



ALPHA

# Intelligent capacity ALPHA EVO 4200/5100

## The ALPHA evo is made for every spray task. Lightweight, nimble and easy to manoeuvre, yet with an unmatched output capacity per weight unit

This self-propelled sprayer is optimised for capacity and advanced performance at an affordable price. A range of intelligent features and equipment, such as automatic height control, track width adjustment and floating suspension, guarantees application precision and speed. Everything is controlled from the comfort of the EvoCab. With its state-of-the-art interior, superior visibility and simple operator interface, the cab is designed with comfort, productivity and safety in mind. From the cab's excellent air quality to the lower-than-average consumption of both fuel and chemicals, we commit to protecting the farmer and the environment.

ALPHA

#### SPECIFICATIONS

- Tank: 4200 / 5100 |
- Engines:

Deutz 6 cyl. 245 hp / 160 kW (Stage V / Tier 4 final) or Deutz 6 cyl. 217 hp / 160 kW (Tier 3a) – depending to country regulation

- **SCR** (selective catalytic reduction) and an active **DPF** (Diesel Particulate Filter) meeting the European environmental standards.
- Transmission with 3 driving modes: Road, Field, Slope
- Controller: HC 9600, HC 9700 or ISOBUS
- TurboFiller: High capacity, easy to operate
- Liquid system: DynamicFluid4
- Clearance: 120 / 165 cm
- Track width: Manual adjustable axle 182-332 cm Hydraulic adjustable axle 180-280 and 220-320 cm (HTA)
- Booms: ALU boom: 24-44 m DELTA FORCE: 24-39 m TWIN FORCE boom: 18-36 m



#### Full control from the cabin

All functions are fully controlled from the cab and underline the level of optimization, the pilot can gain from this machine and operate all spray and hydraulic functions directly from the cab with the right hand located SprayCenter.



#### **Drivers safety**

To give the operator an optimized view in all directions, the ALPHA evo is developed with a "3-pillar-concept", giving more than 320° of unobstructed view, while ensuring the highest safety, thanks to the category 4 standard.



#### **Save chemicals and minimize drift** Minimizing the environmental impact of spraying by lowering the consumption of plant protection product up to 30% – and reducing drift by an astonishing 80% at the same time – the TWIN FORCE boom will give you the best return on investment for your bank and climate accounts.



#### **Comfort and flexibility**

To offer you full flexibility in the field, the ALPHA evo can be equipped with hydraulic track width adjustment – and together with the FloatRide air suspension, you will get a unparallelled level of comfort.

# The EvoCab - Comfort and safety

## The EvoCab is designed with performance and driver comfort and safety in mind

A combination of advanced ergonomics, visibility and optimisation (EVO) ensures superior operator comfort, productivity and safety. The EvoCab demonstrates HARDI's commitment to providing an ideal environment for operators.

#### **Ergonomics**

HARDI's main focus in developing the state-of-the-art EvoCab has been ergonomics. All features of the spacious cab – from the comfortable seat to the operator-friendly SprayCenter controller – are designed for maximum operator comfort.

#### Visibility

The unique 3-pillar cab design ensures excellent visibility. Tinted safety glass all around, even at the rear of the cab, provides the operator with more than 320° unobstructed panoramic overview of operations, including clear lines of sight to the boom.

#### **Optimisation**

The spacious EvoCab is optimised for both comfort and safety. Equipped with an oversized automatic climate control suitable for extreme weather conditions, the cab provides a pleasant, quiet and stress-free work environment.

#### Safety & health

To protect the operator, the EvoCab is designed in accordance with Category 4 specifications for filtering and pressurisation, offering protection against dust, aerosols and vapours.



#### Comfortable seat

To provide the highest level of comfort – even when spending long hours in the field in rough conditions – the EvoCab is equipped with a fully adjustable suspension seat.



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#### **Co-driver seat**

A trainer seat is located to the left of the operator, with an integrated, air-cooled lunch box underneath.



# **Control centre** - Integrated intelligence

#### Intelligent spray performance:

The HC 9600 and HC 9700 controls all intelligent spray features, such as automatic steering, tracking, boom height and section control, as well as other automatic operations like tank filling, agitation and washing. It is also a powerful tool for logging, storing and reporting of field data for better route navigation, soil mapping and application precision.

#### The ALPHA evo offers a wide array of customisable functions for optimum spray performance and precision.

The ALPHA evo is one of the most versatile high-capacity self-propelled sprayer on the market.

The SprayCenter combines a fingertip-controlled multifunction iovstick with an HC 9600 12.1" or HC 9700 13" touch-screen controller. By integrating all important information on one screen – with split-screen mode allowing for simultaneous viewing of different aspects of spraying or other concurrent operations – the operator is ensured a complete overview at all times.

#### Intelligent spray application

Excess usage of chemicals is reduced with the GPS-controlled AutoSectionControl as a supplement to the manual guidance system. AutoSectionControl opens and closes boom sections automatically to avoid spraying headlands or other areas more than once. Not only is this of benefit to the farmer and his economy, but also to the environment.

**ISOBUS compatibility** 

The HC 9600 and HC 9700 are fully ISOBUS compatible.

#### **SprayCenter**

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All spray and hydraulic functions are fully controlled from the comfort of the EvoCab. Primary switch functions are located within easy reach at the righthand seat-mounted SprayCenter, while secondary switch functions are grouped directly above the operator's head.



# - Minimise chemical usage and costs

#### Higher precision in your spray job

Precision is key to spraying. The HC 9700 controller offers the possibility to use field maps in conjunction with your preferred farm management software. Drawing on the features of the AutoSectionControl system, the HC 9700 allows you to shut off boom sections automatically in accordance with your field maps. Avoiding over-spraying reduces expenses and makes your farm more environmentally friendly. Field maps also makes it easier to work in conditions of low visibility such as dust or darkness.

#### **Field mapping benefits**

- High application precision
- Less usage of chemicals
- No overlapping areas



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HC 9700

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## Engine - More power with less fuel

#### Easy climb

Slipping wheels are controlled by restricting their oil flow, and by transmitting more of the engine torque to the rear axle than the front axle.

#### Safe descent

More torque is transmitted to the front axle than the rear axle to obtain maximum control. Our advanced EcoDrive engine management system will give you more power and flexibility for managing torque with less noise. It also reduces fuel consumption by more than 30%. EcoDrive is standard on the ALPHA evo and is a great companion with the Deutz 6 engine.

#### **Hilly conditions**

The EcoDrive will maintain a consistent driving speed with comfortable regulation and a constant low engine speed. For very hilly conditions, an optional powerful transmission can provide 50% of extra torque.

#### **Three driving modes**

The operator can customise the ALPHA evo's transmission to suit the changing requirements of spraying, using three driving modes – Comfort, Normal and Power.

#### The engine

Steady on flat ground The oil flow to both front and rear

wheels is identical.

- Deutz 6 cyl. 245 hp / 180 kW (Stage V / Tier 4 final)
- Deutz 6 cyl. 217 hp / 160 kW (Tier 3a)
  - depending to country regulation



### **Adjustable** on-the-go - From 180-280

and 220-320 cm

- The ALPHA evo offers unparalleled flexibility when it comes to adjustment of track width. Changing between different tramlines, crops, fields or roads has never been easier with the hydraulic adjustment of track width (depending on tyre dimensions):
  - Version S 180 to 280 cm
- Version M 220 to 320 cm

With up to 1 m between minimum and maximum, the ALPHA evo is one of the most adaptable sprayers on the market.

Hydraulic track width adjustment on-the-go is available on ALPHA evo EcoDrive with FloatRide.



#### Clearance - fix height 1.20 or 1.65 m

With a standard ground clearance of 1.20 m, the ALPHA evo will clear most tall crops, but an even higher ground clearance up to 1.71 m (depending to tyres size) is available as option.

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#### Suspension – stability and balance

An ALPHA evo with floating suspension (FloatRide) rather than standard coil springs offers unmatched control. A system of triple airbags on both axles guarantees superior boom stability and helps to keep the ALPHA evo balanced on slopes.

Chassis height – and crop clearance – is maintained regardless of tank volume.

By allowing for individual wheel movement of up to 18.5 cm, the ALPHA evo with FloatRide is optimised for maximum comfort, even at high spraying speeds. FloatRide is standard on ALPHA evo 5100 and optional on ALPHA evo 4200.



The ALPHA evo has been designed with an effective weight distribution between front and rear axles, with slightly more weight on the front (59% on front with a TWIN FORCE 30 m boom) to strike a perfect balance between driveability and minimal compaction.

#### **Precision steering**

The ALPHA evo is equipped with permanent 4-wheel drive. Steering modes include 2-wheel, 4-wheel and crab steering for high manoeuvrability, even on sloping terrain, in wet conditions or to protect sensitive soils. Transitions between steering modes are easily managed from the cabin. Re-alignment of the rear wheels is automatic. A lock is activated for road travel. On top of this, the ALPHA evo is designed for a very small turning radius, of down to 4.62 m for 4200 and 5.56 m for 5100.

For an even higher precision and comfort, the ALPHA evo offer the optional AutoSteering. By using GPS signal, all straight driving is managed by the AutoSteering system.

#### 3 types of steering

With permanent 4-wheel drive, the ALPHA evo can be driven in 2- or 4-wheel steering mode.



Front wheel steering – road traffic



4-wheel steering – field mode



Crab steering – in difficult conditions and manouvering

## Large capacity - For all your spray tasks

Despite being light, the ALPHA evo offers some of the biggest tank systems on the market (4200 and 5100 l). By optimising the ALPHA evo's weight distribution, we have designed a sprayer with an excellent output capacity per weight unit. Less time needed to refill the tank means higher productivity, without having to compromise on performance, even in wet or otherwise challenging field conditions. The fact is that the ALPHA evo is a self-propelled sprayer for all your spray tasks.

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The ALPHA evo's fluid system (DynamicFluid4) employs advanced fluid dynamics and application rate control to deliver fast response and accurate target rate application.

Pressure, flow, pump speed, forward speed, boom sections and application rate are monitored and processed using advanced computations. The DynamicFluid4 processor analyses the spraying data 20 times a second and provides pre-emptive rate control capability, altering the pump speed with pinpoint precision.

The proportional hydraulics used to control the pump speed are highly accurate and smooth but incredibly fast.

The liquid system can be operated from the cabin or from the ground.

#### The diaphragm pump

At the heart of the ALPHA evo sits the robust and easy-to-service pump that HARDI is so well known for. The invention of this pump constituted the foundation upon which HARDI was founded more than 60 years ago. HARDI was the first to use diaphragms to separate the liquid from bearings, crankshaft and other vital pump parts, thereby allowing the pump to run dry without damage. In addition, this pump distinguished itself by being operated directly from the tractor's PTO shaft.

#### Fast filling

The advanced TurboFiller is one of the best on the market. It is specifically developed to handle large quantities of powders and liquids. Using a combination of high vacuum and powerful rotation inside the hopper, it mixes all types of chemicals quickly and safely. In addition, the TurboFiller is easy to both operate and clean.

#### **Automatic cleaning**

The cleaning of the liquid system is fully automated from the cabin in order to make it quick and safe for the operator and the environment. Negligible residuals after a spray task eliminates the risk of pesticide cross contamination.



#### **Advanced filters**

- EasyClean filter (Suction)
- CycloneFilter (Pressure)

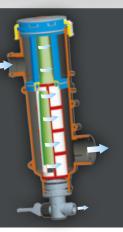
#### Suction filter

The EasyClean filter is a high-capacity suction filter. The filter's condition can be constantly monitored via a SafeSpray vacuum gauge to ensure it is cleaned only when necessary. When it's time for cleaning, simply twist the filter's lid 90° to close off its tank valve and open the filter for inspection. It doesn't get much easier than this.



#### **Pressure filter**

The CycloneFilter is a unique self-cleaning pressure filter. A high-speed circular flow makes the cleaning very effective. A unique boost function allows the filter to be flushed when needed.





### The ALPHA evo can be fitted with three types of booms:

- The advanced TWIN FORCE boom (see page 12-13)
- The high-performing **DELTA FORCE** boom (see page 14-15)
- The robust **ALU** boom (see page 17)

Each one comes with unique advantages, but all our booms deliver on application precision and speed.

#### TWIN system advantages:

- Reduce drift by up to 80%
- Save chemicals by up to 30%
- Save water by up to 30%
- Increase crop penetration
- Increase spray capacity by up to 100%
- Save money to chemicals

The TWIN FORCE boom

- High capacity impact

#### Less chemicals, money and environmental impact

The TWIN FORCE boom employs the world's best application system to maintain control in windy conditions. Using a combination of targeted airflow, angle and speed, the system can reduce drift by up to 80%. Efficient drift control means more spraying days – up from 31 to 76 days in a spring study.

It will also result in better crop penetration, even in dense fields, thereby reducing the consumption of plant protection products and water by up to 30% Taking the reduced re-filling time and the higher driving speed into consideration, the TWIN FORCE boom will increase spraying capacity by up to 100%. This will give you the best return on your investment, both on your financial and environmental accounts.

The TWIN FORCE boom is available from 18 m to 36 m.





- Superb boom stability with AutoTerrain and NegativeTilt
- Precise application with hydraulic AntiYaw dampening
- Higher durability and lower weight, due to new folding system and extensive use of aluminium in the outer wings
- Manual control at power outage
- Easy handling with hydraulic support wheels and AutoTerrain sensors











18-36 m

AutoTerrain

AutoSlant

NegativeTilt

SAVE PLANT PROTECTION PRODUCT

REDUCE DRIFT WITH HARDI TWIN

UP TO **80%** 

UP TO **30%** 

#### **TWIN technique**

Two powerful blower units supply the air curtain that is blasted out of both boom sides at up to 35 m/s – the equivalent of hurricane force. By controlling the angling of the air curtain and the spray swath, you obtain the world's best application system, which allows for fast, precise and cost-effective spraying, even under challenging weather conditions.

#### Save money

Insert your spray figures in our HARDI TWIN calculator app to find out just how much money you can save by using a TWIN FORCE boom.

#### www.hardi-twin.com



## **The DELTA FORCE boom**

- High performance

#### Compact on the road - wide in the field

The DELTA FORCE boom is made to perform. It is a practical but strong boom designed for productivity and performance. We have optimised weight and strength to produce a large boom for reliable performance at fast spray speeds. Despite its width, the DELTA FORCE boom is only 2.55 m wide when folded up for transport. The boom's simple yet effective pendulum suspension controls boom movements, while a low centre of gravity ensures perfect boom balance. With just two parameters to adjust (pendulum and dampening), the DELTA FORCE boom is easy to customise and maintain.

The DELTA FORCE boom is available from 24 m to 39 m.

One boom – two spray widths: HARDI's boom-folding system allows the operator to spray at two different widths by choosing whether to fold out the last section.





#### Less drift

The DELTA FORCE boom can be fitted with additional nozzle holders to allow for a 25 cm spacing between nozzles in addition to the standard 50 cm. In combination with the AutoTerrain boom management system, this reduces potential drift by allowing for a lower boom height. It also means that smaller nozzles with smaller droplets can be used to improve crop coverage.



#### **Material optimisation**

We always seek to use the most innovative combinations of materials. The DELTA FORCE boom is a prime example. The 39 m boom consists of a highstrength steel centre with lightweight aluminium outers and break-away.







#### HARDI AutoSelect – Change nozzles on the go Automatic and safe change of nozzles from the drivers seat to quickly overcome more field- and weather conditions

- Superb boom stability with AutoTerrain and NegativeTilt
- Precise application with hydraulic AntiYaw dampening
- Higher durability and lower weight, due to new folding system and extensive use of aluminium in the outer wings
- Manual control at power outage
- Easy handling with hydraulic support wheels and AutoTerrain sensors



#### HARDI DELTA FORCE is for ALPHA evo 4200 and 5100 available in:

 $\begin{array}{l} \textbf{3-fold: } 39/27/15 \ m, \ 36/27/15 \ m, \ 36/24/13 \ m, \ 33/25/15 \ m, \ 32/25/15 \ m, \\ \textbf{3-fold only available for ALPHA evo 5100: } 30/21/12 \ m, \ 28/21/12 \ m, \ 27/21/12 \ m. \\ \textbf{2-fold: } 30/15 \ m, \ 28/14 \ m, \ 27/14 \ m, \ 24/12 \ m \end{array}$ 

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## **Boom Management Systems**

- Fast and precise applications

## Our boom management systems are all designed to ensure superb boom stability. A stable boom is key to spray precision and productivity, especially when working with low boom heights at high speeds

Automatic control of height, slant, tilt and yaw optimises the boom position, and all but eliminates the risk of hitting the ground. It also reduces the risk of drift to the benefit of farmer and environment. Yaw is counteracted by hydraulic accumulators, which power up every time the boom unfolds. Each side can be automatically levelled independently, giving you the possibility of negative tilt. The result is exceptional application precision, even at fast driving speeds.

A stable boom reduces wear and tear on both the sprayer and its operator. The sprayer will have a longer lifespan, and the operator

will experience less fatigue and stress, because the automatic systems reduce the need for constantly monitoring the boom.

#### **AutoTerrain**

This unrivalled boom management system distinguishes itself from others by preventing rather than correcting unintended boom movements. Using ultrasonic sensors on the boom wings and angle sensors at the centre, it monitors the boom's movements continuously, responding to forces acting upon the boom before it is disturbed. By making smooth adjustments to the boom's slant, tilt and height, AutoTerrain provides accurate contour following and crop clearance – essential for precise spray application.

The AutoTerrain system has been tested under rigorous field conditions, showing excellent performance when spraying with low boom heights at high driving speeds of more than 15 km/h.

When turning on headlands, the AutoTerrain system will counter the boom's natural pendulum effect to prevent the inner side from dipping. The result is a level boom throughout the turn.

AutoSlant AutoSlant controls boom height and slant.

- Boom height
- Hydraulic slant
- 2 ultrasonic sensors
- Available for:
   ALU, DELTA FORCE
   and TWIN FORCE



#### AutoTerrain:

- Boom height
- Hydraulic slant
- Individual tilt of boom wings
- Negative tilt
- 3 or 5 ultrasonic sensors
- 3 angle sensors on the center
- 3 temperature controlled proportional valves
- Available for: DELTA FORCE and TWIN FORCE



#### NegativeTilt

Negative tilt for superb boom stability, allows for downward tilting of the boom by up to  $-4^{\circ}$ , especially useful when spraying a lower level, for instance on a ridge.



#### AntiYaw Dampens horizontal mc

Dampens horizontal movements and shock loads in the boom.



An aluminium boom provides an attractive return on investment due to its low weight. The lower weight makes the boom less susceptible to rolling and yawing, which reduces wear and tear on the boom and the sprayer itself. Internal ribs makes it strong and durable, and the aluminium material makes the boom resistant to corrosion.

The low weight also makes it possible to build wide booms to boost productivity.

The aluminium boom is available from 24 m to 44 m and is equipped with PENTANOZZLES.



A boom light kit is available as an option.



Aluminium boom structure (TR4 24 to 33 m)

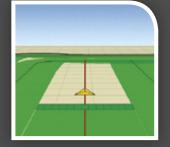
Aluminium boom structure (RHA 36 to 40 m and RA 42 to 44 m)

ALPHA evo





PrimeFlow



AutoSteering



Camera system



Cab suspension

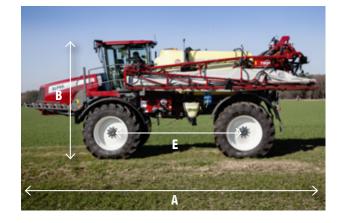


Traction control Diff-lock or SAPE



Cab LED lights + working lights

## **Technical specifications**





Tank, I	4200	5100
Pump 464/10: 280 I/min	Basis	Basis
Pump 464/12: 334 I/min	Optional	Optional
Booms	ALU 24-44 m, DELTA FORCE 24-39 m, TWIN FORCE 18-36 m	ALU 24-44 m, DELTA FORCE 24-39 m, TWIN FORCE 18-36 m
AutoSectionControl	Basis	Basis
Engine Deutz 6 cyl. 245 hp / 180 kW (Stage V / Tier 4 final)	Basis	Basis
Engine Deutz 6 cyl. 217 hp / 160 kW (Tier 3a) – depending to country regulation	Optional	na
Hydrostatic 4-wheel transmission (29 or 40 kph)	EcoDrive basis	EcoDrive basis
Coil spring suspension	Basis	na
Pneumatic suspension FloatRide	Optional	Basis
Steering	4-wheels steering	4-wheels steering
Mechanical track adjustment, cm	Basis, 40 cm slidding range	Basis, 40 cm slidding range
<ul> <li>Hydraulic Track Adjustment (HTA) – electronic control</li> <li>Version S 180 to 280 cm (only with FloatRide)</li> <li>Version M 220 to 320 cm (only with FloatRide)</li> </ul>	Optional	Optional
Turning radius 200 cm track width (middle of chassis), cm	462	530
Weight (basis machine, empty)*, kg	9.470	11.600
Total length*, m (A)	9,5	10,23
Total height*, cm (B)	390	395
Width with ALU boom (24-44 m), m (C)	2,55	2,55
Width with DELTA FORCE boom (24-39 m), m (C)	2,55	2,55
Width with TWIN FORCE boom (18-30 m), m (C)	3,00	3,00
Width with TWIN FORCE 3.1 boom (32-36 m) (C)	3,45	3,45
Track width manual slidding axle** (380/90 R46), cm (D)	182-329	182-329
Track width HTA axle** (380/90 R46), cm (D)	Version S 180 to 280 Version M 220 to 320 cm	Version S 180 to 280 Version M 220 to 320 cm
Wheel base, cm (E)	370	430
Clearance (380/90 R46), cm (F)	120	125
RinseTank, I	600	600
Fuel tank, I	400	400
Filling capacity water, I/min	490	490
Filling capacity TurboFiller, I/min	120	120

\* Dimension and weight are given for ALPHA evo 36 m TWIN FORCE boom – 380/90 R46 tyres and chassis clearance 120 cm \*\* Minimum track width is wider with wider tyres (depending on axle type)



We believe in a future where our products will be able to take care of plants one by one.

HARDI -

importers.

HARDI INTERNATIONAL A/S

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