

*Intelligent capacity*  
**ALPHA** evo

3500 / 4100 / 5100





# Intelligent capacity ALPHA evo

3500 / 4100 / 5100



## **ALPHA evo – Ergonomics, Visibility and Optimization**

Longer spraying days and nights and higher spraying speeds place heavier demands on comfort and easy operation.

HARDI renews the self-propelled sprayer ALPHA family to 3500 and 4100 l with ambitious specifications in terms of better performance, reliability and driving comfort and adds higher tank volume up to 5100 l.

ALPHA evo features a fine balance between front and rear and has a low total weight giving an optimal weight/capacity ratio and high performance even under wet field conditions. Also the high ground clearance from 120 to 165 cm gives a flexible usage from low to tall crops as sweet corn and sunflowers.

## **EcoDrive**

The new EcoDrive management system with new engine types Tier 4 final / Stage IV, 217 hp or 245 gives more power flexibility, less noise and more than 30 % reduction of fuel consumption, especially in road transport.





### HARDI SprayCenter

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.

With fully integrated functions as automatic steering system and AutoSectionControl, the HC 9600 is featuring an integration of all electronic functions as AutoHeight and AutoSectionControl and other intelligent features.

Furthermore, a new high segment GPS technology is available as an option.



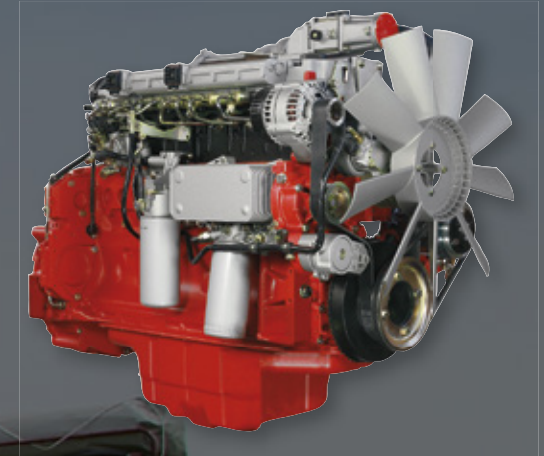
### Visibility – Best at the market “3-pillar design”

Developed with the “3-pillar concept”, this cab gives the operator an optimized view in all directions.

With more than 320° unobstructed view, operator keeps perfect control without dead angles.

### Driver safety and comfort

The new cab filtration fulfill the requirement of the norm EN-15695, category 4, to protect the driver against dusts, aerosols and vapors. A powerful climate control will automatically regulate the temperature according to your setting through 8 air outlets distributes up and down.



### Engine Deutz Stage IV / Tier 4 final

Water-cooled 6-cylinder inline engines with turbocharging, charge air cooling and cooled external exhaust gas recirculation. Two-stage turbocharging for the highest performance requirements. Engine and exhaust aftertreatment (EAT) are optimised for highest total system efficiency and thus ensure minimised fuel and total operating costs. The powerful DEUTZ Common Rail (DCR®) injection system and the electronic engine control (EMR 4) with intelligent link to the drive management (EcoDrive) ensure optimum engine performance at low fuel consumption.

## SPECIFICATIONS

- › **Tank:** 3500 / 4100 / 5100 l
- › **EcoDrive Engines:** Deutz 6 cylinders TCD 6.1 Stage IV 160 kW (217 hp) / 180 kW (245 hp) – 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 12.1” touch screen
- › **TurboFiller:** High capacity, easy to operate
- › **DynamicFluid4 liquid system:**  
Shorter response time and more precise application in the field
- › **Clearance:** 120 / 165 cm
- › **Track width:**  
Manual adjustable axle 182-332 cm  
Hydraulic adjustable axle 180-280 cm (HTA)
- › **Booms:**  
ALU boom: 24-44 m  
TWIN FORCE boom: 18-36 m
- › Hydraulic Track width Adjustment 180-280 cm – adjustable on the go
- › FloatRide air suspension – for higher comfort
- › Larger tank – more capacity
- › More engine power, lower weight – high performance in all conditions



# EvoCab

## Class 4 – Driver safety and comfort

### EvoCab optimizes visibility with 3-pillar design

The new large spacious EvoCab is specifically developed by HARDI with its “3-pillar design”, which provides a new standard for visibility with more than 320° around the sprayer.

The cabin is equipped with a pressurisation system, a dust filtering of fresh air, an aerosol and vapor filtering to protect the driver and fulfill the Class 4 requirements.

The new climate control system has been tested intensively in climate chamber in order to bring highest driver comfort in warmest condition.

### Ergonomics

By developing the new EvoCab, HARDI's main focus has been the driver ergonomics.

All switches which have to be used when driving are placed as close as possible to the driver.

All primary switch functions have been placed on the new SprayCenter following the seat and consequently the driver.

Secondary switch functions are grouped on the roof just above the operator's head and easily touchable from the driver's seat.

### Optimization

With Ergonomics and Visibility – Optimization was the third high focus area when developing EvoCab. Operator environments as Automatic climate control, space, sound level or Class 4 filtering have been developed to give maximum comfort and minimum stress to the driver.

### HARDI SprayCenter

The pilot can operate all spray and hydraulic functions directly from the cab with the right hand located arm rest SprayCenter. The HC 9600 12.1" touch screen controller is featuring an integration of all electronic functions as AutoTrack, AutoHeight, AutoSectionControl and other intelligent features as AutoFill, AutoWash, AutoAgitation etc.

All functions are fully controlled from the cab and underline the level of optimization, the pilot can gain from this machine.

### 3 driving modes: Comfort/Normal/Power

3 driving modes are available as choices for the driver. This gives the operator the possibility to customize transmission reaction to his best feeling.





# Hydraulic Track width Adjustment

— from 180 to 280 cm

## Hydraulic Track width Adjustment

The ALPHA evo EcoDrive with FloatRide suspension can be equipped with Hydraulic Track width Adjustment. This Hydraulic Track width Adjustment axle allows a track width from 180 to 280 cm (depending on tire dimensions).

The driver will set his track width from the cab display and will be ready to drive. That will allow changing track width from the road to the field and from cereal crop to maize, row crop or vegetable with a variation of 1 m between minimum and maximum.



## Comfortable seat

High quality ALPHA evo seat provides you with a high level of comfort when you spend many hours in the field. Fully adjustable to be adapted to everybody, this suspended seat combined with machine suspension provides you with good comfort even in rough conditions.



## Co-driver seat and lunch box

Left to the spray pilot, the trainer seat is located.

Under this seat the lunch box is the facility.



## New FloatRide suspension

By equipping the ALPHA with the optional FloatRide, the standard coil spring suspension is replaced by airbags. This ensures even more boom stability and maintains balance of the ALPHA in strong slope. The chassis' height will be maintained whatever tank volume.

By allowing for individual wheel movement, the ALPHA provides a maximum comfort, even at high spraying speeds through a wheel travel of 185 mm.



# Full control

## integrated electronics

### HC 9600

All the main spraying functions are operated with the fingertip multifunction joystick in conjunction with the HC 9600 12.1" touch screen spray controller to provide the highest level of performance and application precision.

The HC 9600 controller provides the growers with a powerful, full-featured precision farming tool for guidance, data logging, split-screen for better overview, application report generation, automated steering and more.

### ISOBUS compatibility

The HC 9600 offers compatibility with the ISO 11783 (ISOBUS) Virtual Terminal Standard.



### GPS

Equipped as standard with GPS AutoSectionControl and manual guidance system, ALPHA evo has a GPS receiver placed at the rear of the cab. A special bracket has been designed to open the roof without moving the receiver. This is to be able to keep all settings.

### One work screen

The complete integration of all important information on one work screen is an important criterion. On the HC 9600 work screen, the driver can operate the AutoSectionControl, AutoHeight, guidance and dosage as well as the AutoSteering.





# SprayCircle

## Documentation

- › USB port for data transfer
  - › Smart report as pdf
  - › Real time data-logging
- › Transfer to farm management software

## AutoFill

- › Time saving so other tasks can be done
- › Automatic safety OFF sensor prevents overfilling
- › Agitation is automatically reduced for maximum fill effect
- › Capacity: 600 to 800 l/min

## TurboFiller

- › To handle large quantities of powders and liquids
- › High capacity is a result of high vacuum combined with rotation of the liquid forced by the TurboDeflector placed in the bottom of the hopper

## AutoAgitation

- › Maximizes agitation without foaming
- › Minimizes tank residues when spraying is finished
- › Automatic tank contents readout on the HC 9600 display

## Set dosage

- › 2 fixed application rates can be programmed
- › Quick change in l/ha steps
- › Usages of external dose rates possible

## PrimeFlow

- › No untreated areas at spraying start
- › Flushing of boom lines without spraying possible
- › Pressure system for safe and reliable work
- › Individual section width can be programmed from 1 to 12 nozzles

## Spraying – AutoHeight

- › With the support from the precise HARDI AutoHeight system, you can choose your active boom height settings on crop or soil height
- › The height is measured with 3 or 5 ultrasonic sensors

## AutoSteering

- › Automatic steering can be ordered as optional

## AutoSectionControl

- › Product savings of 3 % or more are documented
  - › Operator fatigue is greatly reduced
- › Precision shut-off can be individually set up

## AutoWash

- › Only programme choice needed as the rest is automatic
  - › Operator and tractor cabin are not contaminated
  - › Time is saved as process is controlled from cabin
- › Effective so pesticide cross-contamination is avoided

Finishing

Preparation

Spraying



# Liquid system

## **HARDI 464 Pump: 464/10, 280 l/mn / 464/12, 334 l/mn**

To meet the requirements of bigger sprayers and to improve lifetime, we have introduced the HARDI 464 pump. A reduction in pressure drop has been avoided by improving the flow in the diaphragm tops. To easy service, we have integrated lifting hooks while moving two greasing points to the front, to easy lubrication of the front and the rear of the pump. The casted conrod support ring has also been redesigned for improved mechanical life time. The most visible change is the new covers designed to protect the pump from mud and water getting into the system.

- ▶ Self-priming
- ▶ Able to run dry without damage
- ▶ Easy to service
- ▶ Grease-lubricated crankcase



### **AutoWash**

- ▶ Only programme choice needed as the rest is automatic
- ▶ Operator and tractor cabin are not contaminated
- ▶ Time is saved as process is controlled from cabin
- ▶ Effective so pesticide cross-contamination is avoided
- ▶ Residuals negligible at the end of the spray task

### **TurboFiller**

The HARDI TurboFiller is developed to handle large quantities of powders and liquids. Its high capacity is a result of high vacuum combined with rotation of the liquid forced by the TurboDeflector placed in the bottom of the hopper.

Changing from transport to the 95 cm high filling position is easily made by means of a spring-loaded bracket with automatic transport lock.

A multifunctional 3-valve operating unit and a cleaning pipe make the chemical filling easy and efficient. The cleaning of containers and the TurboFiller itself is managed by a rotating nozzle.







# DynamicFluid4

## The fluid system

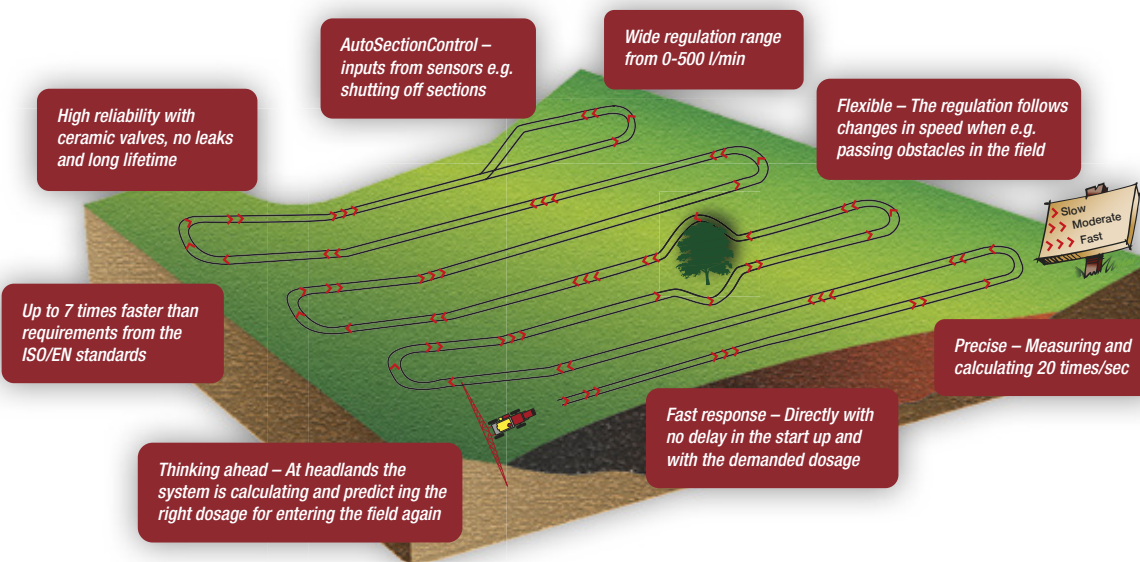
### Dynamic fluid system based on 4-sensor technology

The fluid system on the ALPHA evo is a new concept developed to obtain shorter response time and thereby more precise application in the field.

New powerful engines on the ALPHA evo and the hydrostatic transmission have given new driving patterns with more variance in the speed and faster acceleration, factors which together with the GPS controlled section control is challenging for the performance of the liquid system.

### WorkZone

The liquid system can be operated from the cabin or from ground by a controller located next to the TurboFiller.



In a traditional fluid system the regulation is made on feedback from what is already “historical” data. For example the RPM is increased, and shortly after the flow will be too high at the nozzle. When that is measured, the spray computer will regulate the pressure down again but in the meanwhile the application rate has been too high.

The DynamicFluid4 system will calculate the consequences of the increased RPM and make the regulation instantly. The DynamicFluid4 property of pro-acting is based on 4 sensors in the fluid system measuring RPM, position of regulation valves, flow and pressure. To-

gether with new software and new unique ceramic regulation valve, DynamicFluid4 is offering precision in the application rate giving the best performance available on the market.

### Stability and safety

The sensors in DynamicFluid4 each has their individual task, but they will also work as back up for each other (Limp-home) and the regulation will continue in case of sensor failure. Regulation can also be done manually.

### EasyClean filter

The EasyClean filter is a high capacity suction filter. The condition of the filter can be constantly monitored via a SafeSpray vacuum gauge.

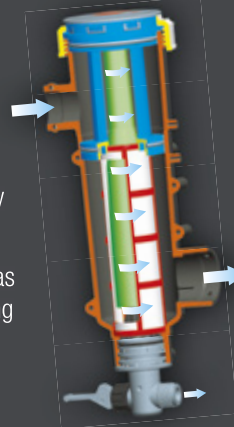
This ensures that the filter is cleaned when needed and only when needed. When cleaning the filter, all you have to do is to twist the lid 90°. This will close a main tank valve in the bottom of the filter and open the filter for inspection.



### CycloneFilter

The CycloneFilter at the pressure side is a unique self-cleaning filter with a high-speed cyclone action that increases the cleaning capacity of the filter significantly.

In addition, the CycloneFilter has a unique boost function allowing the filter to be flushed when needed.





# Steering

## Ground clearance

The ground clearance on a standard machine is 120 cm.

A high ground clearance is available as an option. With this feature, clearance will be 165 cm with standard tyres.

## Easy operation and manoeuvrability

A foot pedal activates the 4-wheel steering functions.

Realignment of the rear wheels is automatic, and a lock is activated for road travel.

At headlands, the four steering wheels permit a 100 % respect of crops and a very low turning radius angle.

## High capacity

Two coil springs on the front axle and one coil spring at the rear axle ensure a high driving performance without operator fatigue.

### ALPHA EVO 3500 / 4100 / 5100

Track width with manual adjustable axle

Tyres	AXLE SIZE, CM				Max speed possible
	Axle S	Axle M	Axle L	Axle XL	
300/95 R52 option	182-205	201-237	225-276	266-317	40 km/h
340/85 R48 option	182-205	201-237	225-276	266-317	40 km/h
380/90 R46 standard	182-205	201-237	225-276	266-317	40 km/h
420/80 R46 option	182-205	201-237	225-276	266-317	40 km/h
460/85 R38 option	191-214	210-246	234-285	275-326	40 km/h
480/80 R42 option	191-214	210-246	234-285	275-326	40 km/h
520/85 R38 option	197-220	216-252	240-291	281-332	40 km/h

All track widths are measured with standard offset and clearance 1.20 m.

## 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 manoeuvring



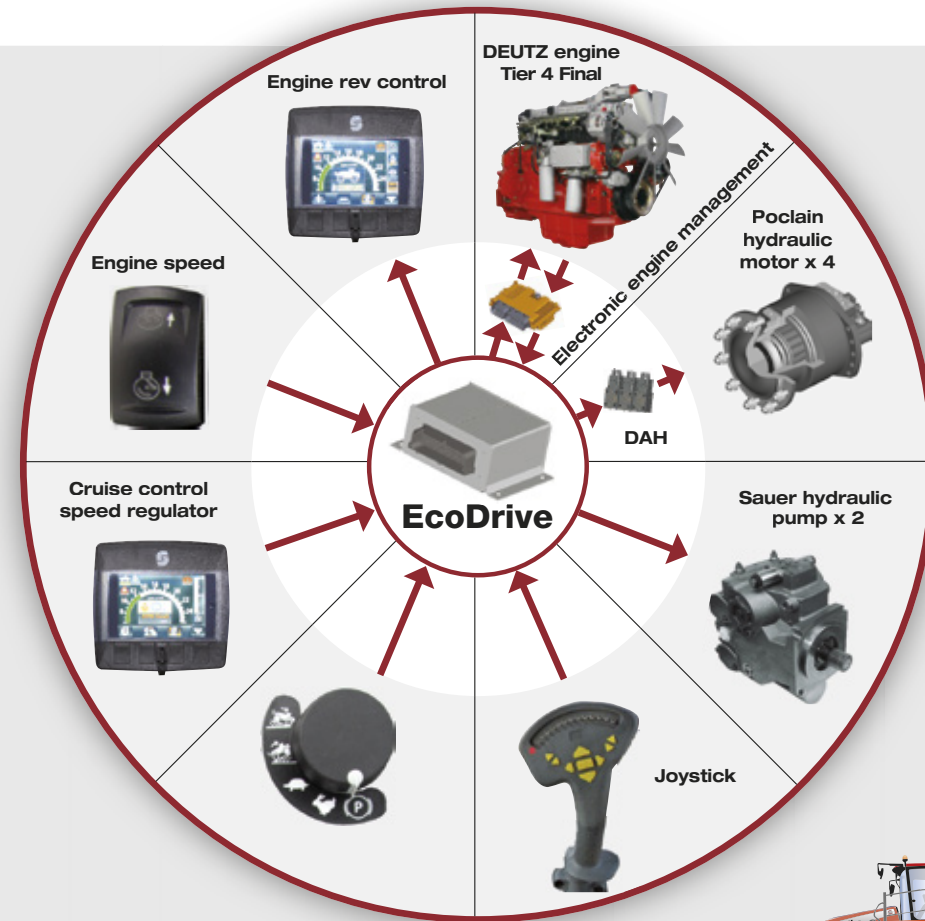


# The Engine

TCD 6.1 L6 Stage IV / Tier 4 Final / Tier 3a

## Deutz engine, 6 cylinders

- The ALPHA evo is fitted with TCD 6.1 L6 160 kW (217 hp) Stage IV / Tier 4 final and Tier 3a or 180 kW (245 hp) / Stage IV / Tier 4 final – SCR (selective catalytic reduction) and an active DPF (Diesel Particulate Filter) meeting the European environmental standards
- Turbo charged common rail, water cooled, 6 cylinders
- The fan is driven by a visco-coupler which ensures strong cooling and significantly reduces the sound level in the cab
- Cruise control, economic road mode
- Sauer Danfoss hydraulic pump and Polclain motors
  - *EcoDrive transmission to reach lowest engine rpm, hydrostatic pump:*
    - 2 pumps 115 cc to reach the speed at lowest engine rpm and brings more torque in fields for faster reaction in wet conditions.
    - As option two versions of Hilly transmission: +50% of torque and +25% of torque



## Hilly Transmission

As option the transmission can be upgrade to a powerful transmission with bigger wheel motors at the rear to bring depending to the option +50% of torque or +25% of torque in field mode.

### Climbing

Oil flow to slipping wheels are restricted. High torque at the rear and low in front.

### Descending

Transmission is set to high torque at the front and low at the rear to give maximum descent control.

### Forward

Oil flow equal on front and rear.





# TWIN boom

*World's best application system*

## 3rd generation HARDI TWIN – the ultimate in capacity, weather independence and application technology

### The biggest challenge is timing due to weather conditions

Let's take control. With the HARDI TWIN system, air will help you control the wind. You are in control of the speed and angle giving you the possibility of covering the whole plant, from top to bottom.

### The ideal high capacity solution

Spray drift from conventional sprayer can be so strong that the operator has to stop before having the spray job done. With efficient drift control it is much easier for the operator to be able to spray the entire field.

Under most conditions the farmers get at least twice as many hours for a safe and efficient spray job with the TWIN sprayer compared to conventional spraying.

The TWIN FORCE is available in sizes from 18 to 36 m.

### Up to 100% more spray capacity

Timing is everything! The results overleaf show that during Spring 2015 the wind conditions for conventional spraying would only allow 31 days of spraying whilst using a TWIN Force you would gain over 45 extra days suitable for spraying. At the same time you can spray faster and have less filling time from reduced water consumption.

Increased spray opportunities, reduced drift, reduced chemical usage, accurate placement, faster spraying speed, result in improved economy! HARDI TWIN FORCE

### Save up to 30% on chemicals

Many trials throughout the years have shown a better chemical efficacy using TWIN. This gives the opportunity to adjust the chemical dose, and at some markets we see up to 30% reduction in chemicals consumption at the farm through the season.

### TWIN ADVANTAGES:

- › Reduced drift
- › Save up to 30% in chemicals
- › Better penetration in the crop
- › Improved spraying economy
- › Lower water consumption
- › Higher capacity
- › Hydraulic AntiYaw dampening
- › More than 30 years' experience in TWIN
- › Negative tilt and AutoTerrain for superb boom stability
- › Hydraulic AntiYaw dampening for precise application
- › New folding system and extensive use of aluminium in the outer wings higher durability and lower weight
- › Manual control at power outage
- › Easy handling with hydraulic support wheels and AutoHeight sensors

### Make money on your spraying budget ...

Insert your input numbers at [www.hardi-twin.com](http://www.hardi-twin.com), and it will show you just how much money you can make on your spraying budget.

[www.hardi-twin.com](http://www.hardi-twin.com)

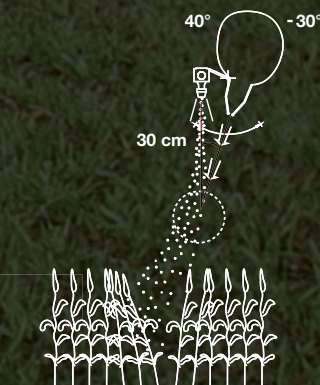




Two powerful blower units provide air to the left and right boom sides respectively. The large amount of air produced by the double fans allows for faster application speeds even under very difficult weather conditions. Each blower has an output of 2000 m<sup>3</sup>/h/m.

The angling of the air curtain together with the spray swath is a distinctive and important feature of the HARDI TWIN.

This allows for more precise application depending on crop and weather conditions.





# Aluminium booms

## Aluminium

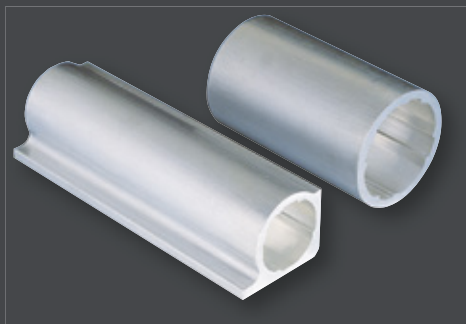
Aluminium booms are constructed of 4 or 5 round tubes in a three-dimensional trellis structure. The profiles have internal ribs which reinforce the boom strength while keeping an incomparable resistance to corrosion.

The aluminium booms are equipped with PENTANOZZLES.

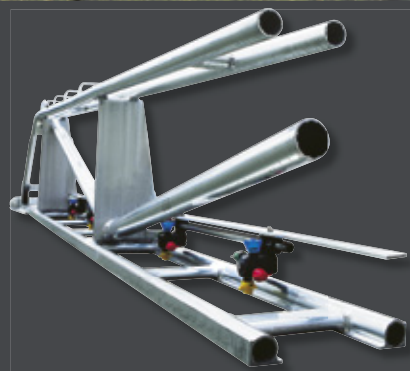
ALPHA evo is available with Pommier aluminium booms from 24 to 44 m.



*A boom light kit is available as an option.*



*Cut of ribbed profiles*



*Aluminium boom structure (TR4 24 to 33 m)*



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



# Technical specifications



Tank, l	3500	4100	5100
Pumps, type - l/min	464/10: 280 (540) - 464/12: 334 (540)	464/10: 280 (540) - 464/12: 334 (540)	464/10: 280 (540) - 464/12: 334 (540)
Booms	Alu, Twin Force	Alu, Twin Force	Alu, Twin Force
Engine Deutz 6 cyl. - 217 hp / 160 kW (Stage IV / Tier 4f / Tier 3a) depending to country regulation	Basis	Basis	na
Engine Deutz 6 cyl. - 245 hp / 180 kW (Stage IV / Tier 4f) depending to country regulation	Optional	Optional	Basis
Hydrostatic 4-wheel transmission (29 or 40 kph)	EcoDrive basis	EcoDrive basis	EcoDrive basis
Coil spring suspension	Basis	Basis	na
Pneumatic suspension FloatRide	Optional	Optional	Basis
Steering	4-wheels steering	4-wheels steering	4-wheels steering
Mechanical track adjustment, cm	Basis, 40 cm slidding range	Basis, 40 cm slidding range	Basis, 40 cm slidding range
Hydraulic Track Adjustment (HTA) - electronic control 1,80 to 2,80 m (only with FloatRide)	Optional	Optional	Optional
Turning radius 200 cm track width (middle of chassis), cm	462	462	530
Weight (basis machine, empty)*, kg	9.450	9.470	11.600
Weight, front axle, basis machine in transport (empty)*, kg	5490	5490	6.900
Weight, rear axle, basis machine in transport (empty)*, kg	3.960	3.980	4.700
Total length*, m A	9,5	9,5	10,23
Total height*, cm B	390	390	390
Width with ALU boom (24-44 m), m C	2,55	2,55	2,55
Width with TWIN FORCE (24 to 30 m), m C	3,00	3,00	3,00
Width with TWIN FORCE (32 to 36 m) C	3,34	3,34	3,34
Track width manual slidding axle** (380/90 R46), cm D	182-329	182-329	182-329
Track width HTA axle** (380/90 R46), cm D	180 to 280	180 to 280	180 to 280
Wheel base, cm E	370	370	430
Clearance (380/90 R46), cm F	120	120	125
RinseTank, l	410	410	600
Fuel tank, l	320	320	400
Filling capacity water, l/min	800	800	800
Filling capacity TurboFiller, l/min	120	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)





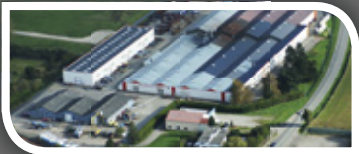
Nørre Alslev,  
Denmark



Lleida,  
Spain



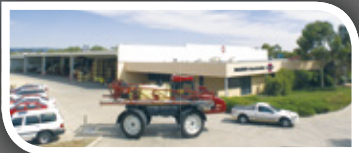
Savigny,  
France



Beaurainville,  
France



Davenport,  
USA



Adelaide,  
Australia

# HARDI

## The Sprayer

### HARDI INTERNATIONAL A/S

is an international group whose basic idea is to satisfy the user's requirements for quality products which ensure efficient, punctual and precise application of crop protection products. Our world-wide distribution and sales network comprise more than 100 countries where we are represented by importers, agents and sales subsidiaries. These are situated in Sweden, Norway, Denmark, the UK, France, Spain, North America, Germany and Australia.

Since 1957 HARDI has committed to the ever-increasing demands for efficient and precise plant protection. HARDI is the trendsetter within application of crop protection products. To achieve this position continued developments and innovation are essential. HARDI is committed to the long term future of plant protection.

### Testing procedures

Sprayers leaving HARDI INTERNATIONAL A/S are tested according to the strictest quality standards.

The staff of the assembly line is accredited to match the demands from both NSTS (National Sprayer Testing Scheme), UK and JKI (Julius Kühn Institut), Germany. This ensures that the highest quality sprayers are delivered to farmers.



### Superb surface treatment

The high-technology surface treatment contains 13 treatments, including a pre-treatment and powder coat painting of all major components.

Together with the Delta/Magni treatment of nuts, bolts and other items, we supply high corrosion protection of our products.



## HARDI INTERNATIONAL A/S

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#HARDIsprayers