

When looking for a solution



We understand spraying technology





The Company

The company Agrio was established in the year 1993 and since its beginning it has been specialising in production and sale of plant protection technology. Cooperation with company GSB, a German producer of sprayers, from which we gained not only a lot of valuable information how to produce a good quality, effective and reliable sprayers, but also licence for the production of boom, was very important for the development of our company. Other significant milestone in the history of Agrio was more than a 10-year cooperation with a German company Inuma to which we supplied single components as well as completed sprayers. Even at that time we paid attention to maximum quality of our products and therefore got known on many international markets. At this time you can come across our sprayers to more than 12 countries of Europe. Agrio company can be proud of its history lasting longer than a quarter of a century within which it walked a long path from reconstruction of older sprayers to production of a complete line of modern trailed, extension or self-propelled sprayers. From a small company to an existing company with 90 employees and a production plant of an area of 17000 m². The biggest value of the company is our trade mark. Agrio has become a synonym for quality sprayers and a professional team of people who understand their work and always try to meet their customers' requirements. Our current sprayers offer a wide variety of the most up-to-date equipment for the most accurate application of agents and fertilisers. But even in this context we consider mainly our customers and we emphasise simplicity of handling the machine, its reliability and also after sale service, mainly over the phone consulting or visits of our service technicians. Agrio sprayers have so far been bought by more than 3000 customers. I will be very pleased if you will find our wide variety of machines interesting.

Ivan Olšan, chairman



Parts in stock

No seller of agricultural technology can have all spare parts in stock but he must be able to obtain them quickly from his suppliers. Agrio permanently stocks parts worth 65 millions CZK. In an unusual situation we ourselves are able to supply oversized parts within 24 hours. During the season, the stock is opened even at the weekends, you can reach our employees in the evening during working week. The supply of spare parts operates without any limits even during our company shut down!

Service

Good quality service is the base of a longterm satisfaction of the customer. Today's customer is demanding, needs time to apply in time and the weather is not perfect all the time.

Therefore, when the customer needs to spray, the machine must work perfectly. You cannot avoid defects so the service background is very important.

The service technicians of our sale representatives are well trained to be able to find the defect quickly and also, the spare parts must be available so the repair does not take long. In the case of a serious defect, we, as the producer, are fully equipped to step in immediately.



Equipment of service car

Pneumatic spraying regulation 0-9 atm

Pneumatic spraying regulation is easy, quick and reliable. It can withstand pressure of 9 bars long term and thanks to that it is possible to spray with higher pressure with low drift spray nozzles so the drops have a higher speed and are not too coarse. It works without problems with aggressive liquid fertilisers, its durability is not lowered in any way. Due to compressibility of air the regulative valve works as a pressure relief valve as well. Therefore there are less hoses at the sprayer and the washout of all the piping is much easier. Other big advantage is that there is no need to add antifreeze for winter, drainage to "dryness" is very easy thanks to pneumatic spraying regulation.

Boom operation

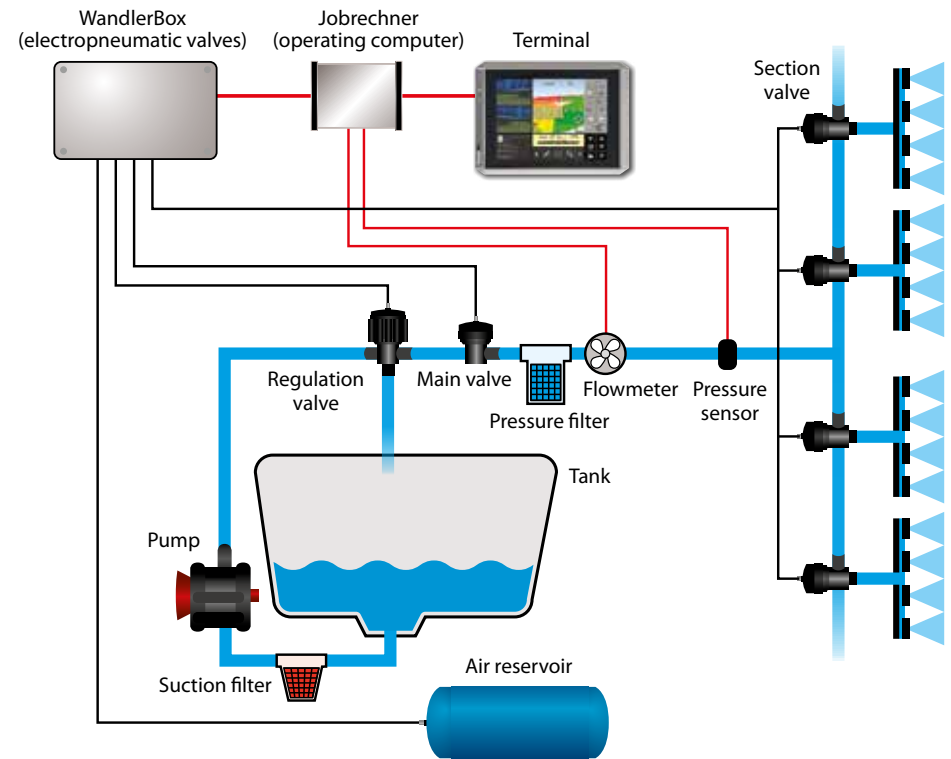
The boom operation is the key characteristics of every sprayer. Smooth work allows to lower uneven spraying in transverse and longitudinal way to minimum. Pendulum suspension, triangle construction of the boom and central suspension with coil spring, those are the solid pillars on which Agrio has been building for more than two decades. All this time we have been trying to improve the construction according to the growing pressure to higher working speed and daily output. We try to make all changes so our new boom can be fixed to older machines and in such way that the production and supply of spare parts are not complicated.



Ride on polygone 01



Ride on polygone 02

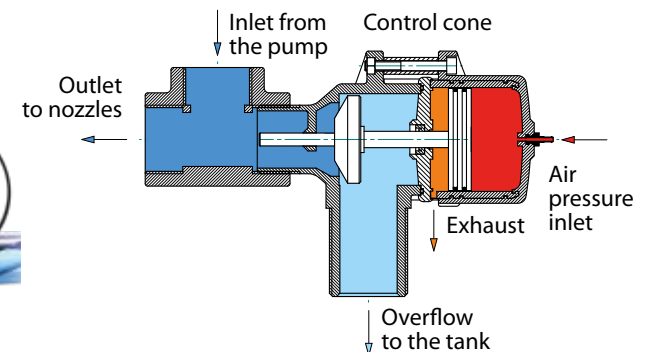


Regulation valve picture



Section valve picture

Regulation valve detail



Customized machine



Agrio does not produce any sprayers to hold in stock but each machine has its specific customer. The working conditions of each user are so different that one equipment can be suitable for a servicing company but it will not be suitable for primary producers. Different equipment is at machine which gets water from a hydrant and different when water is supplied by a water tank in the field. Our interest is for our customers to have a maximum use of our sprayers therefore we never produce "standard" where our customers would unnecessary pay for something they do not need or for our customer to be missing equipment which could save him costs or higher his profits.

We are available 24 hours



Today's sprayers are equipped with electronics and hydraulics where satellites, DGPS receiver, RTK station, on-board computer in the cabin, job computer or hydraulic distributor at the sprayer must communicate together. In case of a defect with so well equipped sprayer, first the customer needs a "friend on the phone" who could help him find the defect. In 90 % of all cases an advice over the phone is sufficient and there is no need for a service technician to come. Agrio is one of those producers fully opened to all questions from their customers. This attitude is a big benefit the customer gains with a new sprayer.



High value of used machines

There is a high demand for used sprayers made by Agrio, even the oldest machines are sellable because all spare parts are still available today. Because of long durability of each component, the maintenance of a used machine is not significantly higher and after certain time it is easily sold to another customer.



Specialist in sprayers

Agrio produces a wide variety of field sprayers. Agrio does not produce any other machinery therefore all employees are only dealing with sprayers all the time. Because of this one-sided focus, we are able to react much faster to any requests of our customers than we would be should we engage in the development of other machinery. The focus on sprayers allows us to penetrate into depths of specific tasks and not to be satisfied with just a surface solution.



DINO



GEKON



GIGANT



TIGER



MAMUT XL



MAMUT



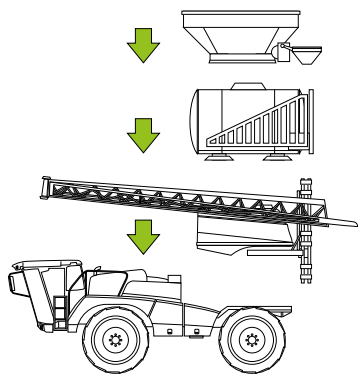
NAPA



ALKA

DINO

Self-propelled sprayer DINO is specified by low centre of gravity and excellent gradability. In an extreme hilly terrain its driving characteristics are unbeatable. Because of a unique axle suspension and its construction of hydraulic drive with valve, DINO can not only drive up a high hill but can also drive through waterlogged terrain where other machines can get trapped. Because of its exchangeable extensions (spraying, spreading, tank with digestate applicator), the chassis has a wide range of use.



Self-propelled sprayer as a system carrier can be equipped with various extensions.



Basic equipment

Cabin

- comfortable cabin CLAAS

Chassis

- FPT engine with 210 kW output, emission norms Stage V
- hydraulic pump carriage Poclain Hydraulics
- integrated brakes
- hydraulic differential lock
- pneumatic suspension of front and back axle
- steering of both axles, crab mode, 3 gears (field mode) 5 gears (road mode)
- fuel tank of 290 l volume
- wheels 380/90 R46 172 A8/172 D

Pumps / Filling

- piston-membrane pump 2 x AR 185 powered by hydraulics of the chassis
- outside filling and suction 2"

Water / Tank

- fibre glass tank with breakwaters 6600 l
- pneumatic spraying regulation
- internal flushing of the tank
- pressured mixing and overflow mixing
- hydraulic hinged PE 60 l induction hopper
- clean water tank 600 l
- electronic watermark TANK-Control

Computer / Electronics

- ME computer without terminal

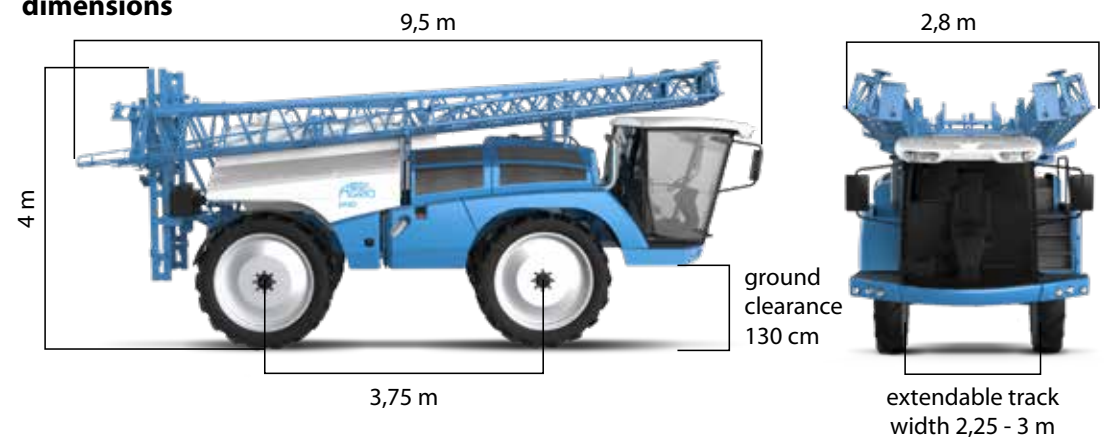
Boom / Distribution

- 6 - 8 sections
 - Topline controls - remote control of work functions of the sprayer
 - full suspension of boom
 - boom with active tilting and potentiometer
 - stainless distribution in the boom \varnothing 20 mm with triple nozzle holders 50 cm apart
- **transport speed 50 km/h**

- **Ground clearance 130 cm**
- **Tank 6600 l**
- **Boom width 18 - 36 m**
- **Cabin CLAAS - category 4**
- **Hydrostatic drive**
- **Engine FPT 210 kW**
- **Confirms to emission standard Stage V**
- **Pneumatic suspension of the chassis**
- **Possible to change extension**



dimensions



DINO

The driving characteristics of self-propelled sprayer DINO are unreachable. With this machine you do not have to worry about even the most demanding terrain...



fully equipped comfortable cabin CLASS

- ergonomic handling
- CLAAS joystick
- comfortable heated seat with air extraction (the highest comfort)
- air conditioned cabin
- special defaming of the cabin
- filtration category 4 (highest level of protection)
- maximum view of all sides
- refrigerator
- car radio
- camera for front wheel and for the rear of the machine
- pneumatically handled steps

controls

- road and working mode
- automatic transmission in both modes
- maximum transport speed up to 50 km/h
- speed control by joystick or pedal
- cruise control
- terminal for display and control of drive, steering and engine functions (temperature, revolution, oil/fuel level, error messages, choice of driving mode, etc....)

engine

- engine FPT 6cylinder
- volume 6700 cm³
- complies to emission class Stage V
- engine output 210 kW (285 HP)
- torque 1150 Nm / 1500 rpm

hydrostatic drive

- new PH hydro engines with integrated brakes
- boosted Braking system (braking without increasing engine revolution)
- off Road valves for maximum drive through terrain
- possibility for emergency release of the brakes in case of defect
- gradability up to 30 %
- ECODRIVE - optimal revolution of the engine according to load = lower consumption

steering

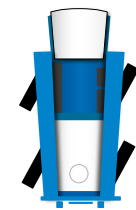
- modern system of wheel steering
- 3 modes: front axle (road mode)/ front-back axle/ crab mode
- steering with geometry correction while extended axle
- steering with correction of internal leakage of hydraulic system



front axle



front / back axle



crab mode

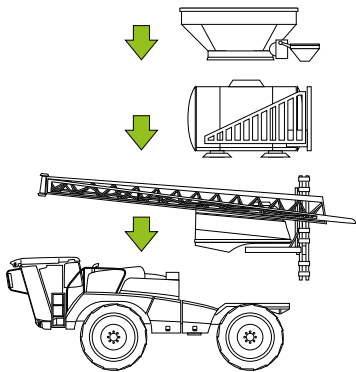


GEKON

The occurrence of corn borer and western corn rootworm in some areas is spreading and therefore our company has decided to comply with our customers' requirements and to widen our range of self-propelled sprayers with a new type.

New self-propelled sprayer GEKON with hydraulically adjustable ground clearance from 130 cm to 180 cm and tank of 3000 - 5000 l will have a CLAAS cabin. This cabin has the highest protection level (Cat. 4) - overpressure chemical gas filtration, better noise elimination, ergonomic steering wheel, better suspension of all-leather seat with air extraction or "more comfortable" distribution of air-conditioned air.

The new self-propelled sprayer will have individual suspension for each wheel to reach maximum comfort of the driver.



Self-propelled sprayer as a system carrier can be equipped with various extensions.



NEW!

Basic equipment

Cabin

- comfort cabin CLAAS

Chassis

- FPT engine with 151 kW output, emission standard Stage V
- hydraulic pump Poclain Hydraulics
- hydraulic engines Poclain Hydraulics
- integrated brakes
- hydraulic differential lock
- pneumatic suspension of front and back axle
- steering of both axles, crab mode, 3 gears (field mode)
5 gears (road mode)
- fuel tank volume 280 l
- wheels 380/90 R46 172 A8/172 D

Pumps / Filling

- piston-membrane pump 2 x AR 185 powered by hydraulics from the chassis
- outside filling and suction 2"

Water / Tank

- fibre glass tank with waterbreaks 3000 l
- pneumatic spraying regulation
- internal flushing of the tank
- pressured mixing and overflow mixing
- hydraulically folded PE 60 l induction hopper
- clean water tank 300 l
- electronic watermark TANK-Control

Computer / Electronics

- ME computer without terminal

Boom / Distribution

- 6 - 8 sections
- Topline controls - remote control of work functions of the sprayer
- full suspension of boom
- boom with active tilting and potentiometer
- stainless distribution in the boom Ø 20 mm with triple nozzle holders 50 cm apart

- **Transport speed 50 km/h**

- **Ground clearance 130 cm**
- **Tank 3000 - 5000 l**
- **Boom width 18 - 36 m**
- **Cabin CLAAS - category 4**
- **Hydrostatic drive**
- **FPT Engine 151 kW**
- **Confirms to emission standard Stage V**
- **Pneumatic suspension of the chassis**
- **Possible to change extension**

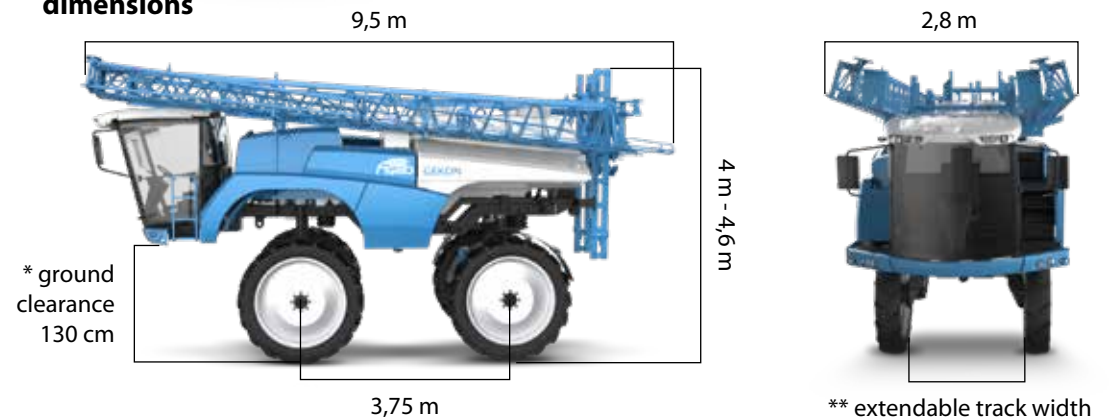


Gekon variant with variable ground clearance

- **Ground clearance 130 - 180 cm**
- **Tank 3000 - 4000 l**



dimensions



* ground clearance 130 cm, variant with variable ground clearance 130 - 180 cm

** fixed track width minimum 200 cm, maximum 260 cm. Hydraulically extendable track 225 - 300 cm.

GEKON

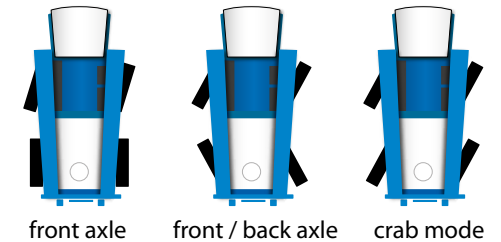
With self-propelled sprayer GEKON you gain a wide range of possibilities to adjust ground clearance or track width. Irreplaceable for application in high growth...





fully equipped comfort cabin CLAAS

- ergonomic handling
- CLAAS joystick
- comfortable heated seat with air extraction (the highest comfort)
- air conditioned cabin
- special defaming of the cabin
- filtration category 4 (highest level of protection)
- maximum view of all sides
- refrigerator
- car radio
- camera to the front wheel and to the rear of the machine
- pneumatically handled steps



hydrostatic drive

- new hydro engines PH with integrated brakes
- Boosted Breaking system (braking without increasing engine revolution)
- Off Road valves for maximum drive through terrain
- possibility for emergency release of the brakes in case of defect
- gradability up to 27%
- ECODRIVE - optimal revolution of the engine according to load = lower consumption

controls

- road and working mode
- automatic transmission in both modes
- maximum transport speed up to 50 km/h
- speed control by joystick or pedal
- cruise control
- terminal for display and control of drive, steering and engine functions (temperature, revolution, oil/fuel level, error messages, choice of driving mode, etc....)

engine

- engine FPT 6cylinder
- volume 6700 cm³
- complies to emission class Stage V
- engine output 151 kW
- torque 940 Nm / 1500 rpm

steering

- modern system of wheel steering
- 3 modes: front axle (road mode)/ front-back axle/ crab mode
- steering with geometry correction while extended axle (track 2,25 - 3 m)
- steering with correction of internal leakage of hydraulic system



GIGANT

GIGANT with 11000 - 13500 l tank and a tandem axle is the biggest trailed sprayer on the market. It proves its advantages easily with maximum boom width in very long fields. Because of extremely large tank, the amount of work interruptions to fill the sprayer with water or to bring water to the sprayer in a tank are minimised. Therefore the costs are lowered as well.





Boom, tank

Width (m)	Volume (l)
24 - 36	11000 - 13500

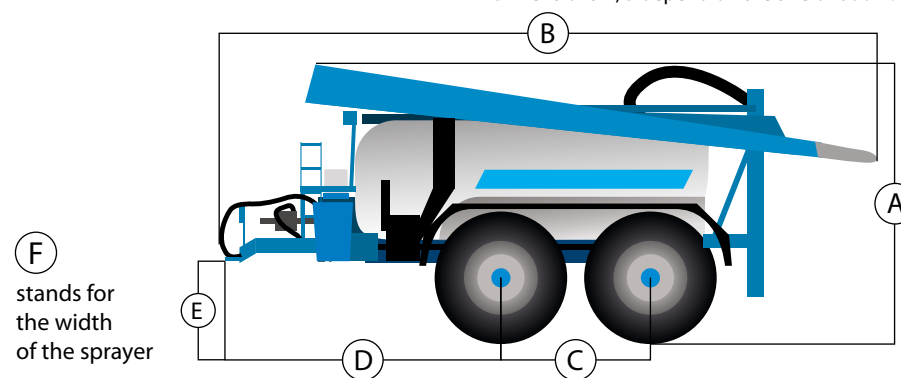
Weight

Type	Empty (kg)	Full (kg)
GIGANT 11000	6000	16900
GIGANT 12500	6450	19900
GIGANT 13500	7000	22000

Dimensions (mm)

Range (m)	A	B	C	D	E	F
GIGANT 36	3990	9100	2100	4100	1220	2850

Dimensions A, B depend on the size of boom.



Basic equipment

Chassis / Axles

- upper hinge (95 - 100 cm), ball coupling K80
- air suspended tandem steerable axle
- track width 225 cm
- wheels 520/85 R38 170 A8

Pumps / Filling

- pump AR 280 (up to 30 m) / pump 2x AR185 (over 30 m)
- outside filling and suction 2"

Water / Tank

- fibre glass tank with breakwaters 13500 l
- pneumatic spraying regulation
- internal flushing of the tank
- pressured mixing and overflow mixing
- Comfort Fill 60 l induction hopper
- clean water tank 900 l
- watermark

Computer / Electronics

- SPRAYDOS computer

Boom / Distributions

- 6 - 8 sections
- boom with active tilting
- potentiometer
- full suspension of boom
- stainless distribution in the boom \varnothing 20 mm with triple nozzle holders 50 cm apart

Others

- hydraulics controlled from the tractor by three hydraulic circuits
- lightning for road use



MAMUT XL

MAMUT XL with 7000 - 8000 l tank is the largest one-axle sprayer. The connection to hook and the transfer of weight more to the back axle of the tractor allows to keep the maximum load of the sprayer axle up to 10 t. Because of the load to the back axle, the tractor slips less while driving uphill. The large tank lowers the amount of fillings and therefore lowers loss times at optimal time for spraying.





Basic equipment

Chassis / Axles

- bottom hinge, ball coupling K80
- air suspended axle BPW 10 t
- wheels 520/85 R46 173 A8

Pumps / Filling

- homokinetic joining drive
- pump AE 280 (up to 30 m) / pump 2x AR185 (over 30 m)
- outer filling and suction 2"

Water / Tank

- fibre glass tank with breakwaters 11000 l
- pneumatic spraying regulation
- internal flushing of the tank
- pressured mixing and overflow mixing
- Comfort Fill 60 l induction hopper
- clean water tanks 300 l + 500 l
- watermark

Computer / Electronics

- SPRAYDOS computer

Boom / Distribution

- 6 - 8 sections
- boom with active tilting
- potentiometer
- full suspension of boom
- stainless distribution in the boom \varnothing 20 mm with triple nozzle holders 50 cm apart

Others

- hydraulics controlled from the tractor by two hydraulic circuits
- lightning for road use



Boom, tank

Boom width (m)	Volume (l)
24 - 36	7000 - 8000

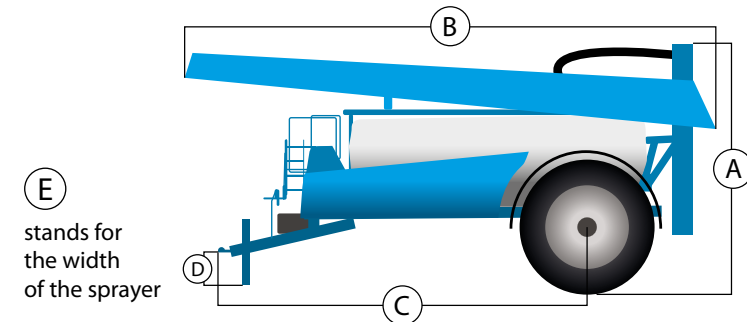
Weight

Range (m) 24 - 36	Empty (kg)	Full (kg)
MAMUT XL 7000	4700-5600	12100-13000
MAMUT XL 8000	4800-5700	13200-13900

Dimensions (mm)

Typ	A	B	C	D	E
MAMUT XL 24	3500	8500	6000	600	2800
MAMUT XL 28	3500	8500	6000	600	2800
MAMUT XL 30	3700	8500	6000	600	2800
MAMUT XL 36	3900	8700	6000	600	2800

Dimension A depends on wheels size, dimension B depends on the length of boom, dimension C depends on the size of wheels and if steerable axle.



E stands for the width of the sprayer

MAMUT

MAMUT with 4000 - 6500 l tank is one of the most common sprayers from the whole range of Agrio. It allows big daily output in a larger farm or agricultural company and outside of the main spraying season it is not necessary to bring water to the field that often.



Basic equipment

Chassis / Axles

- upper hinging, towing eye Ø 40 mm
- fixed extendable axle ADR 10 t
- wheels 520/85 R42 168 A8

Pumps / Filling

- homokinetic joing drive
- pump AR 280 (up to 30 m)
/ pump 2x AR185 (above 30 m)
- outside filling and suction 2"

Water / Tank

- fibre glass tank with breakwaters 4000 l
- pneumatic spraying regulation
- internal flushing of the tank
- pressured mixing and overflow mixing
- eco Comfort Fill 60 l induction hopper
- clean water tank 500 l
- watermark

Computer / Electronics

- počítač SPRAYDOS

Boom / Distribution

- 6 - 8 sections
- boom with active tilting
- potentiometer
- full suspension of boom
- stainless distribution in boom
Ø 20 mm with triple nozzle
holders 50 cm apart

Others

- hydraulics controlled from the tractor by two hydraulic circuits
- lightning for road use

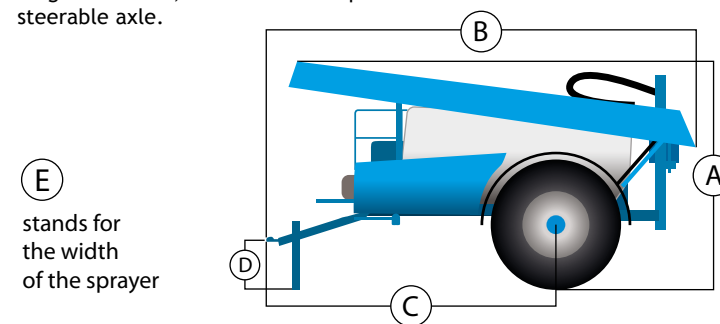
Weight

Range (m) 21 - 36	Empty (kg)	Full (kg)
MAMUT 4000	4000-4900	8400-9400
MAMUT 5000	4100-5000	9500-10500
MAMUT 6000	4200-5100	10600-11600
MAMUT 6500	4250-5150	11150-12150

Dimensions (mm)

Type	A	B	C	D	E
MAMUT 21	3500	7500	4700	1000	2800
MAMUT 24	3500	7500	4700	1000	2800
MAMUT 28	3500	8500	4700	1000	2800
MAMUT 30	3500	8500	4700	1000	2800
MAMUT 36	3900	8700	4700	1000	2880

Dimension A depends on wheels size, dimension B depends on the length of boom, dimension C depends on the size of wheels and if steerable axle.



Boom, tank

Width (m)	Volume (l)
21 - 36	4000 - 6500



NAPA

NAPA with 3300 and 3900 l tanks is the most common sprayer on a medium sized farm but also in a smaller agricultural company. The smaller tank usually requires bringing water to the field all year round. When the fields are too rugged, it is usually not possible to use too wide boom width.

The customer then therefore prefers narrower tyres so damage caused by driving in the field is limited. Because of lower load it is necessary to have a smaller tank. On the other side, NAPA is shorter than MAMUT and is easier to manoeuvre in headland.





Basic equipment

Chassis / Axle

- upper hinging, towing eye Ø 40 mm
- unsprung extendable axle ADR 10 t
- wheels 300/95 R46 151 A8

Pumps / Filling

- homokinetic joint drive
- pump AR 250
- outside filling and suction 2"

Water / Tank

- polythene main tank without breakwaters 3300 l
- pneumatic spraying regulation
- internal flushing of the tank
- pressured mixing and overflow mixing
- Comfort Fill 60 l induction hopper
- clean water tank 370 l
- watermark

Computer / Electronics

- SPRAYDOS computer

Boom / Distribution

- 4 - 6 sections
- boom with active tilting
- potentiometer
- full suspension of boom
- stainless distribution in boom Ø 20 mm with triple nozzle holders 50 cm apart

Others

- hydraulics controlled from the tractor by two hydraulic circuits
- lightning for road use

Boom, fibre glass and PE tank

Width (m)	Volume (l)
15 - 30	3300
15 - 30	3900

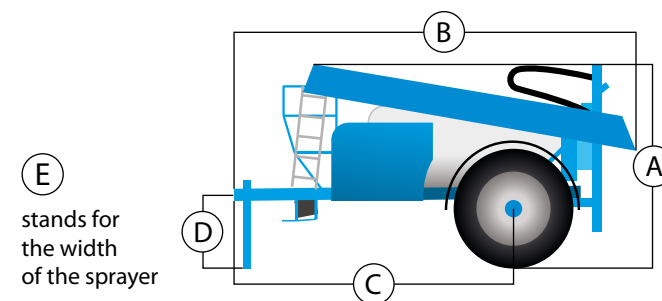
Dimensions (mm)

Type	A	B	C	D	E
NAPA 18	3000	6000	4150	1000	2600
NAPA 21	3100	6000	4150	1000	2600
NAPA 24	3500	6800	4150	1000	2800
NAPA 28	3500	6800	4150	1000	2800
NAPA 30	3500	6800	4150	1000	2800

Dimension A depends on wheels size, dimension B depends on the length of boom, dimension C depends on the size of wheels and if steerable axle.

Weight

Type	Empty (kg)	Full (kg)
NAPA 3300 18-21	2500	6900
NAPA 3300 28-30	2950	7350
NAPA 3900 18-21	3100	7500
NAPA 3900 28-30	3550	7950



ALKA

ALKA with 2500 and 3000 l tank is the smallest of trailed sprayers of Agrio company. Due to its favourable price, it is an entry product for the smallest farmers who have used a mounted sprayer up until this time. The quality of the machine is high, part base is identical to all other types. Therefore its durability is long which is positive for future sale of a used sprayer.





Basic equipment

Chassis / Axles

- upper hinging, towing eye Ø 40 mm
- unsprung extendable axle ADR 5 t
- wheels 340/85 R38 151 A8

Pumps / Filling

- homokinetic joint drive
- pump AR 185
- outside filling and suction 2"

Water / Tank

- polythene main tank without breakwaters 2500 l
- pneumatic spraying regulation
- internal flushing of the tank
- pressured mixing and overflow mixing
- Comfort Fill 60 l induction hopper
- clean water tank 370 l
- watermark

Boom / Distribution

- 4 sections
- boom without active tilting
- stainless distribution in boom Ø 20 mm with triple nozzle holders 50 cm apart

Computer / Electronics

- SPRAYDOS computer

Others

- hydraulics controlled from the tractor by two hydraulic circuits
- lightning for road use

Boom, fibre glass tank

Width (m)	Volume (l)
15 - 21	3000

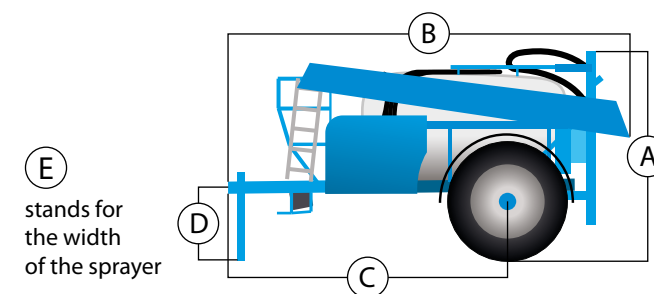
Boom, PE tank

Width (m)	Volume (l)
15 - 21	2500

Dimensions (mm)

Type	A	B	C	D	E
ALKA 18	2900	5800	3900	1000	2600
ALKA 21	2900	5800	3900	1000	2600

Dimension A depends on wheels size, dimension B depends on the length of boom, dimension C depends on the size of wheels and if steerable axle.



Weight

Type	Empty (kg)	Full (kg)
ALKA 15 - 21	2200	5300

* weighed with boom 21 m



TIGER

TIGER with 4000 l tank is an extension sprayer to various chassis like JCB Fastrac, MB Unimog or MB-Trac. It is a suitable machine for servicing companies that need to move quickly between customers. Even though the chassis has a low ground clearance, it works very effectively during autumn and spring spraying applications.



Basic equipment

Pumps / Filling

- pump AR 250

Water / Tank

- fibre glass tank with breakwaters 2000 l
- pneumatic spraying regulation
- internal flushing of the tank
- pressured mixing and overflow mixing
- Comfort Fill 60 l induction hopper
- clean water tank
- watermark

Computer / Electronics

- ME computer (without terminal)

Boom / Distribution

- 6 sections
- boom with active tilting
- stainless distribution in boom \varnothing 20 mm with triple nozzle holders 50 cm apart



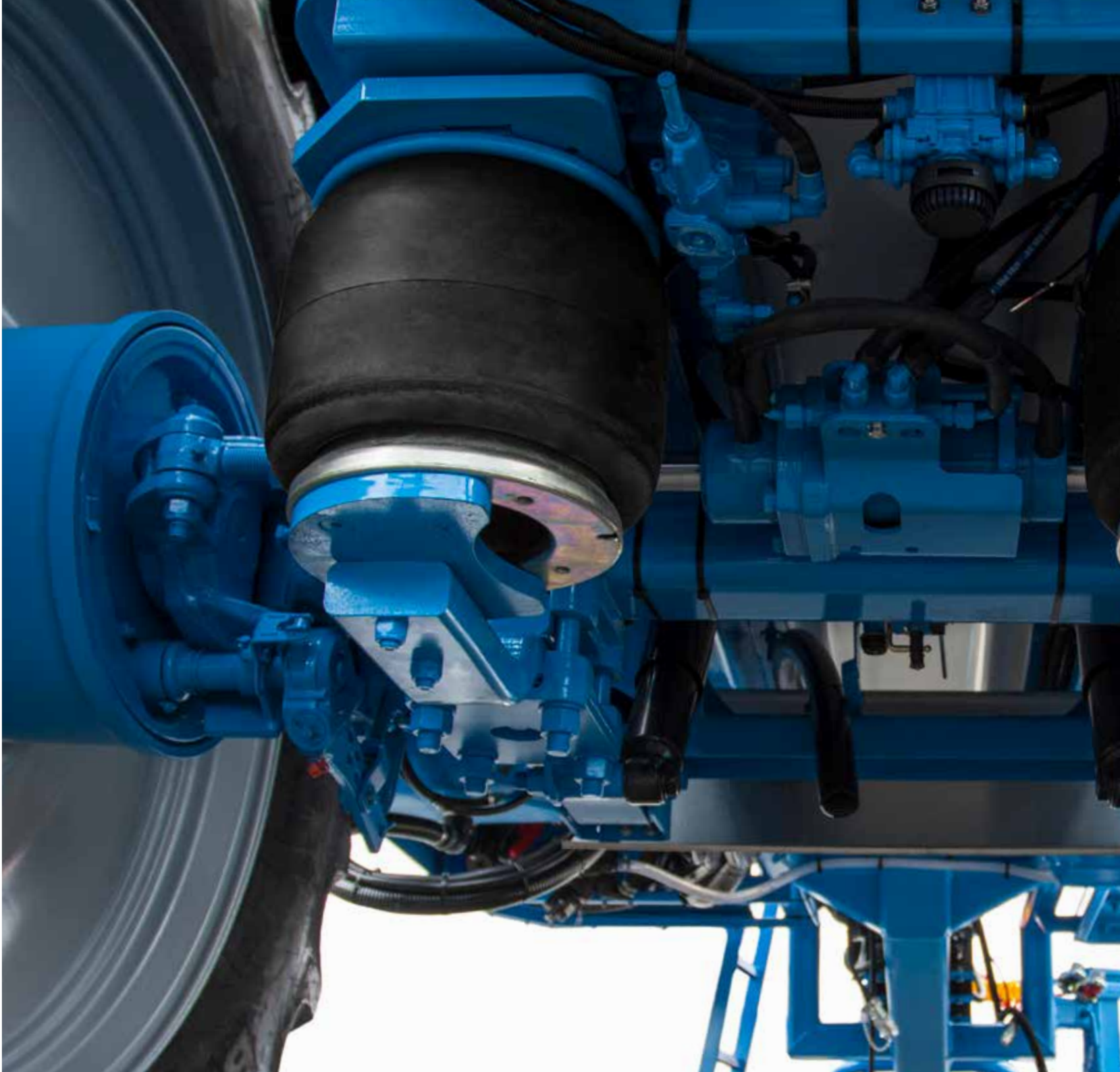
Boom, tank

Width (m)	Volume (l)
21 - 30	2000 - 4000



Chassis

The chassis of Agrio sprayers are characterised mainly by a low centre of gravity which allows lower positioning of the main tank, lower height of the sprayer all together and therefore its higher stability. Another advantage of these chassis is its enclosed frame profile. The chassis of Agrio sprayers are therefore combinable with many types of fixed, steerable or suspended chassis.



Types of hinges



Upper hinge

This type of hinge means a higher ground clearance of the sprayer.



Bottom hinge

This type of hinge has a high load bearing and allows to connect sprayer with a tank up to 8000 l and one axle.



Towing eye 40 mm.



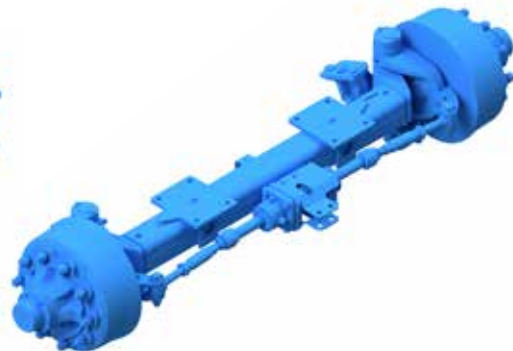
K 80 ball coupling is extremely beneficial for the sprayer due to its characteristics, it minimises oscillation of the boom back and forth.

Axles



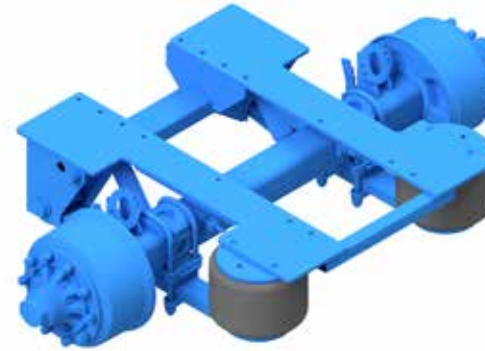
Unsprung extendable axle

variant 1) load bearing up to 5 t (ADR)
variant 2) load bearing up to 10 t (ADR)



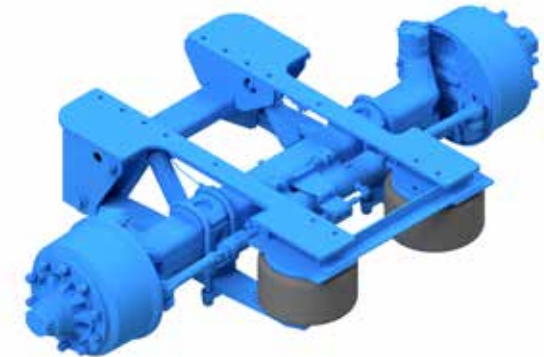
Steerable unsprung axle

load bearing up to 10 t (ADR, BPW)



Air suspended axle

variant 1) up to 6,5 t (BPW)
variant 2) up to 9 t (BPW)
variant 3) up to 10 t (BPW)



Air suspended steerable axle

load bearing up to 10 t (ADR, BPW)

Boom

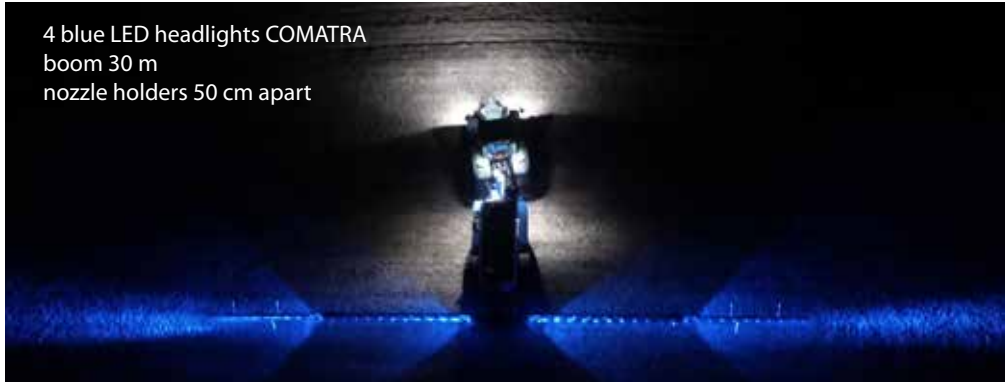
Boom of Agrio sprayers are characterised by high reliability and mainly by exact and flowing movement which effects application itself very positively. The boom fixing system has been the same all this time but the boom itself go through continual development and improving processes therefore we can say that here, a long-term experience goes hand in hand with continual improvement. Using modern technology DC-TOP where boom quickly react to changes in terrain because of ultrasound sensor, we reach the highest quality of spraying. The boom section of Agrio sprayers can be in various lengths from 12 m to 36 m. Due to sophisticated system of shock absorbers, silentblocks and springs, we achieve maximum suspension. For maximum efficiency, boom can be additionally equipped with various functions, for example tipping of end pieces or middle boom lifting.



LED headlights on boom



Blue LED headlights COMATRA





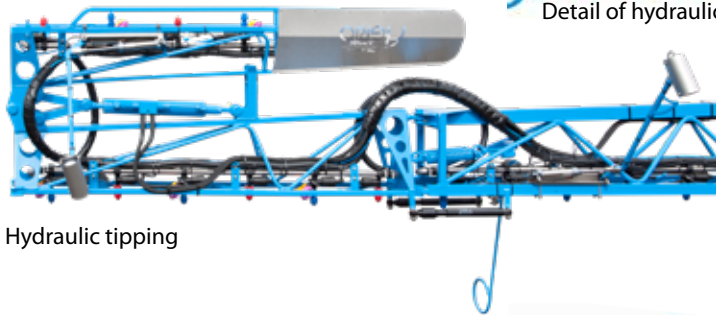
Middle boom lifting

Middle boom lifting

Tipping



Detail of hydraulic tipping



Hydraulic tipping

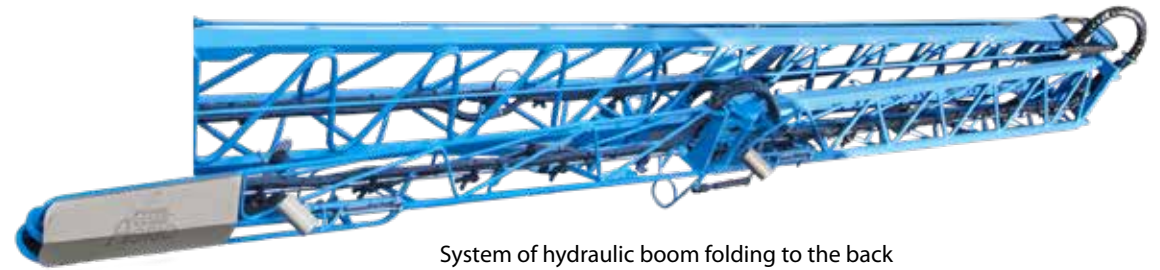


Detail of hand tipping



Hand tipping

Back boom folding



System of hydraulic boom folding to the back



Detail of hydraulic boom folding to the back

Tilting



Electric boom tilting



Hydraulic boom tilting



System with no boom tilting

Suspension



Soft vertical boom suspension is ensured by a coil spring.



Stabilizers lower boom oscillation back and forth.



Oil shock absorbers slow boom movement in both ways.

Electronics

Job computers, terminals, navigation, receivers, ultrasound sensors or software by Müller Elektronik. This company with its more than forty-year history and its seat in Salzkotten in Germany is the pioneer and front innovator in the field of agricultural electronics and precision agriculture. Sprayers equipped with this electronics ensure the most precise and best quality application.



TANK-Control III

New system for tank filling and for the flushing of the sprayer.
Possible to control functions on an external monitor or via terminal in the cabin.

Functions

- Calculation of requested volume of spraying for given area
- Switching between suction from the main tank and from the clean water tank
- Flushing of the main tank
- Controlling of ejection / insertion of the hopper
- Indicator of level in the main tank
- Indicator of level in the clean water tank
- Switching on the spraying pump with the possibility to set up two speeds of revolution (pump output). When the pump is driven by the hydro engine, 2 speeds of revolution can be set up (output)
- **Automatic washing programmes**

Programme 1

Clean water flushing

Programme 2

Whole machine flushing



Topline

Possible to remotely control sprayer functions from the cabin or by external control panel.

Each valve is controlled by air pistons. This control system is very reliable and in case of air piston failure the valve is easily turned by hand.

Topline is a mandatory equipment for automatic flushing programmes of TANK-Control III system. Even without TANK-Control III it is possible to switch manually each function from within the cabin and to flush the whole sprayer by gradual steps but it is necessary not to forget any of these steps.

TANK-Control III allows complete and automatic flushing of the sprayer without the necessity of orders for each sub step.

Topline variant



external control



Control of suction and pressure functions via additional box in the cabin.

Topline variant with TANK-Control III



external control



Control of suction and pressure functions via terminal.

Terminals



BASIC-Terminal

Confirms to ISOBUS standard and offers all basic functions necessary for operating the sprayer on a main 5,7" display. It is possible to equip with other applications, for example TRACK-Leader (satellite navigation) or SECTION-Control (satellite section switch off).

dosage control ●	navigation ○	GPS section switch off ○
------------------	--------------	--------------------------



TOUCH800®

Confirms to ISOBUS standard. All functions of sprayer control are possible to be equipped by application TRACK-Leader (satellite navigation) or SECTION-Control (satellite section switch off). With the 8" display and capacitive touch screen, ideal operation is guaranteed.

dosage control ●	navigation ○	GPS section switch off ○
------------------	--------------	--------------------------



StopSpray

StopSpray with ISOBUS - economically convenient variant of navigation and spraying control system with GPS section switch off. TRACK-Guide terminal is the base which can be equipped by other applications. Possible to control maximum of 9 sections.

dosage control ●	navigation ●	GPS section switch off ●
------------------	--------------	--------------------------

LEGEND

● basic equipment ○ possible to equip X not part of equipment



COMFORT-Terminal

LCD 10,4" display terminal fulfilling the highest requirement of precision agriculture. Confirms to ISOBUS standard and allows all functions of sprayer control. It is possible to equip with application TRACK-Leader (satellite navigation) or SECTION-Control (satellite section switch off). COMOFRT-Terminal with GSM modem allows to send data directly to farmplot portal.

dosage control ●	navigation ○	GPS section switch off ○
------------------	--------------	--------------------------



TOUCH1200®

ISOBUS terminal of the newest generation usable long or width wise. 12,1" display allows to show up to five functions simultaneously. GSM modem with the possibility of sending all data directly to the farmplot portal is standard equipment. Offers all functions for sprayer control. Possible to equip by TRACK-Leader (satellite navigation) and SECTION-Control (satellite section switch off).

dosage control ●	navigation ○	GPS section switch off ○
------------------	--------------	--------------------------

Control unit / computer



SPRAYDOS

Fully automatic control unit for sprayers. Allows to control maximum of 9 sections, folding and tilting of boom, lightning of boom, manual switch of multiple nozzles (SELEJET). Indicates tank level and pressure of spraying.

dosage control ●	navigation X	GPS section switch off X
------------------	--------------	--------------------------



ISOBUS

Standardised communication protocol designed for agricultural machines based on CAN bus. Ensures compatibility between machines from various producers. More ISOBUS compatible machines can be controlled by one terminal and vice versa. Easy handling due to using one single cable, for example between tractor and sprayer.

Receivers



Signal receiver D-GPS EGNOS A101
(Deviation +/- 25 cm)



Signal receiver D-GPS / GLONASS AG-STAR
(Deviation +/- 20 cm)



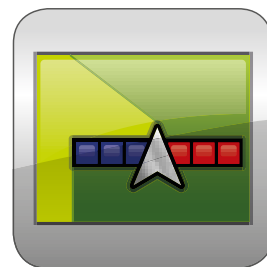
Signal receiver D-GPS GLONASS Smart 6L Standard / RTK
Support of L1/L2 zone
Basic variant (Deviation +/- 15 cm)
Variant RTK - paid correction (Deviation +/- 2 cm)

Additional equipment



TANK-Control III
ISOBUS compatible system for tank filling and flushing of sprayer. Possible to calculate spray dosage. Function control on external monitor or via terminal in cabin.

Software



SECTION-Control
Software for automatic section switch off of the machines with ISOBUS connected to terminal, TRACK-Leader and GPS signal. SECTION-Control can be used with sprayers, seed drills and industrial fertilisers spreaders.



TRACK-Leader
Navigator software for terminals in connection with D-GPS receiver allowing parallel, identical, smooth and outline tracking.

CURVE-Control

Constant dosage when manoeuvring curves

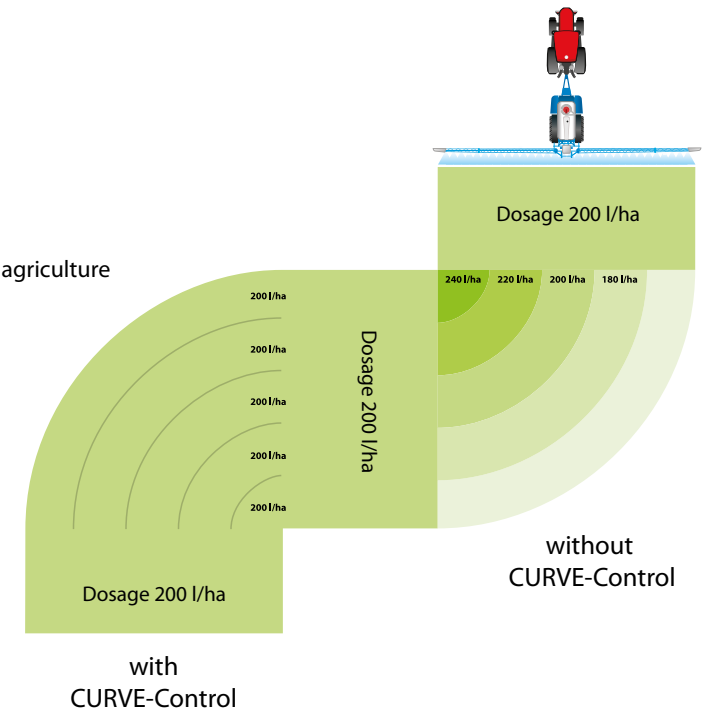
CURVE-Control is another new application function of Müller-Elektronik computers (ISOBUS SPRAYER-Controller). It ensures a constant application in the whole scope of the working width when manoeuvring curves with the sprayer. That is possible by switching different combinations of nozzles within each section. The sprayer must be equipped by multiple, switchable nozzle holders and VARIO-SELECT licence. Through GPS receiver, the Müller-Elektronik terminal transmits the exact boom position into the job computer of the sprayer. The computer determines the speed and radius of tilting using gyroscope and then calculates required application dosage for one section. The system automatically sets up dosage for each section by switching to different nozzle combination.

Advantages

- Very precise application
- Minimum damage to crop
- Cost effective
- Characteristic for precision agriculture

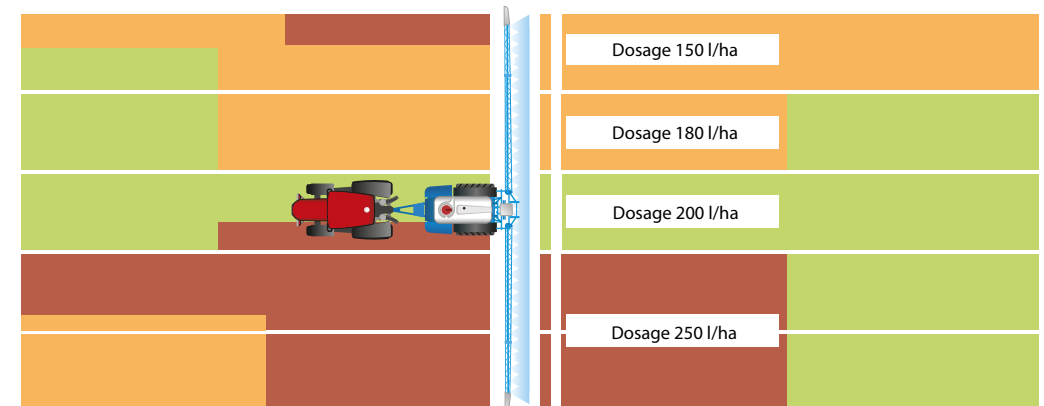
Necessary equipment

- Multiple nozzle holders
- VARIO-SELECT
- EDS modules
- Gyroscope



MULTI-Rate

The benefits of MULTI-Control for agricultural practice can be clearly illustrated using the example of a sprayer. MULTI-Rate makes it possible to transmit multiple target rates simultaneously using the Task-Controller. When using prescription maps in precision farming, the target rate can be regulated accordingly for each section. Until now, it was only possible over the entire boom width of the sprayer. This function can also be used with the online method by means of N sensors.



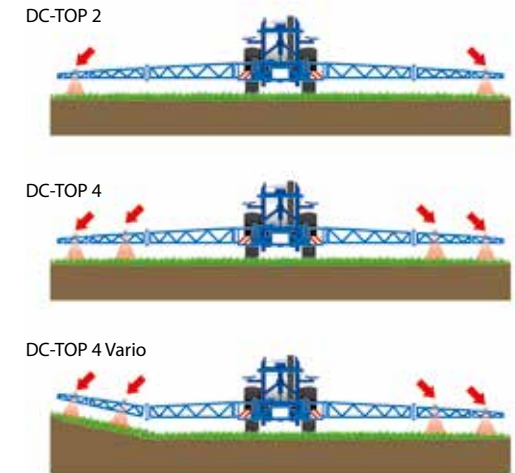
DC-TOP

New improved version of automatic slope compensation

- Improved copying even at lower height above cover
- New software
- New sensor placement
- Parameter optimisation for each working width
- Smoother boom operation even at higher driving speed
- More accurate maintaining of boom at required height
- Boom positioning low above cover
- More stable boom when turning at headland
- Faster response to change of field inclination



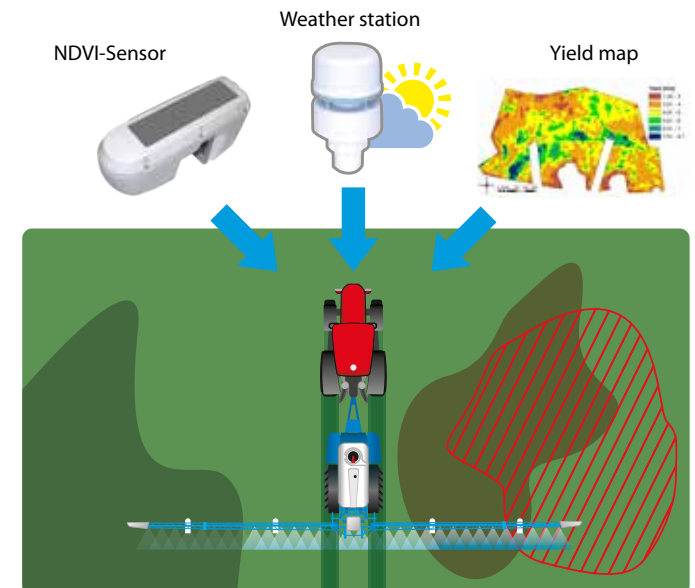
Variants



Variable rate application

The development of system for the variable rate application of pesticides and fertilizers on the base of growth conditions sensor monitoring.

This system is intended for a variable rate application of liquid fertilizers and plant protection products in precision agriculture. The growth condition is rated on the base of spectral sensing system that allows to more flexible response on plant nutrition needs and identify the site-specific differences within the field. The online sensor measurement is possible to complete with map-overlay mode, that corrects the spraying intensity according to the yield potential zone. This combination of online sensing and yield potential map leads to more effective inputs – the higher rate application in weaker crop stand is applied only when high yield is expected on the specific place. The map of yield potential is calculated from time serie of satellite imagery and is stored on the server. The innovative element is an adjustment of yield potential map according the current weather conditions from the local meteorological measurement. Local sensors network consists of measuring nodes located in the fields, that capture the differences in the crop stand microclimate over the monitored area. The collected data is air temperature and humidity, leaf wetness, air pressure, soil moisture and temperature etc.



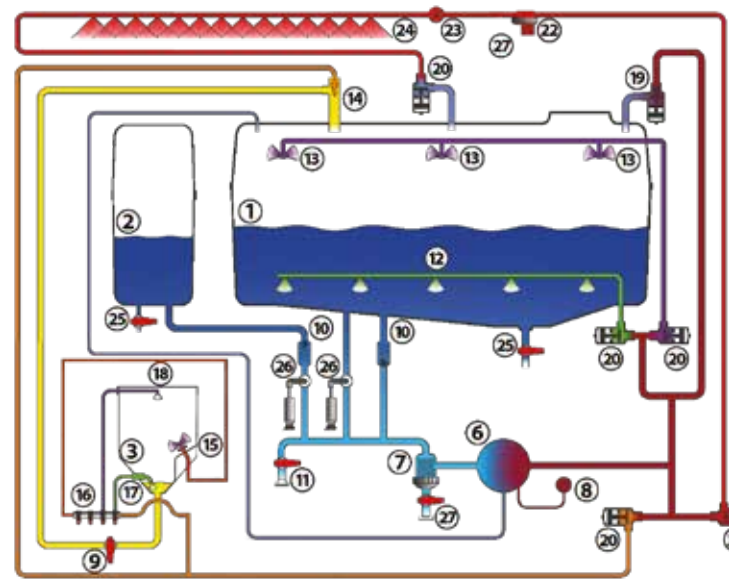
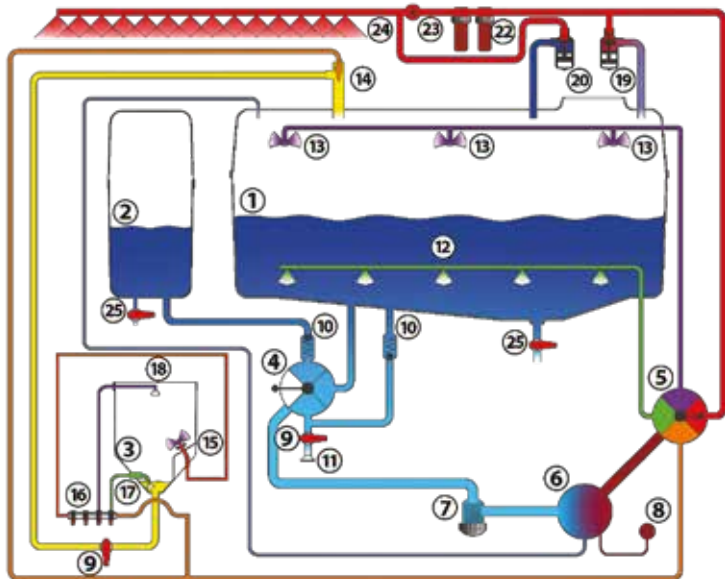
Water

A big advantage of pneumatic spraying regulation is in the easiness of construction where the main regulating valve works as a pressure safety valve. That lower the volume of hoses. Easy hose connection is an advantage during flushing and drainage of the sprayer, it is not necessary to use antifreeze. All distribution can be drained.



Water diagram - (basic)

Topline water diagram - (basic)



- ① Main tank
- ② Clean water tank
- ③ Hopper
- ④ 5-way valve - suction
- ⑤ 5-way valve - pressure
- ⑥ Spraying pump
- ⑦ Suction filter
- ⑧ Manometer
- ⑨ 2-way valve
- ⑩ Check valve
- ⑪ Ending
- ⑫ Main mixing
- ⑬ Rinse nozzle
- ⑭ Injector
- ⑮ Can rinse nozzle
- ⑯ 2-lever valve
- ⑰ Hopper mixing
- ⑱ Hopper rinse frame
- ⑲ Regulating valve
- ⑳ Main valve
- ㉑ Section valve
- ㉒ Pressure filter
- ㉓ Flowmeter
- ㉔ Boom
- ㉕ Tank discharge
- ㉖ 2-way valve - piston control
- ㉗ Discharge valve with GEKA catch

— Suction arm — Rinse
— Pressure arm — Boom

— Hopper — Hopper suction
— Mixing — Overflow

Safer filling of plant protection agents into the sprayers

- Filling system for plant protection agents without direct contact with the chemicals
- Higher safety of operating personnel
- Easier handling and faster cleaning
- Easy dosing
- Usable for most sizes of cans
- Safe ensuring into hopper adapter (tank)
- Reusable can adapter
- Environmentally friendly
- Smooth speed change of agent release from the can
- Rinse of adapter contact areas with partly discharged can

Company **AGRIO MZS s.r.o.**
is authorised importer of easyFlow
for the Czech and Slovak republic.



Can adapter



Hopper cover adapter (tank)





Comfort Fill hopper

The round shape of the hopper ensures better rinse of sides and together with dip-free coupler easyFlow allows the preparation of concentrated products without the operating personnel coming into contact with the chemical. Filling with dip-free coupler easyFlow is easy, fast and mainly, safe.



To assemble easyFlow to an older sprayer, following technical requirements must be met:

1. Hopper cover must be sufficiently solid to be able to carry even a full 10l can with agents and must be firmly fixed to the hopper container itself.
2. Clean, pressure water must be taken to the hopper for rinsing the easyFlow adapter (for example from hydrant, holding tanks or from the sprayers clean water tank).

Nozzle holders



Simple holder with membrane counter-drip (1-0)



Tripple holder with membrane counter-drip (1-0)



Tripple holder / Tripple holder
MULTIJET 50 MULTIJET 50 cm apart (1-0)



Simple holder / Simple holder
SELEJET SELEJET 25 cm apart (1-1)
MULTIJET 25 MULTIJET 25 cm apart (1-1)



Tripple holder / Simple holder
SELEJET SELEJET 25 cm apart (1-1)
MULTIJET 25 MULTIJET 25 cm apart (1-1)



Double holder
SELEJET Double SELEJET holder (2-0)



Double holder / Simple holder
SELEJET Tripple SELEJET 25 cm apart (2-1)
MULTIJET 25 MULTIJET 25 cm apart (2-1)



Double holder / Simple holder
SELEJET Tripple SELEJET (3-0)



Quadruple holder
SELEJET Quadruple SELEJET holder (4-0)

Option of circulation of pressure distribution to last section valve.

Full circulation of pressure distribution.

SELEJET SELEJET is system of nozzle switching during driving so constant pressure in the nozzle is kept at various speeds.

MULTIJET 25 MULTIJET 25 cm apart is system for liquid fertilisers application via application tubes AT 25. The holder of main nozzles (50 cm apart) is connected to the secondary nozzle holder (25 cm apart).

Water - additional equipment



Spraying piston-membrane pump Annovi Reverberi with output of 160-500 l/min can operate long-term under higher pressure.



Filling centrifugal pump with output of 600 l/min shortens the tank filling time and therefore can higher daily output of the sprayer.



Suction filter has a red sieve 32 mesh, protects the sprayer pump from damage by bigger objects.



Central filtration ensure even pressure in all nozzles. Blue sieve 50 mesh, green sieve 100 mesh.



Pressure filters 1 1/2" are suitable for machines with high flow or equipped by SELEJET system, for prevalent machines 1 1/4" pressure filter will suffice.



Polythene tank. Smooth inside surface, modern design.



There are breakwaters slowing the movement of liquid inside the main fibre glass tank. Inside coat closes pores in the fibre glass and makes rinse of the tank easier.



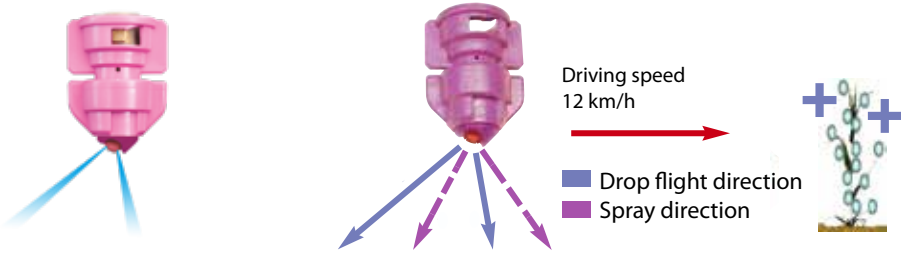
Circulation of concentrated products allow flushing of pressure hoses so all the chemicals reach from the tank all the way to nozzles before the start of spraying.



Injector mixing nozzles allow to mix sedimented spray even after a longer working break.

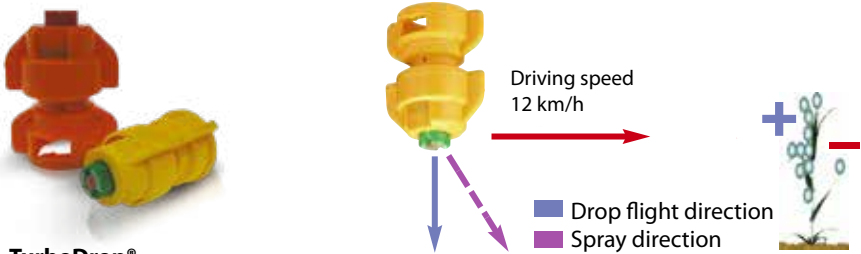
Nozzles

Application tubes



TurboDrop® HiSpeed

Double-slit injector nozzle with asymmetrical angle. Treatment of plants from both sides even at higher speed. "Pink" ceramic core ensures long life of the nozzle. Suitable for application in windy conditions. Usable pressure is 2,5-8 atm, optimum is 4-8 atm. Size 025 and 04 are classified as drift limitation class 90 % even at higher speed (maximum 15 km/h).



TurboDrop®

Very resistant injector nozzle with minimum degradation and evaporation. Suitable for application in windy conditions. Usable pressure is 3-10 atm, optimum is 5-8 atm.



Airmix®

Plastic injector nozzle for universal use. Suitable even for application in windy conditions. Usable pressure is 1-6 atm, optimum is 2-4 atm. Due to its favourable price, it is a suitable nozzle for user with smaller acreage.



Six-aperture nozzle

The nozzle is used for additional fertilising of aggressive liquid fertilisers (DAM 390 and similar), maximum half of stem elongation. Dosing aperture from pink ceramics has a very high abrasion resistance. 6 ejection apertures allow to apply fertiliser with big drops which drop easily from the leave to the soil and the plants do not get burnt. Colour coding of each nozzle size conforms to ISO dosing table.



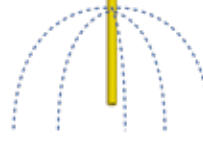
AT 25

Tube with upper dosing coin and unrestricted outlet of fertiliser at the bottom of the hose without splashing. On the sprayer, these tubes are placed 25 cm apart. The tubes are basically trailing on the ground and maximum amount of fertiliser comes into contact with soil. It is proven that application of DAM 390 into row spaced 25 cm does not cause uneven fertiliser intake and stripped appearance of cover.



AT 50

Tube with upper dosing coin and lower five-aperture ejection "nozzle" which creates 5 streams. On the sprayer, these hoses are placed 50 cm apart. Large drops, which cannot remain on the leaves, are created and flow easily onto the ground. In dry periods, they have a higher efficiency than the first type. Their other advantage is that the apertures through which the fertiliser empties, are 10 cm above the end of the tube. If boom is tilted due to uneven terrain and the tube is dug into the soil, the nozzle does not get clogged and the fertiliser still empties evenly.



Video TD® HiSpeed detail



Video Airmix® detail



ISO dosing table

- Table values applicable for water 20 °C
- Spacing between nozzles 50 cm, pressure measured at the nozzle
- Maximum deviation from table value is 10 %
- Maximum difference in flow in individual nozzle is ± 5 %
- Pressure loss between manometer and nozzle are not taken into account
- When applying liquid fertiliser DAM 390, values decrease by 13%

Optimum pressure for plant protection

TD 4-8 atm

For application of medium and fine drops

TD minimum 6 atm

Optimum pressure for liquid fertilisers

TD 2-3 atm

Usable pressure range

TD 4-10 atm (standard), 4-20 atm (universal)

Recommended height for target area

60-100 cm, optimum 70 cm

Nozzle size	Pressure atm	Flow ml/min	Dosage l/ha								Nozzle size	Pressure atm	Flow ml/min	Dosage l/ha							
			5 km/h	6 km/h	7 km/h	8 km/h	10 km/h	12 km/h	16 km/h	20 km/h				5 km/h	6 km/h	7 km/h	8 km/h	10 km/h	12 km/h	16 km/h	20 km/h
TD01 orange	1	231	55	46	40	35	29	23	17	14	TD015 green	1	346	83	69	59	52	42	35	26	21
	2	327	78	65	56	49	39	33	25	20		2	490	118	98	84	74	59	49	37	29
	3	400	96	80	69	60	48	40	30	24		3	600	144	120	103	90	72	60	45	36
	4	462	111	93	79	69	56	46	35	28		4	693	166	139	119	104	83	69	52	42
	5	517	124	104	89	78	62	52	39	31		5	775	186	155	133	116	93	77	58	47
	6	566	136	113	97	85	68	57	43	34		6	849	204	170	146	127	102	85	64	51
	7	611	147	122	105	92	74	61	46	37		7	917	220	183	157	138	110	92	69	55
	8	653	157	131	112	98	79	65	49	39		8	980	235	196	168	147	118	98	74	59
	9	693	166	139	119	104	83	69	52	42		9	1039	249	208	178	156	125	104	78	63
	10	730	175	146	125	110	87	73	55	44		10	1095	263	219	188	164	132	109	82	66
TD02 yellow	1	462	111	92	79	69	55	46	35	28	TD025 purple	1	577	138	115	99	87	69	58	43	35
	2	653	157	131	112	98	78	65	49	39		2	816	196	163	140	122	98	82	61	49
	3	800	192	160	137	120	96	80	60	48		3	1000	240	200	171	150	120	100	75	60
	4	924	222	185	159	139	111	92	69	56		4	1154	278	231	199	174	139	115	86	70
	5	1033	248	207	177	155	124	103	77	62		5	1291	310	259	221	194	155	129	96	78
	6	1131	271	226	194	170	136	113	85	68		6	1414	339	283	243	312	170	141	106	85
	7	1222	293	244	209	183	147	122	92	73		7	1528	366	305	261	229	184	153	115	92
	8	1306	313	261	224	196	157	131	98	78		8	1632	391	326	280	245	196	163	122	98
	9	1386	332	277	237	208	166	139	104	83		9	1732	415	346	296	260	208	174	130	104
	10	1460	350	292	250	219	175	146	110	88		10	1826	438	365	313	274	219	183	138	110
TD03 blue	1	693	166	139	119	104	83	69	52	42	TD04 red	1	924	222	185	158	139	111	92	69	55
	2	980	235	196	168	147	118	98	74	59		2	1306	313	261	224	196	157	131	98	78
	3	1200	288	240	206	180	144	120	90	72		3	1600	384	320	274	240	192	160	120	96
	4	1385	333	278	238	208	166	138	104	84		4	1847	444	340	318	278	222	184	138	112
	5	1549	372	310	266	232	186	154	116	94		5	2066	496	414	354	310	248	206	154	124
	6	1697	408	340	292	254	204	170	128	105		6	2263	542	452	388	340	272	226	170	136
	7	1833	440	366	314	276	220	184	138	110		7	2444	586	488	418	366	294	244	184	146
	8	1960	470	392	336	294	326	196	148	118		8	2612	626	522	448	392	314	260	196	156
	9	2078	498	416	356	312	250	208	156	126		9	2771	664	554	474	416	332	278	208	166
	10	2191	526	438	376	328	264	218	164	132		10	2921	700	584	500	438	350	292	220	178
TD05 brown	1	1155	277	231	198	173	139	116	87	69	TD06 grey	1	1386	333	277	238	208	166	139	104	83
	2	1633	392	327	280	245	196	163	122	98		2	1960	470	392	336	294	235	196	147	118
	3	2000	480	40	342	300	240	200	150	120		3	2400	576	480	412	360	288	240	180	144
	4	2309	556	462	398	348	278	230	172	140		4	2771	666	556	476	416	332	276	208	168
	5	2582	620	518	442	388	310	258	192	156		5	3098	744	620	532	464	372	308	232	188
	6	2828	678	566	486	426	340	282	212	170		6	3394	818	680	584	508	408	340	256	204
	7	3055	732	610	522	458	368	306	230	184		7	3666	880	732	628	552	440	368	276	220
	8	3264	782	652	560	490	392	326	245	196		8	3919	940	784	672	588	472	392	296	236
	9	3464	830	692	592	520	416	345	160	208		9	4157	996	832	712	624	500	416	312	252
	10	3651	876	730	626	548	436	366	276	219		10	4382	1052	876	752	656	528	436	328	264
TD08 white	1	1848	444	370	317	277	222	185	139	111	TD10 black	1	2309	554	462	396	346	277	231	173	139
	2	2613	627	523	448	392	314	261	196	157		2	3266	784	653	560	490	392	327	245	196
	3	3200	768	640	548	480	384	320	240	192		3	4000	960	800	684	600	480	400	300	240
	4	3694	888	740	636	556	444	368	276	224		4	4618	1112	924	796	696	556	460	344	280
	5	4132	992	828	708	620	496	412	308	248		5	5164	1240	1036	834	776	620	516	384	312
	6	4526	1084	904	776	680	544	452	340	272		6	5656	1356	1132	972	852	680	564	424	340
	7	4888	1172	976	836	732	588	488	368	292		7	6110	1464	1220	1044	916	736	612	460	368
	8	5224	1252	1044	896	784	628	520	392	312		8	6418	1564	1304	1120	980	784	652	490	392
	9	5542	1328	1108	948	832	664	556	416	332		9	6928	1660	1384	1184	1040	832	692	520	416
	10	5842	1400	1168	1000	876	700	584	440	352		10	7302	1752	1460	1252	1096	876	732	552	438



EUROPEAN UNION
European Regional Development Fund
Operational Programme Enterprise
and Innovations for Competitiveness



When looking for a solution

AGRIO MZS s.r.o.

Mříč 66, 382 03 Křemže, CZ

tel.: +420 380 721 111, fax: +420 239 017 750

info@AGRIO.cz, www.AGRIO.cz

Your sales representative:

We understand spraying