

The intelligent sprayer

Fields ahead



COMMANDER
3300-4500-5500-7000

COMMANDER



- Tank capacity:** 3300, 4500, 5500 and 7000 l
- Controller:** HC 6500, HC 8600, HC 9600 or ISO
- TurboFiller:** Integrated working table, high capacity
- Liquid system:** DynamicFluid4 - shorter response time and more precise application in the field
- Tracking:** SafeTrack (optional)
- Axle:** Adjustable 1.8 – 2.25 m

Booms

- DELTA:** Compact and high-performing 18 to 24 m
- DELTA FORCE:** For higher speeds and greater performance 27 to 36 m
- TWIN FORCE:** Air-assisted booms from 18 to 36 m
- TERRA FORCE:** Heavy-duty, high performance, DynamicCenter, AutoTerrain (optional), from 36 to 42 m

Concept

Farming practices are constantly changing. Farmers are met with a daily challenge to improve capacity and reduce operating costs. To help you to meet this challenge HARDI has developed the COMMANDER trailed sprayers.

The COMMANDER is designed to meet the demands of the modern professional farmer world-wide.

This generation of sprayers is designed to lead the way in capacity, reliability, safety, optimization, ease of operation and precision.

The COMMANDER is a highend performer designed for continuous use by demanding operators.

An example of the functional design is the logical layout of the left hand side of the sprayer, where all primary operations are located.

Take a closer look at some of the features making the COMMANDER the best choice on the market for trailed sprayers.



Intelligent spraying - Fields ahead

The SprayCircle outlines the elements when preparing, spraying and finishing a spray job, and how the intelligent features of the COMMANDER, the HC 8600 and HC 9600 assist the operator.

TWIN FORCE

TWIN – Make money on your spraying budget. The world's best application system will help you saving up to 30% of your chemical costs, and with higher spraying speed and lower drift you can boost your capacity up to 100%. The TWIN system will enlarge your spray window to be able to spray in more windy conditions making the job easier for you.

DynamicFluid4 liquid system

The DynamicFluid4 liquid system of the COMMANDER sets new standards for precision and capacity. A technology based on 4 sensors built into the fluid system is feeding the spray computer with data needed to make the optimal regulation.

"Touch the future" with integrated electronics – HC 8600 and HC 9600

The HC 8600 and HC 9600 controller offer growers a powerful, full-featured precision farming tool for guidance, data logging, application report generation, automated steering etc.

Chassis

The heavy-duty COMMANDER chassis and axles are designed for high speed driving under the most demanding field and road conditions ready to meet the tough demands of the professional farmer.

The platform is compact and very easy to access and gives you unobstructed access to the tank lid. The rear and floor plate can be removed allowing easy access to the fluid and electric system.

Low center of gravity

The design of the chassis with all steel parts located as low as possible in combination with a perfect match with the polyethylene tank provides low centre of gravity.

The 500 l RinseTank is placed over the rear axle and provides extra stability.



High quality surface treatment

The chassis as well as all other steel components have been pre-treated with zinc phosphate before a high quality coating of powder paint. This treatment provides outstanding protection against corrosion from chemicals and harsh weather conditions.

Suspended axle and drawbar

The HARDI COMMANDER is available with an optional unique hydraulic suspension system. The strong hydraulic cylinders absorb the shock loads instead of transferring them to the boom and the tractor. This offers you a high comfort level at high driving and spraying speeds.

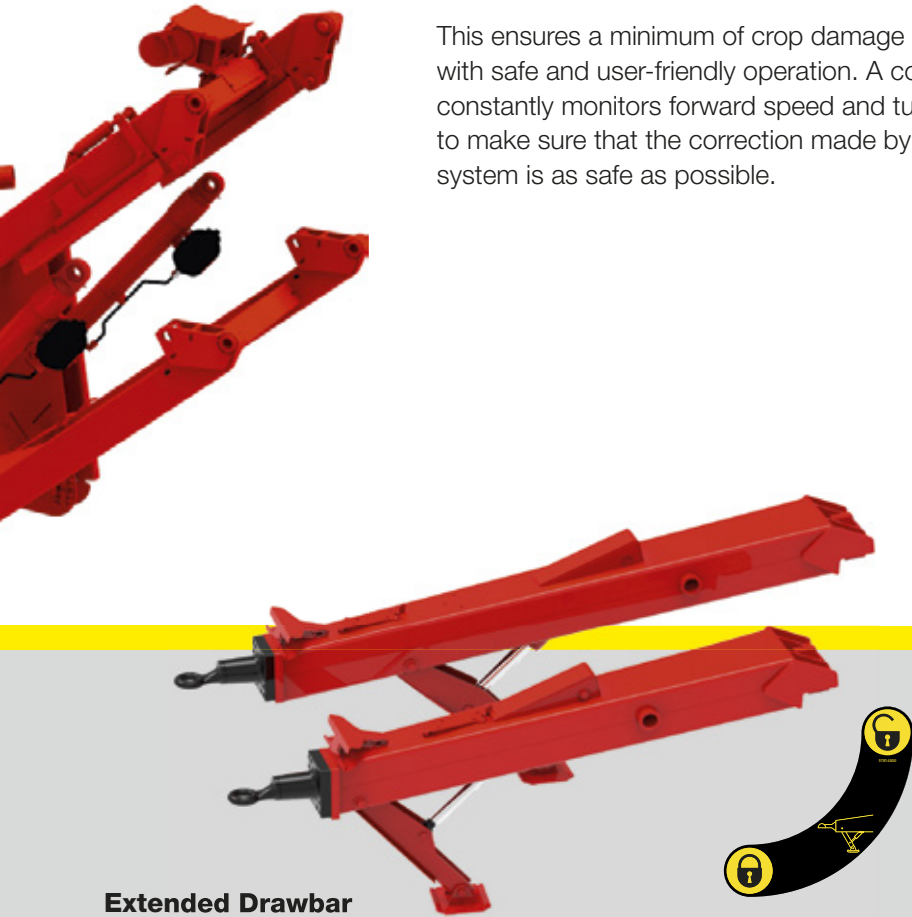
The drawbar and axle on the COMMANDER 7000 l are as standard fully suspended. Axle suspension on 5500 l is an option. The full up and down load at the drawbar from the sprayer to the tractor is transferred through rubber dampers built into the chassis.



SafeTrack

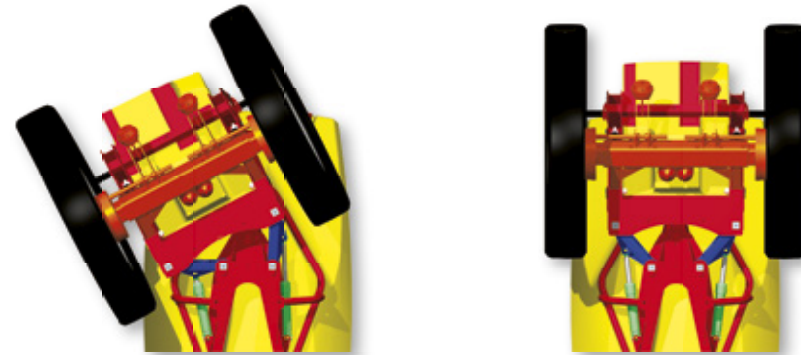
The HARDI SafeTrack is available on the COMMANDER (optional). This revolutionary design merges the benefits from other traditional systems into one high performance system. With the HARDI SafeTrack you do not have to choose between either tight turning radius or stability.

This ensures a minimum of crop damage combined with safe and user-friendly operation. A computer constantly monitors forward speed and turning radius to make sure that the correction made by the tracking system is as safe as possible.



Extended Drawbar

The drawbar of the 5500 and 7000 I has a hydraulic support leg as standard and is driven by a separate hydraulic outlet on the tractor. This ensures easy and safe attachment of the sprayer. For the 36 m TWIN boom on the 5500 and 7000 I, we offer an extended drawbar as an option.

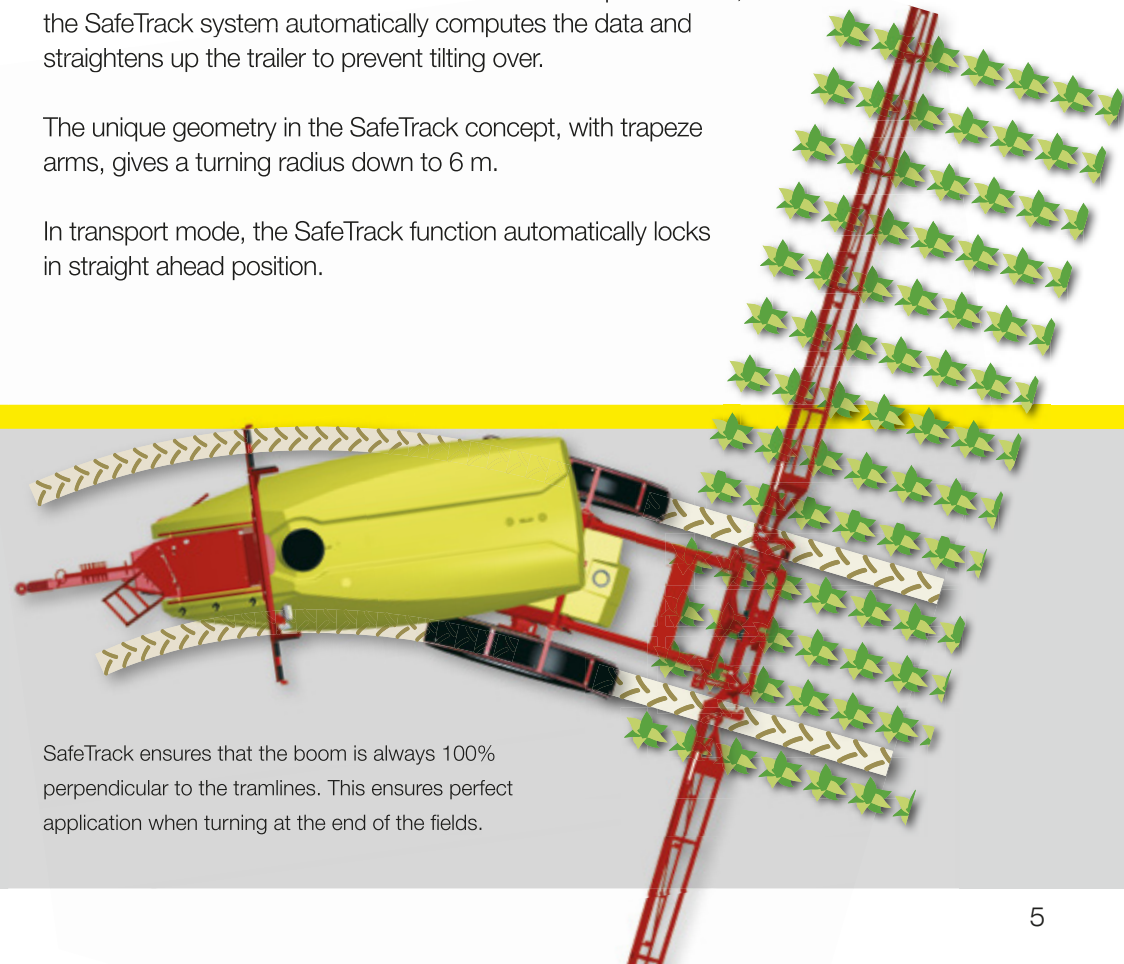


Safe in all conditions

If the tractor driver tries to do a 90° turn at for example 15 km/h, the SafeTrack system automatically computes the data and straightens up the trailer to prevent tilting over.

The unique geometry in the SafeTrack concept, with trapeze arms, gives a turning radius down to 6 m.

In transport mode, the SafeTrack function automatically locks in straight ahead position.



SafeTrack ensures that the boom is always 100% perpendicular to the tramlines. This ensures perfect application when turning at the end of the fields.

WorkZone



The COMMANDER has a WorkZone where all primary functions are placed in an easy to reach position. Everything you need to operate the sprayer is available in this area, and everything is designed to be simple and logical to understand and operate. The large safety locker is placed right over the WorkZone along with the clean water tank.

SmartValve

All primary functions needed to operate the sprayer when filling or cleaning are located in the centre of the WorkZone. The logically placed handles with easy to read icons make the system very easy to operate. This greatly reduces the start-up and operation time of the sprayer.

TurboFiller

The HARDI TurboFiller is developed to handle large quantities of powders and liquids. Its high capacity is achieved through a combination of high vacuum and liquid rotation produced by a TurboDeflector inside the hopper.

High mixing capacity

Liquid at high pressure is being used to create a powerful rotation of the liquid inside the hopper. This movement gives the effect that every powder or liquid chemicals are mixed before they are sucked into the sprayer.



HARDI 464 Pump

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 ease service, we have integrated lifting hooks while moving two greasing points to the front, also making easier lubrication of the front and the rear of the pump.

The casted con-rod support ring has also been redesigned for improved mechanical lifetime.

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



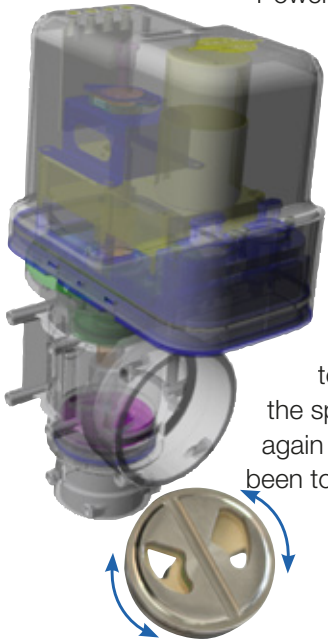
Fluid system - DynamicFluid4

Dynamic fluid system based on 4-sensor technology

The COMMANDER fluid system is developed to obtain shorter response time and thereby more precise application in the field.

Powerful tractors with clutch free gear shift and CVT transmissions 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.

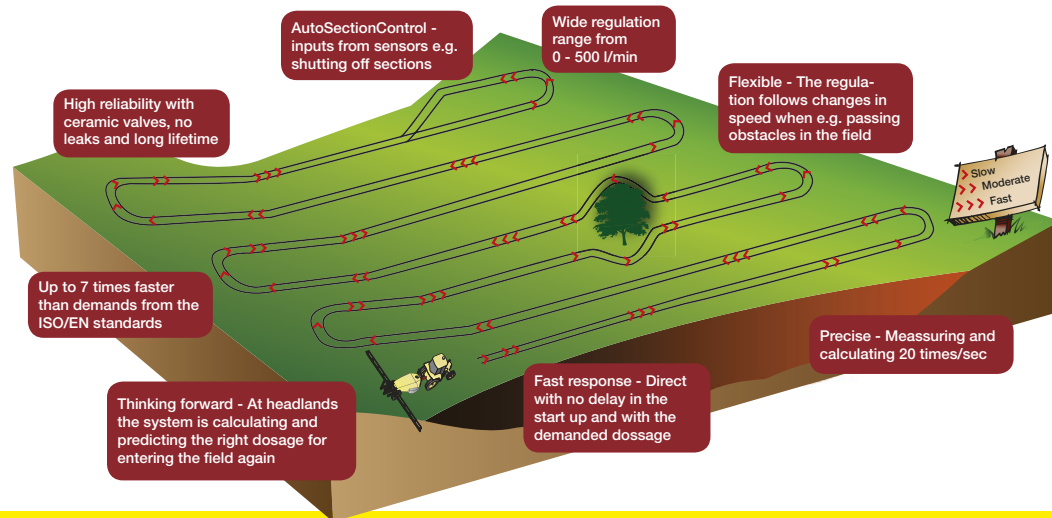
In a traditional fluid system the regulation is made on feedback from what is already "historical" data. For example the RPM is increased, and shortly after the flow will be too high at the nozzle. When that is measured, the spray computer will regulate the pressure down again but in the meanwhile the 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. Combined with a specific new software and a 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 of DynamicFluid4 each have their individual task, but they will also work as back up for each other, and the regulation will continue. Regulation can be done manually.



☆☆☆
Agromek
Award
2012

☆☆☆
Grand Prix
Techagro
2014

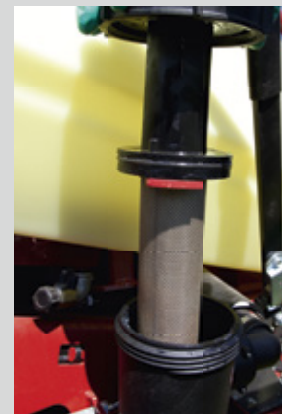
☆☆☆
Silver medal
Agrosalon
2014



The COMMANDER filter system consists of the exclusive HARDI EasyClean filter and CycloneFilter.

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.

Controllers

HC 6500

The HC 6500 is designed only for spraying and has for years proven its easiness in practical use around the world with its colour display and HARDI JoyStick operation, together with a user-friendly menu.

There are no compromises in functionality to meet the demand for other implements. The ergonomic optimal design supports the demands given by long working hours and easy operation.

All buttons are placed in a logical way which harmonizes with the corresponding function. As an example, all functions often used during the spray job are placed in the HARDI JoyStick, so these functions can be activated without lifting the arm from the arm rest of the seat. To make it as easy and simple as possible, the connection between sprayer and tractor is made with only one cable.



HC 8600 and HC 9600

The complete integration of all important information on one work screen is a highly demanded criterion for most farmers. The HC 8600 and HC 9600 have multicolour HD touch screens that are very easy to operate while providing an optimal overview for maximum control of the spray job.

Integrated electronics

From the working screen the driver can operate AutoHeight, AutoSectionControl as well as guidance and dosage. The view can be switched between 2D and 3D when guidance is active. The HC 9600 is able to divide the information with split screen for a better overview.

Data management and data transfer

The HC 8600 and HC 9600 have USB ports and WiFi adapter as standard, allowing data to be exchanged. This simplifies application reporting, providing an easy way to generate detailed application reports for governmental record keeping. Reports provide location, product information, applied totals, field areas, applied maps and field boundaries. The data can be transferred to different farm management software.

The HC 9600 automatically creates an application report in a pdf-format which can be saved, emailed or printed. For this, no additional software is required. Basic information about weather, soil conditions, products, etc. can be added.

Universal Terminal

The HC 8600 and HC 9600 displays are designed to meet the ISO 11783 ISOBUS Universal Terminal standard. So the sprayer could also operate with a HC 6500 terminal.



Feature	HC 6500	HC 8600	HC 9600
Screen dimensions	5.0" (12.8 cm)	8.4" (21.3 cm)	12.1" (30.7 cm)
Number of registers	98+1	No limit	No limit
Maximum number of distribution valves	13	13	13
Alpha-numeric keyboard	•	•	•
ISOBUS Universal Terminal	N/A	•	•
USB port	N/A	1 x USB	2 x USB
AutoSectionControl	N/A	•	•
Guidance	N/A	•	•
Coverage Mapping	N/A	•	•
Data Logging	N/A	•	•
Variable Rate Application	N/A	•	•
Smart Report™	N/A	N/A	•
Boom Height Control	N/A	◦	◦
AutoSteer Control	N/A	◦	◦
OptRx® Crop Sensors	N/A	N/A	◦
Camera Support	N/A	◦	◦

• Standard ◦ Optional

ISOBUS terminal

The HARDI COMMANDER can be operated with a universal ISOBUS terminal. The customer can order the COMMANDER and use the intelligent functions like AutoSectionControl direct from his own ISOBUS terminal if supported.

To make the complex sprayer operation easier, the proven HARDI JoyStick will be delivered with the COMMANDER sprayer.

SprayCircle



Documentation

- USB port and WiFi adapter for data transfer
- Smart report as PDF (HC 9600)
- ISOXML data exchange
- Real time data-logging
- Transfer to farm management software



AutoWash

- Only a programme choice is needed as the rest is automatic
- No operator contamination
- Time is saved, operator can stay in cabin
- Effective so pesticide cross-contamination is avoided
- Residuals negligible at the end of the spray task



AutoSectionControl

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



Guidance / Field boundary

- Completely integrated guidance
- Lightbar integrated in terminal housing
- SmartPath™ pattern
- Perspective view
- Boundary and Headland automatic off



AutoHeight/AutoTerrain

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



AutoFill

- Time saving so other tasks can be done
- Automatic safety OFF sensor prevents overfilling
- Agitation is automatically reduced for maximum fill effect
- Capacity: 480 l/min



TurboFiller

- Handles large quantities of powders and liquids
- TurboDeflector in bottom rotates fluid
- High vacuum with TurboDeflector creates fast transfer into main tank
- Built-in rinsing system



AutoAgitation

- Maximizes agitation without foaming
- Minimizes tank residues when spraying is finished
- Automatic tank contents readout on the HC 8600 and 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 spray 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



Booms

TWIN FORCE

The HARDI TWIN booms offer the ultimate in capacity, weather independence and application technology. The ideal high capacity solution for most users.

The TWIN FORCE is available in sizes from 18 to 36 m. The TWIN FORCE boom is a 2-folded hybrid boom in a 3-dimensional box section lattice design. The inner wings are made in steel and the outer wings in aluminium. The big TWIN FORCE booms can be half-folded, 32 and 33 m to 17 m and the 36 m down to 18 m.

TWIN advantages:

- Spray faster - increase capacity up to 100%
- Save up to 30% in chemical consumption
- Optimal field timing
- Drift reduction

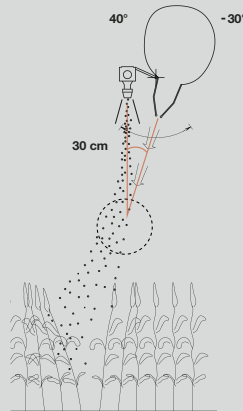
For 32, 33 and 36 m.

- Improved AutoHeight - Better boom performance
- Hydraulic AntiYaw - Maximum application precision
- New boom wing design - Heavy duty



Crop opening effect

Two powerful blower units provide air to the left and right boom sides respectively. This gives a powerful and even air distribution through the whole boom. 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.



Up to 100% more capacity

Spray drift from conventional sprayers can be so heavy that the operator has to stop before the spray job is finished. With efficient drift control it is much easier for the operator to be able to spray the entire field in one operation. In most conditions, farmers using the TWIN sprayer get at least twice as many hours available for a safe and efficient spray job as with conventional sprayers.



Enter your numbers at www.hardi-twin.com to see how much money you can save



TERRA FORCE

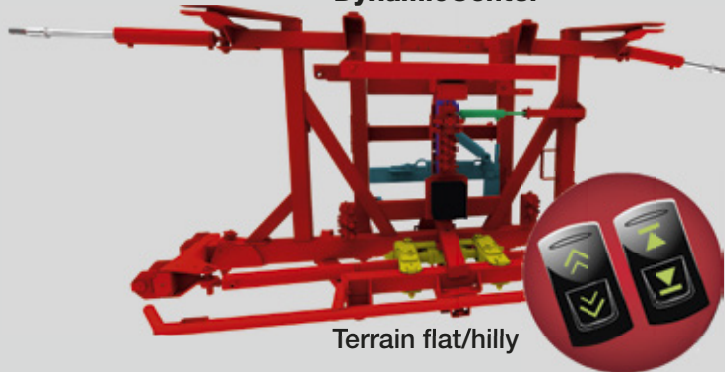
The TERRA FORCE boom is offering outstanding strength, performance and capacity. A 3-dimensional boom structure with a layout for only pushing and pulling forces secures optimal strength.

High performing yaw dampening: Hydro-pneumatic dampers combined with 4 polyurethane dampers give stability and minimum stress when turning and also for acceleration and deceleration. Partial fold and tilt suspension are options which secure optimal performance and flexibility. TERRA FORCE is available from 36-42 m.

TERRA FORCE booms are available on COMMANDER 5500 and 7000 I.



DynamicCenter



Terrain flat/hilly

Two unique HARDI boom management systems

DynamicCenter has manual adjustment of the centre characteristics. The setting is done on-the-go from the cabin. It will change the boom from being 10% sprayer following (pendulum like) to be 80% sprayer following.

AutoTerrain is an automatic boom management system which works and reacts on both boom movements and twisting forces on the boom. This allows the AutoTerrain to be proactive and react on the cause more than on the symptom.

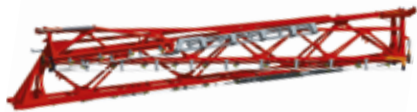
- Partial fold and tilt suspension are options which secure optimal performance and flexibility.
- High performance yaw dampening is supplied by a double acting hydraulic damper.
- Wide Paralift is hydraulically suspended.

DELTA FORCE

Compact in transport - Wide in field

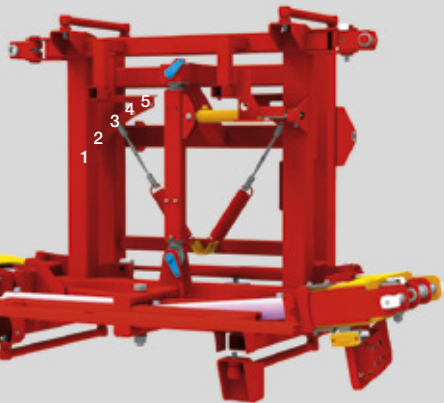
DELTA FORCE is designed to be a large boom. The selection of features and the layout of the boom structure are targeted to perform at high driving speed and high performance at boom widths of 27-36 m.

The result is a boom with many simple and strong solutions which together give a high-performing and reliable boom with a simple setup, low maintenance and a great design.



StackFold - Compact transport

Stacking the boom when folding gives the possibility of optimizing the relation between the dimension of the boom elements and the space occupied, when the boom is in transport.



Hydraulic anti-yaw

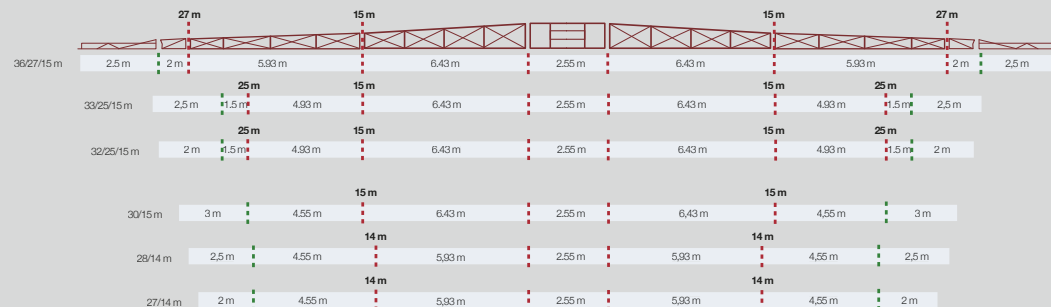
Forces from yaw movements are absorbed by accumulators. The oil system is active and automatically recharged every time the boom is unfolding. The hydraulic anti-yaw is standard on 32 to 36 m. The smaller versions have a mechanical system with rubber dampers as standard.

Perfect suspension

A very advanced, yet simple centre part controls the movements of the DELTA FORCE boom. A pendulum suspension (adjustable from 1-5) minimizes movements, while a low centre of gravity ensures a perfect balance of the boom.

HARDI DELTA FORCE is available in:

3-fold: 36/27/15 m, 36/24/13 m*, 33/25/15 m, 32/25/15 m. 2-fold: 30/15 m, 28/14 m, 27/14 m.



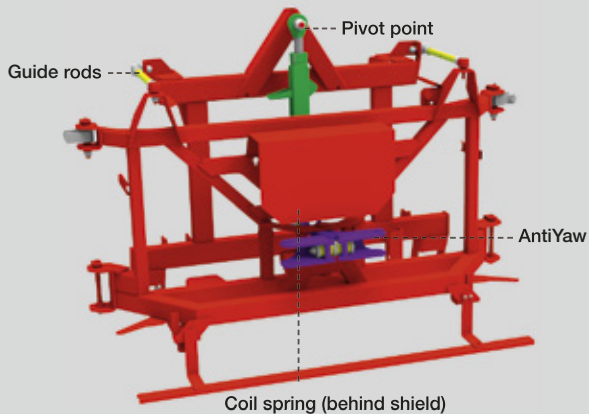
DELTA

The 18-24 m DELTA boom is a compact high-performing boom built for the very demanding user. The boom has highly advanced suspension features, which in combination with the 3-dimensional boom design ensures most accurate application.

DELTA booms are only available on COMMANDER 3300 and 4500 I.

The centre section with coil spring pendulum and telescopic dampers absorbs the movements caused by the tractor and the trailer. The hydraulically activated pendulum lock stabilizes the boom whilst folding or unfolding.

An anti-yaw system dampens the forward and backward horizontal movements as well as any horizontal shock load.

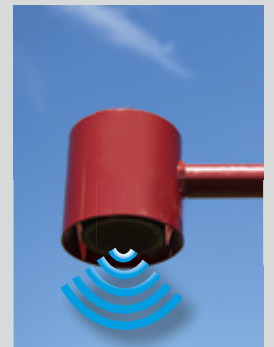


AutoSlant system

The HARDI AutoSlant system will automatically control the height and slant functions of the boom. This gives the sprayer driver simple and precise control of the boom. The system uses 2 robust and precise ultrasonic sensors, and the height can be set to crop or soil mode.

AutoHeight

The HARDI AutoHeight system will automatically control the height, tilt and slant functions of the boom. This gives the driver much easier control of the boom and the result will be a better spray application. The system has 3-5 ultrasonic sensors and with the proportional hydraulics, the boom moves in slow movements, even at speeds over 20 km/h.



Optionals



FastFiller

The high-capacity FastFiller is capable of filling up to 800 l/min. The system is 100% self-priming. It works in combination with the ChemFiller and simultaneous filling from both.

Pressure Emptying

When fitted, this allows you to return liquid fertilizer or any other solution back into the storage tank.



Extended drawbar

For the 36 m TWIN boom on the 5500 and 7000 l, we offer an extended drawbar as an option.



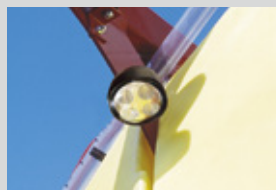
Boom Lights

For night spraying, lights can be added to the boom.



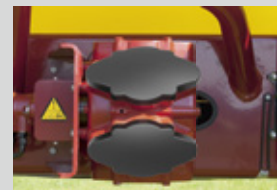
HC 8600 - HC 9600

The HC 8600 and HC 9600 controllers offer growers a powerful, full-featured precision farming tool.



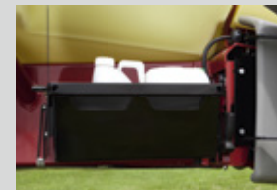
Night spraying light

Working light can be fitted if spraying and mixing are done at night.



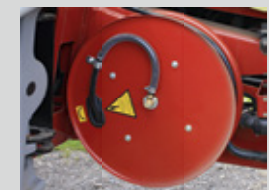
FlexCapacity pump system

COMMANDER 5500/7000 l can be equipped with a FlexCapacity pump system.



ChemLocker

A ChemLocker can be fitted and holds chemical containers or bags.



External cleaning equipment

Spray gun and hose wheel for external cleaning.



Hydraulic support leg

for 3300/4500.

Technical specifications

Tank, l	3300	4500	5500	7000
Pumps, type – l/min	464-280/464H-334	464-280/464H-334	464H-334/2x464-598	464H-334/2x464-598
Booms	DELTA, TWIN	DELTA, DELTA F, TWIN	DELTA, DELTA F, TERRA F, TWIN	DELTA, DELTA F, TERRA F, TWIN
Hydraulic suspension	Optional	Optional	Optional	Standard
Suspended drawbar	—	—	Standard	Standard
Hydraulic outlets needed (Y models)	1 single + 1 double acting	1 single + 1 double acting	1 single + 2 double acting	—
Hydraulic outlets needed (Z models)	1 double acting	1 double acting	2 double acting	2 double acting
Weight drawbar (empty tank)*, kg	491	931	1,117	1,417
Weight axle (empty tank)*, kg	3,343	4,428	5,512	5,733
Weight total (empty tank)*, kg	3,834	5,159	6,629	7,150
Turning radius SafeTrack, m	6.00	6.20	9.00	9.00
Total length, m	A 7.30	7.80	8.50	8.50 **
Total height, m	B 3.60 (13.6 × 48)	3.60 (13.6 × 48)	3.95 (20.8 × 42)	3.95 (20.8 × 42)
Width with DELTA boom, m	C 2.55	2.55	2.55	—
Width with DELTA FORCE boom, m	C —	2.55	2.55	3.00
Width with TERRA FORCE boom, m	C —	—	3.00	3.00
Width with TWIN FORCE boom, m	C 3.00	3.00	3.00	3.00
Track width, m	D 1.50 - 2.25	1.50 - 2.25	1.8 - 2.25	1.8 - 2.25
Length draw to axle, m	E 4.80	5.30	6.05	6.05
Clearance, m	F 0.8 (13.6 × 48)	0.8 (13.6 × 48)	0.78 (20.8 × 42)	0.78 (20.8 × 42)
RinseTank	500	500	500	500

* Weight 3300 l is with 24 m DELTA boom, 4500 l is with 28 m TWIN boom, 5500 l is with 24 m TWIN FORCE boom and 7000 l is with 36 m TERRA FORCE boom.

** Total length is 8.90 m for 5500 and 7000 l with 36 m TWIN boom equipped with extended drawbar.

The COMMANDER is available with a range of booms from 18-42 m. All booms have pendulum suspension with anti-yaw dampening and are fully adjustable to suit both rough and steep terrain.

DELTA 18-24 m

The DELTA boom shares most of the features from the FORCE range and is available in boom sizes 18-24 m. The DELTA boom is the perfect choice for the medium to large farms.

DELTA FORCE 27-36 m

DELTA FORCE is designed to be a large boom. The selection of features and the layout of the boom structure is targeted to perform at high driving speed and high performance at boom widths of 27-36 m.

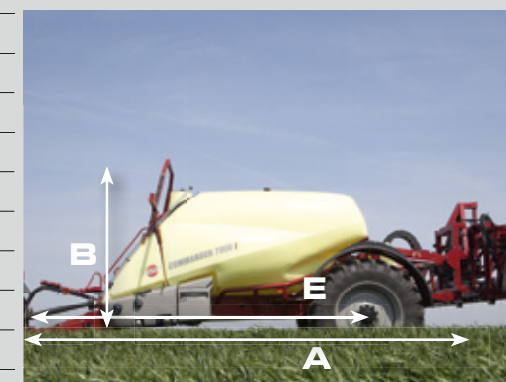
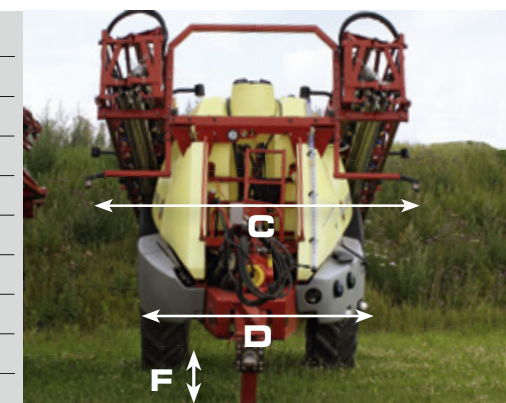
TERRA FORCE 36-42 m

With two unique boom management systems, and a design which in every detail is supporting strength, performance and capacity, the TERRA FORCE boom is offering the outmost among conventional booms.

TWIN FORCE 18-36 m

The TWIN FORCE boom offers the same strength and durability as the FORCE boom combined with the advantages of HARDI's unique TWIN air system.

The TWIN system allows for faster spraying speeds, better penetration into difficult crops and spraying when conditions with a conventional sprayer would be marginal. For the 36 m TWIN FORCE an extended drawbar is available.



The Sprayer



Norre Alslev,
Denmark



Savigny,
France



Beaurainville,
France



Davenport,
USA



Lleida,
Spain



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, 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.



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

Herthadalvej 10 • DK 4840 • Nr. Alslev • Denmark
E-mail: hardi@hardi-international.com • www.hardi-international.com



The Sprayer

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.



Read more at www.hardi-international.com

HARDI reserves the right to change the specifications without notice.
Illustrations shown may include optional extras and accessories.

