

ENG



UNIA



HERON

FIELD SPRAYER



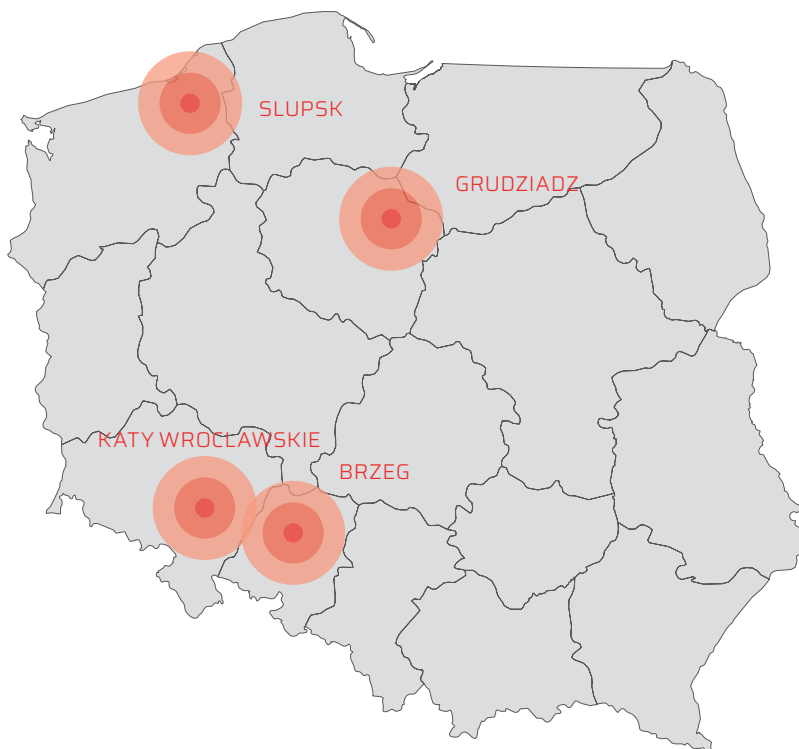
UNIA Sp. z o.o. is a Polish manufacturer offering the largest complex range of agricultural products in Europe.

We own 4 modern factories, equipped with world-class production equipment. Our history and knowledge dates back to almost 140 years. First cultivator and reversible plough in the world were produced in our factory.

Our products, through specialized distributors, reach farmers in more than 60 countries of the world, on every continent.

Thanks to this knowledge, we offer our customers not only modern machines, but also the best agronomic solutions used in the world's most demanding markets.

We offer a complex range of agricultural equipment: ploughs and cultivators, seeding equipment and combination seed drills, spreaders, balers and bale wrappers, sprayers, potato harvesters as well as grain storage technology.



4

FACTORIES

11,5 ha

PRODUCTION AREA

1200

EMPLOYEES

700

ITEMS IN OFFER

60

MARKETS

PLANT PROTECTION


Plant protection is a very important aspect of plant production. Plants protected against agrophages provide high quality crops. To ensure a high level of yield and to improve the profitability of plant production, it is necessary to apply all methods of plant protection in a sustainable manner.

Modern sprayers should be highly efficient and durable, and, above all, should allow precise application of PPPs and other fertilisers. To meet these expectations, UNIA introduces to its sprayers a number of technical solutions and systems improving the effectiveness of protective treatments.



Tank with a capacity of 4,200 and 5,000 litres with internal breakwaters

Spatially designed field beam for rigidity of the structure



UNIA sprayers represent more than 60 years of experience in building plant protection machinery for modern agriculture. Professional workmanship, efficient and resistant liquid systems, durable pumps and precisely manufactured spraying beams ensure perfect spray application and maximum efficiency during operation.

▶ Compact design with low centre of gravity

▶ Reduction of working width as standard:
30/20 m, 28/20 m,
27/21 m, 24/18 m

▶ GPS-based spraying with control of individual nozzles

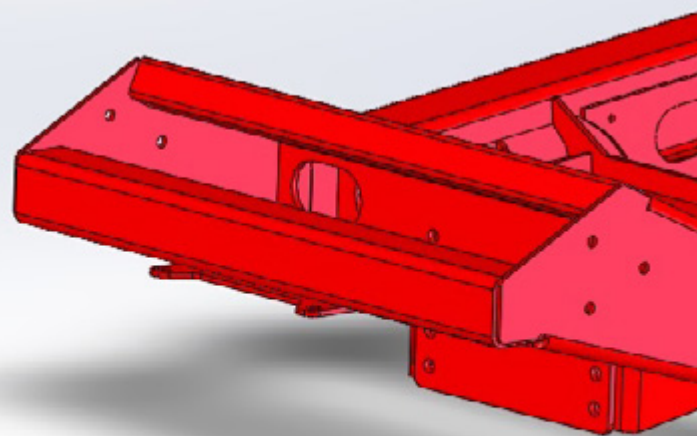
▶ Automatic steering axle – fewer crumpled plants on the headlands

▶ Large diluter with two nozzles for effective removal of PPPs

▶ Pneumatic axle suspension to dampen all vibrations during operation

FRAME AND DRAWBAR

The chassis was designed from scratch to adjust it to the new sprayer. Specially profiled frame ensures very good clearance and smooth passage of plants under the machine. Additionally, the centre of gravity of the machine is lowered.



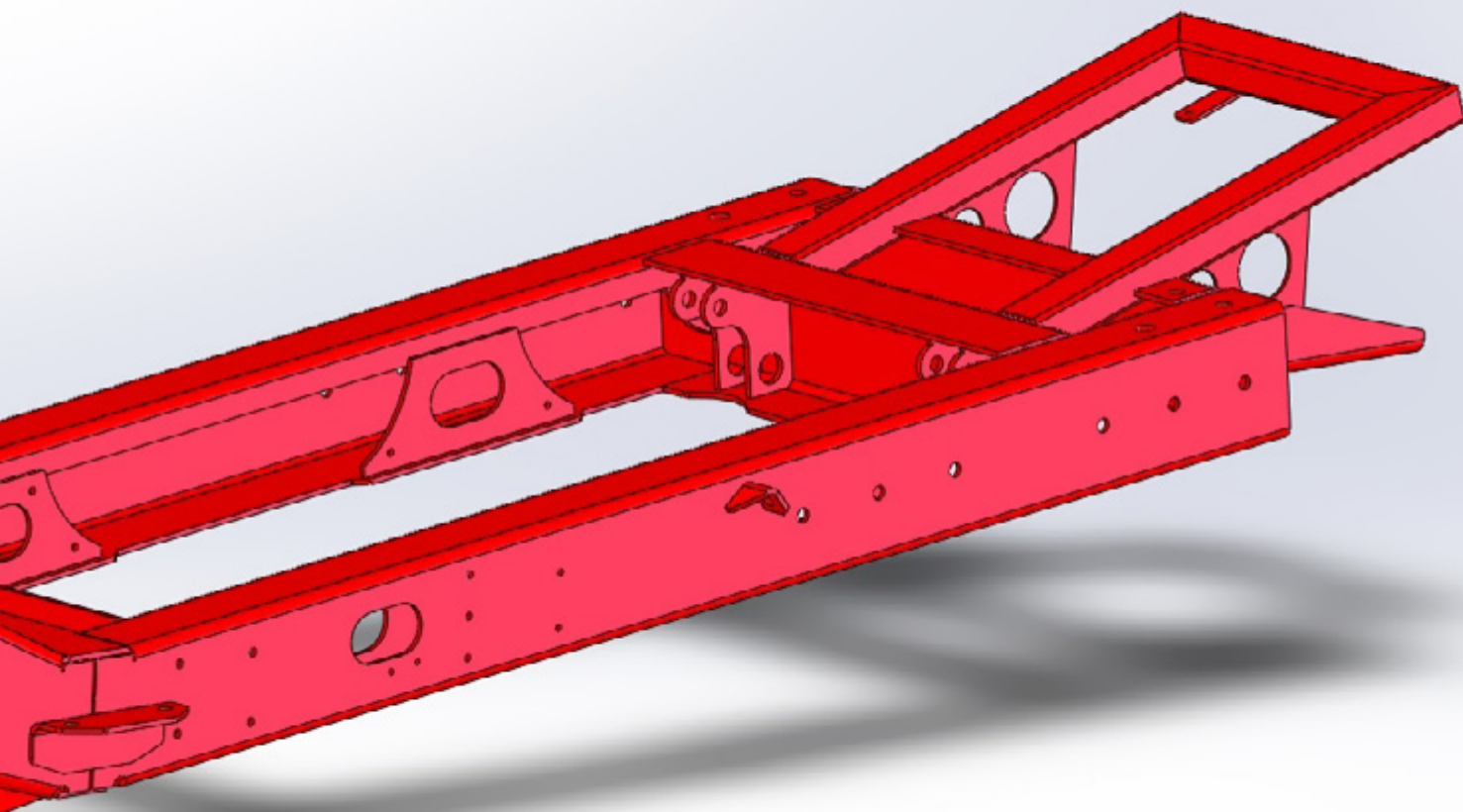
Frame

with a wall thickness of 8 mm, made of high quality STRENX® steel to ensure adequate rigidity of light structures.



Hydraulic support foot

Mounted as standard, it facilitates sprayer and tractor integration.



Field hitch

Profiled field hitch which can be configured with top or bottom hitch. The hole is designed to help the operator to adjust the height and tilt of the hitch to the tractor hitch. The hole in the attachment boom provides the choice between two mounting positions. As standard, the drawbar is equipped with shock-absorption system with a rubber bumper to eliminate vibrations transmitted to the machine.



TANK

Tank capacity: 4,200 and 5,000 litres. Main tank is made of laminate with internal breakwaters. On the right side of the sprayer, there is a tank for clean water. Hand wash tank: 25 litres. Low positioned settling tank ensures complete emptying, even when working on sloping terrain.



Clean water tank

with a capacity of 550 litres, can be filled from above through an inlet or hydrant connection with a filter.



Filling the tank



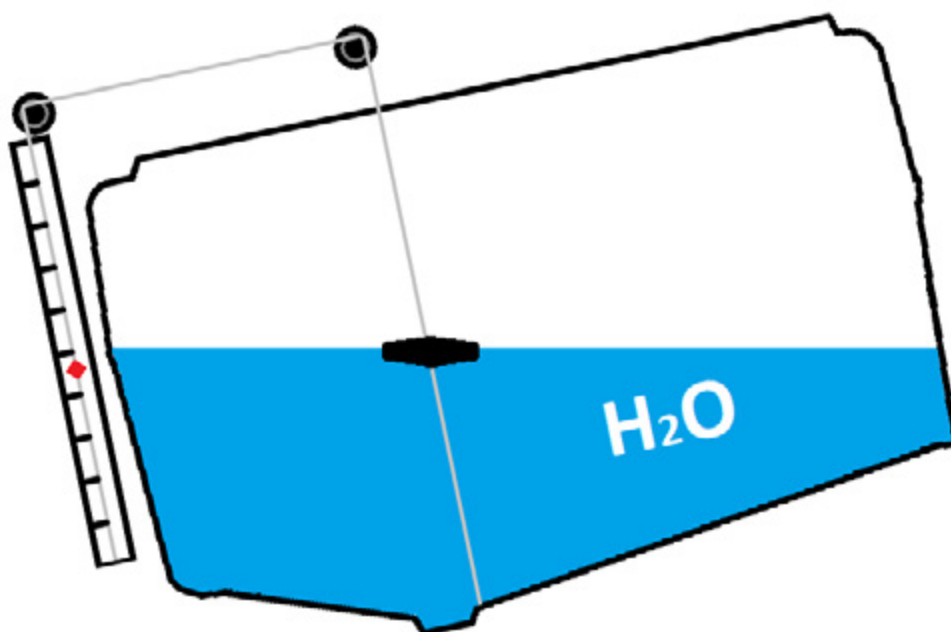
Hydrant connections

size 52, with a filter



Tank Control II

measuring the liquid, with a shut-off valve when the set level is reached



Advantages of fibreglass laminate:

- high mechanical strength
- high resilience
- resistance to chemicals
- UV resistance



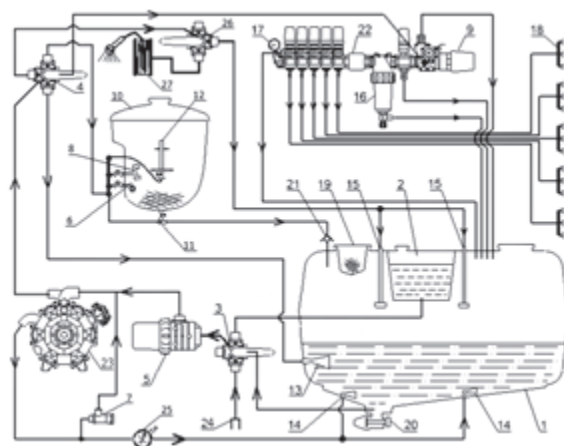
Dry level indicator

The dry level indicator always shows the correct amount of liquid in the main tank of the sprayer, regardless of the topographic features.

OPERATION

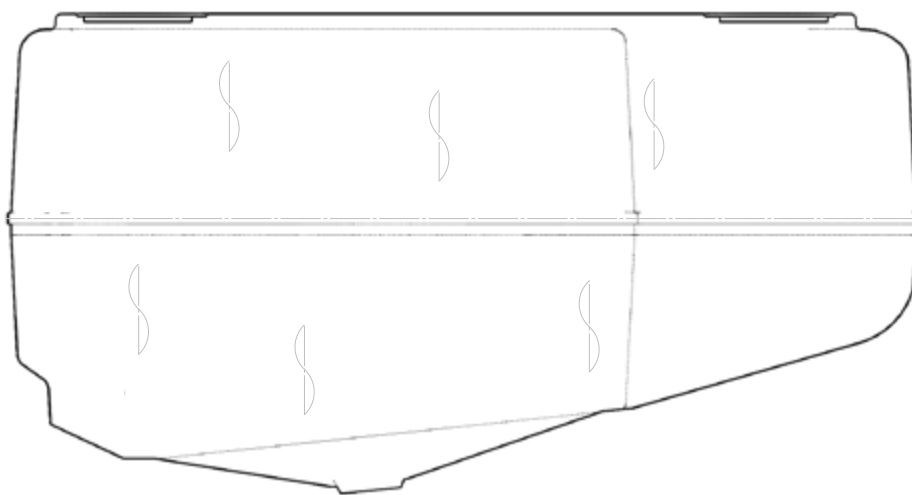


For farms using higher spraying rates, you can use a UDOR membrane piston pump, model ZETA 400, with a capacity of 400 l/min.



Bertolini membrane piston pump, model POLY 2300, with a capacity of 300 l/min.





The internal breakwaters dampen water movements during transport to increase the comfort of driving between fields.



Clean liquid system ensured by quadruple filtration:

HERON sprayer is equipped with a quadruple filtration system. After filling up (1), the suction filter (2) and the self-cleaning filter (3) prevent the biggest dirt from entering the field beam. The sectional filters on the field beam (4) located possibly close to the nozzles keep any clogs to a minimum.



Mixing of liquids

In order to increase the intensity of mixing the preparation with water, hydraulic mixer is placed at the bottom of the tank for mixing and to prevent liquid residue from accumulating on the tank. The intensity of mixing is controlled by means of a variable valve placed above the sprayer pump. The operation of the hydraulic mixer can be reduced until complete stop to prevent the formation of foam in the working liquid tank or to make the spraying with residual fluid easier.



Internal tank cleaning

The tank is cleaned by means of two rotating nozzles placed inside the tank. Nozzles ensure thorough rinsing of the tank after spraying. Cleaning is activated by valves located on the side panel of the sprayer.

ERGONOMICS

AND SAFETY

All control valves are grouped in a logical way in one place on the left side of the sprayer. The functions are shown in the infographic. All accessories are placed under the polyester cover to protect the valves from contamination during spraying in difficult field conditions. For better comfort at night, lighting is installed under the cover.

The HERON model offers a large working balcony with a railing for PPPs preparation and a foldable ladder. The platform ensures comfortable access for the operator to the filling opening



New 60 l diluter:

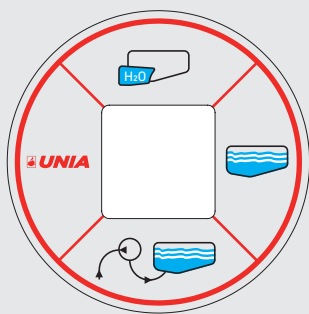
- Polyethylene ensuring rigidity and the ease of rinsing
- Centrifugal nozzles for full rinsing of the tank surface
- Screen to stop foreign bodies from entering the main tank
- Inspection sighting glass
- Holder for gauge and gloves

The powerful diluter with a capacity of 60 l guarantees safe application of PPPs. Active substances in the form of powders and granulates are perfectly dissolved and sucked into the main tank.

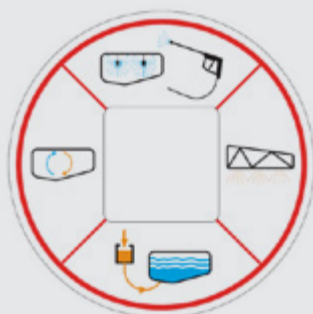
Standard LED lighting

fixed under the cover, perfectly illuminates the work area during PPPs preparation.





Suction valve



Delivery valve



External or internal
washer



FIELD BEAM

Spatial structure with a three-plane shock absorption system of cylinders, shock absorbers and springs. The beam of the HERON sprayer is exceptionally versatile. Thanks to the trapezoidal cross-section, it is possible to work with high speed even on a difficult terrain.

The beam is suitable for versatile use as it can be equipped with options, such as single-sided folding, and symmetrical and asymmetrical reduction in width.

For transport, the field beam is folded horizontally to the side of the spray tank.

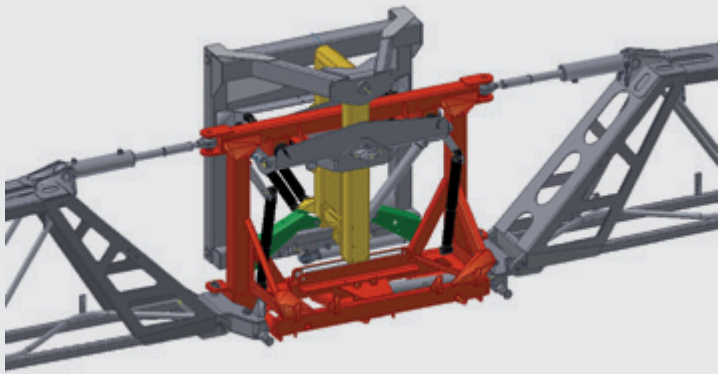
The working beam

is stabilised by means of a pendulum system which, most importantly, significantly reduces the swinging frequency making it run in a stable manner. The quadrilateral lifting system with hydraulic cushioning of the beam provides additional stabilisation. The beam lift range is from 0.5 to 2.3 metres.

Main features of the beam stabilisation system:

- Simple pendulum suspension of the field beam
- Compensation of side inclinations with additional transverse cylinders
- Suspension lock as standard
- Beam tilt cylinder as standard





Pendulum stabilisation

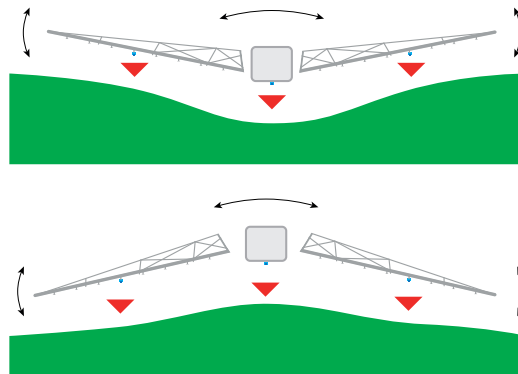
The beam stabilisation system with additional vertical and horizontal redemption – supported by shock absorbers.



Stabilising springs

V-System:

- Automatic mode of operation
- Increased precision and efficiency of PPPs application
- Improved accuracy and evenness of distribution
- Reduced spray drift



Structure:

- Field beam width: 21/15*, 24/18, 27/21, 28/20, 30/20
- Spacious design to protect heads and nozzles during operation
- Reduction of working width as standard
- **Independent beam as standard**

Variable beam geometry

Controlled by three ultrasonic sensors, allows automatic adjustment of the height and angle of the beam, depending on the terrain. Parallel bending of the arms by means of hydraulic cylinders perfectly copies the field surface in hilly terrain.



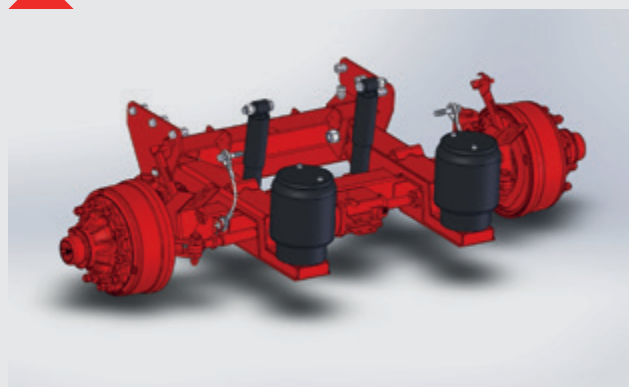
TRANSPORT

HERON trailed sprayers are one of the most compact sprayers on the market. Thanks to its low centre of gravity, the machine is very well suited to fast travels between fields.

Thanks to the compact design of the sprayer, width (2.8 m), drive height (3.0 m) and field beam close to the tank when folded, the machine can drive freely under viaducts and low-growing tree branches.

Axle suspension

The HERON sprayer model is equipped with pneumatic axle suspension as standard. The pneumatic axle suspension significantly improves driving comfort and extends the life of the sprayer. The vibrations transmitted to the entire structure of the sprayer are significantly reduced. This makes driving and working in the field extremely comfortable.



Steering axle

It offers the driver comfort at the highest level combined with convenient joystick control. The control software ensures accurate tracking and is simple to calibrate for each type of tractor. The steering systems can be activated at any time. When the axles are switched off, it is adjusted to road transport at speeds of up to 40 km/h.



Warning lamp

To improve safety, HERON sprayers are fitted as standard with a flashing warning light and a set of warning signs with marker lights.



Wheelbase

The HERON sprayer is equipped as standard with an extension axle. Depending on the needs and the crop, the wheelbase of the machine ranges from 1.8 to 2.25 meters.



Wheels

Thank to various types of tyres and mudguards with adjustable handles, the machine can be adapted to specific conditions and crops.



COMFORT OF WORK

METEO station

The device allows continuous measurement of current weather parameters and their online presentation on the TOUCH 800 or 1200 display. Wind speed and direction, atmospheric pressure, temperature and relative air humidity are monitored. Additionally, the temperature differences (ΔT) are calculated to determine the influence of temperature on the evaporation process and the life of liquid drops.

These parameters are used to consult the decisions on the selection of optimal methods for application of plant protection products in specific field conditions.

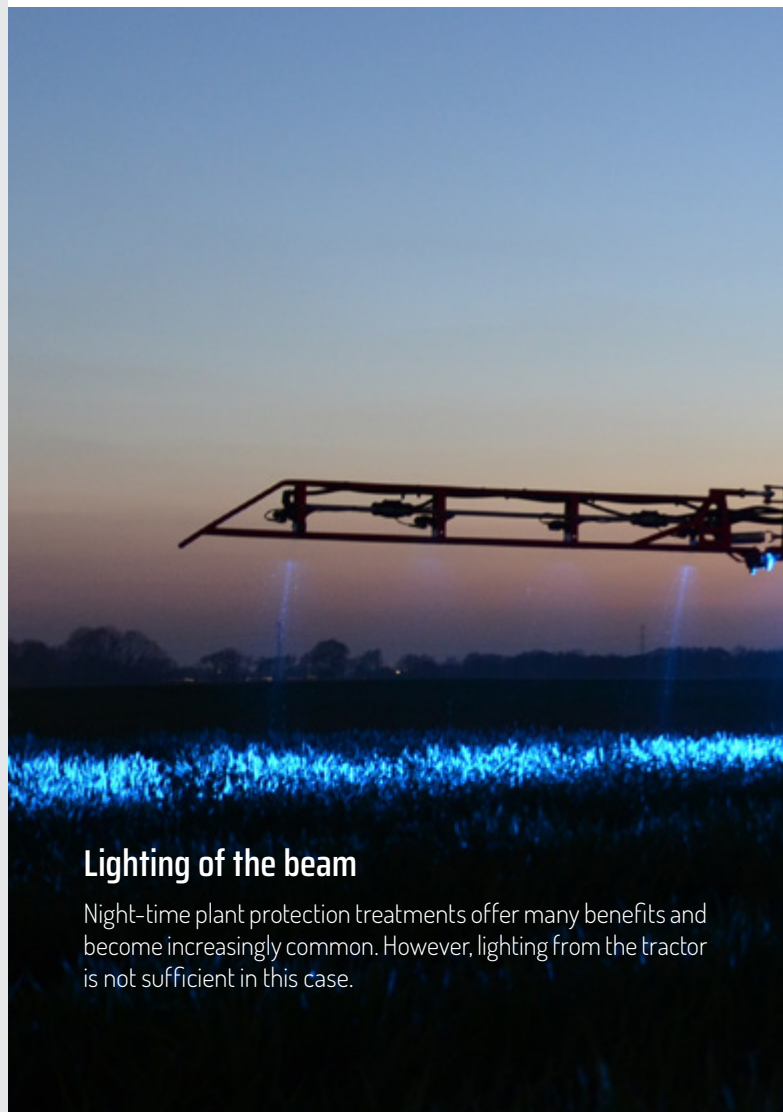


Own hydraulic system of the sprayer

UNIA HERON sprayers can be equipped with their own hydraulic to drive the sprayer's hydraulic system. The set consists of a multiplier driven by the sprayer pump, a 30 l tank and hydraulic filters.

Advantages of the system:

- quick connection between the tractor and the machine
- no mixing of oils between the tractor and the machine
- time saving
- reduced combustion and load on the tractor



Lighting of the beam

Night-time plant protection treatments offer many benefits and become increasingly common. However, lighting from the tractor is not sufficient in this case.



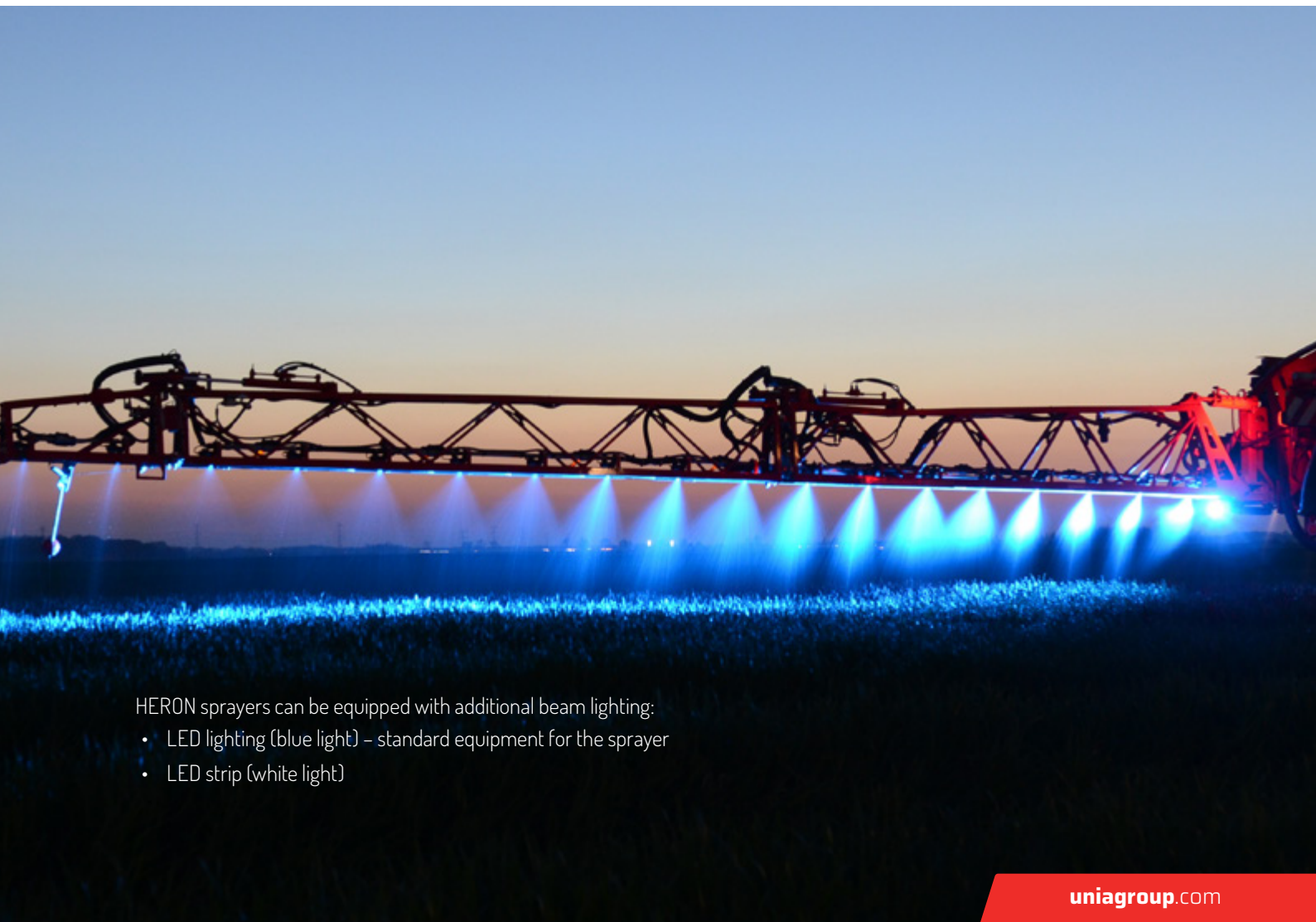
Edge nozzles

To limit spray drift at water courses or plot boundaries, HERON sprayers can be fitted with edge nozzles.



External washer of the sprayer

Pistol lance with a 20-metre hose (in a self-winding drum) supplied by the sprayer's pump allows for field pre-washing of the sprayer with water from a clean water tank.



HERON sprayers can be equipped with additional beam lighting:

- LED lighting (blue light) – standard equipment for the sprayer
- LED strip (white light)

LIQUID SYSTEM

Optimal liquid flow guarantees efficient spraying with any plant protection product. Thanks to liquid tubes made of acid resistant steel, the nozzle holders are firmly seated. With large-diameter tubes, it is possible to use large quantities of liquid and achieve high driving speeds.

All valves are ball valves for fast operation and regular response time. With a circulation system, optionally available, the spray liquid can be evenly applied over the entire working width when the nozzles are switched on.

Pneumatically controlled liquid circulation

The liquid circulation system ensures that the desired liquid pressure is achieved at all nozzles from the moment the spray is applied. The pressure is uniform throughout the system so that the spray starts immediately with no pressure release from the centre to the ends of the beam. During circulation, the working liquid circulates in the liquid system so that the agent never gets stuck in the pipes and no sediment accumulates in the tubes.

The system consists of three components: a liquid system in which the liquid circulates, a pneumatic system which switches on and off the individual heads in the sections and an electrical system which controls the entire system.

Liquid circulation is available on sprayers equipped with SPRAY, UTS or TOUCH computers.

Solenoid valve

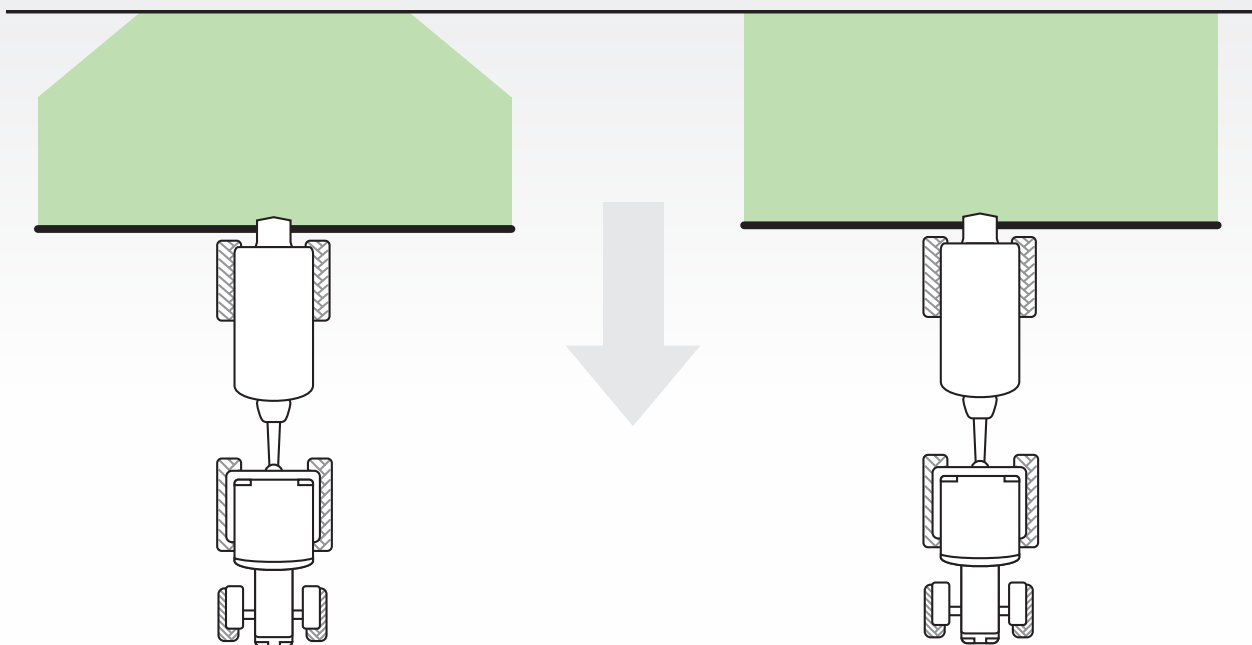
The solenoid valve ensures convenient operation of the liquid system from the tractor cab via RADION, UTS or TOUCH computer. The solenoid valve can be extended to include 9 working sections.

EDS – Individual control of nozzles

The advantage of the EDS system is that the sections can be even more precisely controlled, with the accuracy corresponding to a single nozzle, based on a GPS signal. Depending on the field shape, EDS provides savings of up to 85% compared to traditional section control. In EDS sprayers, the field beam is equipped with a spray liquid circulation system to constantly and evenly mix the spray liquid in the tubes. Thanks to the pressure circulation system, all nozzles are ready for use at any time over the entire working width.

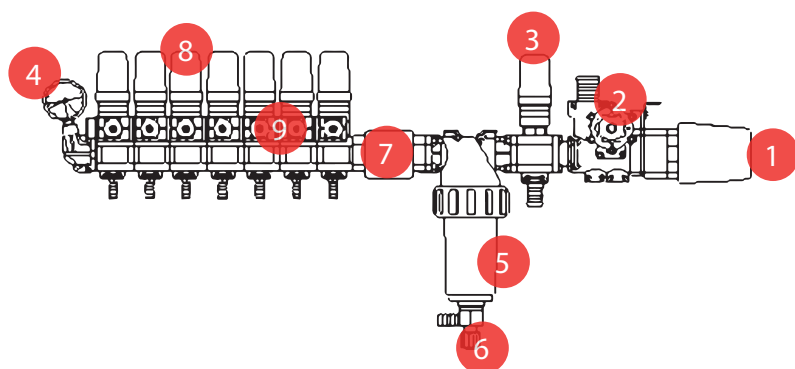
HERON sprayers can be fitted with end nozzles which are perfect for weed control in herbicide strips near the field boundary and protection of sensitive areas in buffer zones.





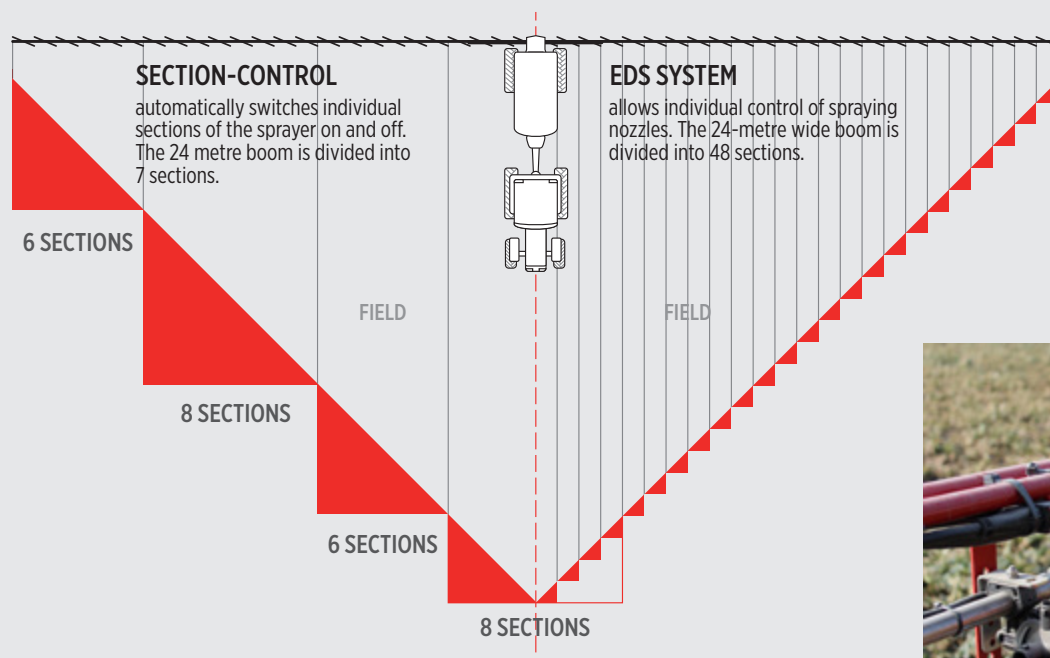
Without liquid circulation

With liquid circulation



1. maximum pressure valve
2. valve knob
3. control valve
4. pressure gauge
5. self-cleaning filter
6. filter knob
7. flowmeter
8. section valves
9. sectional valve knobs

Number of nozzles in a section for the 24-metre wide beam is $6 \times 8 = 48$ nozzles.



UNIA DynaJET can be controlled
by any ISOBUS controller.

UNIA DynaJET

The UNIA DynaJET nozzle control system actively controls spray quality and spraying application over a wide range of operating speeds to ensure optimum crop protection.

The system consists of a console and interface (ISOBUS), control modules and nozzle bodies with wired electronic valves. Simple design combining a conventional liquid system with the UNIA DynaJET electrical system.

Traditional spraying of protection products requires the operator to carefully adjust the driving speed and working pressure to the working conditions. UNIA DynaJET controls the pressure and droplet size over a wide range of machine speeds so that the operator can choose the optimum speed, depending on the conditions, and keep drop at a constant size. The appropriate spraying rate is obtained by changing the time of application through the nozzle, and the drop size is controlled by changing the pressure. Compared to a conventional system, this system provides much wider opportunities for adjustment. Unia DynaJET will be installed in all HERON sprayer models.

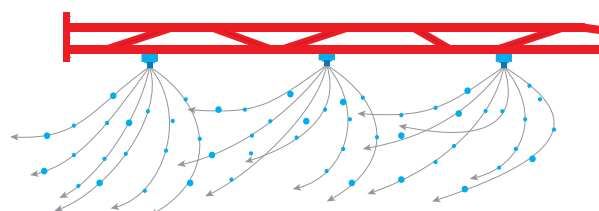


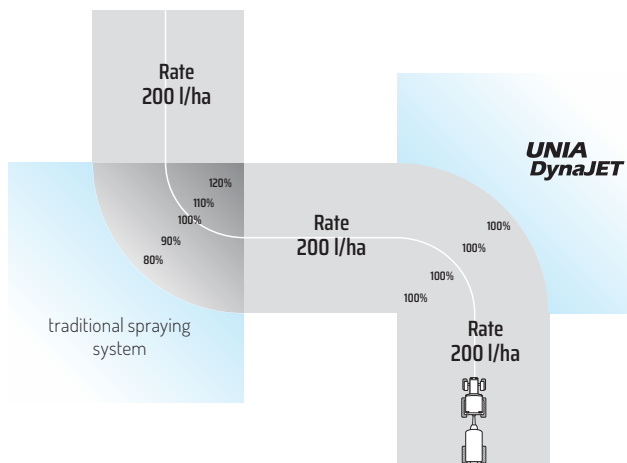
Electronic control valve
with body



WIND DIRECTION

SMALL DROPS



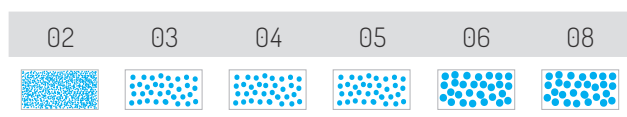


Rate compensation on bends

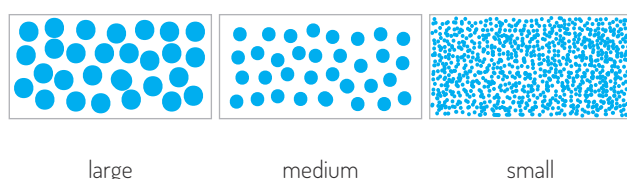
In the compensation option, the preset rate is compensated on bends or curved fields.

The drop size can be changed with a sprayer controller.

For example, the tip of a size of 08 can achieve drop sizes, like the tip with slots 02, 03, 04, 05 and 06.

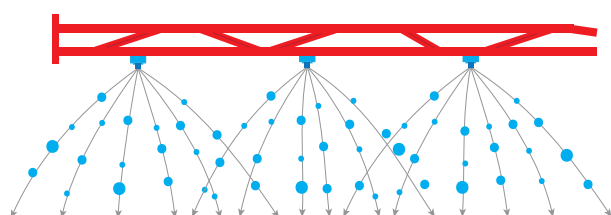


Droplet size class



UNIA DynaJET is perfect for use in the case of frequent wind changes during spraying.

LARGE DROPS



Main features and advantages of UNIA DynaJET:

1. UNIA DynaJET operates a 30% to 100% nozzle flow rate in the pressure range from 1 to 6 bar. For example, the tip of a size of 08 can achieve drop sizes, like the tip with slots 02, 03, 04, 05 and 06. If necessary, i.e. when wind strength changes, or different spray is to be used for another crop, for example, the drop size can be changed with a sprayer controller.
2. UNIA DynaJET offers a 90% higher drift reduction compared to a traditional spray tip. The system provides a much wider range of working speeds and enables the operator to cover a larger area in less time. In the case of typical spraying operation, UNIA DynaJET can offer an increase in the field performance by 15%.
3. With UNIA DynaJET, the drop spectrum can be also kept at a constant level at low spray rates, with no compromise on the quality in terms of plant covering.
4. It is possible to combine the system with CROP SENSOR devices, provided that driving speeds and drop spectrum are kept at a constant level. The consumption of spraying agent, liquid fertilisers or growth regulators can be scheduled and measurable benefits can be achieved in terms of uniform field crop.
5. With the compensation option on, the application rate can be evenly distributed across the entire width of the field beam during work on the headlands and curved areas. As a result, spray application is uniform across the entire field.
6. Alternative solution to more expensive and complex systems with two or four electronic heads with limited number of bodies
7. Thanks to a high-frequency 20 Hz electromagnet, the right drop sizes are selected and the surface is precisely covered by a wide-range spraying adjusted to the working conditions.
8. The system is operated by the TOUCH 800 or TOUCH 1200 basic displays via the ISO BUS socket.
9. Simple design combining a conventional liquid system with DynaJET electrical system
10. The diagnostics option on the display provides a quick verification of the coils and operating status without the need to leave the tractor cab.

UNIA RADION CONTROLLER

UNIA RADION is a fully automated sprayer control unit with a fully integrated control panel.

The central, sectional and liquid control valves can be operated from the tractor cab. The control unit activates 5, 7 or 9 sections of the width.

RADION has a colour touch screen.

The controller counts the amount of applied working liquid and the area sprayed. The operator determines the spraying rate. With a flow meter and speed sensor, the computer maintains the amount of applied liquid per hectare, regardless of the driving speed.

The hydraulic functions are operated by the tractor control units.

The tilt and lock of the beam is controlled by the computer.

Basic controller functions

- keeping the rate automatically at a constant level, regardless of the driving speed
- control of field beam functions
- control of the sprayer

Advantages of the RADION Controller

- simplicity and intuitive operation
- ergonomic and easy-to-read buttons
- GPS functionality
- colour touch screen
- can be extended to include 9 sections





UNIA RADION

can be easily connected to the GPS terminal – MATRIX. The set also includes aerial for free EGNOS signal (the accuracy is 10–30 cm). The set ensures automatic switching on and off of the spray sections on the field beam, limiting the spray covering to a minimum.

Features of MATRIX :

- Automatic section control based on GPS signal
- Parallel driving based on GPS
- Variable rate application (VRA) function
- USB port for downloading the data
- The parallel driving function can be used in other machines, e.g. spreader

Touch control panel



ISOBUS CONTROLLER

In combination with the ISOBUS system, our sprayers can be operated in an easier way. The main task of the ISOBUS system is to simplify the control of secondary machines by operation with only one control display. This solution significantly improves the working comfort of the tractor operator. The number of controllers in the cab is also reduced to improve visibility in the cab. HERON sprayers can be equipped with a number of ISOBUS displays.



Basic controller functions:

- keeping the rate automatically at a constant level, regardless of the driving speed
- ISOBUS
- colour display
- control of beam hydraulic functions
- working pressure indicator
- working speed indicator
- the applied liquid indicator
- sprayed hectares indicator
- the remaining liquid indicator
- USB port for downloading the data
- joystick to control sprayer functions

Additional controller functions:

- control of independent beam folding
- automatic control of the steering axle
- switching on end and edge nozzles
- DYSTANS-Control – automatic maintaining of beam height
- V-System – variable beam geometry
- TRACK-Leader II – parallel driving
- SECTION-Control – automatic section control
- EDS – independent control of nozzles



TOUCH 800 [8 inches]

The TOUCH 800 represents the latest generation of ISOBUS terminal. The controller is equipped with a colour touch screen secured with a protective film. With the terminal, you can control all functions of the sprayer: liquid system, beam hydraulics, steering drawbar or steering axle and GPS systems: parallel driving (TRACK-Leader II), section control (SECTION-Control) or single nozzles (EDS). After work, all the data can be downloaded to a USB flash drive. The display is able to show two function fields simultaneously. The TOUCH 800 can be extended to include automatic driving Track-Leader Auto.



ISOBUS plug



Joystick

Basic controller functions:

- keeping the rate automatically at a constant level, regardless of the driving speed
- ISOBUS
- colour display
- control of beam hydraulic functions
- working pressure indicator
- working speed indicator
- indication of the amount of sprayed liquid

- sprayed hectares indicator
- the remaining liquid indicator
- USB port for downloading the data
- joystick to control sprayer functions

Additional controller functions:

- control of independent beam folding
- automatic control of the steering axle
- switching on end and edge nozzles

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- V-System – variable beam geometry
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- EDS – independent control of nozzles

SOFTWARE FOR TOUCH COMPUTERS

Optionally, special functions are available: automatic switching on the headlands, SECTION-Control to control width section and TRACK-Leader II for parallel driving.

TRACK-Leader II (+ GPS aerial)

TRACK-Leader is a widely used field navigation system with a wide range of opportunities for configuration. In combination with the DGPS receiver, the application ensures precise driving in low-visibility conditions and during night operation.



Features:

- Different driving modes: parallel driving A/B, A+/-, Multi A-B, circular track, contour mode and more
- It is possible to mark and record field obstacles (poles, wells, etc.), boundaries and paths to reconstruct them later if needed
- Transferring data from the terminal to the computer
- It is possible to record the work end site on the field

Advantages:

- fewer skips and overlaps
- field obstacle warnings
- operation at night and in poor visibility
- saving of means of production and diesel oil
- reduced plant damage in row crops
- reduced time of U-turns



Signal receiver

D-GPS EGNOS A101
signal accuracy
+/- 25 cm

SECTION-Control

The application switches off/on machine sections, individual nozzles or entire machine dosing systems based on the current GPS position.



Features:

- Control of up to 256 sections or individual nozzles based on GPS signal

Advantages:

- fewer skips and overlaps
- saving of means of production
- easier operator's work
- increase in yields
- more efficient work at night and in low-visibility conditions



Specifications

HERON	4221	4224	4227	4228	4230
Tank volume [l]	4200	4200	4200	4200	4200
Working width [m]	21	24	27	28	30
Number of sections of beam fluid system	5		7		
Beam lifting range [m]			0,5 - 2,3		
Beam control		electrohydraulic – 1 pair of hoses (from the controller in the cab)			
Pump			POLY 2300		
Transport dimensions [m] length/width/height	7,5 / 2,4 / 3,0	6,9 / 2,8 / 3,0	7,5 / 2,8 / 3,0	6,9 / 2,8 / 3,0	6,9 / 2,8 / 3,0
Power demand [HP]			100		
Weight [kg]	4500	4600	4800	4820	4940

HERON	5021	5024	5027	5028	5030
Tank volume [l]	5000	5000	5000	5000	5000
Working width [m]	21	24	27	28	30
Number of sections of beam fluid system	5		7		
Beam lifting range [m]			0,5 - 2,3		
Beam control		electrohydraulic – 1 pair of hoses (from the controller in the cab)			
Pump			POLY 2300		
Transport dimensions [m] length/width/height	7,5 / 2,4 / 3,0	6,9 / 2,8 / 3,0	7,5 / 2,8 / 3,0	6,9 / 2,8 / 3,0	6,9 / 2,8 / 3,0
Power demand [HP]			120		
Weight [kg]	4560	4660	4860	4880	5000

All data, sizes and weights are subject to continuous technical development and shall not be deemed binding.
The machine weight refers to the basic version.
The information is subject to technical changes.







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