

Performance & Innovation

Fields ahead



COMMANDER

COMMANDER



Capacity **Reliability** **Safety** **Optimization** **Precision**

Tank capacity: 1,200 gal. *(4500)* 1,600 gal. *(5500)* 2,000 gal. *(7000)*
2,250 gal. *(8500)* 2,600 gal. *(10000)*

Controller: HC 8500 or HC 9500

TurboFiller: Integrated working table, high capacity

Liquid system: DynamicFluid4 - shorter response time and more precise application in the field.
(not available on the 8500 and 10000 models)

Tracking: SafeTrack (optional) *(not available on the 8500 and 10000 models)*

Axle: Adjustable 60" to 120" *(Depends on axle, wheel and sprayer model)*

FORCE boom: 3 dimensional high performing booms from 80' to 132'

TWIN FORCE boom: Air-assisted booms from 80' to 118'

TERRA FORCE boom: Heavy-duty, high performance, DynamicCenter, AutoTerrain (optional), from 120' to 132'

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 high end 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 COMMANDER and the HC 8500 / 9500 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 on 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. *(not available on the 8500 and 10000 models)*

"Touch the future" with integrated electronics - HC 8500 & HC 9500

The HC 8500 / 9500 controller provides growers a powerful, full-featured precision farming tool for guidance, data logging, application report generation (9500 only), automated steering.

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 center of gravity.

The 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, 8500 & 10000 are as standard fully suspended. Axle suspension on the 4500 and the 5500 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

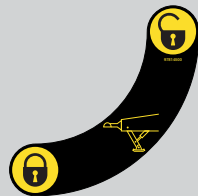
The HARDI SafeTrack is available on the 4500, 5500 and 7000 COMMANDER's (optional). This revolutionary design merges the benefits from other traditional systems into one high performance system. With the HARDI SafeTrack you do not have to choose between either tight turning radius or stability.

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.



Drawbar

The drawbar of the 5500 thru 10000 models have 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.

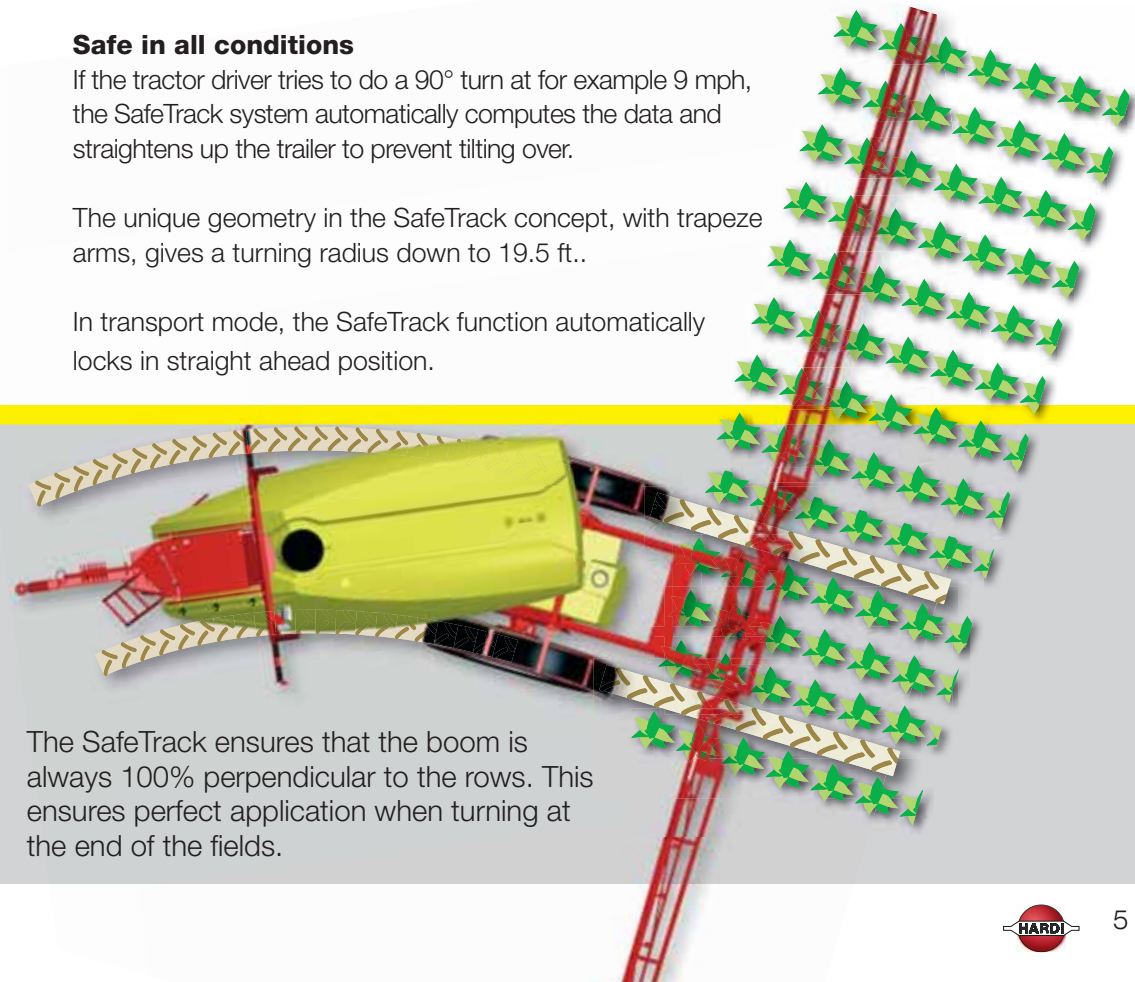


Safe in all conditions

If the tractor driver tries to do a 90° turn at for example 9 mph, 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 19.5 ft..

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



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

WorkZone



Suction



Suction from main tank



Suction from RinseTank



Suction from external source

Pressure



Tank cleaning



Filling



Spraying

Description for COMMANDER 4500

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 is 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 inducted into the sprayer.



Pump

The COMMANDER liquid system is driven by the reliable, grease-lubricated HARDI diaphragm pump. The diaphragms separate the liquid from the vital parts of the pump such as bearings and crankshaft, ensuring reliable and durable operation.

HARDI diaphragm pump features:

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



Fluid system - DynamicFluid4

(DynamicFluid4 not available on the 8500 and 10000 models)

Dynamic fluid system based on 4-sensor technology

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

Powerful tractors with clutch free gearshift 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.

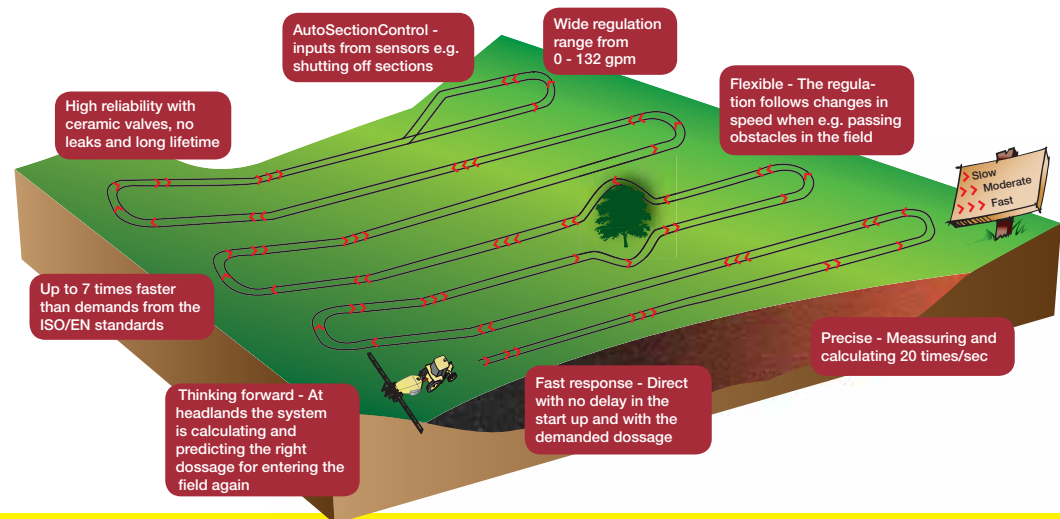


In a traditional fluid system the regulation is made on feedback from what is already "historical" data. For example the RPM is increased, and shortly after the flow will be too high at the nozzle. When that is measured, the spray computer will regulate the pressure down again but in the meanwhile the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

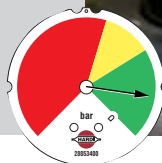
The sensors in DynamicFluid4 each have their individual task, but they will also work as back up for each other and the regulation will continue. Regulation can be done manually.



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 8500

HC 8500 / 9500

All the main spraying functions are operated with the fingertip multifunction joystick in conjunction with the HC 9500 (12.1") or HC 8500 (8.4") touchscreen spray controller to provide the highest level of performance and application precision. The HC 8500 or 9500 controller provides growers a powerful, full-featured precision farming tool for guidance, data logging, application report generation, automated steering and more. The HC 8500 & 9500 offer compatibility with the ISO 11783 (ISOBUS) Virtual Terminal Standard. So the HC 8500 / 9500 could also operate as the HC 6500.

The complete integration of all important information on one work screen is an important criterion. On the HC 8500 / 9500 work screen the driver can operate AutoTrack, AutoHeight, AutoSection-Control as well as guidance and dosing.



HC 9500

ISOBUS prepared

The COMMANDER can be operated by existing ISOBUS Virtual terminals. To make the complex sprayer operation easier, the proven HARDI GRIP will be delivered with the sprayer so all primary spray functions, such as ON/OFF and section switches as well as the hydraulic operation easily and safely can take place by means of a joystick. Also a SetBox will be used to operate sprayer specific equipment as TWIN air assistants or SafeTrack steering directly.

The VT work screen is similar to the HC controller work screen.

If the existing terminal has an automatic section control which is following the defined task controller function of the ISOBUS standard, the ISOBUS terminal can operate the distribution valves of the COMMANDER, so the customer does not need a separate HARDI AutoSectionControl.

Controller	HC 8500 / 9500
Number of registers	no limit *
Maximum number of distribution valves	13
Built in "GPS" capabilities	Yes
Data transfer and print	Yes
Clock (Time/Date/Alarm/Stopwatch)	Yes
Alpha-numeric keyboard	Yes
Color display	Yes
Help functions	Yes
Foam marker	Yes

* USB storage

SprayCircle

Documentation

- USB port for data transfer (HC 8500 / 9500)
- Smart report as PDF (HC 9500)
- Real time data-logging
- Transfer to farm management software

Cleaning

- Use the attached clean water to clean the fluid system, boom and rinse the main tank
- Time saved by cleaning the sprayer while still in the field or while transporting
- Prevent cross contamination between chemicals
- Safely transport on the road with a neutralized fluid system

AutoSectionControl

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

Guidance

- The display indicates the next line to follow
- On screen light bar and distance off course guidance
- 5 different driving pattern can be used
- Automatic steering can be optioned through an Ag Leader dealer

AutoHeight/AutoTerrain

- Through development with NORAC and Ag Leader, HARDI has help to develop the best AutoHeight system for the farmer
- Choose between active setting in crop or soil mode
- Optimize performance via 3 or 5 ultrasonic sensors
- Operation through ISO and VT to eliminate cab clutter
- AutoTerrain on select booms provides a complete boom management system to make on the go boom performance changes

Fill

- Quick banjo connection
- Optional electronic tank gauge provides accurate and precise up to second data
- Accurately monitoring tank fill maximizes efficiency when adding chemicals or loading batches to match a specific field.

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

Agitation

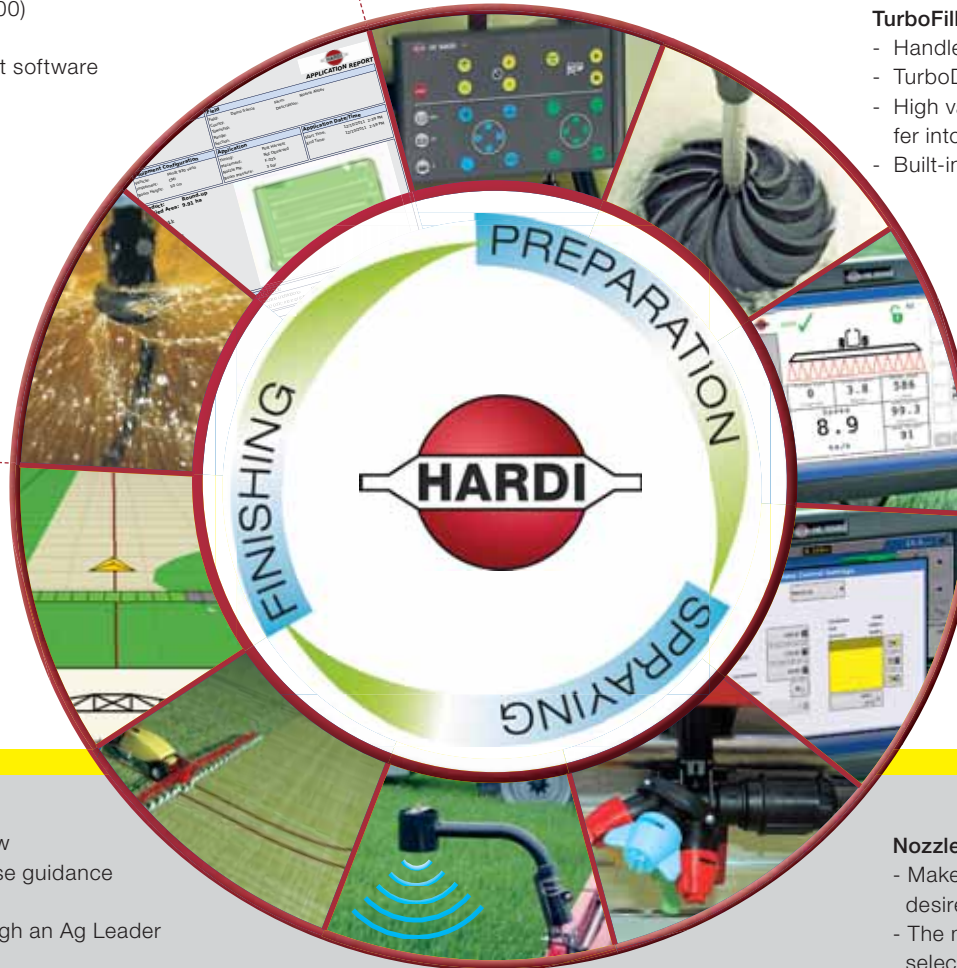
- Monitor tank level on HC 8500 / 9500 for adjustment (Optional Tank Gauge)
- Adjusting agitation to tank level optimizes mixing and minimizes foaming
- Proper agitation minimizes tank residue due to settling after spray job is completed

Set dosage

- 2 fixed application rates can be programmed (HC 8500 / 9500)
- Quick change in gallon per acre (gpa)
- Use an external dose rate or variable rate prescription

Nozzle Selection

- Make sure your correct nozzle type and rate is matched to desired dosage
- The majority of the spray job can be dictated by correct selection of spray pattern and droplet size
- Always reference product manufacturers instructions and closely match the correct nozzle type and proper pressure range
- See HARDI ISO Nozzle Guide for more information



T-25 Boom

Plumbing

Increased capacity (T-25 standard on FORCE and TERRA FORCE booms)

Achieve a 30% increase in fluid capacity with the new T-25 (25mm/1") high volume boom plumbing. T-25 plumbing minimizes residue build up and pressure loss through the design of a complete plumbing system. No flow restriction between boom tubes and feed tube connections is accomplished through the external o-ring seals. The nozzle bodies saddle, the point where the nozzle body attaches to the boom tube, ensures a good fit. The spigot that taps into the boom tube from the nozzle body saddle is slotted ensuring that boom tubes can drain completely, reducing residue. The T-25 nozzle body also allows for the optional Pentalet nozzle body (5 Nozzles can be utilized).



Larger boom line fluid system

Fluid system with 1 inch boom lines provides a 30% increase in capacity over other booms, minimizing pressure loss between sections. The T-25 boom plumbing system utilizes an improved non-drip triplet nozzle body with the saddle designed assemblies. The saddle design allows for quick snap-lock attachment, making them easy to fit and maintain in the field.



No flow restriction between boom tubes with the latest external feed tube connectors. Easy to flush and clean saddles with slotted internal spigot ensures boom tubes drain completely reducing residue. A saddle mounting rail means nozzle position is completely flexible along the length of the rail.

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.



Calculate your savings
HARDI TWIN app



The TWIN FORCE is available in sizes from 80 to 118 ft. 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.

TWIN advantages:

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



Two powerful blower units provide air to the left and right boom sides respectively. This provides a powerful and even air distribution through the whole boom. The large amount of air produced by the double fans allows for faster application speeds even under very difficult weather conditions.



The angling of the air curtain together with the spray swath is a distinctive and important feature on the HARDI TWIN. This allows for more precise application depending on crop and weather conditions.



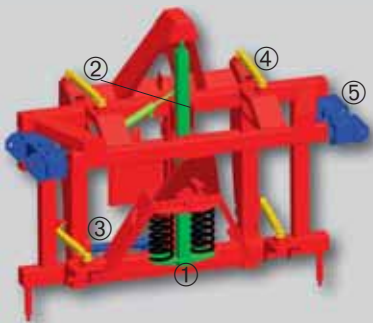
FORCE

The FORCE boom is available in 80 to 132 ft. The FORCE is the perfect choice for large scale farmers and growers looking for unmatched performance and dependability. The rugged 3-dimensional structure guarantees unrivalled durability.



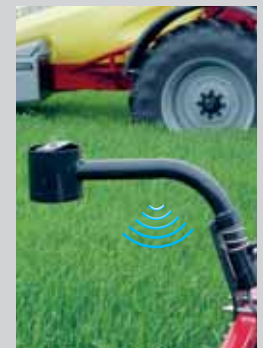
Five exceptional dampening features

1. Coil spring Two large coil springs dampen movements directly up and down from the field
2. Pendulum The Pendulum dampens fast side movements and keeps the boom horizontal
3. Pendulum dampening A hydraulic dampening cylinder that is fully adjustable dampens the pendulum
4. Guide rods The sensitivity of the pendulum can be adjusted by moving the guide rods, ensuring a perfect boom ride under all conditions
5. Anti-Yaw A unique anti-yaw system dampens the forward and backward horizontal movements as well as any horizontal shock load



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 12.5 mph.



TERRA FORCE

The TERRA FORCE boom is the most outstanding when it comes to strength, performance and capacity.

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 120 and 132 ft..



TERRA FORCE booms are available on COMMANDER 5500 thru 10000.

DynamicCenter



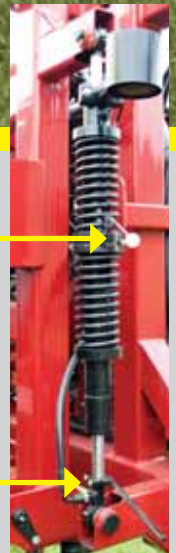
Terrain flat/hilly

Two unique HARDI boom management systems

DynamicCenter has manual adjustment of the center 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.

Ultrasonic sensor measuring the distance to the two pins below. One pin is placed on a spring-loaded body. It will move up and down depending on the torque of the boom. This is what makes the system works pro actively.



Options



QuickFiller
Quick lock banjo connection and shut-off



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



FlexCapacity pump system
COMMANDER 4500 / 5500 / 7000 / 8500 and 10000 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.

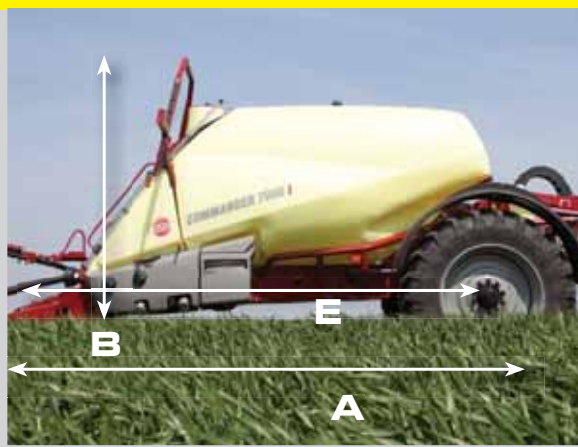
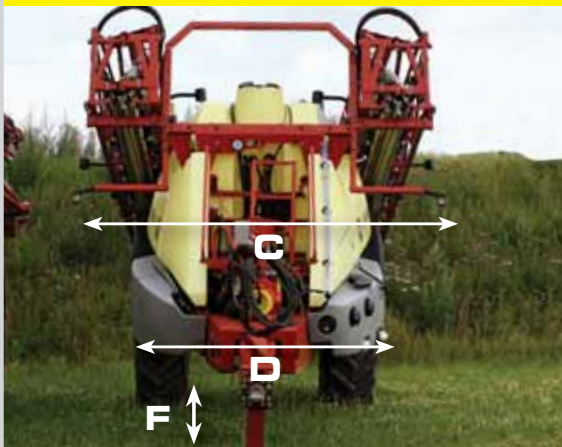


Hydraulic support leg
for 4500.

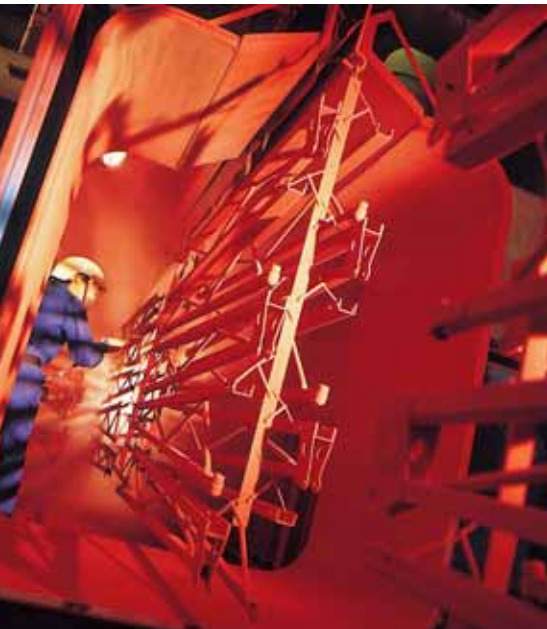
Technical specifications

Tank, gal	(4500) 1,200	(5500) 1,600	(7000) 2,000	(8500) 2,250	(10000) 2,600
Pumps, type – gpm.	463-73/463H-85	463H-85/2x463-160	463H-85/2x463-160	463H-85/2x463-160	463H-85/2x463-160
Booms	FORCE/TWIN FORCE	FORCE/TERRA F/TWIN	FORCE/TERRA F/TWIN	FORCE/TERRA FORCE	FORCE/TERRA FORCE
Hydraulic suspension	Optional	Standard	Standard	Standard	Standard
Suspended drawbar	—	Standard	Standard	Standard	Standard
Hydraulic outlets needed (Y models)	1 single + 1 double acting	1 single + 2 double acting	—	-	-
Hydraulic outlets needed (Z models)	1 double acting	2 double acting	2 double acting	2 double acting	2 double acting
Weight drawbar (empty tank)*, lb.	2,053	2,463	3,124	2,380	2,450
Weight axle (empty tank)*, lb.	9,762	12,151	12,639	11,662	11,907
Weight total (empty tank)*, lb.	11,373	14,614	15,763	14,000	14,321
Turning radius SafeTrack, ft.	20	30	30	NA	NA
Total length, ft.	A 25.5	28	28	29	29
Total height, ft.	B 13 (320/90 R46)	12.5 (320/90 R50)	12.5 (320/90 R50)	12 (380/105 R50)	12 (380/105 R50)
Width with FORCE and TWIN FORCE, ft.	C 10	10	10	11.6	11.6
Width with TERRA FORCE boom, ft.	—	10	10	11.6	11.6
Track width, in	D 60 to 120 (Select Axle Configurations)	60 to 120 (Select Axle Configurations)	72 to 120 (Select Axle Configurations)	72 to 120 (Select Axle Configurations)	72 to 120 (Select Axle Configurations)
Length draw to axle, in	E 238	238	238	238	238
Clearance, in	F 31 (320/90 R46)	30 (320/90 R50)	30(320/90R50)	34 (380/105 R50)	34 (380/105 R50)
RinseTank	132	132	132	193	193

* Weight 4500 is with 90' TWIN boom, 5500 is with 80' TWIN FORCE boom and 7000, 8500 & 10000 is with 120' TERRA FORCE boom.



The Sprayer



Superb surface treatment

The high-technology surface treatment contains a multiple step process, including an Oxsilan pre-treatment prior to powder coat painting of all major components.

Together with the Delta/Magni treatment of nuts, bolts and other hardware, HARDI supplies high corrosion protection of our products. Prior to the treatment of steel in HARDI North America, an automated metal finishing booth uses steel shot to remove debris and physically clean the steel before it is visually inspected and sent to the surface treatment process.

Testing procedures

Sprayers leaving HARDI North America are tested according to the strictest quality standards. This ensures that the highest quality sprayers are delivered to farmers.



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 North America, Sweden, Norway, Denmark, the UK, France, Spain, 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.



HARDI North America, Davenport, IA



HARDI Test Center, Davenport, IA



HARDI North America, London, ON

HARDI North America Inc.

1500 W. 76th St. - Davenport, IA 52806
Ph: (563) 386-1730 Fax: (563) 386-1280
337 Sovereign Rd- London, ON N6M 1A6
Ph: (519)659-2771 Fax: (519) 659-2821

Email: info@hardi-us.com
Web: www.hardi-us.com



The Sprayer

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

