roller bearing in drives and oscillating share drive.

Micro-Topper

The sharp flail cuts off leaves, nothing is wasted, no beets are cut too low.


AOPA
Concept
KEH RO 15

Tiger 5 XL


XL

Efficiency and power with XL lifting units

Significantly higher harvesting area with the larger XL head reduces fuel consumption resulting in lower costs over the harvest season.
Less passes and manoeuvres also contribute to better soil protection. Thanks to the possibility of offloading while harvesting, performance of up to 3 ha per hour can be achieved under favourable harvest conditions.


1363
ROPA
TIGER 5
XL
THIS MACHINE SWINGS WIDE ON TURNS
40
ROPA
XL
40
www.ropa-maschinenbau.de


ROPA
R Concept
R Transfer
Wi-Fi Connect

New cabin and operating concept

The very spacious R-Cab has been significantly upgraded for the model year 2016. First of all, it is oriented around the driver, who can enjoy the best overview of the newly developed PR2 lifting unit from physiologically appropriate and comfortable seating position. A pleasant and spacious new cabin guarantees the most comfortable operation. Generously dimensioned shelves, storage compartments provide plenty of storage space around the driver. Even a cooling box is integrated under the passenger seat.
Extremely powerful fully LED working lights turn night into day.

Video system R-View (optional)

The rear part of the machine is displayed on the monitor with a bird's eye view.

R Concept

ROPA combines under the name **R-Concept its new intuitive operating philosophy.** A large **12.1 inch touch screen** performs as the information and command centre of the machine. From here the operator monitors the entire machine, receiving information about operating conditions and performance data and is able to adjust functions and, thus, improving machine perfomance. The operation is able to be performed either with finger touch on the touch screen or with turning and pressing the rotate buttons **"R-Select"** and **"R-Direct"**. They are situated in the ergonomically perfect position at the newly designed control panel on the handle of the multifunctional joystick (with integrated mini joystick). The heated operator's seat has numerous possible adjustments for the ideal seating position resulting in a premium class workplace.

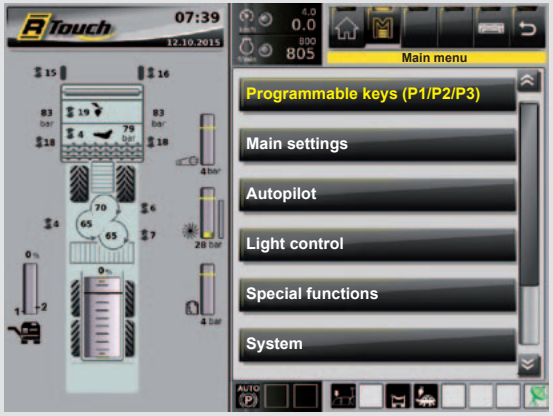
R Select

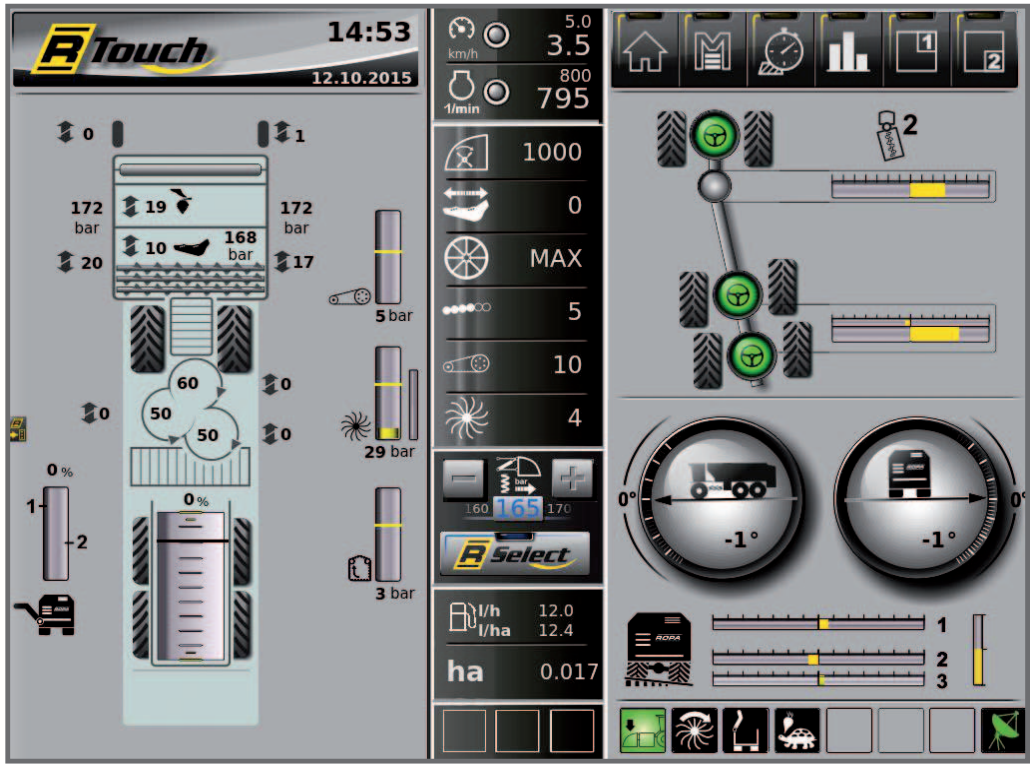
Select important working functions

-> Functional group for intuitive selection and adjustment of all important functions during operation removes the guess work!

Directly in the terminal menu

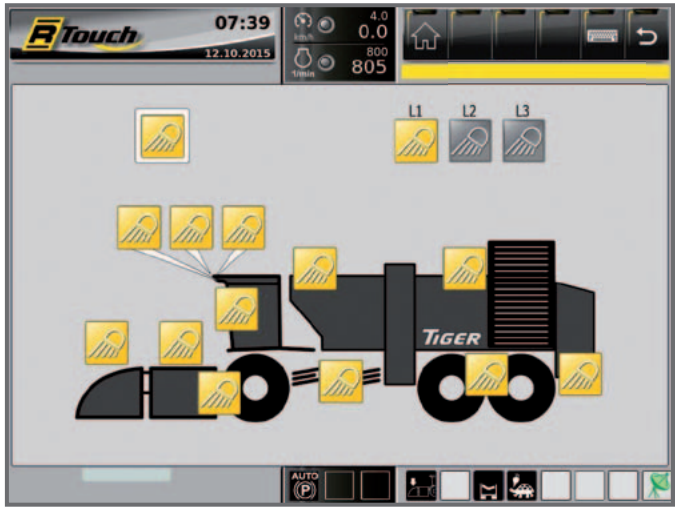
-> Direct access to the main menu, as well as detailed machine settings and data request in sub-menus.





Lights menu

One or all working lights can be switched on just with a fingertip on the touch-terminal.
And again a one fingertip is enough to back up and recall three different lighting programs.



Automatic folding

A button touch is enough to "transform" automatically ROPA Tiger 5 from the road drive mode to the field mode. Unloading conveyor, 1,000 mm wide ring elevator and bunker auger fold sensor-controlled one by one in sequential order. The entire folding process is performed by simultaneous activation of all functions to 50 % faster than before.

43 m³ large beet bunker

The automatic bunker filling allows optimum traction under all harvest conditions by maintaining excellent weight distribution. Two ultrasound sensors measure the bunker filling, sum up the bunker charges, and save it in the impact database. Data export is possible via USB stick or with R-Transfer via Wi-Fi and Ropa-App.


1367
ROPA
TIGER
TIGER
TIGER

Extremely long unloading conveyor – faster tank unloading

The new longer unloading conveyor is located over the third axle and can be raised higher due to larger tyres. A great advantage when loading trailers, as it requires a much less steep incline. It is 3-way foldable and 2,000 mm wide for more easily made 10-meter-wide piles. The plastic fingers guarantee high feeding capacity and short unloading time, only 50 sec. with full beet bunker.


BOPA

Stepless gearbox for field and road

The speed of Tiger 5 is electronically restricted to a maximum of 17.5 km/h in harvesting mode. When road speed is desired there is no need to stop the machine to switch from „turtle“ to „rabbit“. The Tiger 5 seamlessly moves from field speed to the new 40 km/h road speed. this is achieved by utilizing 3 hydraulic motors on the compound gearbox. This Tiger has also been outfitted with multi-disc differential brakes. These brakes are integrated into the axles in an oil bath which protects them from dirt and debris, thus allowing maximum braking power for the „taming“ of the Tiger's speed when necessary.
The power output of the 626 hp / 460 kW Mercedes engine is more than sufficient for the most difficult field conditions. It produces 2140 ft/lbs of torque at only 1650 rpm, and harvesting under normal conditions can be performed at as little as 1125 rpm, thus optimizing fuel efficiency.
A maximum torque of no less than 2,900 Nm allows very low rotational speed during harvesting and on road.


ROPA
TIGER
ROPA

Technical Data of ROPA Tiger 5

Engine:
Mercedes Benz diesel engine OM473LA 6 cylinders in row, exhaust gas norm 4 final, 460 kW (626 hp), 15.6 l capacity, max. torque of 2,900 Nm, operating rotational speed of 1,100 rpm automotive up to max 1,650 rpm, fuel consumption display l/ha and l/h on the terminal.

Cooling system:
Side-by-side arrangement of cooling elements for loading air and water. Hinged CVR oil cooler and air conditioning system condenser. Dirt-resistant positioning of the cooler at rear top side. Hydrostatically continuous driven and automatically reversible fan.

Traction drive:
Completely newly developed traction drive with stepless CVR gearbox for efficient power traction, consisting of three hydraulic motors on the compound gearbox, from 0 up to 40 km/h continuously without any interruption (no gear change or switching). 40 km/h in road mode at 1,195 rpm, 17.5 km/h in the field at 1,220 rpm.

Tyres:
1st axle: Michelin CerexBib 800/70 R38 (1.4 bar)
2nd and 3rd axle: Michelin MegaXBib 1050/50 R32 (1.9 bar),
optional Michelin CerexBib IF1000/55 R32 CFO (1.4 bar)
Large tyre contact surface allows high operational reliability even in wet conditions and on slopes.

Hydraulic chassis:
An innovative chassis concept with an oscillating front axle in conjunction with 2 hydraulically supported rear axles. On a side slope the chassis can be inclined by 10 % to the slope on each side through 6 hydraulic cylinders, slope adaptation is automatically regulated by two inclination sensors.
Roll stabilization due to hydraulic compensation of oil level in the stabilization cylinders of each vehicle side.

Hydraulics:
Pump distributor gears with pressurized air lubrication and gear oil cooling system, Bosch-Rexroth traction drive, operational load sensing hydraulics from Bosch-Rexroth, Bucher and Hydac with excellent capacity.

Cabin:
Low-vibration cabin positioning with hydraulic bushings, sound-proof and tinted all-round glazing with low-line vision, wipers covering the whole surface, high-performance stepless fan in heating and ventilating system (automatic air-conditioning), R-Concept control panel, 12.1 inch R-Touch color display, joystick-operation, autopilot, cruise control, machine diagnostics incl. clear DM1 fault report of diesel engine fully integrated in the R-Touch, air-sprung Grammer comfort seat with heating, Bluetooth MP3 radio with audio system, base console for telephone, 2 LED-internal lights, video display for back run camera, 14 l cooling box.

Bunker capacity:
about 43 m³

Defoliator unit:
PIS - integral defoliator unit with leaf spreading between beet rows, 2 depth-control wheels
PAS - all-round defoliator unit, push-button operation from the driver's seat, can be changed for either integral topping or leaf ejection to the left, 2 depth-control wheels (4 depth-control wheels optionally)
PBS - defoliator unit with leaf ejection to the left, leaf-spreader and 2 depth-control wheels (4 depth-control wheels optionally)
PES - rubber defoliator with leaf spreading between beet rows, 2 depth-control wheels

Lifting unit:
PR2 – 6-row lifting unit, 45 cm, 50 cm or variable, with faster shaking shares drive via axial piston motor, hydraulic stone protection, 900 mm depth-control wheels and adjustable taper roller bearing in shaking shares drive and lifting unit gears, defoliator positioning enables raising for maintenance by 90 degrees for optimum control and service of flails, scalping knife and lifting shares, distance between fourth and fifth lifting rollers variably adjustable, excellent overview of lifting unit and scalper without additional cameras.

Cleaning:
800 mm wide infeed conveyor, 1,700 mm first strainer wheel diameter, 1,500 mm second and third strainer wheels diameter, 1000 mm wide elevator, guide grids height of all strainer wheels (1,2,3) is independently adjustable, partial repla-

cement of guide grids by spring tines is possible.

Electrics / electronics:
Integrated net of 24 volt, generator of 150 amps, 24 LED operating lights from Hella, coming home light function, 3 x 12 volt sockets for radio or telephone etc., CAN-BUS computer system with integrated diagnosis of all components connected to the terminal, software update per USB interface possible.

Unloading conveyor:
3-fold conveyor for even easier establishment of 10-meter-wide piles. Beet-protective PU-fingers for high throughput and short unloading time, unloading conveyor width of 200 cm for easier trailer loading, both conveyors are continuously controlled in rotational speed, longitudinal conveyor with quick motion switch -> provides fast bunker emptying in less than a minute.

Overloading height:
up to 4.00 m

Yield indicator:
2 ultra-sound sensors measure the bunker content, full bunkers (and partly loaded bunkers) are added up and automatically recorded in the database.

Measurements:

Length:	14.99 m	
Height:	4.00 m	(transport position)
Width:	3.00 m	(6-row at 45 cm row width),
	3.30 m	(6-row at 50 cm row width and 45-50 cm variable)

Fuel tank:
1,290 l diesel, 130 l AdBlue

Empty weight: from 32,900 kg, depending on equipment

Standard:
Central lubrication system, fuel consumption measurement, air-conditioning, manual slope compensation, 40 km/h

Optional:
Leaf-spreader with stone protection, skids at scalper, Widia lifting shares (forged), hard-welded lifting rollers, guide grids segments with spring tines in 1-3 strainer wheels, agitator in the strainer wheel 2, strainer wheel camera, unloading conveyor camera, 2nd video display, 2 LED high beam headlamps, data printer, via Wi-Fi Connect: R-Transfer Basic with data export to Ropa app or USB stick, R-Transfer Professional with data import and export to Ropa-App or USB stick. Distance Control Assistant (not by R-View), video system R-View (bird's-eye view), GPS drive speed sensor, leaf collecting equipment (only for defoliator with leaf worm conveyor), automatic slope compensation, contour marking package, additional chassis (obligatory in Germany)

Correspond to TÜV, Trade and CE regulations.
Subject to technical changes.

Existing protective covers have been partially dismantled for better imaging. The machine must not be operated without these covers!

ROPA Fahrzeug- und Maschinenbau GmbH
Sittelsdorf 24 · D-84097 Herrngiersdorf
Tel: +49 (0) 8785/9601-0 · vertrieb@ropa-maschinenbau.de

www.ropa-maschinenbau.de