USER MANUAL

BOSS SEED DRILL

BOSS

AGRISEM®

Telephone : +33 (0) 2 51 14 14 40 Mail : agrisem@agrisem.com	Manual: NOTT-FR-800-A	AGRISEM 535 Rue Pierre Levasseur CS 60263 44158 ANCENIS - FRANCE

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1 Introduction

1.1 Preface

Before commissioning the machine, the instructions in this manual must be carefully read and strictly followed. This will help to eliminate hazards, reduce repair costs and downtime and increase the reliability and service life of your machine. Observe the safety instructions!

AGRISEM accepts no responsibility for damage and malfunctions resulting from failure to comply with this manual.

This manual is intended to make it easier for the user to get to know the machine and to exploit the potential applications in accordance with the intended use.

This instruction manual must be read and observed by all persons who have to work on or with the machine, e.g. :

- Operations (including preparation, troubleshooting during work, maintenance)
- Maintenance (servicing, inspection)
- Transportation

The warranty period starts from the date of delivery.

We reserve the right to make changes to the illustrations, technical data and weights shown in this manual for the purpose of improvement.

The illustrations in this user manual show different versions of the mounted or coupled device as well as different equipment.

1.2 Service

The AGRISEM Company wants you to be completely satisfied with your machine and with us.

If you have any problems, please contact the sales manager for your area.

1.3 Damages

The machine has been carefully manufactured by AGRISEM-SLY. However, even in the case of proper use, defects that can lead to a complete breakdown can be caused by, for example:

- Damage due to external influences
- Wear and tear of wearing parts
- Missing or damaged work equipment
- Incorrect driving speeds
- Incorrect setting of the equipment (incorrect assembly/ coupling, failure to follow the setting instructions)
- Non-compliance with the user manual
- Maintenance and servicing not carried out or not carried out properly

Therefore, before each use of the machine and while it is in operation, you should check whether it is working properly and whether the flow rate is correct.

Any claim for compensation for damage that has not occurred directly on the machine is excluded. The company cannot be held liable for damage caused by errors in handling and use.

1.4 Description of warning terms

	***DANGER*** *This pictogram accompanies a risk situation for the user.* *Consequences: death or unavoidable serious injury*
	***WARNING*** *This pictogram accompanies a risk situation for the user.* *Consequences: death or serious injury may occur.*
	***CAUTION*** *This pictogram accompanies a risk situation for the user of the equipment.* *Consequences: minor injuries may occur to the user, minor damage may occur on the equipment.*
	***IMPORTANT*** *This pictogram provides mandatory information.* *Consequences: equipment damage, physical risks, financial risks.*

2 Safety and responsibility

The following hazard and safety information applies to all sections of this manual.

The machine is built according to the current state of the art and the recognised technical safety regulations. Its use may, however, present a danger of injury or death to the user or third parties and/or cause damage to the machine or other equipment.

Read and observe the following safety instructions before using the machine!

2.1 Intended use

The machine is intended to be used for seeding and/or normal tillage in accordance with the specific rules in the agricultural sector. Any other use or use beyond the intended purpose, e.g. as a means of transport, is not considered to be in accordance with the intended use and may result in injury or death to people.

AGRISEM accepts no responsibility for any claims that may result from this. The user assumes full responsibility for this.

Comply with the accident prevention regulations of the mutual agricultural insurance funds and other generally recognised rules on safety, occupational health and road safety.

Only use the machine if it is in perfect technical condition for its intended purpose and with full knowledge of the risks!

Remove any potential safety hazards immediately.

The machine may only be used, maintained and repaired by persons who are familiar with it and have been informed of the dangers.

2.2 Spare parts

AGRISEM original spare parts and accessories are specially designed for this machine.

Other spare parts or accessories are neither inspected nor authorised by AGRISEM.

The installation or use of parts that are not of the AGRISEM brand may, in certain cases, lead to adverse changes in the characteristics of the machine and thus affect the safety of people and the machine.

The AGRISEM Company cannot be held liable for damage from the use of non-original parts and accessories.

When safety stickers are affixed to the component that is to be replaced, they must also be ordered and affixed to the replacement component.

2.3 User manual

Intended use also includes complying with the instructions in the user manual and the manufacturer's operating, maintenance and servicing instructions.

The user manual is an integral part of the machine!

The machine should only be used in accordance with the user manual. Failure to comply with the user manual may result in serious injury or death to persons.

Before working, read and observe the relevant chapters of the user manual.

Keep the user manual handy.

Give the user manual to subsequent users. To be submitted in the local language in case of resale in a country where another language is spoken.

2.4 Personnel qualification

Improper use of the machine may result in serious injury or death to persons. To avoid accidents, any person working on the machine must meet at least the following general criteria:

They must be physically able to control the machine.

They are capable of carrying out safe work on the machine within the scope of this user manual.

They know how to operate the machine in the course of their work and are aware of the hazards involved in the work. They can assess and avoid work-related hazards.

They have understood the user manual and can apply the information it contains.

They know how to drive vehicles safely.

For driving on the road, they are familiar with the respective rules of the road and have a valid driving licence.

A trainee should always be supervised when working with the machine.

The operator must:

- Regulate the scope of responsibilities, competence and supervision of personnel.

- Train and instruct staff as required.
- Provide the operator with access to the user manual.
- Ensure that the operator has read and understood the user manual.

2.5 User groups

Persons working with the machine must be trained accordingly to perform the various tasks.

Trained operators

These persons must have been instructed by the owner operator or suitably qualified personnel on the tasks to be performed. This concerns the following tasks:

- Road transport
- Use and settings
- Operation
- Maintenance
- Fault finding and troubleshooting

Skills and educational level

Activity	Instructed person	Person with specialised training	Person specially trained for this activity
Transport loading	-	x	x
Commissioning	x	x	-
Installation and setting up the equipment	-	x	-
Operation	x	x	-
Maintenance	x	x	-
Finding and resolving faults and problems	x	x	-
Waste reprocessing/disposal	-	-	x

2.6 Children at risk

Children are not able to assess dangers and behave unpredictably. They are therefore particularly at risk:

Keep children away.

In particular, make sure that there are no children in the danger area before starting the machine and initiating its movements.

Immobilise the tractor before getting out.

Children may trigger dangerous movements if they are able to access on the machine. An insufficiently secured and unattended machine is a danger to children playing nearby!

2.7 Personal protection equipment

Missing or incomplete protective equipment increases the risk of

injury. Personal protective equipment includes, for example:

Well-fitting clothing / protective clothing, if necessary a hairnet

Safety shoes, protective gloves

Protective glasses to protect against dust or splashes when handling fertiliser and liquid fertiliser (observe the fertiliser manufacturers' instructions)

Respiratory protection mask and protective gloves when handling disinfectants or seeds treated with disinfectants (observe the disinfectant manufacturers' instructions)

Determine the personal protective equipment for the respective task.

Make sure effective protective equipment is available and in good condition.

Never wear rings or other jewellery.

2.8 Road safety

It is forbidden to carry passengers on the machine!

Observe the permitted transport widths and heights. Take into account the vehicle height, especially when passing under bridges and low power lines.

Axle loads, tyre load capacities and permissible total weights must be observed so that sufficient steering and braking precision is maintained. The front axle must always have a load of at least 20% of the tractor's empty weight.

For road transport, the machine must be in the transport position. The machine must be folded and locked.

Before folding, soil must be removed from the folding areas. This is to avoid damage to the mechanical system.

Install lighting and signalling and protective devices and check their functioning.

Before driving on the road, clear any dirt that has accumulated on the machine.

Driving is influenced by mounted/coupled implements.

Particularly when cornering, take into account the large overhang and the mass of inertia of the attachment/coupling as well as the degree of filling.

Raised machines (three-point hydraulic system):

Consider the lack of stability and manoeuvrability of the tractor.

When travelling on public roads, observe the maximum speed allowed!

Always adapt driving to road conditions to avoid accidents and damage to the frame and transport wheels. Take into account personal abilities, road conditions, traffic, vision and bad weather.

2.9 Operational safety

2.9.1 Commissioning

Without correct commissioning of the machine, its operational safety cannot be guaranteed. This can lead to accidents and serious injury or death.

Use the machine only after receiving the necessary instructions from the authorised dealer, factory representatives or AGRISEM employees.

The completed acknowledgement of receipt must be returned to AGRISEM.

The machine may only be used if all protective devices and safety-related devices, e.g. removable guards (chocks, etc.), are in place and functioning properly.

Regularly check that nuts and bolts are tight, especially those on wheels and work tools, and retighten them if necessary.

Check tyre pressure regularly.

2.9.2 Damage to the machine

Damage to the machine can impair its operational safety and cause accidents. This can result in serious injury or death.

The following parts of the machine are particularly important for safety:

- Hydraulic system
- Brakes (where applicable)
- Connecting devices
- Protection devices
- Lights

If there is any doubt as to the safe condition of the machine, e.g. if consumable parts are leaking, if there is visible damage or if the machine's behaviour has changed unexpectedly: stop the machine immediately and secure it.

If possible, determine the damage with the help of this user manual and eliminate it.

Eliminate possible causes of damage (e.g. coarse dirt or loose screws).

Have the damage repaired at a qualified specialist workshop if it may compromise safety and if you cannot repair it yourself.

2.9.3 Coupling and uncoupling

WARNING
If the tractor does not correspond to the coupled machine, the following risks apply:
- Breakage of coupling
- Instability under load
- Instability when manoeuvring
- Insufficient braking capacity

There is only a single operator, with drivers coupling and uncoupling the machine on their own. Use the external lift controls.

Ensure that no one is standing between the tractor and the machine or in the immediate vicinity of the machine when coupling or uncoupling.

Before getting out of the tractor to couple or uncouple, apply the parking brake, stop the engine and remove the ignition key from the tractor.

Before coupling your machine, make sure that there are no signs of wear, breakage or incompatibility with your tractor in the coupling pins, drawbar couplings or ball joints.

Depressurise your hydraulic system before connecting or disconnecting hydraulic connections.

Connect or disconnect the electrical connections.

Lower the machine completely to the ground before uncoupling. Check that the surface is level and firm enough to ensure that the machine is stable when stored.

When your machine is parked, make sure it is stable so as not to cause personal injury or damage to equipment.

2.9.4 Hydraulic system

The hydraulic system is under high pressure. Splashed liquid can penetrate the skin and cause serious injury. Consult a doctor immediately in the event of injury.

The machine's hydraulic system has a number of functions that can cause injury and equipment damage in the event of operating errors.

Do not connect the hydraulic hoses to the tractor until both the tractor and the machine are depressurised.

The hydraulic system is under high pressure.

Regularly check all pipes, hoses and connections for leaks and externally visible damage!

Only use appropriate means to search for leaks. Repair damage immediately! Oil splashes can cause injuries and fires!

To prevent operating errors, mark the plugs and sockets of the hydraulic connections.

Consult a doctor immediately in the event of injury!

Secure or lock the tractor's valves when not in use!

Replace the hydraulic hoses after a maximum of six years.

2.9.5 Pneumatic circuit and connections

Observe the assembly order of the pneumatic connections.

Before connecting the pneumatic system, clean the connections on the tractor and on the machine and check that the pressure is zero on the tractor and on the machine.

Replace damaged or worn pneumatic hoses and observe the dimensional specifications.

For all operations on the pneumatic system, place the machine on the ground and depressurise the pneumatic circuit.

2.9.6 Pressure accumulator

There may be pressure accumulators in the hydraulic system.

Do not open the pressure accumulators or do any work on them (welding, drilling). Even after emptying, the tanks are still under gas pressure. The hydraulic system must be depressurised before maintenance work is carried out!

2.9.7 Braking system

Depending on the equipment, the machines can be fitted with a pneumatic or hydraulic braking system.

The braking system must always be connected and functioning properly when driving on the road.

After coupling the machine and before any kind of transport, always check the condition and functioning of the braking system first.

Check the setting on the brake force regulator.

Always release the parking brake first before moving.

Before uncoupling, always secure the machine against rolling and apply the parking brake.

2.9.8 Overhead lines

When the side sections are unfolded and folded, the machine can reach the height of overhead lines. The voltage can then be discharged onto the machine and cause a fatal electric shock or fire.

Ensure that sufficient distance is maintained from high voltage power lines when the side sections are folded and when unfolding and folding.

Never unfold or fold the side sections in the vicinity of power pylons and overhead lines.

Never get on or off the machine under overhead lines to avoid the risk of electric shock from voltage discharges.

2.9.9 Action in the event of a voltage discharge

Voltage discharges cause high electrical voltages on the outside of the machine. Large voltage differences appear on the floor around the machine. Taking big steps, lying on the floor or touching the ground with your hands can cause deadly electric currents (step voltage).

Do not leave the cab.

Do not touch metal objects.

Do not make any conductive connection with the ground.

Warn people: NOT to go near the

machine. Electrical voltages on the ground can cause powerful electric shocks.

Wait for professional help. The overhead line must be cut.

If people have to leave the cab despite voltage discharges, e.g. when there is immediate danger of death from fire:

Jump out of the machine. Be careful to maintain stability while jumping. Do not touch the outside of the machine.

Move away from the machine taking small steps.

2.9.10 Technical limit values

If the technical limits of the machine are not respected, the machine may be damaged. This can lead to accidents and serious injury or death.

The following technical limit values are particularly important for safety:

- total permissible weight
- maximum axle loads
- maximum load transfer
- maximum speed

Also observe the maximum tractor loads.

To calculate the permissible loads and weights, refer to section ‘3.4 Ballast calculation’.

2.9.11 Use in the field

It is forbidden to carry passengers on the machine!

Before start-up and commissioning, make sure that no one is near the machine (children). Ensure that there is sufficient visibility.

Ensure sufficient stability of the machine in case of longitudinal and transversal slopes on uneven ground. Observe the permitted limit values for the tractor.

None of the prescribed and supplied protective devices may be removed.

Ensure that no one is in the pivoting range of hydraulically operated machine parts.

Do not reverse the machine when it is lowered. The components are only designed to move forwards in the field and could be damaged when travelling in reverse.

2.9.12 Replacement of worn parts

Secure the machine so that it does not move unexpectedly!

The raised frame sections under which you are positioned must be secured with suitable supports!

Never climb on rotating parts to get on the machine. These could spin and you could be seriously injured if you fall.

Protruding parts (ploughshares, etc.) can cause injury!

2.9.13 Transportation on public roads

Machines must always be used in accordance with the applicable guidelines and regulations concerning accident prevention, road safety and occupational health.

Before any movement:

- Check the wheel studs and tandem mounting bolts (if fitted) for tightness.
- Check the functioning of the lighting equipment.
- Check tyre pressure and condition:
  - Do not drive with low pressures or damaged tyres or rims.

When driving, use all the lighting and signalling devices required by law in the country of use. If necessary, they can be removed during field work to prevent damage.

The user is responsible for ensuring compliance with the applicable regulations and for monitoring developments.

Regularly check the condition and fixing of the coupling pins; do not hesitate to change them if they are worn.

The tractor's ball joints may also show signs of wear, so do not hesitate to replace them with new ones.

Drive at a reasonable speed in accordance with the law so that you always have control of the coupled unit.

Take particular care on uneven or sloping ground. Before starting a descent, drop down to a lower gear.

The tractor used to move the machine on the road must have the same weight and power as the one used for field work.

Never manoeuvre when a person is near the machine or the tractor.

For machines equipped with a folding system for transport, make sure that there are no people or obstacles in the scanning area when folding the parts.

Observe all safety rules when driving, especially on bends and narrow roads.

Take all precautions before getting out of the tractor.

Engage the parking brake, stop the engine, remove the ignition key.

When travelling on the road, do not allow anyone to ride on the machine or between the machine and the tractor.

2.10 2.10 Fertilisers and seeds treated with disinfectants

Improper handling of fertilisers and seeds treated with disinfectants can lead to poisoning and death.

Observe the product manufacturer's safety data sheet. If necessary, ask the dealer for the safety data sheet.

Determine the required personal protective equipment according to the manufacturer's instructions and ensure its availability.

2.11 Environmental protection

Consumables such as hydraulic oil, lubricants, etc., can harm the environment and people's health.

Do not allow consumables to pollute the environment.

Soak up spilled consumables with absorbent material or sand, collect them in a sealed, marked container and dispose of them in accordance with legal requirements.

2.12 Retrofits

Constructional changes and additions can impair the proper functioning and operational safety of the machine. This can result in serious injury or death.

Do not make any constructional changes or additions that are not authorised by AGRISEM.

Conversions or additions to the machine may only be carried out by a specialised workshop or by an operator trained for this purpose by AGRISEM.

Observe national regulations for weights, weight distribution and dimensions.

For equipment affecting weight or weight distribution, the specifications for the coupling device, load transfer and axle load must be checked and observed.

For machines without brakes, a braking system may have to be retrofitted if the weight limits are exceeded.

For all changes to the data on the nameplate, a new nameplate with the current data must be installed.

If there are any changes to the information on the road permit, it must be renewed.

2.13 Servicing and maintenance

Incorrect maintenance and servicing jeopardises the operational safety of the machine. This can lead to accidents and serious injury or death.

Observe the prescribed intervals for periodic checks and inspections.

Maintain the machine according to the maintenance plan; see chapter ‘Servicing and maintenance’.

Only carry out the work described in this user manual.

Carry out maintenance and servicing work after placing the machine on a stable floor and securing it to prevent it from moving.

Depressurise the hydraulic system and lower the work equipment or support it with appropriate means.

Before carrying out any work on the electrical system, disconnect it from the power supply.

Before performing welding work on the machine, disconnect cables from computers and other electronic components. Mount the grounding terminal as close as possible to the weld.

Before cleaning the machine with a high-pressure cleaner, cover all the openings, which for safety and functional reasons must not be penetrated by water, steam or cleaning agents. Do not direct the water jet directly at electrical or electronic components, bearings or the fan. When cleaning with high pressure or steam, always keep a distance of at least 50 cm from the machine parts.

After cleaning, check all hydraulic lines for leaks and loose connections.

Inspect for wear from friction and abrasion. Immediately remedy any defects found!

Tighten all loose screw connections during servicing and maintenance work.

Do not wash new machines with steam or high-pressure cleaners. The paint only hardens after about 3 months and could be damaged before that.

2.14 Delivery

As a rule, the machine and tools are delivered fully assembled on a low loader. If parts or subassemblies have been disassembled for transport, they will be reassembled on site by our dealer or by our fitters.

Depending on the model of low loader used, the machine can be lowered by pulling it behind a tractor or must be unloaded with appropriate lifting equipment (hoist or crane).

- Only use lifting equipment and tools with sufficient load-bearing capacity and approval!

2.15 Loading and unloading

Loading and unloading with a tractor.

The machine should be coupled to or uncoupled from the tractor for loading onto or unloading from a truck.

An assistant is needed to guide the manoeuvre.

Attach or remove the transport locks.

2.16 Safety stickers

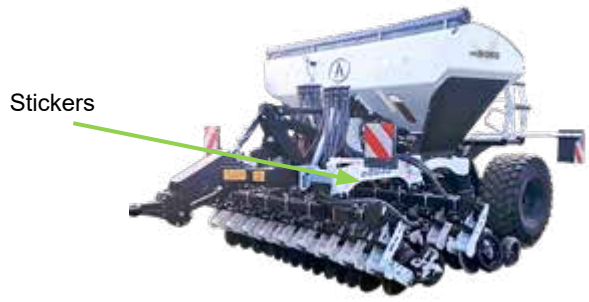
Take care not to damage the safety stickers when washing the machine. Change or replace any damaged or missing stickers.

2.16.1 Explanation of stickers :

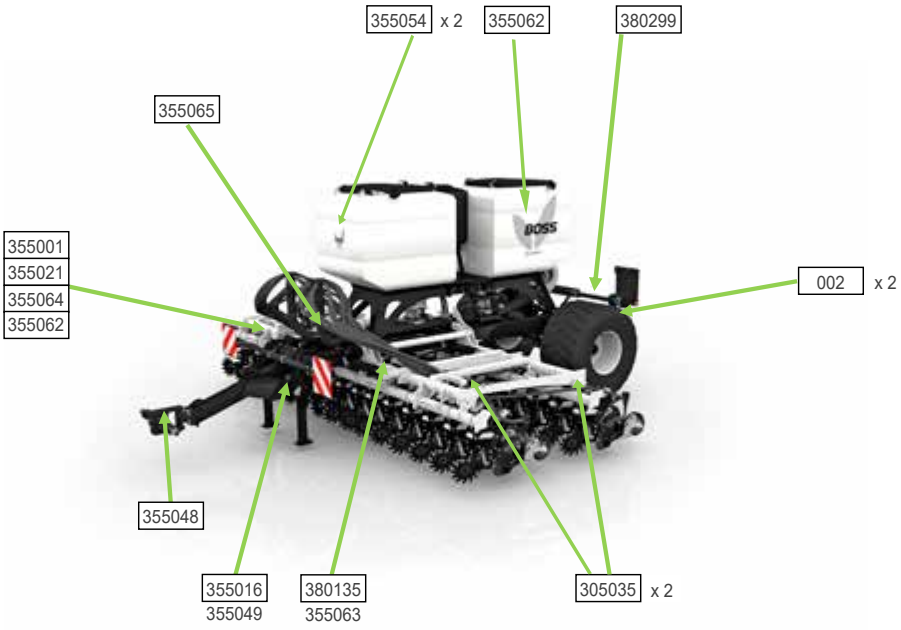
Sticker	Description	Sticker	Description
380135 	ETIQ01-627 Stay clear when unfolding. Keep a safe distance from any moving parts when unfolding.	305021 	ETIQ01-601 Stop the engine and remove the key. Stop the engine and remove the ignition key before carrying out any maintenance or servicing.
305016 	ETIQ01-633 **Feet-crushing danger area.** Keep a safe distance from any moving parts.	355001 	ETIQ01-603 Read the user manual. Read the user manual and safety instructions before commissioning and observe them during operation.
355054 	ETIQ01-625 **Crushing danger area.** Never work in an area where there is a risk of crushing while parts are still moving.	355063 	ETIQ01-643 Keep a safe distance from power lines. Keep a safe distance from high-voltage power lines.
355049 	ETIQ01-617 **Locking device.** Apply the locking device before any work is carried out.	305064 	ETIQ01-641 **Hydraulic leakage.** Follow the instructions in the user manual for maintenance work.
355062 	ETIQ01-651 **Transporting on the machine.** Never carry passengers on the machine.	355048 	ETIQ01-609 **Scanning area.** Stay out of the scanning area.
355035 	**ETIQ01-655** **Rotating parts.** Never put your hands in the area where the bolt is rotating.	380299 	ETIQ01-649 **Moving parts.** Never climb on parts that can rotate. Only use the equipment intended for climbing.

Sticker	Description
002 	**Wheel tightening.** Check the tightness of the wheels after 8 hours of use.

2.16.2 Placement of stickers on the mBoss



2.16.3 Placement of stickers on the Boss



The safety stickers with the supplement 'x 2' are located on both sides of the machine.

2.16.4 Placement of stickers on Big Boss machines

3 Technical specifications

3.1 Technical data

3.1.1 mBoss

Operating width (m)	3		4	
Transport width (m)	3		4	
Transport height (m)	2.96		3.96	
Length (m)	5.60			
Weight (kg)	4,150		5,400	
Single hopper capacity (l)	1,600			
Double hopper capacity (l)	3,200			
Triple hopper capacity (l)	(+1200 or 2000) 4400 or 5200			
Open, filled hopper dims. (m)	0.77 x 0.91			
Number of seeding ploughshares	18	16	24	22
Row spacing (cm)	16.7	18.75	16.7	18.75
Transport wheels dims.	500/60R-22.5			
Transport wheels dims. (optional)	710/50R-26.5			
Working speed (km/h)	16.7			
Max. transport speed (km/h)	25			

3.1.2 Boss

Operating width (m)	3	4	4.5	6	7
Transport width (m)	2.99				
Transport height (m)	3.23		3.29	3.97	4.45
Length (m)	7.18 – 7.80 (triple hoppers)				
Weight (kg)	4,850	5,310	6,240	6,650	7,200
Single hopper capacity (l)	1,200 or 2,000				
Double hopper capacity (l)	2,400 or 4,000				
Triple hopper capacity (l)	3,600 or 6,000				
Open, filled hopper dims. (m)	0.77 x 0.91				
Height of filled hopper (m)	2.63 (1200L hopper) or 3.12 (2000L hopper)				
Number of seeding ploughshares	12 - 16 - 18	16 - 20 - 22 - 24	24	24 - 30 - 32 - 36	28
Row spacing (cm)	16.7 - 18.75 - 20 - 25	16.7 - 18.75 - 20 - 25	18.75	16.7 - 18.75 - 20 - 25	25
Transport wheels dims.	500/60R-22.5				
Transport wheels dims. (optional)	710/50R-26.5				
Working speed (km/h)	6 - 15				
Max. transport speed (km/h)	25				

3.1.3 Big Boss

Operating width (m)	8	9	10	12
Transport width (m)	2.99			
Transport height (m)	4.45			
Length (m)	12.5			
Weight (kg)	16,900	17,500	18,100	19,500
Single hopper capacity (l)	1,200 or 2,000			
Double hopper capacity (l)	2,400 or 4,000			
Triple hopper capacity (l)	3,600 or 6,000			
Open, filled hopper dims. (m)	0.77 x 0.91			
Height of filled hopper (m)	2.63 (1200L hopper) or 3.12 (2000L hopper)			
Number of seeding ploughshares	32 - 40 - 44 - 48	36 - 46 - 48 - 54	40 - 50 - 56 - 60	48 - 60
Row spacing (cm)	16.7 - 18.75 - 20 - 25			20 - 25
Transport wheels dims.	500/60R-22.5			
Transport wheels dims. (optional)	n/a			
Working speed (km/h)	6 - 15			
Max. transport speed (km/h)	25			

NOTE:
We reserve the right to make changes as a result of technical developments.
The weight of the coupled implement depends on the equipment; indication with minimum equipment.
The permitted transport heights and widths on public roads may vary from country to country. Observe national registration requirements.

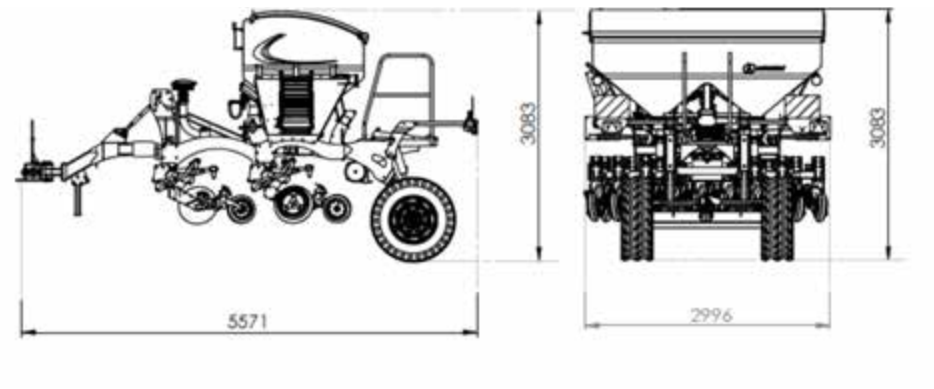
3.2 Nameplate

The nameplate with the CE label is located on the machine frame.

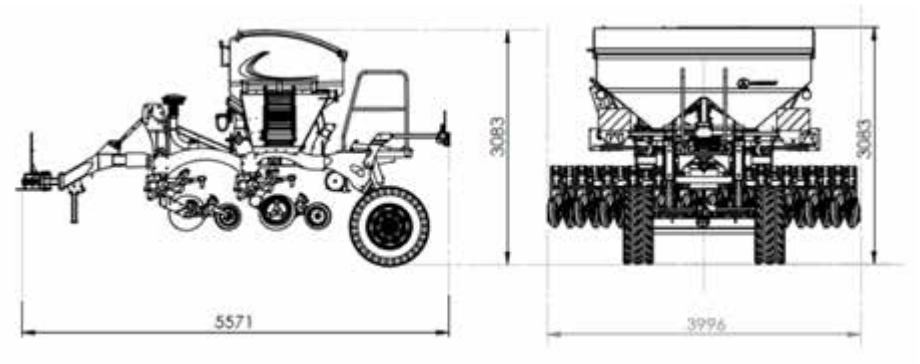
Reference marker	Description
1	Brand
2	Model / variant / version
3	Serial identification number
4	Date of receipt
5	Issue of approval by certification bodies
6	Total loaded weight
7	Tare weight
8 - 9	Not used

3.3 Dimensions

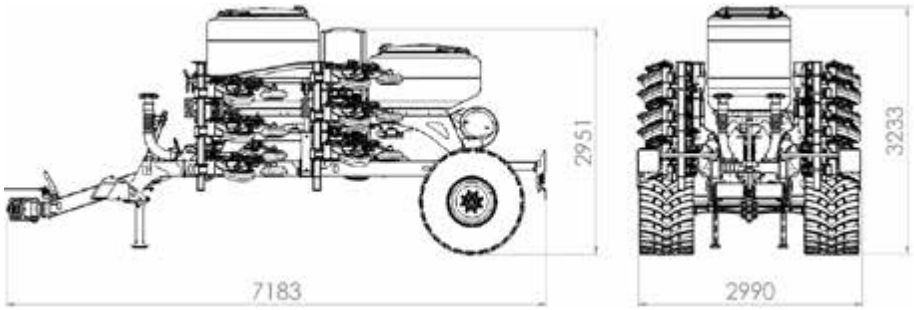
mBoss seed drill 3 m:



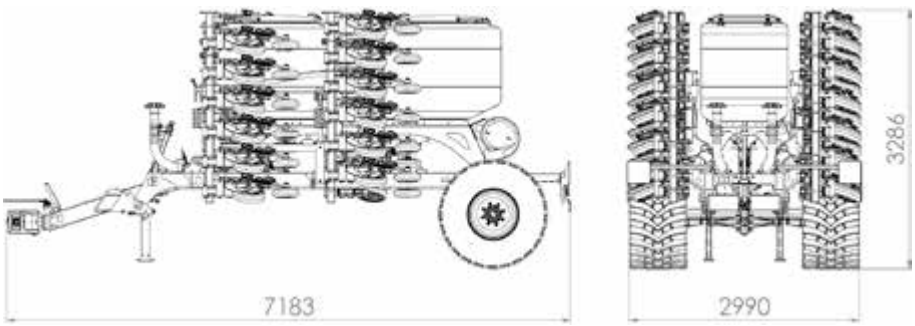
mBoss seed drill 4 m:



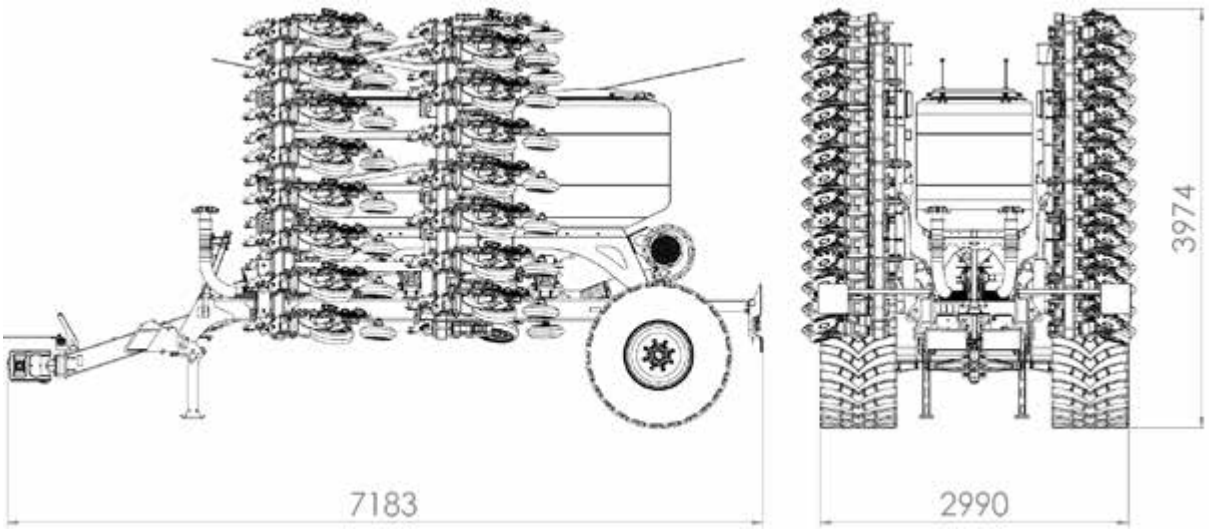
BOSS seed drill 3m:



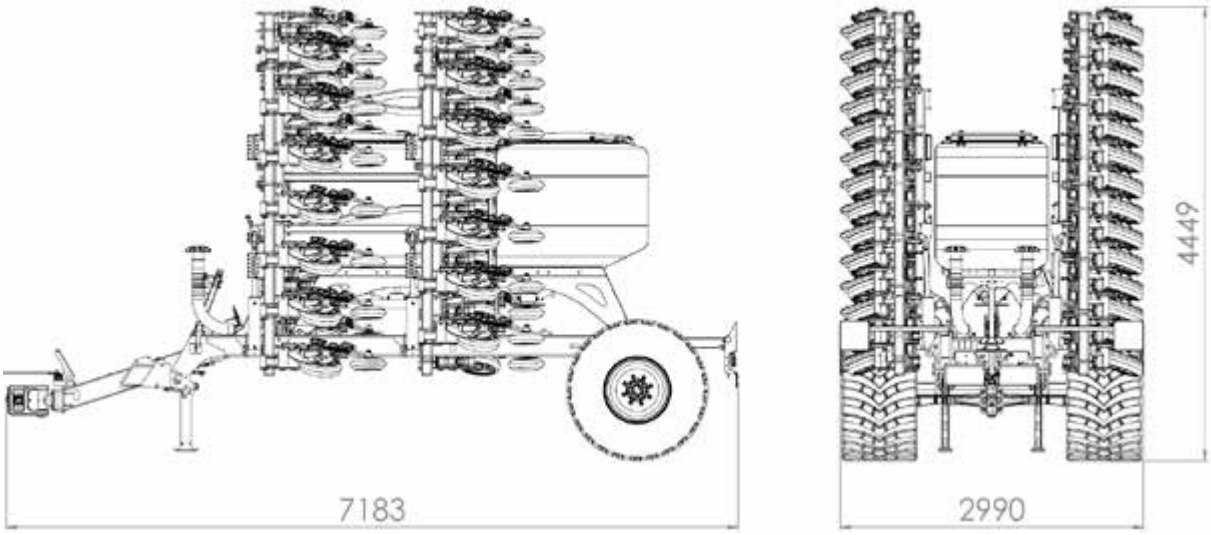
BOSS seed drill 4.5m :



BOSS seed drill 6m :

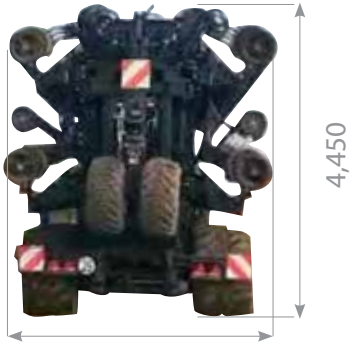


BOSS seed drill 7m:



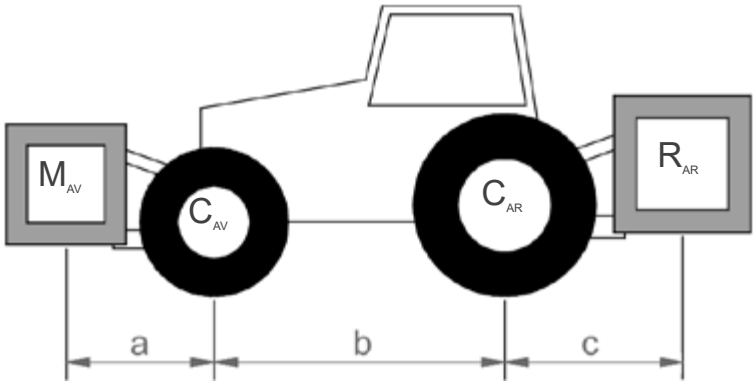
Big Boss seed drill 8 / 9 / 10 / 12m :

Dimensions, see table ‘3.1 Technical data’ 3.1.3 Big Boss



3.4 Ballast calculation

The mounting or coupling of implements must not lead to the tractor's permissible gross vehicle weight, permissible axle load and tyre specifications being exceeded.



PV Tractor empty weight.
C_{AV} Empty tractor front axle load.
C_{AR} Empty tractor rear axle load.
M_{AV} Front mass (if present).
R_{AR} Load transfer from the coupled machine
a Distance between the centre of gravity of the front implement or front ballast and the centre of the front axle.
b Tractor wheelbase.
c Distance between the centre of the rear axle and the centre of the rear lower coupling point.

All weight data in (kg)
All measurement data in (m)

Calculation of the minimum ballast at the front :

$$M_{AV\ (min)} = \frac{R_{AR} * c - C_{AV} * b + 0.2 * P_V * b}{a + b}$$

Calculation of the actual front axle load :

$$C_{AV\ (total)} = \frac{M_{AV} * (a + b) + M_{AV} * b - R_{AR} * c}{b}$$

Calculation of the actual total weight :

$$P_{(total)} = M_{AV} + P_V + R_{AR}$$

Calculation of the actual rear axle load :

$$C_{AR\ (total)} = P_{(total)} - C_{AV\ (total)}$$

The calculated values must not exceed the permissible values.

	Actual value obtained from the calculation		Permissible value according to the user manual		Value x 2 of the permissible tyre load
Mini ballast front	$M_{AV\ (min)}$=				
Total weight	$P_{(total)}$=	≥			
Load on front axle	$C_{AV\ (total)}$=	≥		≥	
Load on rear axle	$C_{AR\ (total)}$=	≥		≥	

4 Usage

4.1 Coupling

Before coupling the machine, ensure that it has been correctly immobilised.

1. Check the machine and tractor couplings for wear and cleanliness.
2. Move the tractor up to the machine.
3. Couple the machine.

a) Machines with coupling on the lifting arms :

- ➢ Couple the machine
- ➢ Lock the catch hooks ➢ Tension the stabilisers to prevent lateral movement
- ➢ Ensure that the level of the linkage is set so that the machine frame is in a horizontal position
- ➢ Connect the hydraulic brake connector

b) Machines with hitch ring :

- ➢ Adjust the height of the drawbar so that the machine can be coupled.
- ➢ Couple the machine.
- ➢ Insert the bolt and lock it.
- ➢ Connect the hydraulic brake connector

c) Machines with ball coupling :

- ➢ Lower the drawbar or cap onto the ball and raise the machine slightly.
- ➢ Position the clamping frame.
- ➢ Check and adjust the size of the gap between the clamping frame and the cap.

4. Fold in the support legs and lock them in place with the pin provided.

4.2 Hydraulic connection

The operation of the seed drill requires :

- 1 double-acting hydraulic valve for folding and unfolding the machine's wings.
- 1 double-acting hydraulic valve to raise and lower the seeding units in the field.
- 1 double hydraulic valve for the use of markers (optional).
- 1 single-acting to power the hydraulic turbine.
- 1 free return (male in 3⁄4) to the tractor's hydraulic oil tank for turbine oil return.

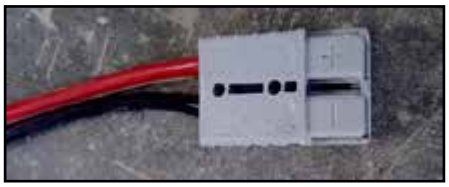
Never operate the valve controlling the turbine without having correctly connected the free return, otherwise the turbine motor may be damaged.

When using a tractor with a variable flow pump and integrated regulators (closed circuit), the tractor's regulator must be used to adjust the fan speed.

The oil flow rate required for a turbine speed of approximately 4,500 rpm is 45 l/min.

- ➢ Clean the hydraulic connections before connecting.
- ➢ Connect the hydraulic hoses that supply the folding system to a double-acting valve.
- ➢ Connect the hydraulic hoses required to supply the markers to a double-acting control valve.
- ➢ Connect the free return of the turbine (photo).
- ➢ Connect the turbine supply to a single-acting valve.

4.3 Electrical connection



1. Plug in the road signal electrical socket.
2. Connect the power supply plug of the regulator (photo)
3. Connect the cigarette lighter socket to the power supply of the touch pad.

Starting up

5.1 Unfolding the seed drill

5.1.1 Boss

1. Remove the safety pins from the wings

Do not position yourself under the wing of the seed drill when removing the pins

2. Activate the corresponding hydraulic control valve until the wings are completely unfolded

Before unfolding the wings, make sure that the seeding units are in the upper position

5.1.2 Big Boss

Bouton N°1 : Anti-cabrage
Bouton N°2 : Lever / baisser roue de jauge latérale avant + arrière et lift assist
Bouton N°3 : Pliage / dépliage des ailes
Bouton N°4 : Pliage / dépliage des jauges latérales
Bouton N°5 : Turbine
Bouton N°6 : Verrouillage des roues de jauge avant + arrière

1. Manually unlock the wings by removing the locking pins on the main base brackets.

2. Lift button 1 to activate the anti-lifting device (via the valve that supplies the CETOP).

This function must remain activated during the entire unfolding process.

3. Lift button 2 to unfold the lift assist and the side gauge wheels.

4. Lift button 4 to unfold the side gauges.

5. Lightly actuate the frame cylinders on the tractor to remove the wings from the locking system.

6. Lift button 3 to open the wings.

7. Slowly move the tractor forward to help unfold the wings.

8. Activate the frame cylinders on the tractor to lower the frame completely.

9. Lift button 6 for 10 seconds to unlock the gauges.

10. Lower button 1 to remove the anti-lifting device.

11. When working, put the frame valve in the floating position.

5.2 Hoppers

Whether the machine is in single, double or triple hopper configuration, they are strictly identical and designed to receive all types of seeds and solid fertilisers.

The choice of hopper allocation is left to the user, depending on practicality.

5.2.1 Accessing hoppers

Before accessing the hoppers, make sure that the seed drill is fully immobilised and that the wings are folded out.

1. Remove the pin and shaft from the step located on the left rear row.

2. To open the hoppers, activate the locking levers.

Caution: the hoppers are pressurised, do not open the hoppers when the hydraulic turbine is running

5.2.2 Filling

Before filling the hoppers, we recommend closing the flaps at the bottom of the hoppers

When closing the hoppers, ensure that no grain or foreign matter is trapped between the cover seal and the hopper

After each opening of the hoppers and after long periods of downtime, check for leaks while the fan is operational. Start the fan and look for air escaping from the cover with your hand or ear.

In case of leaks, replace the seals or tighten the hinges and locks. Sealing faults resulting in air loss lead to dosage errors.

IMPORTANT SAFETY ADVICE

- Never walk under a suspended load.
- Ensure that no one crosses the area where handling equipment used for loading is moved.
- When the load is approaching the hopper, make sure that no one is standing on the gateway.
- Only climb on it to open the bag when the load is stabilised above the hopper opening.
- Avoid contact with the treated seed when loading and wear gloves and a dust mask.
- The work performed on a big bag is only done when the bag is stabilised.

5.2.3 Emptying hoppers

1. Move the seed drill to the transport position.

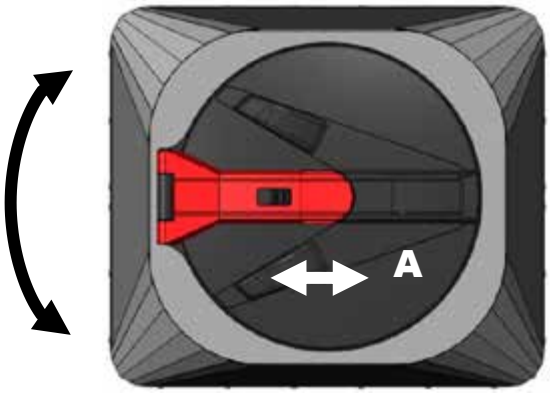
2. Place a big bag or container under the machine.

3. Open the emptying flap on the side of the hopper.

4. If necessary, set the metering unit to forced operation to completely empty the bottom of the hopper.

5.3 Small seed hopper

As an option, the BOSS single, double or triple hopper seed drill can be equipped with an additional 280 litre hopper for small seeds.



- Unlock to open (A) and turn anti-clockwise.
- Turn clockwise to close and lock (A).

5.4 Transporting seeds

The metering units are made of stainless steel and plastic as are the rotors.

Each metering unit is equipped with a valve allowing the half-seed drill to be cut off (1 row out of 2) depending on the wiring of the distribution heads

To send the contents of the hopper to all of the seed drill, the lever must be in the middle position to select one of the two rows. Position the lever on the corresponding row. Repeat this action on all the metering units.

5.5 Calibration of metering units

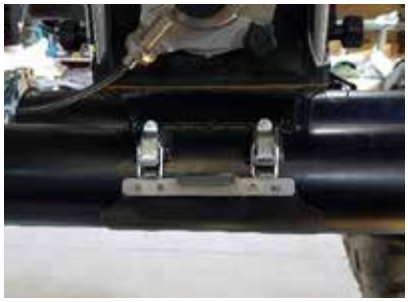
1. Fit the appropriate metering unit according to the quantity and type of seed (see table and instructions for fitting the metering unit)

2. Turn on the seed drill control tablet and go to the calibration settings menu (see ‘Using the tablet’)

3. Fill the hopper

4. Open the flap to release the seed or fertiliser.

5. Open the flap under the metering unit, activate the valve to direct the flow to the side chosen for calibration



6. Insert the appropriate container (photo)

7. Proceed to the ‘flow test’ phase (see ‘Using the tablet’).

8. Remember to close the flap when calibration is complete.

IMPORTANT:
Recalibration is necessary each time the product, the variety or the metering roll is changed.
Changing the dose without changing the product does not require recalibration.

5.6 Dismantling the rotor in the metering units

Regularly check the rotors to avoid clogging and dosage errors.

Unscrew the two handles on each side of the rotor

Then remove the rotor from its housing.

5.7 Changing the rotors

Remove the circlip holding the individual rotors to the hexagonal shaft using a hammer and a pin punch.

Then insert the rotors corresponding to the type of seed and the chosen dose.

Each rotor has a specific volume; adapt the choice of rotors to the desired volume.

Examples of rotors, from left to right:

- Star 3cc : 3 cm³
- Star 67.5cc : 67.5 cm³
- Start 202cc : 202 cm³

Be sure to add full rotors before replacing the circlip.

Make sure that the rotation sensor of the metering unit is replaced correctly.

See Annex 12.2 for the list and configuration of rotors.

5.8 Unfolding the seed drill

5.8.1 Boss

IMPORTANT SAFETY ADVICE

Make sure that no one is on the seed drill or on the access gateways to the hoppers.
Move people away from the danger zone.

1. Ensure that the seeding units are in the upper position and fully folded before connecting the machine.
2. Remove the locking pins.
3. Operate the hydraulic control valve corresponding to the folding of the seed drill.
4. Lock the wings with the locking pins.

5.8.2 Big Boss

For the control unit, see section '5.1 Unfolding the seed drill > 5.1.3 Big Boss'.

1. Lift button 1 to activate the anti-lifting device (via the valve that supplies the CETOP).

This function must remain activated during the entire unfolding process.

2. Move the tractor forwards at least 2 m to align the gauge wheels so that they can be locked.
3. Lift button 6 for 10 seconds to unlock the gauge wheels.

Leave these wheels locked during transportation.

4. Activate the frame cylinders on the tractor to lift the frame. Do not lift the frame fully yet.

5. Lift button 3 to fold the wings.

6. Slowly reverse the tractor to help fold the wings.

7. Activate the frame cylinders on the tractor to complete the lifting of the frame and to be able to lock the wings at the end of the folding process.
8. Lift button 4 to fold the side gauges.

9. Lift button 2 to fold the lift assist and the side gauge wheels.

10. Lower button 1 to remove the anti-lifting device.

11. Manually lock the wings by placing the locking pins (se brackets.

6 Settings

6.1 Setting the seeding depth and the angle of the press wheel

Before adjusting the depth, check the horizontal alignment of the machine. Make sure that the components are raised and do not touch the floor.

6.1.1 Quick rear adjustment system without tools

6.1.1.1 Adjusting the depth

Pull the lever out and position it on the desired notch using the graduated adjustment plate.

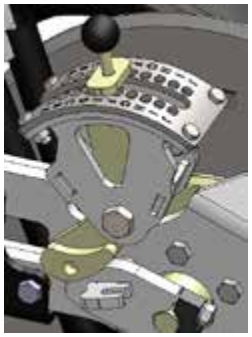
6.1.1 .2 Adjusting the angle

Pull the adjustment lever out to the level of the press wheel and position it on the desired notch.

Adjusting the angle improves the closure of the furrow.

IMPORTANT:
An overly aggressive setting will create unnecessary mechanical stress on the seeding unit (accelerated wear of the system) and will lead to excessive soil displacement, which may even be detrimental to the quality of the seeding (hollowing of the seeding line).

6.1.2 Quick adjustment system for the side wheel (optional)



6.1.2.1 Adjusting the depth

Pull the adjustment lever and position it on the desired notch (photo).

Note that the quick adjustment systems can be used at the same time for more precise depth control. For common use, make sure to set the side wheel slightly deeper.

6.2 Hydraulic pressure setting

The depth control pressure applied to each unit is essential to obtain a satisfactory seed quality, i.e.:
- seeding at the desired and constant depth;
- a good quality closing of the furrow.

Each seeding unit is equipped with a

hydraulic cylinder to adjust the depth control pressure. After setting the working depth, adjust the hydraulic pressure of the unit.

Note : the use of high pressure may alter the seeding depth; adjust the depth if necessary.

The pressure indication is given by the pressure gauge between the distribution heads (photo).

To change the pressure, turn the adjustment wheel clockwise with an Allen key to increase the pressure and anti-clockwise to decrease it.

The working range is between 0 and 40 bar.

Reduce the pressure if conditions are too wet or on loose soil (e.g. on tilled soil before seeding).

- Increase the pressure in dry conditions if the seeding unit has difficulty penetrating the soil and if any irregularity in the depth of seed placement is noticed.

NOTE
Do not work with excessive depth control pressure. Too much pressure not only accelerates the mechanical wear of the seeding unit unnecessarily, it can also have a detrimental effect on the quality of the seed (excessive compaction when closing the furrow).

6.3 Turbine setting

The turbine has a maximum speed of 4,500 rpm; exceeding this can damage the engine.

To switch on the turbine, engage the corresponding hydraulic valve and set it to the continuous pumping position.

Then adjust the hydraulic flow of the valve to adjust the speed of the turbine.

The speed of the turbine must be adjusted depending on the seeds. There is no settings table because the setting will depend on the type of product and the doses used.

The usual operating range is between 2,500 and 4,000 rpm. To select the correct speed, ensure that there is no grain accumulation in the two transparent feed pipes of the distributor heads. Smaller seeds require less air to be transported.

NOTE:
Insufficient flow can lead to build-up in the pipes and cause blockages.
Large seeds require more airflow than small ones.

6.4 Debris catcher setting (optional)

1. Connect the 3-pin plug to the air compressor.

2. Adjust the pneumatic switch to reach the desired pressure on the pneumatic box.

NOTE:
Too much pressure on the debris catcher leads to soil overload.

6.5 Skimmer setting

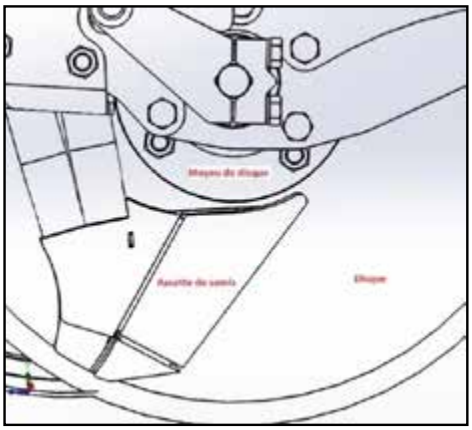
The positioning of the seed skimmer is essential for quality seeding. The skimmer is mounted on flexible rubber washers for precise adjustment. Before adjusting the skimmers, make sure that the seeding disc is not in contact with the soil. If any discs become blocked, the skimmers should be adjusted.

The skimmer must be : - parallel to the disc

- as close as possible to the disc without slowing down its rotation so that debris doesn't get lodged between the disc and the skimmer.

To do this, use a 19" spanner to tighten or loosen the 3 bolts to the optimum position:

- The upper front tip of the skimmer should touch the disc lightly and follow the shape of the hub as closely as possible.
- The lower front corner of the skimmer must be offset from the disc surface by 1 mm (maximum) to allow for disc flexing.
- The rear of the seed skimmer should be offset by +/- 2/3mm.
- It should be possible to turn the disc by hand once the skimmer position has been set.



IMPORTANT:
These settings are essential to prevent debris and straw from jamming between the disc and the skimmer.

6.6 Side wheel setting

The depth control wheels should be against the ploughshare discs and be easily turned by hand.

On the Boss unit, the side wheel has two purposes:

- Limit and maintain the volume of soil lifted by the disc. The wheel must therefore press against the ground (check that the return spring is correctly attached).
- Clean any dirt or debris from the disc. It is therefore important to ensure that the wheel presses perfectly against the discs without blocking their movement.

The side wheel can be adjusted inwards or outwards by means of wedge washers that can be moved on the wheel axle:

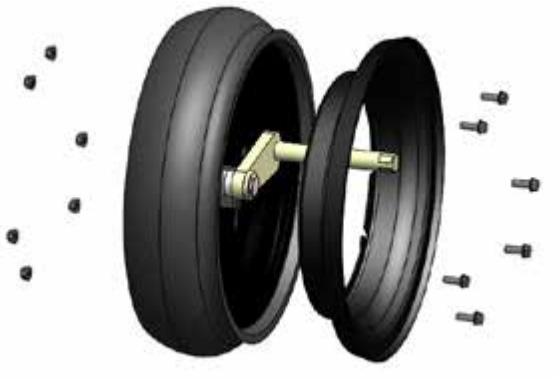
Use a 24 mm spanner to loosen the lock nut holding the press wheel.

Move the wedge washers to the inside or outside of the press wheel to achieve the desired setting.

Once the adjustment has been made, firmly retighten the lock nut holding the press wheel.

6.7 Metal ring for cleaning wheels

In very wet working conditions and on very sticky soils, an optional scraper in the form of a metal ring mounted on the cleaning wheel is available to improve the cleaning of the disc by preventing soil and debris from penetrating the inside of the cleaning wheel rim, thus facilitating the work of the inner scraper (see next chapter 6.8).



Metal ring mounted on side wheel

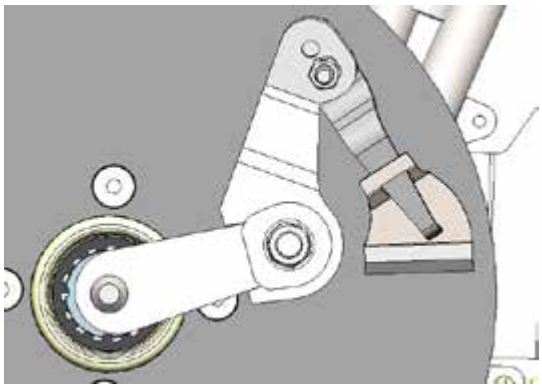
For efficient work, the metal ring should touch the disc very slightly (i.e. slightly apart). As with the cleaner wheel, the position of the cleaner wheel/scraper assembly can be adjusted by means of the wedge washers.

To prolong the life of the metal scraper, do not continuously adjust the position of the scraper on the disc. Allow the disc to work in its current position until the accumulation of mud and debris starts to cause problems.

6.8 Disc cleaning scraper

As standard, the Boss unit is equipped with a scraper inside the cleaning wheel to clean the disc (soil + debris mixture). The openwork rim of the cleaning wheel allows soil and debris to be removed.

The scraper blade must be in full contact with the disc.



1 : The entire length of the scraper blade should be in contact with the disc and 10 - 12 mm from the outer edge of the disc to avoid damage to the skimmer.

- Loosen the spring arm locking bolt
- Rotate the spring arm + blade assembly to the desired position
- Tighten the spring arm locking bolt securely.

2 : To do a high-quality job, the scraper blade must apply sufficient pressure to the disc. To fine-tune the setting :

- Remove the blade from its arm
- Slightly bend the spring arm that holds the scraper blade (using pliers or a ring spanner), ideally with the end of the

arm slightly touching the disc when the blade is removed

- Put the scraper blade back in position

IMPORTANT:
Check the condition of the scraper blade regularly. In the event of severe wear or damage, replace the blade to ensure optimum cleaning of the disc.
Do not wait until the carbide edge is completely worn away before changing the blade.

6.9 Setting the side markers (optional)

Risk of injury from side markers. Keep people out of the pivoting range of the side markers!

The side markers must be adjusted to the working width when first installed. The marking is made in the centre of the tractor track. The setting length of the side markers (measured from the middle of the outermost row) is calculated on the basis of half the working width plus half the row spacing.

BOSS seed drill 3m	
Configurations	Length of markers
18R – 16.7cm	1.58 m
16R– 20cm	1.7 m
16R – 18.75cm	1.59 m
12R – 25cm	1.63 m

BOSS seed drill 4m	
Configurations	Length of markers
24R – 16.7cm	2.08 m
22R – 18.75cm	2.15 m
20R – 20cm	2.10 m
16R – 25cm	2.12 m

BOSS seed drill 4.5m	
Configurations	Length of markers
24R – 18.75cm	2.34 m

BOSS seed drill 6m	
Configurations	Length of markers
36R – 16.7cm	3.09 m
32R – 18.75cm	3.09 m
30R – 20cm	3.10 m
24R – 25cm	3.12 m

The measurement is taken between the marker disc and the disc of the outermost seeding unit.

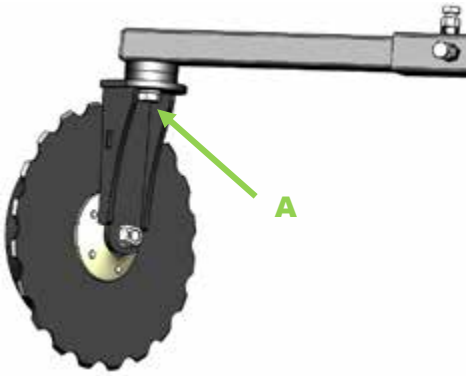
Aggressiveness setting

Adjust the aggressiveness of the side markers according to the soil conditions.

To do this, loosen the M20 bolt (A),

rotate the track marker disc and retighten the bolt (A).

Check how the side marker works in the field and correct if necessary.



7 Brakes

Driving without brakes on public roads is prohibited.

7.1 Hydraulic brake

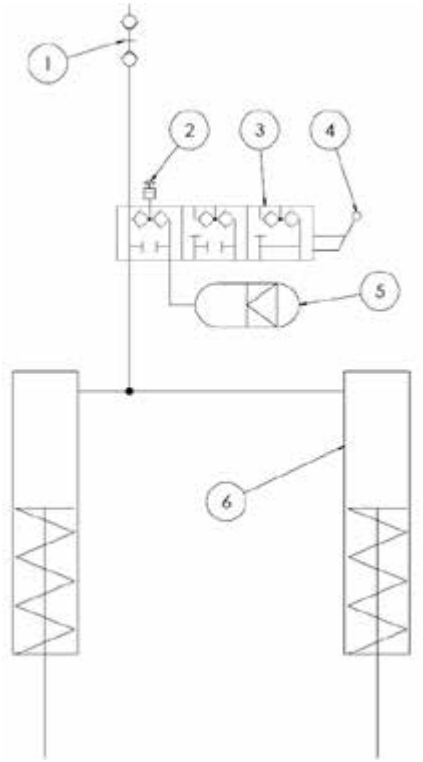
Connection

1. Connect the hydraulic line for the brake to the tractor brake line at the coupling.

2. Attach the release lever of the automatic uncoupling brake to a suitable place on the tractor.

Fix the cable in such a way that it cannot be snagged by other parts of the machine and trigger full braking when cornering!

3. Release the parking brake. The cables must not be stretched and the wheels must be able to turn freely.



2	Loosening pump button
3	Automatic uncoupling brake valve
4	Spring pin (emergency activation)
5	Pressure accumulator
6	Cylinders

Hydraulic brake

1	Push pull socket

Danger of traffic accidents due to brake failure!
When commissioning or after a long period of downtime :
- Fill the pressure accumulator for emergency braking before departure.
- To do this, press the tractor's brake pedal down fully!

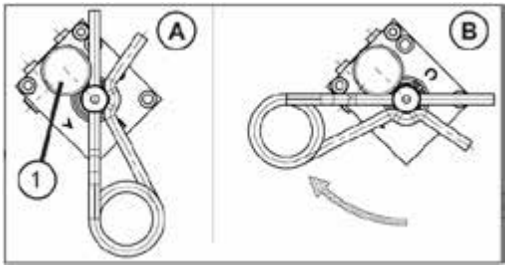
Uncoupling

1. Stop the machine
2. Apply the parking brake
3. Place the chocks under the wheels
4. Loosen the brake line
5. Pull the tractor's release lever
6. Uncouple the machine

The automatic uncoupling brake

is not triggered by uncoupling. The emergency brake is only activated when the spring pin is turned to the front.

Operation of the automatic uncoupling brake valve



The valve has two positions:

A - Operating position

B - Emergency braking

1 : Manual release pump

Release pump

It is also possible to release the brake after emergency braking, even without the tractor. To do this, turn the spring pin back to the operating position and activate the release pump until the brake is released again.

Maintenance

Check the brake lines and hoses for damage. Check the brake linings for wear.

7.2 Pneumatic brake

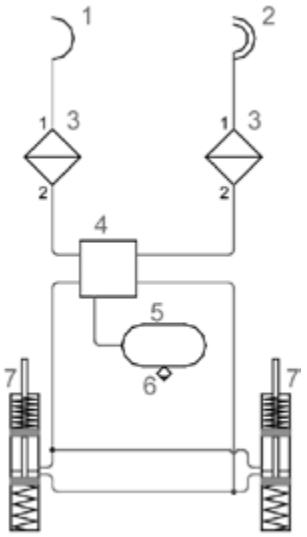
Coupling

Secure the towing vehicle with the parking brake before coupling.

1. First connect the ‘Brake’ coupling head (yellow).
2. Then connect the ‘Backup’ coupling head (red).
3. Press the parking brake button to release the parking brake.

Uncoupling

1. Secure the towing vehicle with the parking brake.
2. First disconnect the ‘ Backup ‘ (coupling head (red).
3. Then disconnect the ‘Brake’ coupling head (yellow).



Pneumatic brake

1	‘Brake’ coupling head, yellow
2	‘Backup’ coupling head, red
3	Line filter
4	Trailer brake valve with parking brake
5	Air tank
6	Purge valve
7	Cylinder

Maintenance

During use, purge the air tank daily

7.3 Parking brake

Park the machine on a flat and stable surface. Before releasing the brake, secure the machine so that it does not start to roll!

Before prolonged storage, release the parking brake. Otherwise, the brake shoes could stick to the drum and cause problems when returning to service.

Always release the parking brake before moving. The cables should be slack and the wheels must be able to turn freely.

Maintenance

When coupling the machine, check the functioning of the parking brake. If necessary, adjust the cable or the brake shoes.

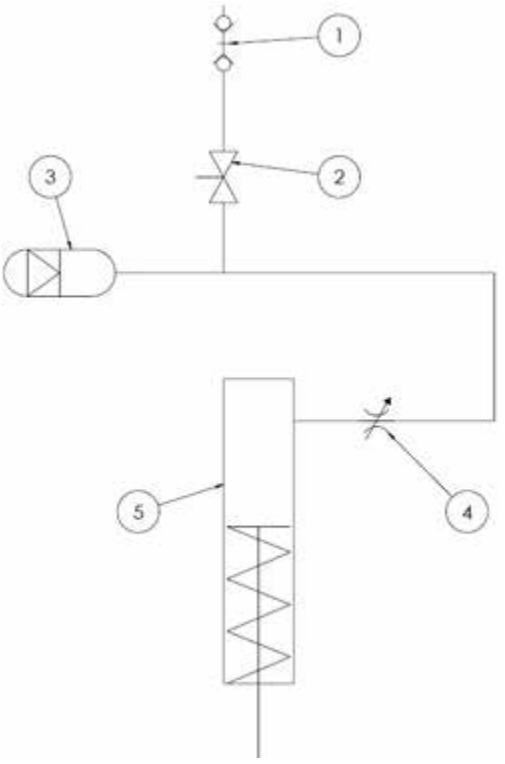
8 Hydraulics

Accidental hydraulic movements can lead to serious accidents! Block or lock the valves on the tractor. Keep people out of the pivoting range of the machine!

Always connect all hydraulic hoses! Due to related functions, damage to components could otherwise occur!

8.1 mBoss and Boss

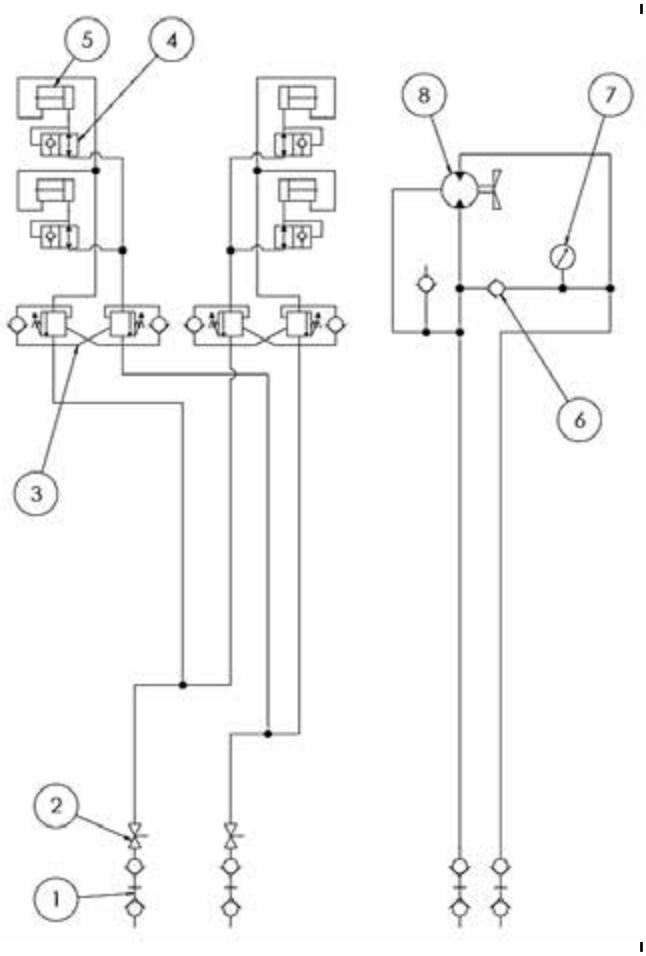
8.1.1 Drawbar suspension



Drawbar suspension

1 Push pull socket
2 Valve
3 Pressure accumulator
4 Flow limiter

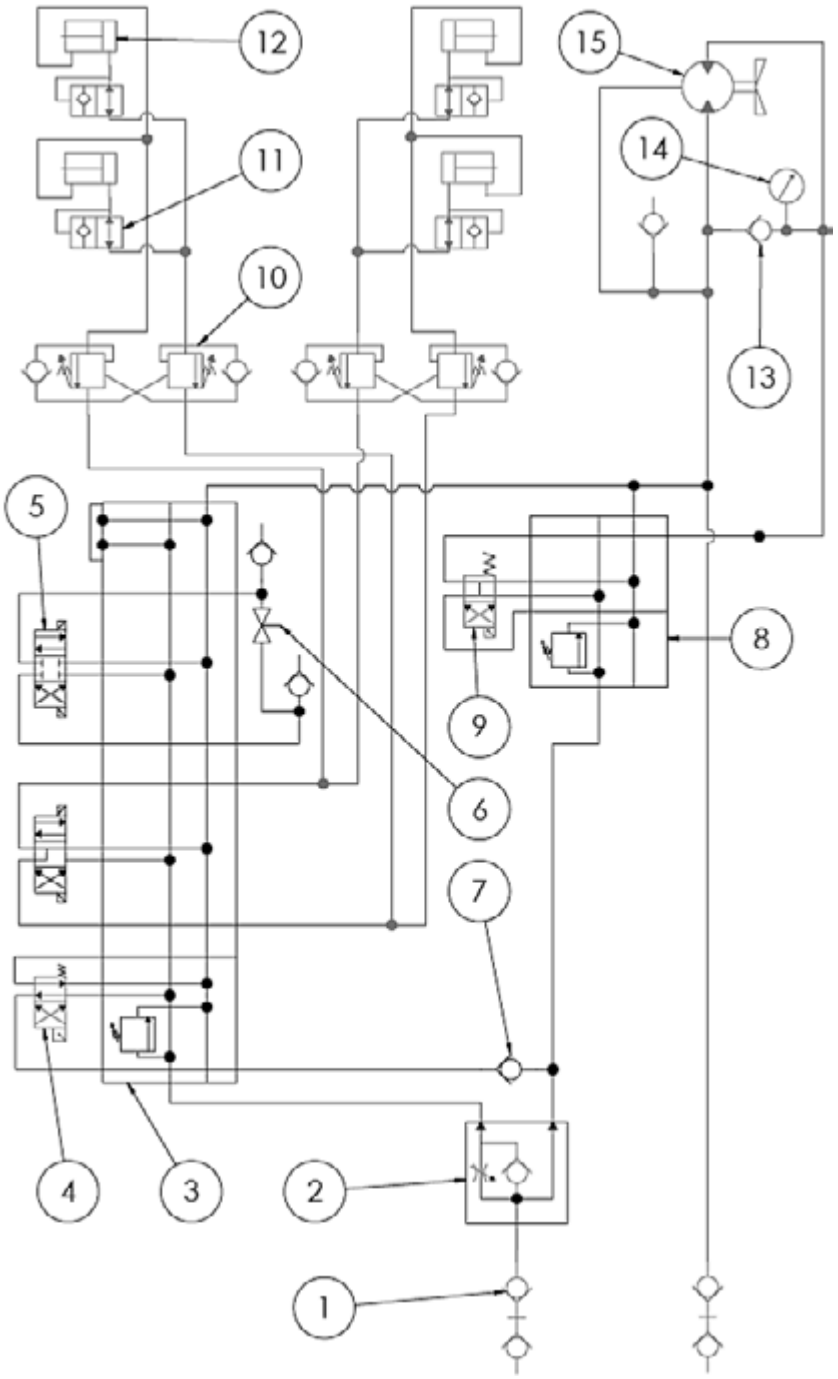
8.1.2 Folding / turbine circuit



Folding circuit and turbine drive

1 Push pull socket
2 Valve
3 Double balancing valve
4 Safety gear valve
5 Cylinder
6 Check valve
7 Gauge
8 Hydraulic motor (turbine drive)

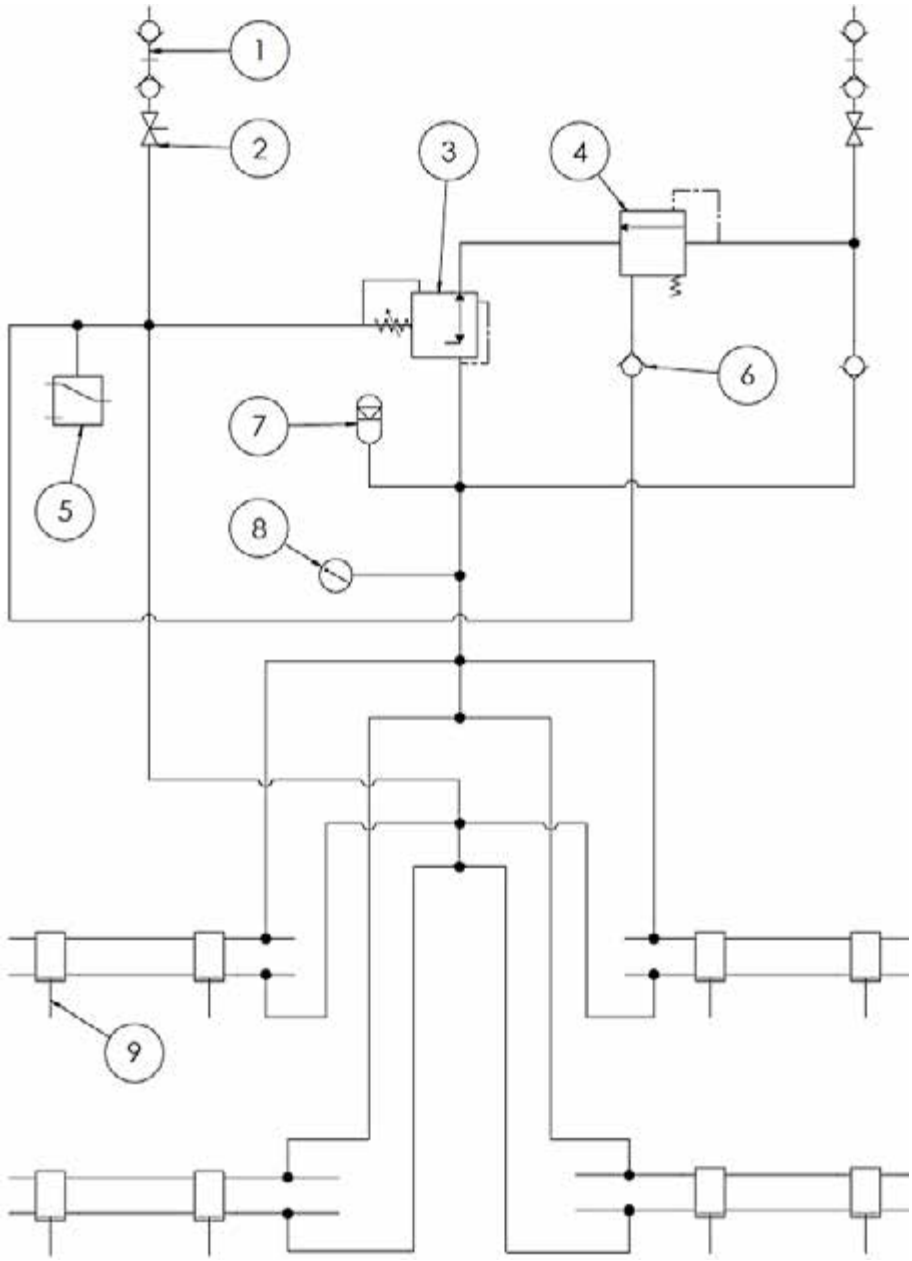
8.1.3 Circuit with CETOP



Folding circuit and turbine drive

1	Push pull socket
2	Adjustable 3-way flow divider
3	Cetop 3/4 base hydraulic function with pressure limiter
4	cetop 3 solenoid valve
5	cetop 3 solenoid valve
6	Valve
7	Check valve
8	Cetop 3/1 base hydraulic function with pressure limiter
9	cetop 3 solenoid valve
10	Double balancing valve
11	Safety gear valve
12	Cylinder
13	Check valve
14	Gauge
15	Hydraulic motor (turbine drive)

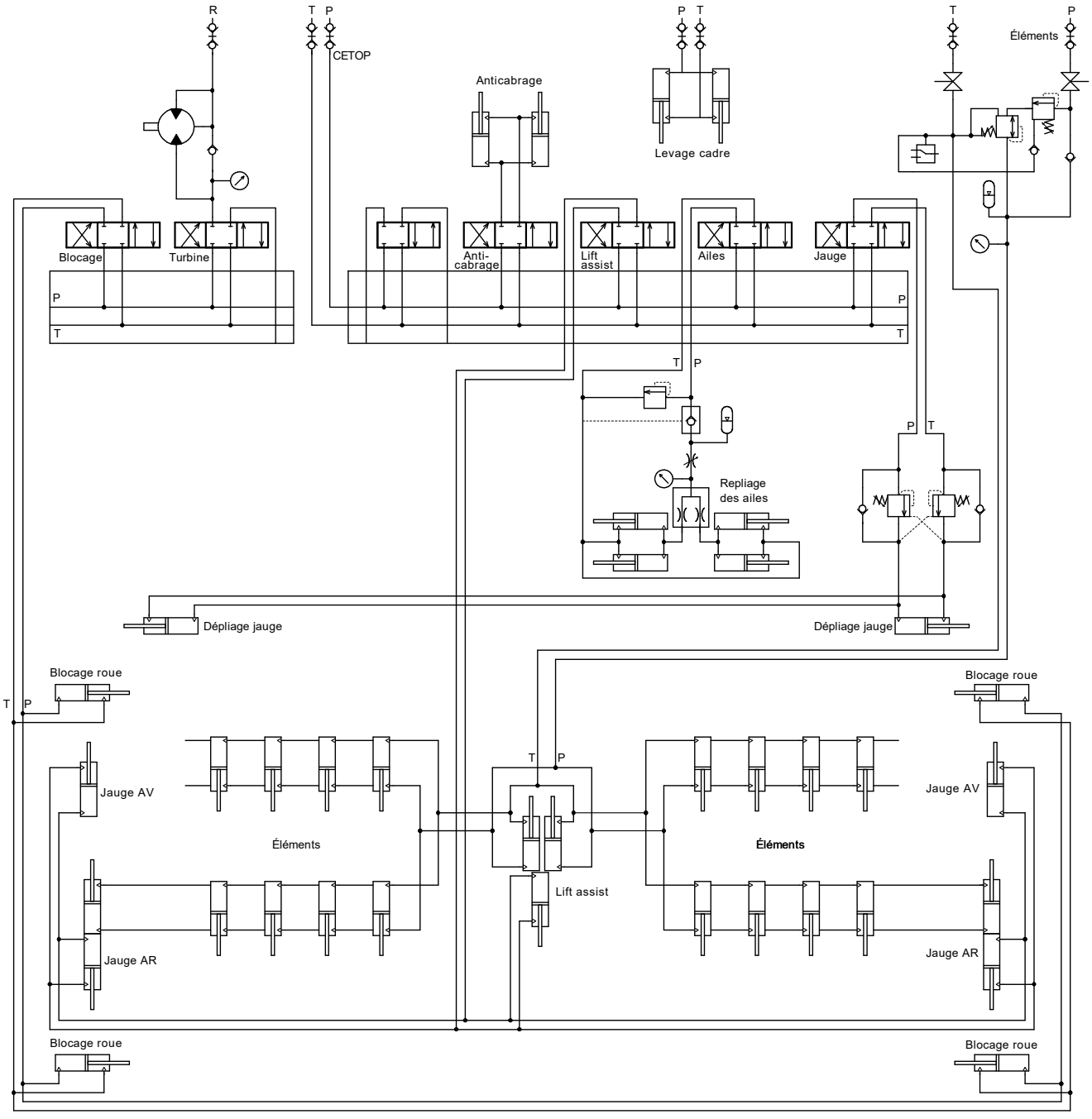
8.1.4 Circuit elements



Circuit of components

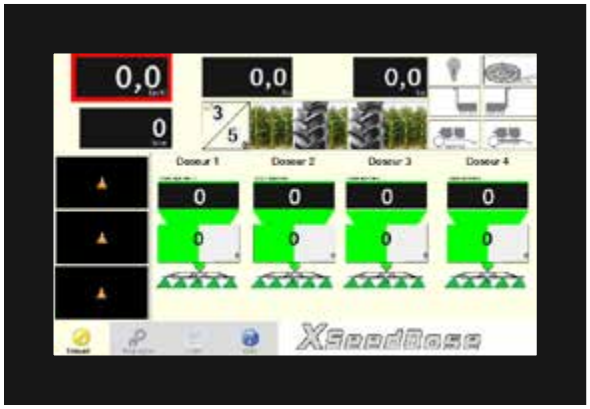
1 Push pull socket
2 Valve
3 Unit + pressure regulation cartridge
4 Pressure limiter
5 Pressure switch
6 Check valve
7 Pressure accumulator
8 Gauge
9 Cylinder

8.2 Big Boss


R
T P
CETOP
Anticabrage
P T
Levage cadre
T P
Éléments
Blocage
Turbine
Anti-
cabrage
Lift
assist
Ailes
Jauge
P
T
Repliage
des ailes
Dépliage jauge
Dépliage jauge
Blocage roue
Blocage roue
Jauge AV
Jauge AV
Éléments
Éléments
Lift assist
Jauge AR
Jauge AR
Blocage roue
Blocage roue

9 Operating instructions for the control system

The metering units are driven electrically and are powered by the red and black 12-volt harness. The regulation of the metering units is controlled either by an Artémis ISOCAN RDS control unit or a SeedXconnect touch tablet .



9.1 User manual for the control unit RDS ISOCAN ARTEMIS

Refer to the RDS control unit user and calibration manual, supplied with the machine if applicable.

9.2 User manual for the SeedXconnect touch tablet

See annex 12.4.

9.3 User manual for A-Touch 800 / 1200

See annex 12.5.

10 Servicing and maintenance

10.1 Disc and hub assembly

10.1.1 18’’ disc

A new Boss unit disc has a diameter of 18" (approximately 457 mm). This is equipped with a bevel that facilitates penetration into the soil and the cutting of plant debris (straw) and living cover, thus greatly limiting the effect of straw trapping in the seed line, which is harmful to seeding.

Discs should be replaced when they reach a diameter of 425mm (133mm between the end of the disc and the hub) in order to extend the life of the skimmer and maintain a constant seeding depth. In addition, when the discs reach a diameter of 425mm, the bevel is normally worn, resulting in a higher risk of straw being caught in the seed line. When the disc reaches a diameter of 425 mm or less, the seeding ploughshare no longer works behind the disc and will therefore start to wear much faster (depending on soil type and working conditions).

IMPORTANT:
Progressive wear means that the seeding depth must be adjusted.

10.2 Safety reminder

- Switch off the tractor engine and remove the ignition key.
- Ensure that all moving parts are stationary before working on the machine.
- Before working, check that all support legs and locking pins are in place. Never place your hands or feet under the opening discs (in case of sudden lowering of the unit).
- Review Chapter 1 on safety instructions.

10.3 Cleaning

Clean the machine regularly and thoroughly at the end of each season.

IMPORTANT:
Electrical components and fans, as well as hydraulic cylinders and bearings, must not be cleaned with a high-pressure cleaner or directly with a water jet. The housings, screw connections and bearings are not sealed against high-pressure cleaning. :

- Clean the outside of the machine with water.
- Blow out the ploughshares, seed lines, seed tank, metering unit and fan with compressed air.
- Rinse components thoroughly after using fertiliser. Fertilisers are very aggressive and cause corrosion.

10.4 Immobilising the tractor unit and machine

Immobilising the tractor unit/machine

Precautions

To prevent damage from moisture, the machine should be parked indoors or under cover if possible When operating the machine, take the environment into account. Ensure that no one is in the manoeuvring area.

Park the machine on solid ground; if you leave it parked for a long period of time, it is advisable to leave the machine in the unfolded position or in the working position.

Immobilisation of unfolded implement

1- Follow the steps to unfold the machine, but stop once all working parts touch the ground

2- AT this point it will be possible to lift the drawbar and relieve the weight on the tractor coupling.

3- Turn off the tractor and remove the coupling pin.

4- Check that the tilt cylinders can support the weight of the drawbar. Start the tractor and move forward enough to disengage the coupling

5- Lower the drawbar to the ground. Fit wheel chocks.

6- Stop the tractor, depressurise all hydraulic lines and remove all hoses and cables from the rear of the tractor. Start the tractor and drive forwards slowly.

10.5 Storage

If the machine is not to be used for a prolonged period of time:

- If possible, store the machine under a roof.
- Empty the seed and fertiliser tank completely and clean it.
- Reduce the pressure setting on the ploughshares.
- Open the emptying flap.
- Unplug and store the terminal in a dry place.
- Protect the machine against rust.
- Protect the piston rods of hydraulic cylinders from corrosion.

10.6 Maintenance

IMPORTANT:
The subsequent instructions and recommendations should also be applied after the first 5 hours of work after commissioning the machine.

- Visually inspect all bolts and nuts, retighten any bolts/nuts that need tightening.
- Check that the seeding ploughshare is correctly positioned on the disc. See Chapter 6.5.
- Check that the cleaning wheel is correctly adjusted against the disc. See Chapter 6.6.
- Check and tighten all wheel nuts.
- Check the tyre pressure.

10.6.1 Daily maintenance and care

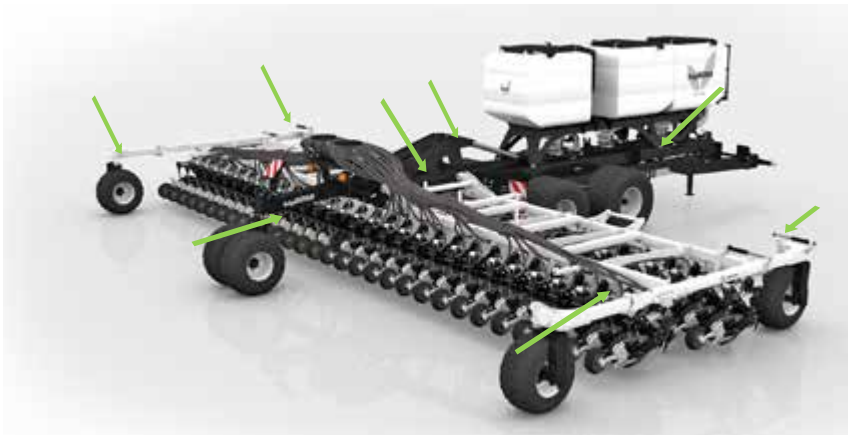
- Visually inspect all parts for damage, replace damaged components if necessary.
- Visually inspect all bolts and nuts, retighten any bolts/nuts that need tightening.
- Lubricate the opener disc hub with 1-2 bursts (maximum) of a grease gun every 12 working hours (excessive lubrication will cause the seals to be dislodged from their housing).

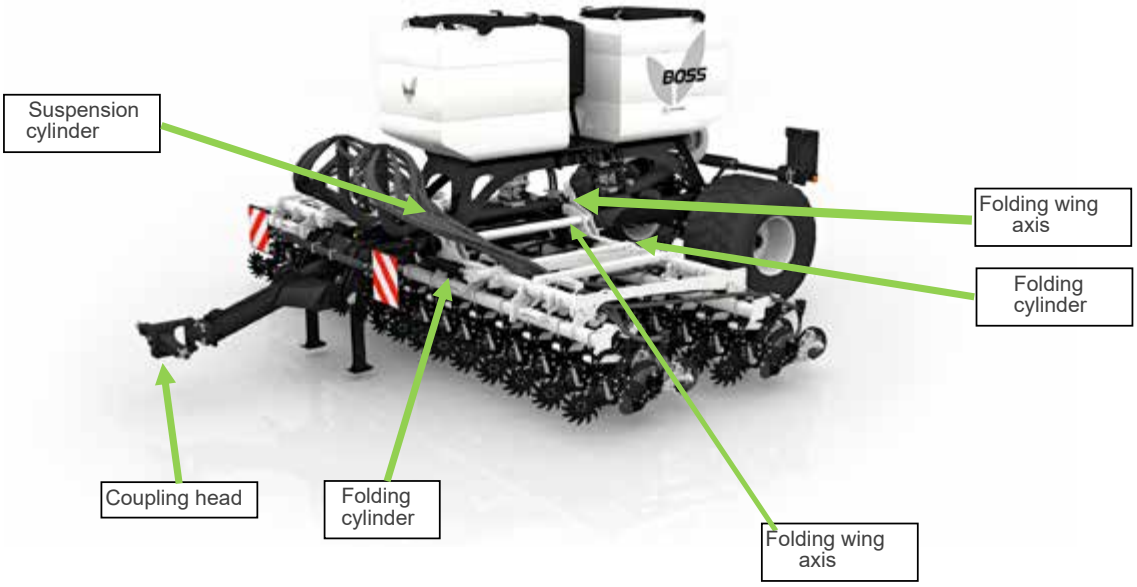
10.6.2 Annual maintenance

- Lubricate the opener disc hub with 2 bursts (maximum) of a grease gun every 12 working hours (excessive lubrication will cause the seals to be dislodged from their housing). It is best to lubricate the hub just before finishing seeding to allow the lubricant to diffuse into the hub-bearing assembly.
- Adjust the position of the seeding ploughshare. If there is excessive wear, replace it if necessary.
- Check the condition of the opener discs. When the discs reach a diameter of 425mm, it is necessary to replace them.

10.6.3 Lubrication point plan

The machine must be lubricated regularly and after each pressure cleaning.





11 Problems and troubleshooting

PROBLEM	POSSIBLE CAUSES	POSSIBLE SOLUTIONS
The furrow is not properly closed and pressed.	Incorrect height under beam when working.	Check the height under the frame beam.
	Not enough pressure on the press wheels.	Increase the depth control pressure of the unit. See Chapter 6.
	Press wheel not aligned with the furrow.	Change the position of the press wheel. See Chapter 6.
The furrow is too deep.	The press wheel pressure is too high.	Reduce the depth control pressure of the unit. See Chapter 6.
	The frame is not level (parallel to the ground).	Correct the frame's level. See Chapter 5.

Soil accumulates on the disc and the cleaning wheel.	The scrapers are not working properly or have been lost.	Replace scrapers or change their settings. See Chapter 3.9.
	The cleaning wheel is too far from the disc.	Move the cleaning wheel closer to the disc. See Chapter 6.
	The working conditions are too wet (soil too sticky).	Wait for working conditions to improve (better soil drainage)
	A foreign object is stuck between the cleaning wheel and the disc.	Disassemble the cleaning wheel to remove the foreign object. See Chapter 6.
The disc does not rotate in tilled or soft soil.	The cleaning wheel is too close to the disc.	Move the position of the cleaning wheel away from the disc. See Chapter 5.
	The seeding ploughshare is mounted too close to the disc.	Adjust the position of the seeding ploughshare according to the recommended specifications. See Chapter 6.
	The scrapers are fitted too tightly against the disc	Adjust or remove scrapers from the disc. See Chapter 6.
The seed placement is inconsistent.	The depth control pressure of the unit is too low.	Increase the depth control pressure to ensure a constant seeding depth. See Chapter 6.
	The machine frame is not level.	Adjust the machine's level. See Chapter 4.
	The height under the beam when working is incorrect.	Check the height under the beam when working and adjust if necessary. See Chapter 4.
The seeding ploughshare is clogged with soil.	Maintain a forward motion when lowering the components to the ground.	Do not lower the components to the ground when the tractor is stationary.
	The working conditions are too wet.	Wait until conditions improve.
	Do not reverse when the components are on the ground!	
The seeding depth is too shallow.	The opener disc is worn.	Adjust the seeding depth according to the wear of the disc or replace the disc if it is too worn. See Chapter 6.
The seeding ploughshare shows excessive wear.	The opener disc is worn.	Replace the disc (recommended maximum wear dimension) See Chapter 6.
	The fixing of the component to the supporting beam is defective.	Check the tightness of the mounting bolts of the component on the beam and check that the component is correctly aligned.

12 Annexes

12.1 Tightening torques

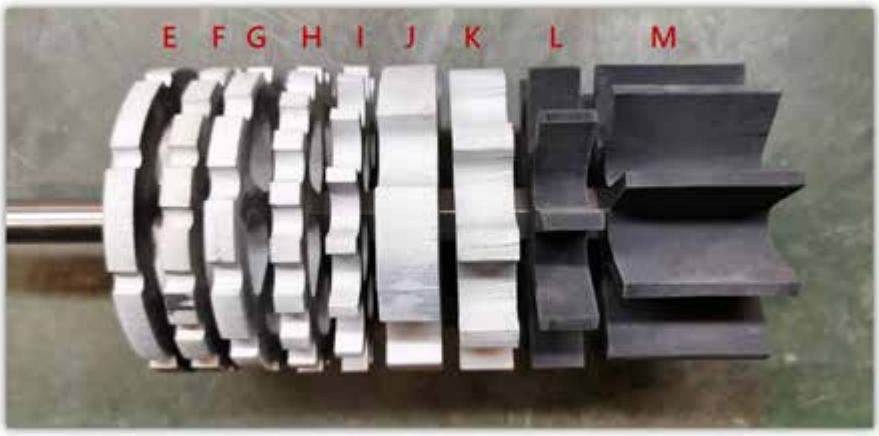
IMPORTANT:
The tightening torques are for guidance only and are generally valid. The specific instructions in the relevant sections of the user manual take precedence.

Screws and nuts should not be treated with any lubricants as they change the friction coefficient.

Couples de serrage - vis métriques en Nm							
Taille ø mm	Pas mm	Modèle de vis - classe de résistance					Ecrous de fixation des roues
		4.8	5.8	8.8	10.9	12.9	
3	0,50	0,9	1,1	1,8	2,6	3,0	
4	0,70	1,6	2,0	3,1	4,5	5,3	
5	0,80	3,2	4,0	6,1	8,9	10,4	
6	1,00	5,5	6,8	10,4	15,3	17,9	
7	1,00	9,3	11,5	17,2	25	30	
8	1,25	13,6	16,8	25	37	44	
8	1,00	14,5	18	27	40	47	
10	1,50	26,6	33	50	73	86	
10	1,25	28	35	53	78	91	
12	1,75	46	56	86	127	148	
12	1,25	50	62	95	139	163	
14	2,00	73	90	137	201	235	
14	1,50	79	96	150	220	257	
16	2,00	113	141	214	314	369	
16	1,50	121	150	229	336	393	
18	2,50	157	194	306	435	509	
18	1,50	178	220	345	491	575	300
20	2,50	222	275	432	615	719	
20	1,50	248	307	482	687	804	
22	2,50	305	376	502	843	987	
22	1,50	337	416	654	932	1090	510
24	3,00	383	474	744	1080	1240	
24	2,00	420	519	814	1160	1360	
27	3,00	568	703	1000	1570	1840	
27	2,00	615	760	1200	1700	1990	
30	3,50	772	995	1500	2130	2500	
30	2,00	850	1060	1670	2370	2380	

12.2 Choosing the rotors

12.2.1 Rotor models



N°	Rotor name	Volume	Width	Reference
A	Star 0cc metal	0	1	S111.452
B	Star 0cc black narrow	0	2	S109.832
C	Star 0cc black wide	0	6	S109.831
D	Star 0cc plastic	0	2	S111.849
E	Star 1cc	1	1	S116.081
F	Star 2cc	2	1	S112.475
G	Star 3cc	3	1	S111.451
H	Star 5cc	5	1	S112.476
I	Star 15cc narrow	15	1	S112.478
J	Star 15cc wide	15	2	S112.473
K	Star 25cc	25	2	S112.469
L	Star 67,5cc	67.5	2	S109.833
M	Star 202cc	202	6	S109.834

12.2.2 Rotor configurations - For MBOSS metering unit

corresponds to 135 cm^3

Volume (cc)	Rotors to be installed (total width = 18)											
	M	M	M									N°
606	202	202	202									volume
	6	6	6									width
	B	L	L	M	L	L	B					N°
472	0	67,5	67.5	202	67.5	67.5	0					volume
	2	2	2	6	2	2	2					width
	B	M	B	M	B							N°
404	0	202	0	202	0							volume
	2	6	2	6	2							width
	L	B	L	B	L	B	L	B	L			N°
337.5	67.5	0	67.5	0	67.5	0	67.5	0	67.5			volume
	2	2	2	2	2	2	2	2	2			width
	B	L	B	M	B	L	B					N°
337	0	67.5	0	202	0	67.5	0					volume
	2	2	2	6	2	2	2					width
	B	L	B	L	B	L	B	L	B			N°
270	0	67.5	0	67.5	0	67.5	0	67.5	0			volume
	2	2	2	2	2	2	2	2	2			width
	B	L	L	C	L	L	B					N°
270	0	67.5	67.5	0	67.5	67.5	0					volume
	2	2	2	6	2	2	2					width
	B	B	L	B	L	B	L	B	B			N°
202.5	0	0	67.5	0	67.5	0	67.5	0	0			volume
	2	2	2	2	2	2	2	2	2			width
	C	M	C									N°
202	0	202	0									volume
	6	6	6									width

	B	K	K	K	K	K	K	K	B			N°
175	0	25	25	25	25	25	25	25	0			volume
	2	2	2	2	2	2	2	2	2			width
	C	L	B	L	C							N°
135	0	67.5	0	67.5	0							volume
	6	2	2	2	6							width
	B	B	L	C	L	B	B					N°
135	0	0	67.5	0	67.5	0	0					volume
	2	2	2	6	2	2	2					width
	B	J	J	J	J	J	J	J	B			N°
105	0	15	15	15	15	15	15	15	0			volume
	2	2	2	2	2	2	2	2	2			width
	B	K	K	B	B	B	K	K	B			N°
100	0	25	25	0	0	0	25	25	0			volume
	2	2	2	2	2	2	2	2	2			width
	B	K	B	K	B	K	B	K	B			N°
100	0	25	0	25	0	25	0	25	0			volume
	2	2	2	2	2	2	2	2	2			width
	B	J	B	J	J	J	B	J	B			N°
75	0	15	0	15	15	15	0	15	0			volume
	2	2	2	2	2	2	2	2	2			width
	B	K	B	B	K	B	B	K	B			N°
75	0	25	0	0	25	0	0	25	0			volume
	2	2	2	2	2	2	2	2	2			width
	B	J	J	B	B	B	J	J	B			N°
60	0	15	15	0	0	0	15	15	0			volume
	2	2	2	2	2	2	2	2	2			width
	B	J	B	J	B	J	B	J	B			N°
60	0	15	0	15	0	15	0	15	0			volume
	2	2	2	2	2	2	2	2	2			width
	D	D	D	I	I	D	I	I	D	D	D	N°
60	0	0	0	15	15	0	15	15	0	0	0	volume
	2	2	2	1	1	2	1	1	2	2	2	width
	C	K	B	K	C							N°
50	0	25	0	25	0							volume
	6	2	2	2	6							width
	B	B	K	C	K	B	B					N°
50	0	0	25	0	25	0	0					volume
	2	2	2	6	2	2	2					width
	B	K	B	C	B	K	B					N°
50	0	25	0	0	0	25	0					volume
	2	2	2	6	2	2	2					width

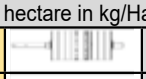
	B	J	B	B	J	B	B	J	B			N°
45	0	15	0	0	15	0	0	15	0			volume
	2	2	2	2	2	2	2	2	2			width
	C	J	B	J	C							N°
30	0	15	0	15	0							volume
	6	2	2	2	6							width
	B	B	J	C	J	B	B					N°
30	0	0	15	0	15	0	0					volume
	2	2	2	6	2	2	2					width
	D	D	D	A	I	D	I	A	D	D	D	N°
30	0	0	0	0	15	0	15	0	0	0	0	volume
	2	2	2	1	1	2	1	1	2	2	2	width
	D	D	D	H	H	D	H	H	D	D	D	N°
20	0	0	0	5	5	0	5	5	0	0	0	volume
	2	2	2	1	1	2	1	1	2	2	2	width
	D	D	D	G	G	D	G	G	D	D	D	N°
12	0	0	0	3	3	0	3	3	0	0	0	volume
	2	2	2	1	1	2	1	1	2	2	2	width
	D	D	D	A	H	D	H	A	D	D	D	N°
10	0	0	0	0	5	0	5	0	0	0	0	volume
	2	2	2	1	1	2	1	1	2	2	2	width
	D	D	D	F	F	D	F	F	D	D	D	N°
8	0	0	0	2	2	0	2	2	0	0	0	volume
	2	2	2	1	1	2	1	1	2	2	2	width
	D	D	D	A	G	D	G	A	D	D	D	N°
6	0	0	0	0	3	0	3	0	0	0	0	volume
	2	2	2	1	1	2	1	1	2	2	2	width
	D	D	D	A	F	D	F	A	D	D	D	N°
4	0	0	0	0	2	0	2	0	0	0	0	volume
	2	2	2	1	1	2	1	1	2	2	2	width
	D	D	D	A	E	D	E	A	D	D	D	N°
2	0	0	0	0	1	0	1	0	0	0	0	volume
	2	2	2	1	1	2	1	1	2	2	2	width

12.3 Rotor selection table - For MBOSS metering unit

Seed drill 3 m

Specific weight: **75 kg/hl**

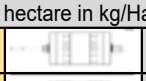
Rapeseed

Spline in CM3	Spline pictures	Seeds	3 metres									
Speed (km/h)			4		6		8		10		12	
Dose per hectare in kg/Ha			Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
C4		Rapeseed	5.6	9.8	3.7	6.5	2.6	4.6	2.2	3.9	1.7	3.0
C6		Rapeseed	8.4	14.7	5.6	9.8	4.0	6.9	3.4	5.9	2.6	4.5
C8		Rapeseed	11.2	19.6	7.5	13.1	5.3	9.2	4.5	7.8	3.4	6.0
C10		Rapeseed	14.0	24.5	9.3	16.3	6.6	11.5	5.6	9.8	4.3	7.5

Min. Motor speed 30 rpm
Max. Motor speed 70 rpm

Seed density = 0.7
(SW) = Specific weight

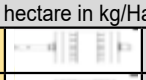
Wheat

Spline in CM3	Spline pictures	Seeds	3 metres									
Speed (km/h)			4		6		8		10		12	
Dose per hectare in kg/Ha			Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
C135		Wheat	162	378	108	252	81	189	65	151	54	126
C270		Wheat	324	756	216	504	162	378	130	302	108	252
C400		Wheat	480	1120	320	747	240	560	192	448	160	373
C600		Wheat	720	1680	480	1120	360	840	288	672	240	560

Min. Motor speed 30 rpm
Max. Motor speed 80 rpm

Seed density = 0.8
(SW) = Specific weight

Barley

Spline in CM3	Spline pictures	Seeds	3 metres									
Speed (km/h)			4		6		8		10		12	
Dose per hectare in kg/Ha			Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
C135		Barley	122	284	81	189	61	142	49	113	41	95
C270		Barley	243	567	162	378	122	284	97	227	81	189
C400		Barley	360	840	240	560	180	420	144	336	120	280
C600		Barley	540	1260	360	840	270	630	216	504	180	420

Min. Motor speed 30 rpm
Max. Motor speed 70 rpm

Seed density = 0.6
(SW) = Specific weight

Fertiliser

Spline in CM3	Spline pictures	Seeds	3 metres									
Speed (km/h)			4		6		8		10		12	
Dose per hectare in kg/Ha			Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
C135		Fertiliser	270	473	180	315	135	236	108	189	90	158
C270		Fertiliser	540	945	360	630	270	473	216	378	180	315
C400		Fertiliser	800	1400	533	933	400	700	320	560	267	467

Min. Motor speed 40 rpm
Max. Motor speed 70 rpm

Seed density = 1
(SW) = Specific weight

Seed drill 4 m

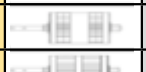
Rapeseed

Spline in CM3	Spline pictures	Seeds	3 metres									
Speed (km/h)			4		6		8		10		12	
Dose per hectare in kg/Ha			Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
C4		Rapeseed	4.2	7.4	2.8	4.9	2.0	3.5	1.7	2.9	1.3	2.3
C6		Rapeseed	6.3	11.0	4.2	7.4	3.0	5.2	2.5	4.4	1.9	3.4
C8		Rapeseed	8.4	14.7	5.6	9.8	4.0	6.9	3.4	5.9	2.6	4.5
C10		Rapeseed	10.5	18.4	7.0	12.3	4.9	8.6	4.2	7.4	3.2	5.7

Min. Motor speed 30 rpm
Max. Motor speed 70 rpm

Seed density = 0.7
(SW) = Specific weight

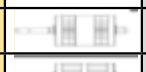
Wheat

Spline in CM3	Spline pictures	Seeds	3 metres							
Speed (km/h)			4		6		8		10	
Dose per hectare in kg/Ha			Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
C135		Wheat	122	284	81	189	61	142	49	113
C270		Wheat	243	567	162	378	122	284	97	227
C400		Wheat	360	840	240	560	180	420	144	336
C600		Wheat	540	1260	360	840	270	630	216	504

Min. Motor speed 30 rpm
Max. Motor speed 80 rpm

Seed density = 0.8
(SW) = Specific weight

Barley

Spline in CM3	Spline pictures	Seeds	3 metres									
Speed (km/h)			4		6		8		10		12	
Dose per hectare in kg/Ha			Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
C135		Barley	91	213	61	142	46	106	36	85	30	71
C270		Barley	182	425	122	284	91	213	73	170	61	142
C400		Barley	270	630	180	420	135	315	108	252	90	210
C600		Barley	405	945	270	630	203	473	162	378	135	315

Min. Motor speed 30 rpm
Max. Motor speed 70 rpm

Seed density = 0.6
(SW) = Specific weight

Fertiliser

Spline in CM3	Spline pictures	Seeds	3 metres									
Speed (km/h)			4		6		8		10		12	
Dose per hectare in kg/Ha			Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
C135		Fertiliser	203	354	135	236	101	177	81	142	68	118
C270		Fertiliser	405	709	270	473	203	354	162	284	135	236
C400		Fertiliser	600	1050	400	700	300	525	240	420	200	350

Min. Motor speed 40 rpm
Max. Motor speed 70 rpm

Seed density = 1
(SW) = Specific weight

		Rotor volume: 30 cm3			Rotor volume: 50 cm3			Rotor volume: 60 cm3		
Kg/ha	Speed of travel	Min.	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg.	Max.
10		9.0	20.3	31.5	15.0	33.8	52.5	18.0	40.5	63.0
15		6.0	13.5	21.0	10.0	22.5	35.0	12.0	27.0	42.0
20		4.5	10.1	15.8	7.5	16.9	26.3	9.0	20.3	31.5
25		3.6	8.1	12.6	6.0	13.5	21.0	7.2	16.2	25.2
30		3.0	6.8	10.5	5.0	11.3	17.5	6.0	13.5	21.0
35		2.6	5.8	9.0	4.3	9.6	15.0	5.1	11.6	18.0
40		2.3	5.1	7.9	3.8	8.4	13.1	4.5	10.1	15.8
45		2.0	4.5	7.0	3.3	7.5	11.7	4.0	9.0	14.0
50		1.8	4.1	6.3	3.0	6.8	10.5	3.6	8.1	12.6
60		1.5	3.4	5.3	2.5	5.6	8.8	3.0	6.8	10.5
70		1.3	2.9	4.5	2.1	4.8	7.5	2.6	5.8	9.0
80		1.1	2.5	3.9	1.9	4.2	6.6	2.3	5.1	7.9
90		1.0	2.3	3.5	1.7	3.8	5.8	2.0	4.5	7.0
100		0.9	2.0	3.2	1.5	3.4	5.3	1.8	4.1	6.3

		Rotor volume: 135.5 cm3			Rotor volume: 271 cm3			Rotor volume: 406 cm3		
Kg/ha	Speed of travel	Min.	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg.	Max.
50		8.1	18.3	28.5	16.3	36.6	56.9	24.4	54.8	85.3
60		6.8	15.2	23.7	13.6	30.5	47.4	20.3	45.7	71.1
70		5.8	13.1	20.3	11.6	26.1	40.7	17.4	39.2	60.9
80		5.1	11.4	17.8	10.2	22.9	35.6	15.2	34.3	53.3
90		4.5	10.2	15.8	9.0	20.3	31.6	13.5	30.5	47.4
100		4.1	9.1	14.2	8.1	18.3	28.5	12.2	27.4	42.6
120		3.4	7.6	11.9	6.8	15.2	23.7	10.2	22.8	35.5
140		2.9	6.5	10.2	5.8	13.1	20.3	8.7	19.6	30.5
160		2.5	5.7	8.9	5.1	11.4	17.8	7.6	17.1	26.6
180		2.3	5.1	7.9	4.5	10.2	15.8	6.8	15.2	23.7
200		2.0	4.6	7.1	4.1	9.1	14.2	6.1	13.7	21.3
220		1.8	4.2	6.5	3.7	8.3	12.9	5.5	12.5	19.4
240		1.7	3.8	5.9	3.4	7.6	11.9	5.1	11.4	17.8
260		1.6	3.5	5.5	3.1	7.0	10.9	4.7	10.5	16.4
280		1.5	3.3	5.1	2.9	6.5	10.2	4.4	9.8	15.2
300		1.4	3.0	4.7	2.7	6.1	9.5	4.1	9.1	14.2
320		1.3	2.9	4.4	2.5	5.7	8.9	3.8	8.6	13.3

Seed drill 3 m

Specific weight: **50 kg/hl**

		Rotor volume: 4 cm3			Rotor volume: 6 cm3			Rotor volume: 8 cm3		
Kg/ha	Speed of travel	Min.	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg.	Max.
1		8.0	18.0	28.0	12.0	27.0	42.0	16.0	36.0	56.0
2		4.0	9.0	14.0	6.0	13.5	21.0	8.0	18.0	28.0
3		2.7	6.0	9.3	4.0	9.0	14.0	5.3	12.0	18.7
4		2.0	4.5	7.0	3.0	6.8	10.5	4.0	9.0	14.0
5		1.6	3.6	5.6	2.4	5.4	8.4	3.2	7.2	11.2
6		1.3	3.0	4.7	2.0	4.5	7.0	2.7	6.0	9.3
7		1.1	2.6	4.0	1.7	3.9	6.0	2.3	5.1	8.0
8		1.0	2.3	3.5	1.5	3.4	5.3	2.0	4.5	7.0
9		0.9	2.0	3.1	1.3	3.0	4.7	1.8	4.0	6.2

		Rotor volume: 10 cm3			Rotor volume: 12 cm3			Rotor volume: 20 cm3		
Kg/ha	Speed of travel	Min.	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg.	Max.
2		10.0	22.5	35.0	12.0	27.0	42.0	20.0	45.0	70.0
3		6.7	15.0	23.3	8.0	18.0	28.0	13.3	30.0	46.7
4		5.0	11.3	17.5	6.0	13.5	21.0	10.0	22.5	35.0
5		4.0	9.0	14.0	4.8	10.8	16.8	8.0	18.0	28.0
6		3.3	7.5	11.7	4.0	9.0	14.0	6.7	15.0	23.3
7		2.9	6.4	10.0	3.4	7.7	12.0	5.7	12.9	20.0
8		2.5	5.6	8.8	3.0	6.8	10.5	5.0	11.3	17.5
9		2.2	5.0	7.8	2.7	6.0	9.3	4.4	10.0	15.6
10		2.0	4.5	7.0	2.4	5.4	8.4	4.0	9.0	14.0
15		1.3	3.0	4.7	1.6	3.6	5.6	2.7	6.0	9.3
20		1.0	2.3	3.5	1.2	2.7	4.2	2.0	4.5	7.0
25		0.8	1.8	2.8	1.0	2.2	3.4	1.6	3.6	5.6

		Rotor volume: 30 cm3			Rotor volume: 50 cm3			Rotor volume: 60 cm3		
Kg/ha	Speed of travel	Min.	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg.	Max.
8		7.5	16.9	26.3	12.5	28.1	43.8	15.0	33.8	52.5
9		6.7	15.0	23.3	11.1	25.0	38.9	13.3	30.0	46.7
10		6.0	13.5	21.0	10.0	22.5	35.0	12.0	27.0	42.0
15		4.0	9.0	14.0	6.7	15.0	23.3	8.0	18.0	28.0
20		3.0	6.8	10.5	5.0	11.3	17.5	6.0	13.5	21.0
25		2.4	5.4	8.4	4.0	9.0	14.0	4.8	10.8	16.8
30		2.0	4.5	7.0	3.3	7.5	11.7	4.0	9.0	14.0
35		1.7	3.9	6.0	2.9	6.4	10.0	3.4	7.7	12.0
40		1.5	3.4	5.3	2.5	5.6	8.8	3.0	6.8	10.5
45		1.3	3.0	4.7	2.2	5.0	7.8	2.7	6.0	9.3
50		1.2	2.7	4.2	2.0	4.5	7.0	2.4	5.4	8.4
60		1.0	2.3	3.5	1.7	3.8	5.8	2.0	4.5	7.0
70		0.9	1.9	3.0	1.4	3.2	5.0	1.7	3.9	6.0

		Rotor volume: 135.5 cm3			Rotor volume: 271 cm3			Rotor volume: 406 cm3		
Kg/ha	Speed of travel	Min.	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg.	Max.
35		7.7	17.4	27.1	15.5	34.8	54.2	23.2	52.2	81.2
40		6.8	15.2	23.7	13.6	30.5	47.4	20.3	45.7	71.1
45		6.0	13.6	21.1	12	27.1	42.2	18	40.6	63.2
50		5.4	12.2	19.0	10.8	24.4	37.9	16.2	36.5	56.8
60		4.5	10.2	15.8	9.0	20.3	31.6	13.5	30.5	47.4
70		3.9	8.7	13.6	7.7	17.4	27.1	11.6	26.1	40.6
80		3.4	7.6	11.9	6.8	15.2	23.7	10.2	22.8	35.5
90		3.0	6.8	10.5	6.0	13.6	21.1	9.0	20.3	31.6
100		2.7	6.1	9.5	5.4	12.2	19.0	8.1	18.3	28.4
120		2.3	5.1	7.9	4.5	10.2	15.8	6.8	15.2	23.7
140		1.9	4.4	6.8	3.9	8.7	13.6	5.8	13.1	20.3
160		1.7	3.8	5.9	3.4	7.6	11.9	5.1	11.4	17.8
180		1.5	3.4	5.3	3.0	6.8	10.5	4.5	10.2	15.8
200		1.4	3.0	4.7	2.7	6.1	9.5	4.1	9.1	14.2
220		1.2	2.8	4.3	2.5	5.5	8.6	3.7	8.3	12.9
240		1.1	2.5	4.0	2.3	5.1	7.9	3.4	7.6	11.8
260		1.0	2.3	3.6	2.1	4.7	7.3	3.1	7.0	10.9
280		1.0	2.2	3.4	1.9	4.4	6.8	2.9	6.5	10.2
300		0.9	2.0	3.2	1.8	4.1	6.3	2.7	6.1	9.5
320		0.8	1.9	3.0	1.7	3.8	5.9	2.5	5.7	8.9

Seed drill 4.5 m

Specific weight: **75 kg/hl**

		Rotor volume: 4 cm3			Rotor volume: 6 cm3			Rotor volume: 8 cm3		
Kg/ha	Speed of travel	Min.	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg.	Max.
1		8.0	18.0	28.0	12.0	27.0	42.0	16.0	36.0	56.0
2		4.0	9.0	14.0	6.0	13.5	21.0	8.0	18.0	28.0
3		2.7	6.0	9.3	4.0	9.0	14.0	5.3	12.0	18.7
4		2.0	4.5	7.0	3.0	6.8	10.5	4.0	9.0	14.0
5		1.6	3.6	5.6	2.4	5.4	8.4	3.2	7.2	11.2
6		1.3	3.0	4.7	2.0	4.5	7.0	2.7	6.0	9.3
7		1.1	2.6	4.0	1.7	3.9	6.0	2.3	5.1	8.0
8		1.0	2.3	3.5	1.5	3.4	5.3	2.0	4.5	7.0
9		0.9	2.0	3.1	1.3	3.0	4.7	1.8	4.0	6.2

		Rotor volume: 10 cm3			Rotor volume: 12 cm3			Rotor volume: 20 cm3		
Kg/ha	Speed of travel	Min.	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg.	Max.
2		10.0	22.5	35.0	12.0	27.0	42.0	20.0	45.0	70.0
3		6.7	15.0	23.3	8.0	18.0	28.0	13.3	30.0	46.7
4		5.0	11.3	17.5	6.0	13.5	21.0	10.0	22.5	35.0
5		4.0	9.0	14.0	4.8	10.8	16.8	8.0	18.0	28.0
6		3.3	7.5	11.7	4.0	9.0	14.0	6.7	15.0	23.3
7		2.9	6.4	10.0	3.4	7.7	12.0	5.7	12.9	20.0
8		2.5	5.6	8.8	3.0	6.8	10.5	5.0	11.3	17.5
9		2.2	5.0	7.8	2.7	6.0	9.3	4.4	10.0	15.6
10		2.0	4.5	7.0	2.4	5.4	8.4	4.0	9.0	14.0
15		1.3	3.0	4.7	1.6	3.6	5.6	2.7	6.0	9.3
20		1.0	2.3	3.5	1.2	2.7	4.2	2.0	4.5	7.0
25		0.8	1.8	2.8	1.0	2.2	3.4	1.6	3.6	5.6

		Rotor volume: 30 cm3			Rotor volume: 50 cm3			Rotor volume: 60 cm3		
Kg/ha	Speed of travel	Min.	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg.	Max.
8		7.5	16.9	26.3	12.5	28.1	43.8	15.0	33.8	52.5
9		6.7	15.0	23.3	11.1	25.0	38.9	13.3	30.0	46.7
10		6.0	13.5	21.0	10.0	22.5	35.0	12.0	27.0	42.0
15		4.0	9.0	14.0	6.7	15.0	23.3	8.0	18.0	28.0
20		3.0	6.8	10.5	5.0	11.3	17.5	6.0	13.5	21.0
25		2.4	5.4	8.4	4.0	9.0	14.0	4.8	10.8	16.8
30		2.0	4.5	7.0	3.3	7.5	11.7	4.0	9.0	14.0
35		1.7	3.9	6.0	2.9	6.4	10.0	3.4	7.7	12.0
40		1.5	3.4	5.3	2.5	5.6	8.8	3.0	6.8	10.5
45		1.3	3.0	4.7	2.2	5.0	7.8	2.7	6.0	9.3
50		1.2	2.7	4.2	2.0	4.5	7.0	2.4	5.4	8.4
60		1.0	2.3	3.5	1.7	3.8	5.8	2.0	4.5	7.0
70		0.9	1.9	3.0	1.4	3.2	5.0	1.7	3.9	6.0

		Rotor volume: 135.5 cm3			Rotor volume: 271 cm3			Rotor volume: 406 cm3		
Kg/ha	Speed of travel	Min.	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg.	Max.
35		7.7	17.4	27.1	15.5	34.8	54.2	23.2	52.2	81.2
40		6.8	15.2	23.7	13.6	30.5	47.4	20.3	45.7	71.1
45		6.0	13.6	21.1	12.0	27.1	42.2	18.0	40.6	63.2
50		5.4	12.2	19.0	10.8	24.4	37.9	16.2	36.5	56.8
60		4.5	10.2	15.8	9.0	20.3	31.6	13.5	30.5	47.4
70		3.9	8.7	13.6	7.7	17.4	27.1	11.6	26.1	40.6
80		3.4	7.6	11.9	6.8	15.2	23.7	10.2	22.8	35.5
90		3.0	6.8	10.5	6.0	13.6	21.1	9.0	20.3	31.6
100		2.7	6.1	9.5	5.4	12.2	19.0	8.1	18.3	28.4
120		2.3	5.1	7.9	4.5	10.2	15.8	6.8	15.2	23.7
140		1.9	4.4	6.8	3.9	8.7	13.6	5.8	13.1	20.3
160		1.7	3.8	5.9	3.4	7.6	11.9	5.1	11.4	17.8
180		1.5	3.4	5.3	3.0	6.8	10.5	4.5	10.2	15.8
200		1.4	3.0	4.7	2.7	6.1	9.5	4.1	9.1	14.2
220		1.2	2.8	4.3	2.5	5.5	8.6	3.7	8.3	12.9
240		1.1	2.5	4.0	2.3	5.1	7.9	3.4	7.6	11.8
260		1.0	2.3	3.6	2.1	4.7	7.3	3.1	7.0	10.9
280		1.0	2.2	3.4	1.9	4.4	6.8	2.9	6.5	10.2
300		0.9	2.0	3.2	1.8	4.1	6.3	2.7	6.1	9.5
320		0.8	1.9	3.0	1.7	3.8	5.9	2.5	5.7	8.9

Seed drill 4.5 m

Specific weight: **50 kg/hl**

		Rotor volume: 4 cm3			Rotor volume: 6 cm3			Rotor volume: 8 cm3		
Kg/ha	Speed of travel	Min.	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg.	Max.
1		5.3	12.0	18.7	8.0	18.0	28.0	10.7	24.0	37.3
2		2.7	6.0	9.3	4.0	9.0	14.0	5.3	12.0	18.7
3		1.8	4.0	6.2	2.7	6.0	9.3	3.6	8.0	12.4
4		1.3	3.0	4.7	2.0	4.5	7.0	2.7	6.0	9.3
5		1.1	2.4	3.7	1.6	3.6	5.6	2.1	4.8	7.5
6		0.9	2.0	3.1	1.3	3.0	4.7	1.8	4.0	6.2

		Rotor volume: 10 cm3			Rotor volume: 12 cm3			Rotor volume: 20 cm3		
Kg/ha	Speed of travel	Min.	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg.	Max.
1		13.3	30.0	46.7	16.0	36.0	56.0	26.7	60.0	93.3
2		6.7	15.0	23.3	8.0	18.0	28.0	13.3	30.0	46.7
3		4.4	10.0	15.6	5.3	12.0	18.7	8.9	20.0	31.1
4		3.3	7.5	11.7	4.0	9.0	14.0	6.7	15.0	23.3
5		2.7	6.0	9.3	3.2	7.2	11.2	5.3	12.0	18.7
6		2.2	5.0	7.8	2.7	6.0	9.3	4.4	10.0	15.6
7		1.9	4.3	6.7	2.3	5.1	8.0	3.8	8.6	13.3
8		1.7	3.8	5.8	2.0	4.5	7.0	3.3	7.5	11.7
9		1.5	3.3	5.2	1.8	4.0	6.2	3.0	6.7	10.4
10		1.3	3.0	4.7	1.6	3.6	5.6	2.7	6.0	9.3
15		0.9	2.0	3.1	1.1	2.4	3.7	1.8	4.0	6.2
20		0.7	1.5	3.5	1.2	1.8	2.8	1.3	3.0	4.7

		Rotor volume: 30 cm3			Rotor volume: 50 cm3			Rotor volume: 60 cm3		
Kg/ha	Speed of travel	Min.	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg.	Max.
5		8.0	18.0	28.0	13.3	30.0	46.7	16.0	36.0	56.0
6		6.7	15.0	23.3	11.1	25.0	38.9	13.3	30.0	46.7
7		5.7	12.9	20.0	9.5	21.4	33.3	11.4	25.7	40.0
8		5.0	11.3	17.5	8.3	18.8	29.2	10.0	22.5	35.0
9		4.4	10.0	15.6	7.4	16.7	25.9	8.9	20.0	31.1
10		4.0	9.0	14.0	6.7	15.0	23.3	8.0	18.0	28.0
15		2.7	6.0	9.3	4.4	10.0	15.6	5.3	12.0	18.7
20		2.0	4.5	7.0	3.3	7.5	11.7	4.0	9.0	14.0
25		1.6	3.6	5.6	2.7	6.0	9.3	3.2	7.2	11.2
30		1.3	3.0	4.7	2.2	5.0	7.8	2.7	6.0	9.3
35		1.1	2.6	4.0	1.9	4.3	6.7	2.3	5.1	8.0
40		1.0	2.3	3.5	1.7	3.8	5.8	2.0	4.5	7.0
45		0.9	2.0	3.1	1.5	3.3	5.2	1.8	4.0	6.2

		Rotor volume: 135.5 cm3			Rotor volume: 271 cm3			Rotor volume: 406 cm3		
Kg/ha	Speed of travel	Min.	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg.	Max.
25		7.2	16.3	25.3	14.5	32.5	50.6	21.7	48.7	75.8
30		6.0	13.6	21.1	12.0	27.1	42.2	18.0	40.6	63.2
35		5.2	11.6	18.1	10.3	23.2	36.1	15.5	34.8	54.1
40		4.5	10.2	15.8	9.0	20.3	31.6	13.5	30.5	47.4
45		4.0	9.0	14.1	8.0	18.1	28.1	12.0	27.1	42.1
50		3.6	8.1	12.6	7.2	16.3	25.3	10.8	24.4	37.9
60		3.0	6.8	10.5	6.0	13.6	21.1	9.0	20.3	31.6
70		2.6	5.8	9.0	5.2	11.6	18.1	7.7	17.4	27.1
80		2.3	5.1	7.9	4.5	10.2	15.8	6.8	15.2	23.7
90		2.0	4.5	7.0	4.0	9.0	14.1	6.0	13.5	21.1
100		1.8	4.1	6.3	3.6	8.1	12.6	5.4	12.2	18.9
120		1.5	3.4	5.3	3.0	6.8	10.5	4.5	10.2	15.8
140		1.3	2.9	4.5	2.6	5.8	9.0	3.9	8.7	13.5
160		1.1	2.5	4.0	2.3	5.1	7.9	3.4	7.6	11.8
180		1.0	2.3	3.5	2.0	4.5	7.0	3.0	6.8	10.5
200		0.9	2.0	3.2	1.8	4.1	6.3	2.7	6.1	9.5
220		0.8	1.8	2.9	1.6	3.7	5.7	2.5	5.5	8.6
240		0.8	1.7	2.6	1.5	3.4	5.3	2.3	5.1	7.9
260		0.7	1.6	2.4	1.4	3.1	4.9	2.1	4.7	7.3
280		0.6	1.5	2.3	1.3	2.9	4.5	1.9	4.4	6.8

Seed drill 6 m

Specific weight: **75 kg/hl**

		Rotor volume: 4 cm3			Rotor volume: 6 cm3			Rotor volume: 8 cm3		
Kg/ha	Speed of travel	Min.	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg.	Max.
1		6.0	13.5	21.0	9.0	20.3	31.5	12.0	27.0	42.0
2		3.0	6.8	10.5	4.5	10.1	15.8	6.0	13.5	21.0
3		2.0	4.5	7.0	3.0	6.8	10.5	4.0	9.0	14.0
4		1.5	3.4	5.3	2.3	5.1	7.9	3.0	6.8	10.5
5		1.2	2.7	4.2	1.8	4.1	6.3	2.4	5.4	8.4
6		1.0	2.3	3.5	1.5	3.4	5.3	2.0	4.5	7.0
7		0.9	1.9	3.0	1.3	2.9	4.5	1.7	3.9	6.0

		Rotor volume: 10 cm3			Rotor volume: 12 cm3			Rotor volume: 20 cm3		
Kg/ha	Speed of travel	Min.	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg.	Max.
2		7.5	16.9	26.3	9.0	20.3	31.5	15.0	33.8	52.5
3		5.0	11.3	17.5	6.0	13.5	21.0	10.0	22.5	35.0
4		3.8	8.4	13.1	4.5	10.1	15.8	7.5	16.9	26.3
5		3.0	6.8	10.5	3.6	8.1	12.6	6.0	13.5	21.0
6		2.5	5.6	8.8	3.0	6.8	10.5	5.0	11.3	17.5
7		2.1	4.8	7.5	2.6	5.8	9.0	4.3	9.6	15.0
8		1.9	4.2	6.6	2.3	5.1	7.9	3.8	8.4	13.1
9		1.7	3.8	5.8	2.0	4.5	7.0	3.3	7.5	11.7
10		1.5	3.4	5.3	1.8	4.1	6.3	3.0	6.8	10.5
15		1.0	2.3	3.5	1.2	2.7	4.2	2.0	4.5	7.0
20		0.8	1.7	2.6	0.9	2.0	3.2	1.5	3.4	5.3

		Rotor volume: 30 cm3			Rotor volume: 50 cm3			Rotor volume: 60 cm3		
Kg/ha	Speed of travel	Min.	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg.	Max.
6		7.5	16.9	26.3	12.5	28.1	43.8	15.0	33.8	52.5
7		6.4	14.5	22.5	10.7	24.1	37.5	12.9	28.9	45.0
8		5.6	12.7	19.7	9.4	21.1	32.8	11.3	25.3	39.4
9		5.0	11.3	17.5	8.3	18.8	29.2	10.0	22.5	35.0
10		4.5	10.1	15.8	7.5	16.9	26.3	9.0	20.3	31.5
15		3.0	6.8	10.5	5.0	11.3	17.5	6.0	13.5	21.0
20		2.3	5.1	7.9	3.8	8.4	13.1	4.5	10.1	15.8
25		1.8	4.1	6.3	3.0	6.8	10.5	3.6	8.1	12.6
30		1.5	3.4	5.3	2.5	5.6	8.8	3.0	6.8	10.5
35		1.3	2.9	4.5	2.1	4.8	7.5	2.6	5.8	9.0
40		1.1	2.5	3.9	1.9	4.2	6.6	2.3	5.1	7.9
45		1.0	2.3	3.5	1.7	3.8	5.8	2.0	4.5	7.0
50		0.9	2.0	3.2	1.5	3.4	5.3	1.8	4.1	6.3

		Rotor volume: 135.5 cm3			Rotor volume: 271 cm3			Rotor volume: 406 cm3		
Kg/ha	Speed of travel	Min.	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg.	Max.
25		8.1	18.3	28.5	16.3	36.6	56.9	24.4	54.8	85.3
30		6.8	15.2	23.7	13.6	30.5	47.4	20.3	45.7	71.1
35		5.8	13.1	20.3	11.6	26.1	40.7	17.4	39.2	60.9
40		5.1	11.4	17.8	10.2	22.9	35.6	15.2	34.3	53.3
45		4.5	10.2	15.8	9.0	20.3	31.6	13.5	30.5	47.4
50		4.1	9.1	14.2	8.1	18.3	28.5	12.2	27.4	42.6
60		3.4	7.6	11.9	6.8	15.2	23.7	10.2	22.8	35.5
70		2.9	6.5	10.2	5.8	13.1	20.3	8.7	19.6	30.5
80		2.5	5.7	8.9	5.1	11.4	17.8	7.6	17.1	26.6
90		2.3	5.1	7.9	4.5	10.2	15.8	6.8	15.2	23.7
100		2.0	4.6	7.1	4.1	9.1	14.2	6.1	13.7	21.3
120		1.7	3.8	5.9	3.4	7.6	11.9	5.1	11.4	17.8
140		1.5	3.3	5.1	2.9	6.5	10.2	4.4	9.8	15.2
160		1.3	2.9	4.4	2.5	5.7	8.9	3.8	8.6	13.3
180		1.1	2.5	4.0	2.3	5.1	7.9	3.4	7.6	11.8
200		1.0	2.3	3.6	2.0	4.6	7.1	3.0	6.9	10.7
220		0.9	2.1	3.2	1.8	4.2	6.5	2.8	6.2	9.7
240		0.8	1.9	3.0	1.7	3.8	5.9	2.5	5.7	8.9
260		0.8	1.8	2.7	1.6	3.5	5.5	2.3	5.3	8.2
280		1.0	1.6	2.5	1.5	3.3	5.1	2.2	4.9	7.6
300		0.9	1.5	2.4	1.4	3.0	4.7	2.0	4.6	7.1

Seed drill 6 m

Specific weight: **50 kg/hl**

		Rotor volume: 4 cm3			Rotor volume: 6 cm3			Rotor volume: 8 cm3		
Kg/ha	Speed of travel	Min.	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg.	Max.
1		4.0	9.0	14.0	6.0	13.5	21.0	8.0	18.0	28.0
2		2.0	4.5	7.0	3.0	6.8	10.5	4.0	9.0	14.0
3		1.3	3.0	4.7	2.0	4.5	7.0	2.7	6.0	9.3
4		1.0	2.3	3.5	1.5	3.4	5.3	2.0	4.5	7.0
5		0.8	1.8	2.8	1.2	2.7	4.2	1.6	3.6	5.6

		Rotor volume: 10 cm3			Rotor volume: 12 cm3			Rotor volume: 20 cm3		
Kg/ha	Speed of travel	Min.	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg.	Max.
1		10.0	22.5	35.0	12.0	27.0	42.0	20.0	45.0	70.0
2		5.0	11.3	17.5	6.0	13.5	21.0	10.0	22.5	35.0
3		3.3	7.5	11.7	4.0	9.0	14.0	6.7	15.0	23.3
4		2.5	5.6	8.8	3.0	6.8	10.5	5.0	11.3	17.5
5		2.0	4.5	7.0	2.4	5.4	8.4	4.0	9.0	14.0
6		1.7	3.8	5.8	2.0	4.5	7.0	3.3	7.5	11.7
7		1.4	3.2	5.0	1.7	3.9	6.0	2.9	6.4	10.0
8		1.3	2.8	4.4	1.5	3.4	5.3	2.5	5.6	8.8
9		1.1	2.5	3.9	1.3	3.0	4.7	2.2	5.0	7.8
10		1.0	2.3	3.5	1.2	2.7	4.2	2.0	4.5	7.0
15		0.7	1.5	2.3	0.8	1.8	2.8	1.3	3.0	4.7

		Rotor volume: 30 cm3			Rotor volume: 50 cm3			Rotor volume: 60 cm3		
Kg/ha	Speed of travel	Min.	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg.	Max.
4		7.5	16.9	26.3	12.5	28.1	43.8	15.0	33.8	52.5
5		6.0	13.5	21.0	10.0	22.5	35.0	12.0	27.0	42.0
6		5.0	11.3	17.5	8.3	18.8	29.2	10.0	22.5	35.0
7		4.3	9.6	15.0	7.1	16.1	25.0	8.6	19.3	30.0
8		3.8	8.4	13.1	6.3	14.1	21.9	7.5	16.9	26.3
9		3.3	7.5	11.7	5.6	12.5	19.4	6.7	15.0	23.3
10		3.0	6.8	10.5	5.0	11.3	17.5	6.0	13.5	21.0
15		2.0	4.5	7.0	3.3	7.5	11.7	4.0	9.0	14.0
20		1.5	3.4	5.3	2.5	5.6	8.8	3.0	6.8	10.5
25		1.2	2.7	4.2	2.0	4.5	7.0	2.4	5.4	8.4
30		1.0	2.3	3.5	1.7	3.8	5.8	2.0	4.5	7.0
35		0.9	1.9	3.0	1.4	3.2	5.0	1.7	3.9	6.0

		Rotor volume: 135.5 cm3			Rotor volume: 271 cm3			Rotor volume: 406 cm3		
Kg/ha	Speed of travel	Min.	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg.	Max.
15		9.0	20.3	31.6	18.1	40.7	84.3	27.1	60.9	94.7
20		6.8	15.2	23.7	13.6	30.5	63.2	20.3	45.7	71.1
25		5.4	12.2	19.0	10.8	24.4	50.6	16.2	36.5	56.8
30		4.5	10.2	15.8	9.0	20.3	42.2	13.5	30.5	47.4
35		3.9	8.7	13.6	7.7	17.4	36.1	11.6	26.1	40.6
40		3.4	7.6	11.9	6.8	15.2	31.6	10.2	22.8	35.5
45		3.0	6.8	10.5	6.0	13.6	28.1	9.0	20.3	31.6
50		2.7	6.1	9.5	5.4	12.2	25.3	8.1	18.3	28.4
60		2.3	5.1	7.9	4.5	10.2	21.1	6.8	15.2	23.7
70		1.9	4.4	6.8	3.9	8.7	18.1	5.8	13.1	20.3
80		1.7	3.8	5.9	3.4	7.6	15.8	5.1	11.4	17.8
90		1.5	3.4	5.3	3.0	6.8	14.1	4.5	10.2	15.8
100		1.4	3.0	4.7	2.7	6.1	12.6	4.1	9.1	14.2
120		1.1	2.5	4.0	2.3	5.1	10.5	3.4	7.6	11.8
140		1.0	2.2	3.4	1.9	4.4	9.0	2.9	6.5	10.2
160		0.8	1.9	3.0	1.7	3.8	7.9	2.5	5.7	8.9
180		0.8	1.7	2.6	1.5	3.4	7.0	2.3	5.1	7.9
200		0.7	1.5	2.4	1.4	3.0	6.3	2.0	4.6	7.1
220		0.6	1.4	2.2	1.2	2.8	5.7	1.8	4.2	6.5

12.4 SeedXconnect manual

12.4.1 Description

12.4.1.1 Microsoft Surface Pro 7

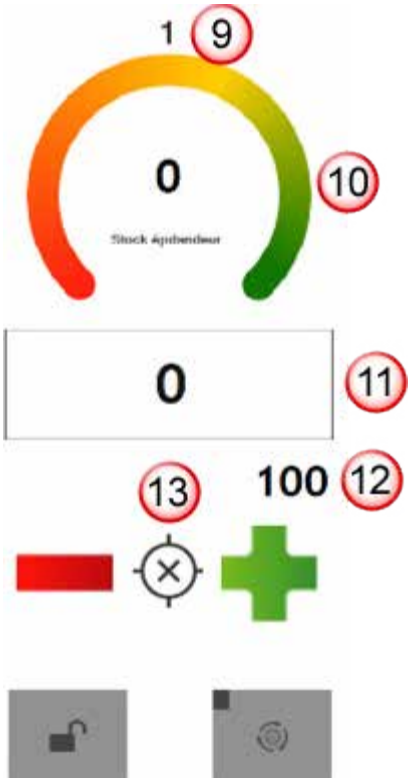
1. Volume
2. Bouton Marche/ Arrêt
3. 3 Prise Casque
4. Camera de reconnaissance faciale Windows Hello
5. Camera avant
6. Micros de studio
7. Port USB-C
8. Port USB-A
9. Port Surface Connect

12.4.1.2 Microsoft Surface Go

1. Bouton de marche / Arrêt
2. Volume
3. Connexion Windows hello par reconnaissance faciale
4. Haut parleur
5. Prise casque
6. Port USB-C
7. Pied Intègre
8. Surface Connect
9. Lecteur de carte Micro^{SDXC}

12.4.2 Usage

12.4.2.1 Start-up and work page



1. Number of revolutions per minute of the turbine
2. Speed of travel
3. Total number of hectares
4. Number of hectares for one plot
5. Work page
6. Tramlining
7. Help
8. Settings

9. Metering unit number
10. Sown quantities or quantities in the metering unit
11. Control of instantaneous dose while working
12. Dose per hectare
13. Manual modification of the dose per hectare

14. Locking of individual metering units or of all metering units
15. Switching on all metering units manually and choosing which ones to switch on
16. Timer delay adjustable in the settings

***Note** : when one of these 3 options is active, the corresponding button is displayed in red.*

12.4.2.2 Managing metering units

On the work screen, the metering unit indicators have the following meanings:

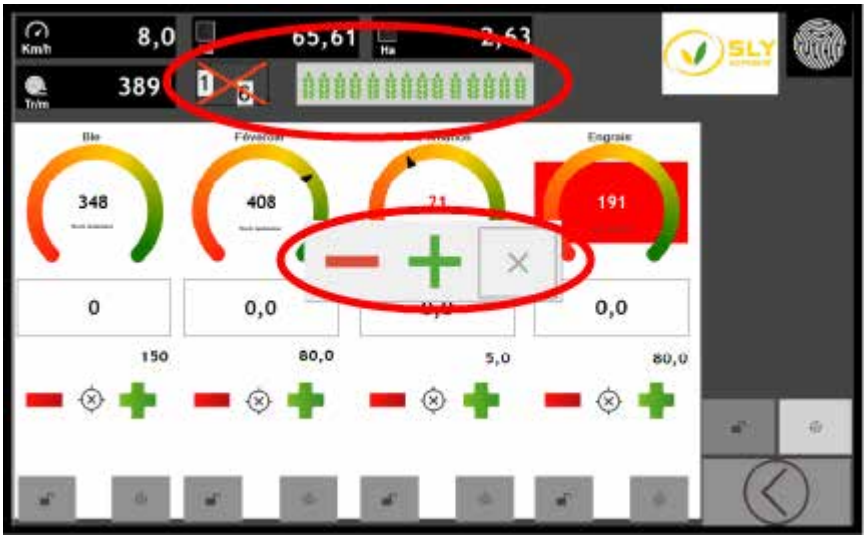
(1) The metering unit displays the sown quantity.

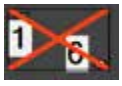
(2) The arrow on the counter indicates that the metering unit is counting down.

(3) The number in the centre that appears in red indicates that the sensor at the top of the metering unit is uncovered.

(4) The square is displayed in red when the metering unit is empty.

12.4.2.3 Managing tramlining





: tramlining on or off and the number of runs be made.


: the seed line when tramlining (left tramline).

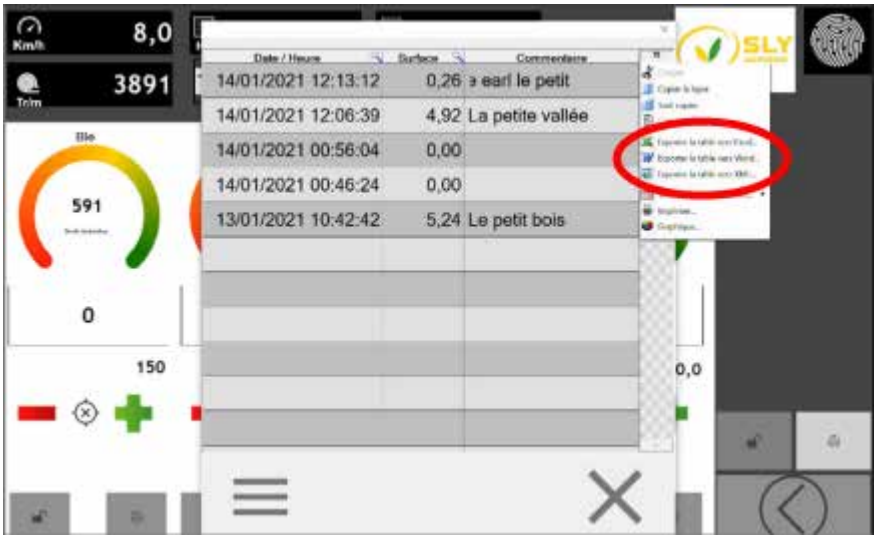

: deactivation and reactivation of tramlining.


: manual modification of the number of runs

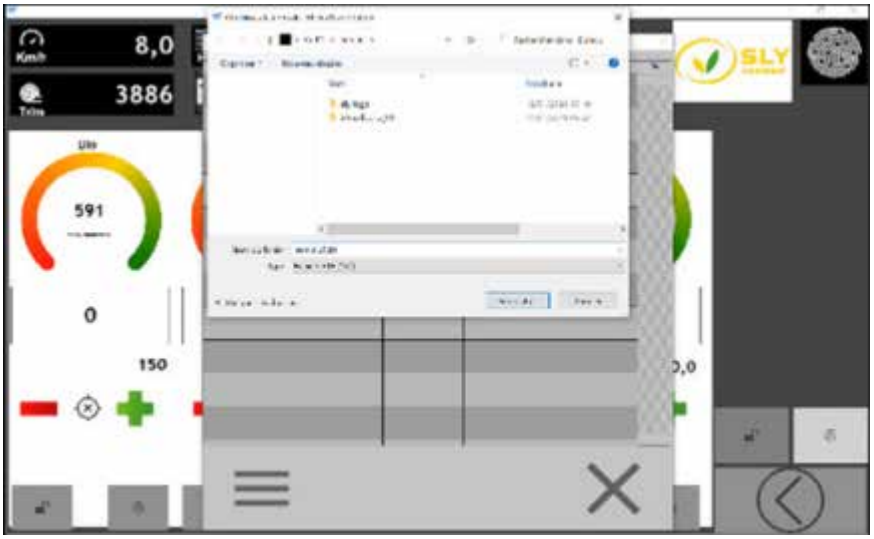
12.4.2.4 Managing plots

1. Press field (1) **Total number of hectares** or (2) **Number of hectares for a plot**.

2. Press icon (3) to display the work history.



3. If desired, export the history data in the desired format (Word, Excel or XML).



12.4.2.5 Stopping the console

1. From the work page, press button (1) **Settings**.

2. Press button (2) **Start / Stop**.

3. Press button (3) **Stop the console** to leave the application.

12.4.3 Configuration

12.4.3.1 Configuring the machine

1. From the work page, press button (1) **Settings**.

2. Press button (2) **Machine** to configure the machine.

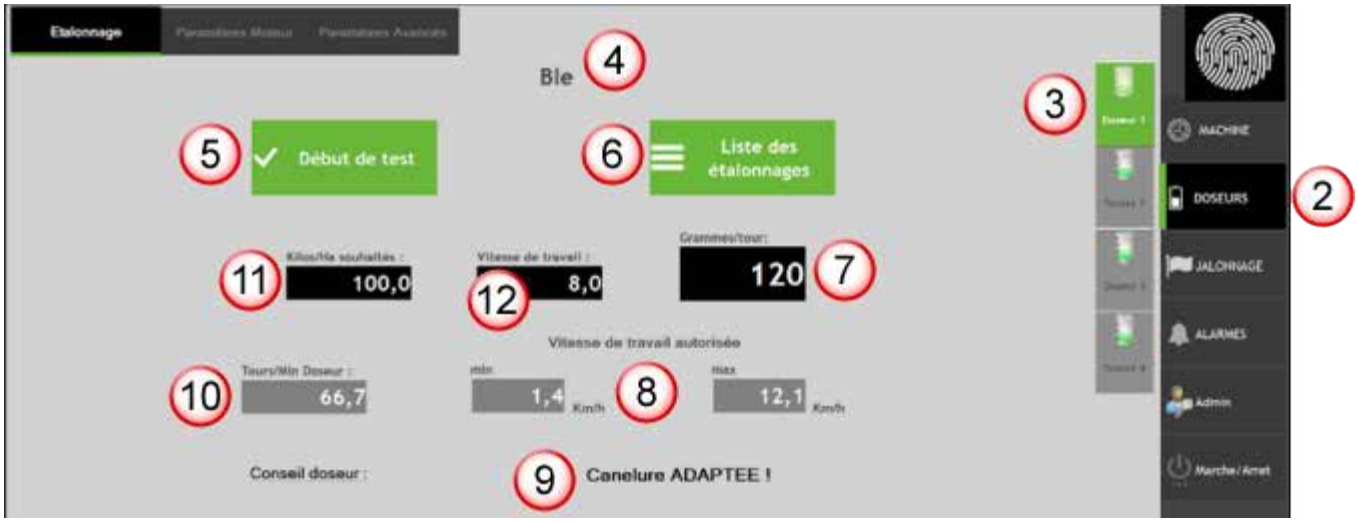
3. Set the various parameters:

- (3) Name of the metering unit
- (4) Metering unit status: on or off
- (5) Working width
- (6) Timer delay
- (7) Total area to be treated
- (8) Cruising speed (target speed) for work

12.4.3.2 Configuring and calibrating metering units

1. From the work page, press button (1) **Settings**.

2. Press button (2) **Metering units** to configure and calibrate the metering units.



3. Select the dispenser to be configured by pressing the corresponding **Metering unit X** button (3).

4. Set the various parameters:

- (4) Metering unit name
- (5) Flow test start button
- (6) Calibration list (access to old measurements)
- (7) Number of grams per revolution of the metering unit motor
- (8) Minimum and maximum permitted working speed
- (9) Information on the installed spline
- (10) Number of revolutions per minute of the metering unit (this speed must be between 30 and 70 rpm)
- (11) Desired quantity (in kg) per hectare
- (12) Target working speed

5. To calibrate the metering unit, press button (5)**Test start** and confirm the message that appears.

6. To stop the calibration, press button (5) again **Test end** and confirm the message that appears.

7. Press field (13) **Output** to enter the weight value of the quantity actually output from the metering unit.

8. Press button (14) **Validate** to confirm the value entered and confirm the message that appears

9. If you wish, save this new calibration to the list.

12.4.3.3 Configuring tramlining with the sequence calculation

1. From the work page, press button (1) **Settings**.

2. Press button (2) **Tramlining** to configure the tramlining.

3. Press button (6) **Sequence calculation** to configure the tramlining.

The different information displayed :

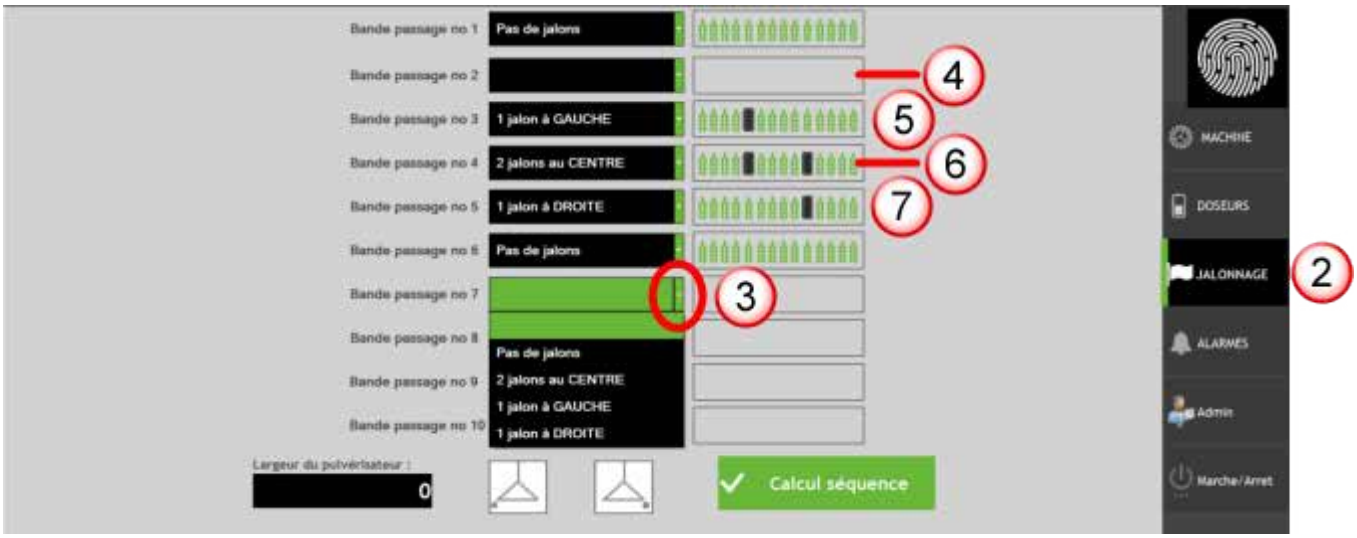
- (3) The different runs
- (4) Tramline diagram
  - (5) Tramline or not and tramline type
  - (6) Button for calculating the sequence
  - (7) Starting direction indicated by the red dot (left or right)

  - (8) Working width of the sprayer

12.4.3.4 Manually configuring tramlining

1. From the work page, press button (1) **Settings**.

2. Press button (2) **Tramlining** to configure the tramlining.



3. Use the arrow (3) to select the desired tramline type for each run:

- (4) No tramline
- (5) 1 tramline to the LEFT
- (6) 2 tramlines in the CENTRE
- (7) 1 tramline to the RIGHT

12.4.3.4 Configuring the alarms

1. From the work page, press button (1) **Settings**.

2. Press button (2) **Alarms** to configure the tramlining.

3. Press the button corresponding to an alarm to activate it (it will appear in green) or deactivate it (it will appear in grey).

4. Press button (3) **Turbine rotation** to enter the alarm threshold values.

12.5 A-Touch 800 / 1200 manual

12.5.1 Description

12.5.1.1 Front

A-Touch 1200

A-Touch 800

12.5.1.2 Rear

Option

1	**Raccordement de l'antenne GSM** Seulement pour le cas d'un terminal avec modem GSM installé.	6	**Capuchon protecteur pour la prise USB** Il protège le port USB de la poussière.
2	N'est pas utilisé pour le moment	7	**Emplacement pour la carte SIM**
3	**Raccordement caméra analogique** Seulement pour le cas d'un terminal avec modem GSM installé. Art. - Nr. 30322527	8	**Raccordement B** Raccordement CAN-Bus Voir le chapitre : Brochage raccordement B [→ 79]
4	**Raccordement caméra analogique** Seulement pour le cas d'un terminal avec modem GSM installé	9	**Raccordement A** Raccordement CAN-Bus Pour le raccordement de l'équipement de base ISOBUS
5	**Port USB** USB 1.1	10	**Raccordement C** Port série RS232 pour : - Récepteur GPS - Compensateur d'inclinaison "GPS TILT-Module" - Barre de guidage

12.5.1.3 Icons

Lexique des icones que l'on retrouve dans la partie Utilisateur :

Page de travail :


Informations surface


Outils en positions de travail


Marche / Arrêt de l'application


Paramètres Jalonnage


Trémie niveau bas ou vide


Modulation de dose manuel


Fonctions lumière


Marche/arrêt moteur Droit (opt)


Marche/arrêt moteur Gauche (opt)


Paramètres


Amorçage doseur(s)

Dans les autres pages :


Page suivante


Produit


Défilement page vers le haut


Accès calibration


Confirmation


Défilement page vers le bas


Lancement de la calibration


Diagnostic


Largeur de travail (tronçon)


Enregistrement calibration


....


Paramètres vitesse


Retour


Accès paramètres

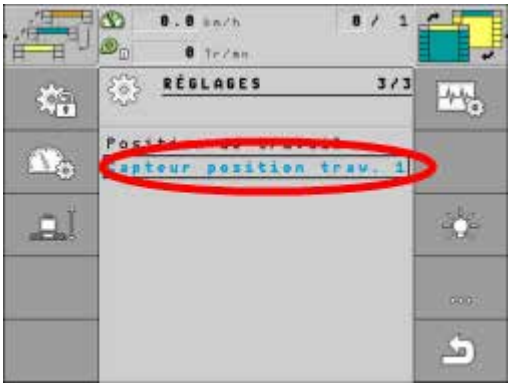
12.5.2 Usage

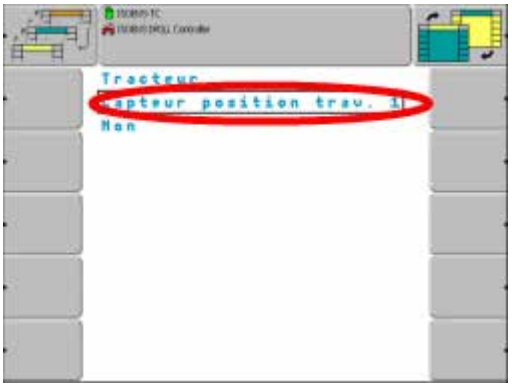
12.5.2.1 Activating the cut out and setting the working width

1. Open the home screen.

2. Press button (1) **Settings** to open the settings screen.

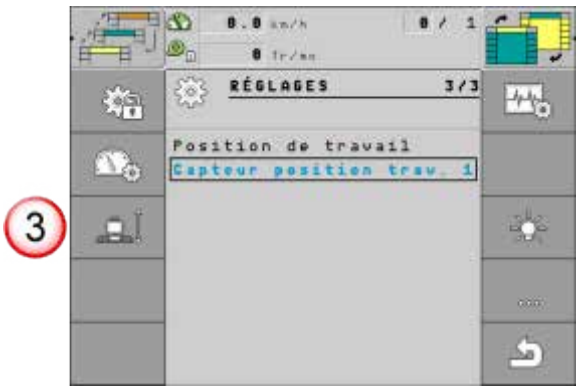
3. Press button (2) twice **Next page** to open page 3 of the settings screen.



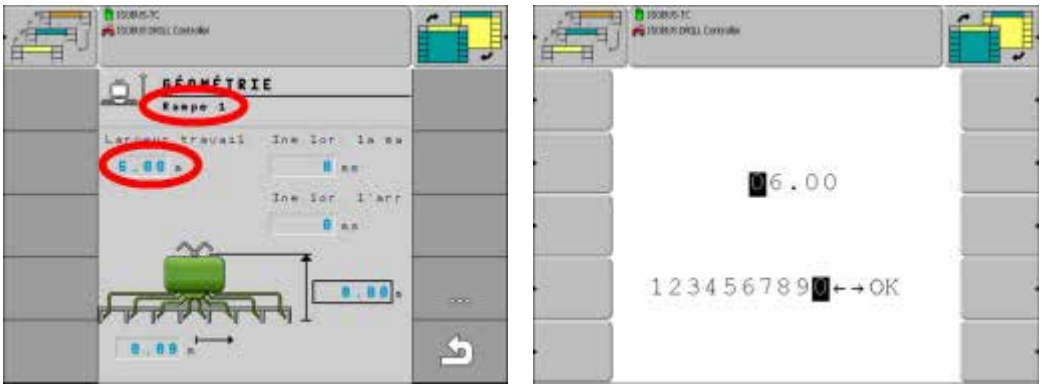


4. Press Work position sensor 1.

5. If your machine has the Cut Out function, select **Work position sensor 1** in the list.



5. Back in the settings page 3, press button (3) **Geometry**.



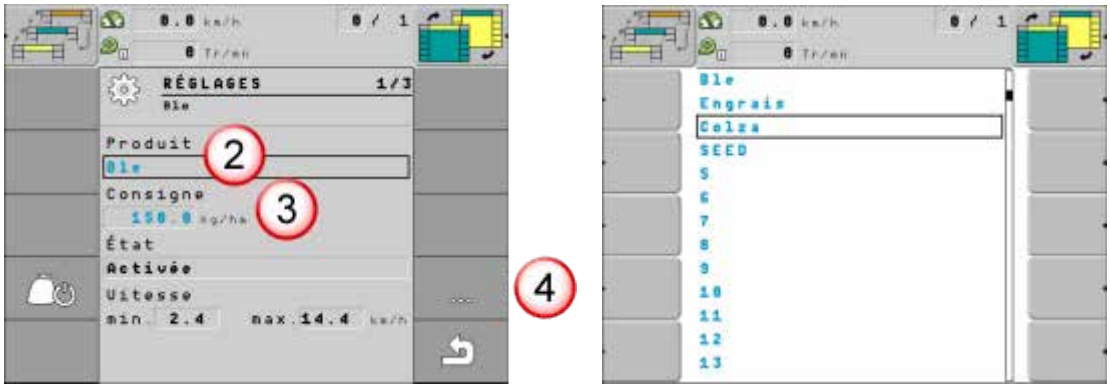
6. Select each boom in turn and set their working width.

Note: A GPS offset will be taken. By default, this is the middle between the 2 rows of seeding units, i.e. approximately 5 m.

12.5.2.2 Managing the product database

1. Open the home screen.

2. Press button (1) **Settings** to open the settings screen.



3. Press field (2) **Product** to display the product list.

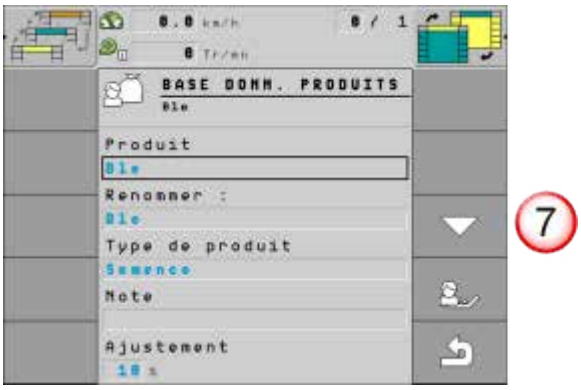
4. Select the product to be checked or configured from the database. Choose a free field to add a new product.

5. Press field (3) **Instruction** to change or configure the spreading instruction.

6. Press button (4) **Next page**to go to page 2 of settings.

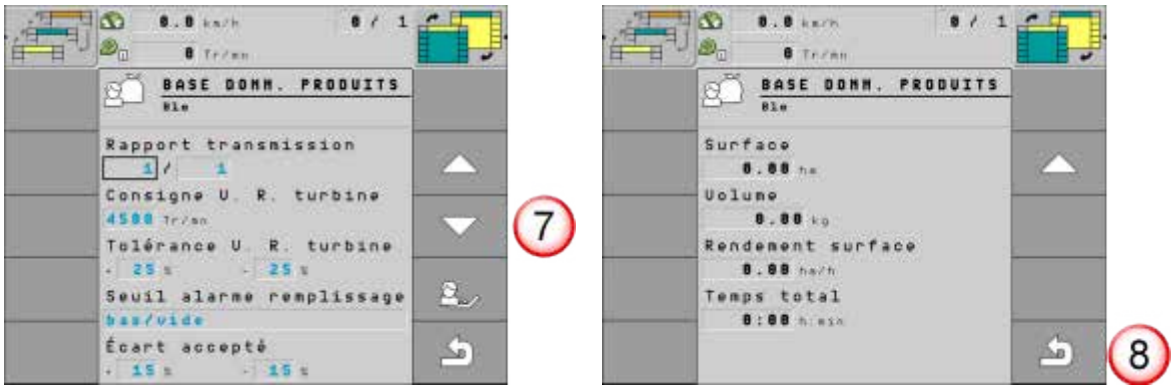
6. Press field (5) **Hopper** to select the hopper in which the seed is located.

7. Press button (6) **Product** to open the **Product assigned** in the product database.



8. Set the various parameters.

9. Press button (7) **Scroll down** to go to the next settings pages.



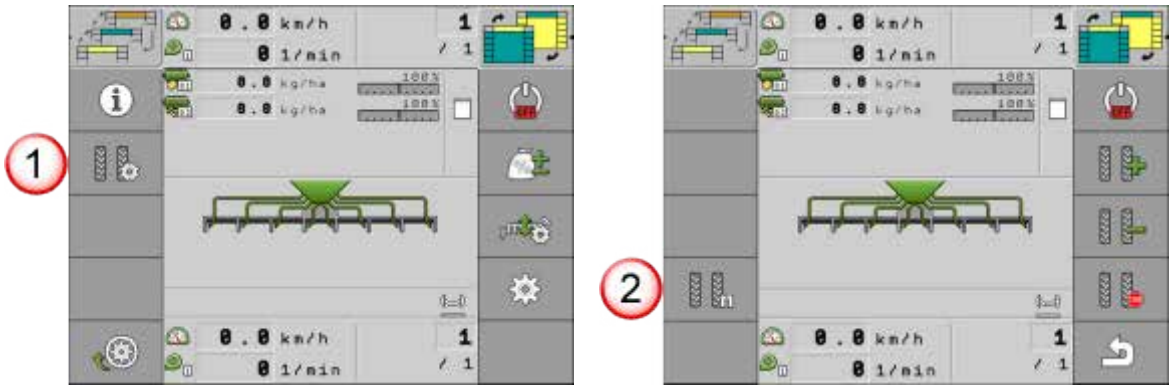
Once all the settings have been adjusted as desired:

10. Press button (8) **Back** to confirm your changes and exit the product database.

12.5.2.3 Configuring the tramline marker

From the main screen:

1. Press button (1) **Tramline settings** to access the tramline configuration screen.



2. Press button (2) again **Tramline settings** to programme the tramlining.

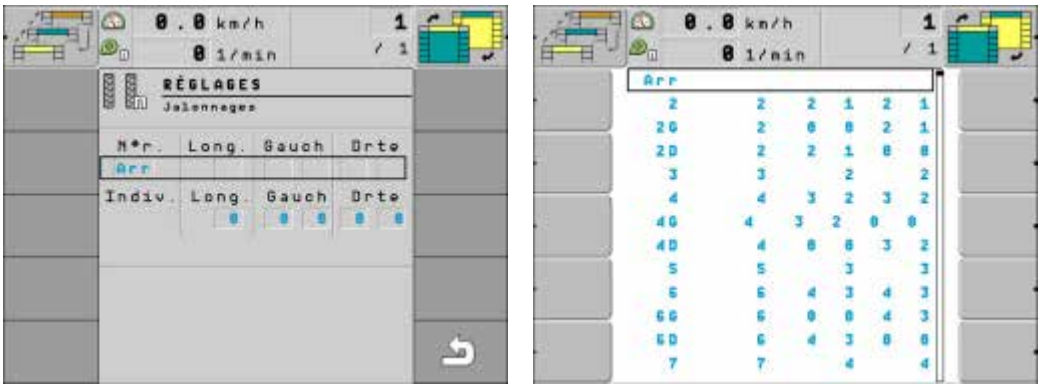
3. Calculate the appropriate tramline pattern from the working widths of the seed drill and sprayer:

a. Choose whether to start working at the left or right edge of the field.

b. Divide the working width of the sprayer by the working width of the seed drill

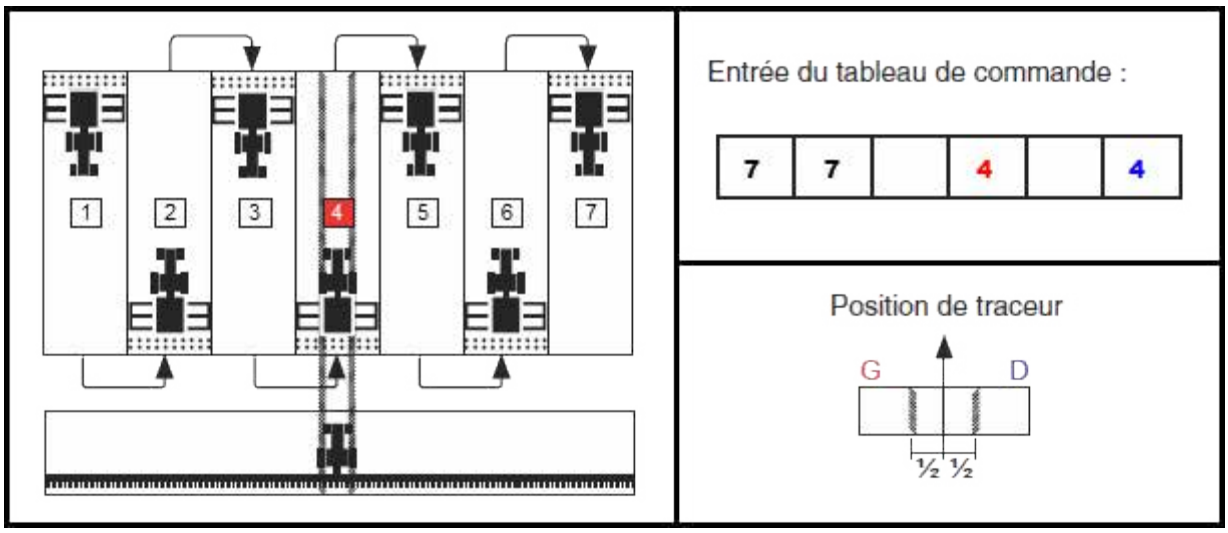
c. Refer to the user manual of your pneumatic seed drill to select the tramline pattern according to the result of the division calculation (even, odd or decimal).

4. Use the control wheel to navigate through the following screens and press the control wheel to confirm your choices.

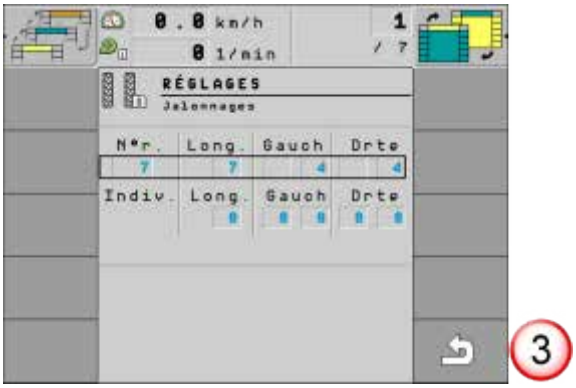


Example 1: Sprayer run in the middle of a seed drill run

- Working width of the sprayer: **21 m**
- Working width of the seed drill: **3 m**
- Division : 21 / 3 = **7 runs** of the seed drill for 1 run of the sprayer



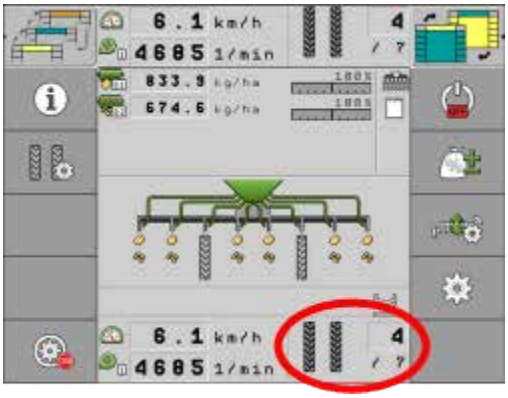
1. In the table, select the row **7 : 7 _ 4 _ 4** with the control wheel and then press the control wheel to confirm.



2. Press button (3) **Back** to leave the settings screen.

3. Press button (3) again **Back** to return to the main menu.

The tramline valves are activated on the 4th run :



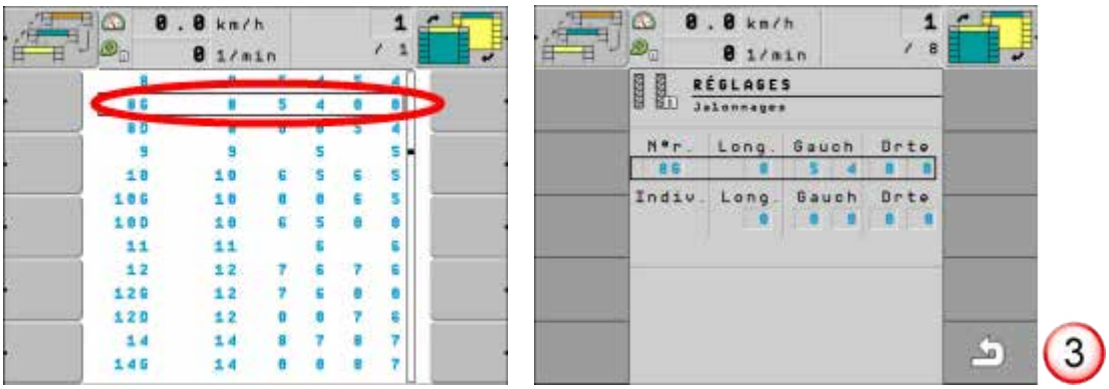
Example 2 : half seed drill run

- Working width of the sprayer: **24 m**
- Working width of the seed drill: **3 m**
- Division : 24 / 3 = **8 runs** of the seed drill for 1 run of the sprayer

In this case, only one valve is active (the one on the side from which you start to cover the field).

1. In the table, select the row **8G : 8 5 4 0 0** with the control wheel and then press the control wheel to confirm.

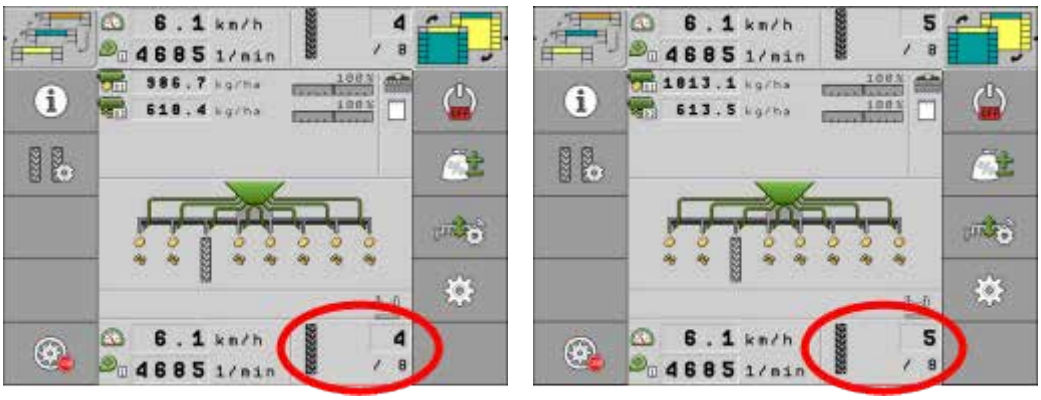
Note : as, in the example, we start from the left of the field, we choose the **8G** configuration.



2. Press button (3) **Back** to leave the settings screen.

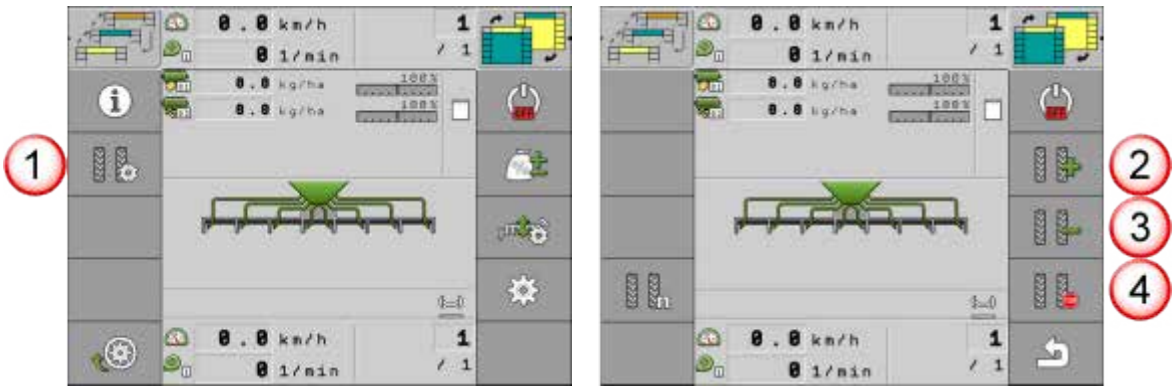
3. Press button (3) again **Back** to return to the main menu.

The left tramline valve is activated on the 4th and 5thrun :



12.5.2.4 Manually modifying the marker

1. Press button (1) **Tramline settings** to access the tramline configuration screen.



2. Press button (2) **Additional manual run** to manually force an additional run.

3. Press button (3) **Reduced manual run** to manually force a run less.

4. Press button (4) **Stop the run** to stop the current run if there are several lifts and drops on the same run.

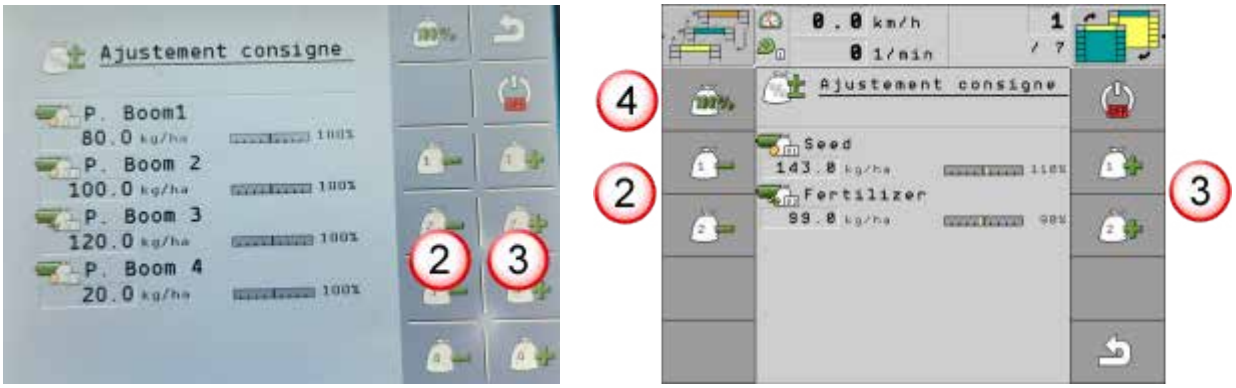
12.5.2.5 Adjusting the dose

In the operating display, to temporarily change the delivered dose:

1. Press button (1) **Manual adjustment of dose**.

2. Press the buttons (2) **Decrease the dose** to decrease the corresponding dose in 10% increments.

3. Press the buttons (3) **Increase the dose** to increase the corresponding dose in 10% increments.



4. To cancel this temporary adjustment:

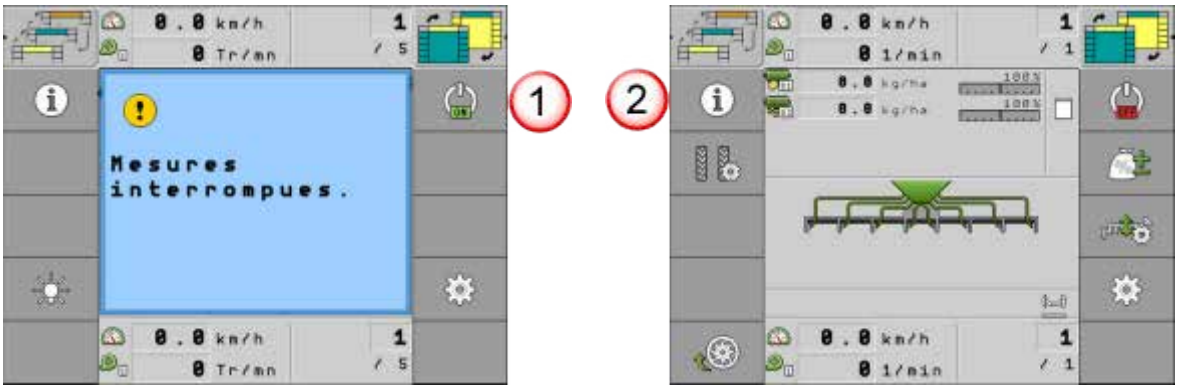
- Press button (4) **Return the dose to 100%** .
- Or manually return the doses to 100% using buttons (2) and (3).

12.5.2.6 Displaying information on areas worked and managing assignments

When the control unit starts up :

1. Press button (1) **Start** to activate the seeding.

The seed drill is active.



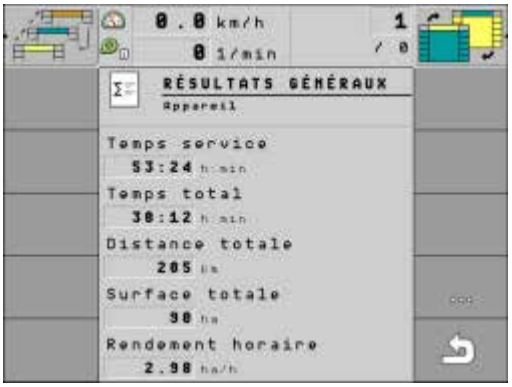
2. Press button (2) **Area information** to display the information screen.

The following information is displayed since the counters were last reset:

- The area sown
- The volume applied
- The hourly output

3. Press button (3) **Reset** to reset the counters to zero.

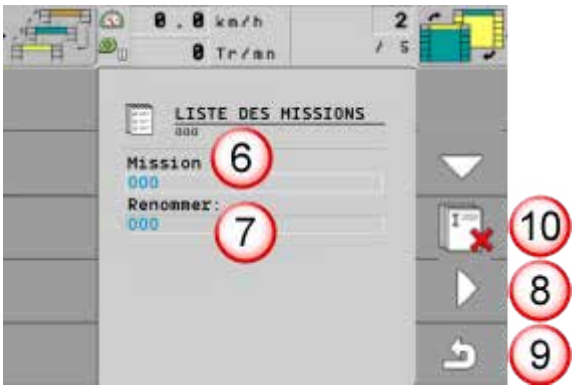
4. Press key (4)**Total counters** to display the total counters (these counters cannot be reset).



5. Press button (5) **Assignments** to display the list of assignments.

6. Press field (6) **Assignment** to select an assignment.

7. Press field (7) **Rename** to rename the selected assignment.



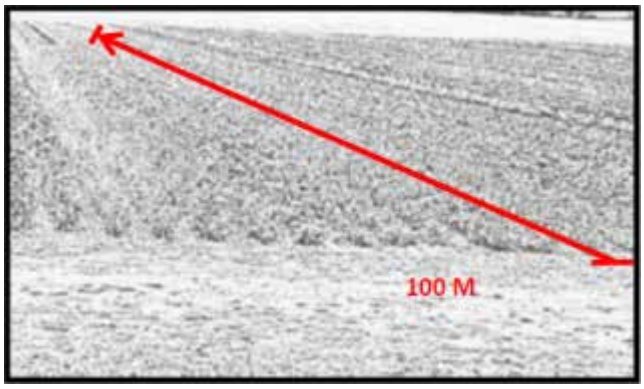
8. Press button (8) **Start assignment** to start the selected assignment.

The assignment starts.

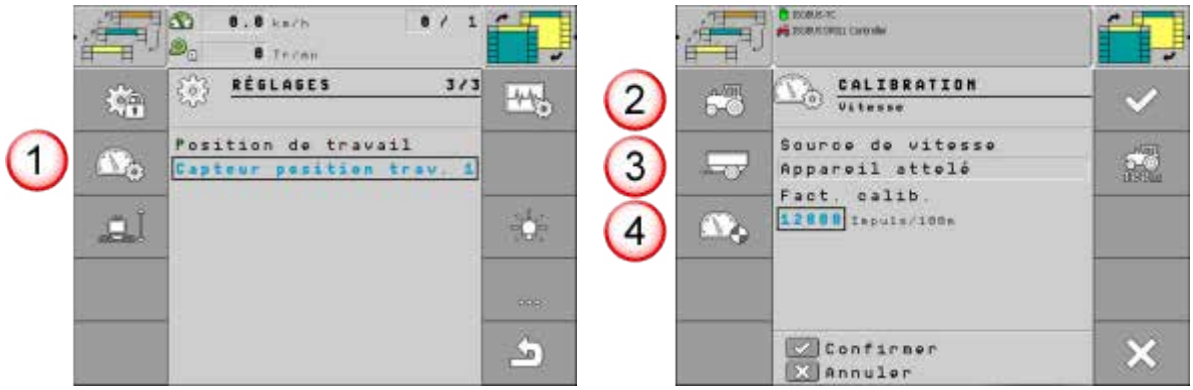
- To suspend and resume the assignment, press button (8), which alternates between **Restart assignment** (▸) and **Suspend assignment** (⏸).
- Press button (9) **Back** several times to return to the main operating display.
- To delete the assignment, press button (10) **Delete assignment**.

12.5.3 Calibrating the radar

1. Accurately identify a length of 100m in the field.



2. Put the machine in the working position.

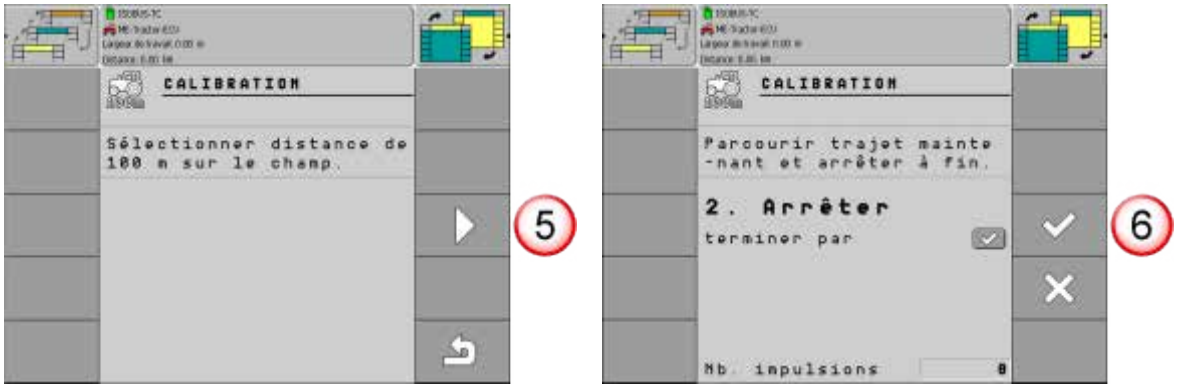


3. Press button (1) **Speed settings** .

4. Select the speed source:

   (2) Tractor
   (3) Radar (by default)
   (4) Simulation

Note : In simulation, introduce the simulated speed to be used to test the machine in static mode.



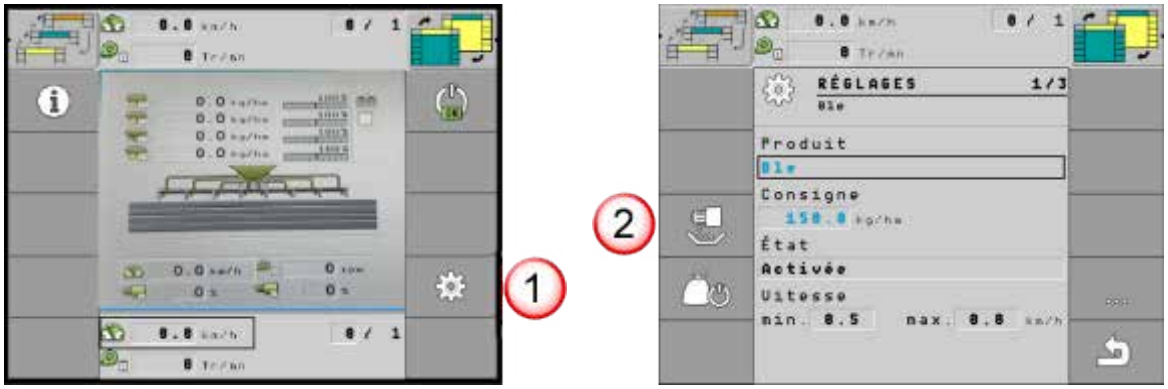
5. Press button (5) **Calibration start**.

6. Cover the 100m distance marked in the field and stop at the end.

7. Press button (6) **Confirmation** .

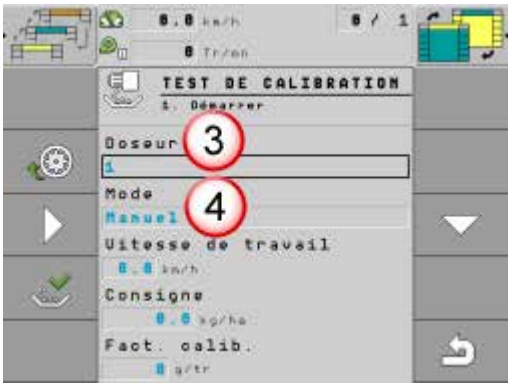
12.5.4 Calibrating the motors

1. Open the home screen.



2. Press button (1) **Settings** to open the settings screen.

3. Press button (2) **Calibration access** to open the settings screen.



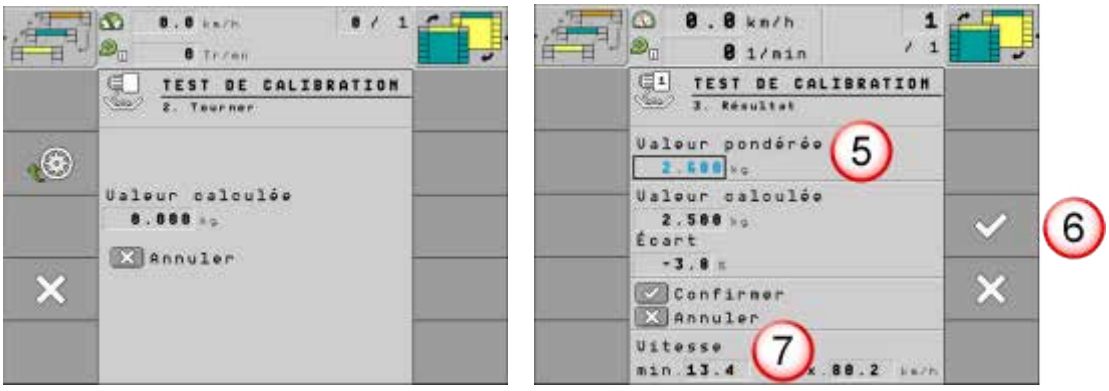
For each dose to be calibrated:

4. In field (3) **Metering unit**, select the metering unit that you want to calibrate.

5. In field (4) **Mode**, select**Manual** mode.

6. Press the **Calibration** button on the machine  .

7. Weigh the actual amount extracted during the calibration process.



8. In field (5) **Valued weighed** , enter the actual value weighed.

Note : if the calculated**Deviation** is greater than 5%, repeat the calibration.

9. Check that the**Min** and**MaxSpeeds** are consistent.

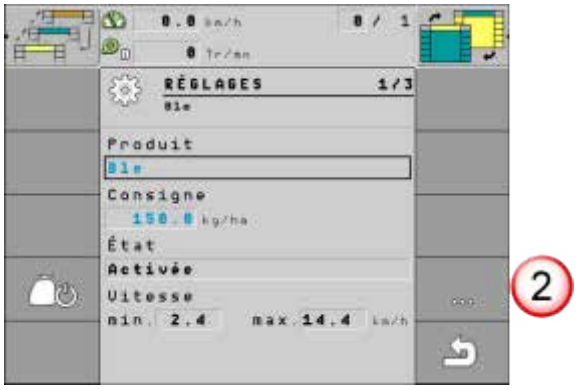
10. Press button (6) **Confirm** to validate the calibration.

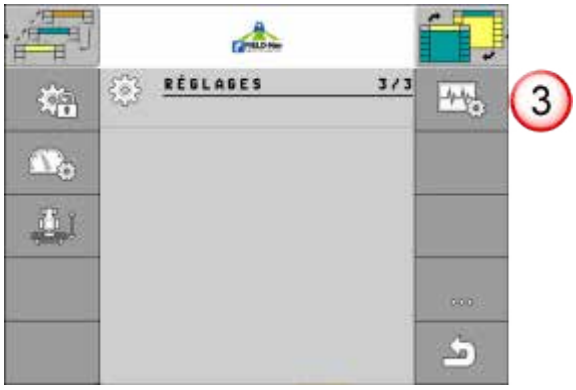
12.6 Using the equipment's diagnostic mode

1. Open the home screen.

2. Press button (1) **Settings** to open the settings screen.

3. Press button (2) twice **Next page** to open page 3 of the settings screen.



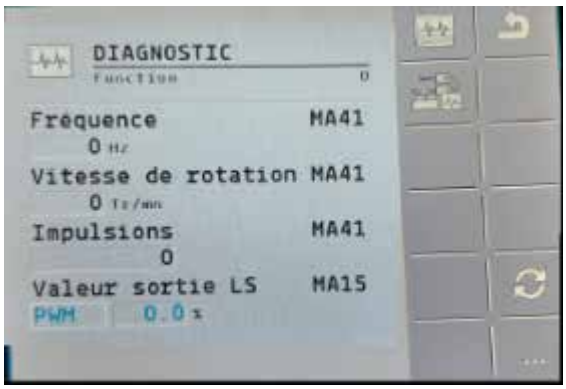


In the diagnostics screens, use the following buttons:

- : to update the page.
- : to go to the next page.
- : to go back to the previous page.

3. Press button (3) **Diagnostics** to open the diagnostics page.

The following screens and functions are displayed in turn:

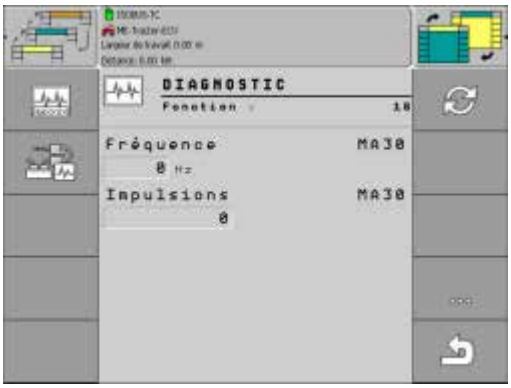


Function 0 / 1 / 2 / 3

MA15 and **MA41** : motor 1
MA28 and **MA35** : motor 2
1S15 and **1S15** : motor 3
1S35 and **1S28** : motor 4
To test the motor:
- Set the LS output value to 50%.
- The motor should be running at 50% of its capacity, i.e. approximately 1,125 rpm.

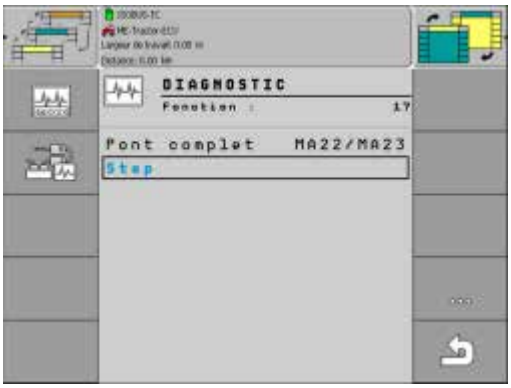
Function 12

MA38 : turbine



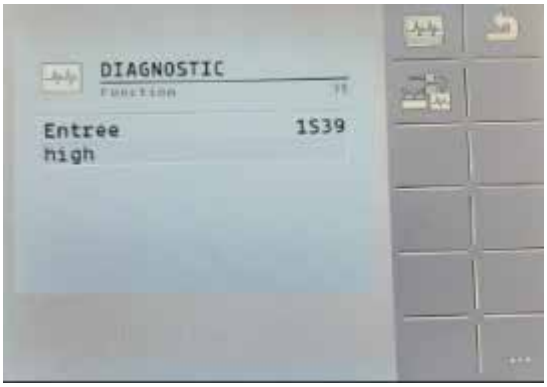
Function 16

MA30 : radar (speed measurement)



Function 17 / 18

MA22 / MA23 : tramlining valve
MA20 / MA21 : tramlining valve



Function 31 / 93 / 94 / 95 / 96 / 97 / 98 / 99 / 100 / 101 / 102

1S39 : work position sensor
MA34 : calibration button
MA 3 : hopper sensor Low level 2.
MA14 : /
MA37 : hopper sensor Low level 1.
MA 2 : hopper sensor High level 2.
MA36 : hopper sensor High level 1.
1S 3: hopper sensor Low level 4.
1S37 : hopper sensor Low level 3.
1S 2: Hopper sensor High level 4.
1S36 : hopper sensor High level 3.

13. WARRANTY CONDITIONS

13.1 Warranty conditions

Note

Return the warranty certificate within 15 days and attach a copy of the invoice (without the return of these items, the warranty procedure cannot be implemented).

The warranty conditions that apply to machines equipped exclusively with AGRISEM original parts are as follows:

When selling new products to its dealers, the manufacturer gives a guarantee that, subject to certain conditions, the goods are free from defects in material and workmanship. Purchasers of new AGRISEM equipment should request all necessary information from the dealer who supplied the equipment.

As part of its policy to continuously improve its products, the manufacturer reserves the right to modify the characteristics of its equipment without prior notice and declines all responsibility in the event of any differences between the characteristics of its products and their description in its publications.

13.11 TERM

If a defect is found in a structural part within 12 months from the date of delivery of the machine and if this defect is due to a fault in the primary material or from manufacturing in the factory. The allegedly defective parts are to be returned to the Company's address for expert examination.

AGRISEM S.A. – 535 Rue Pierre Levasseur – CS 60263 – 44158 ANCENIS - France Tel. : 02 51 14 14 40 – Fax : 02 40 96 32 36

The date of delivery of the material shall be evidenced by:

- the date of the delivery note and of the invoice to the buyer.
- the return of the warranty certificate within 15 days (with stamp and signature of the dealer and the buyer) after delivery of the equipment.

13.1.2. MACHINES AND PARTS CONCERNED

For the purposes of the warranty, the term ‘Machine’ refers exclusively to machines and parts manufactured by AGRISEM. (It does not include external components such as tyres, hydraulic hoses, etc., although these parts are also supplied by the Company)

Note

The warranty is void if modifications have been made to the machine without the express consent of AGRISEM or if parts other than those manufactured by the Company have been fitted (e.g. imitation wearing parts).

13.1.3 SCOPE OF THE WARRANTY

The warranty is limited to the reimbursement or repair of parts that have been found to be defective in material or workmanship, in our factories and by our Technical Services.

The costs related to the dismantling and replacement of the defective part are not covered by the warranty. Also not covered are the costs of transporting the machines or machine parts to the place of repair, or the costs to return them.

Wearing parts are not covered by the warranty.

13.1.4 PRECONDITIONS

The maintenance and use of the machine must comply with the instructions in the User Manual.

All safety measures mentioned in this user manual as well as in the manuals of additional equipment must be observed.

All protective and safety components must be inspected regularly and replaced if necessary, including: cylinders, hydraulic hoses, safety springs and turbines. See chapters ‘Safety instructions’ and ‘Servicing – Maintenance’.

The warranty is only applicable if the customer has fulfilled the general obligations of the contract, in particular the payment conditions.

13.1.5 PRE-DELVIERY CHECKS

On supply of a machine, the dealer is required to perform certain tasks. This includes, on the one hand, a comprehensive pre-delivery inspection to ensure that the machine supplied is ready for immediate use and, on the other hand, the comprehensive instructing of the buyer on the basic principles of operation and maintenance of the machine. This instruction covers instruments and controls, routine maintenance and safety instructions. All those who will be involved in the use and maintenance of the machine must be present during this instruction.

13.1.6 WARRANTY EXCLUSION

The warranty will not be valid:

- If the defects are due to normal wear and tear, misuse, lack of maintenance, lack of supervision or negligence.
- If the machine is damaged or defective as a result of using the machine outside the applications specified by AGRISEM.
- In case of improper use of the machine. It is advisable to refer to the chapter ‘Intended use of the equipment’.
- Failure to comply with the manufacturer's instructions and regulations contained in this manual, in particular with regard to: safety, assembly, commissioning, use, operation and maintenance.
- In the event of incorrect handling by the user.
- Causes due to penetration by foreign bodies.
- In the event of damage resulting from combining the machine with other machines or implements without the prior written consent of AGRISEM, and/or without complying with the specifications of the manufacturers of the tractor and the other implements or machines
- If the machine is used with incorrectly installed or non-operational protective and safety devices.
- If modifications have been made to the machine without the prior written consent of AGRISEM, or if spare parts, accessories or equipment have been fitted to the machine that are not original or not approved by AGRISEM.
- In case of improper repair.
- If the goods are damaged in transit or by any carrier. It shall be the responsibility of the consignee to take any necessary action against the carrier.
- The warranty does not cover the damaging consequences of immobilising the equipment due to a defect or problem in the machine.
- The warranty does not cover personal injury to the owner or a third party, nor does it cover indirect consequences.

Furthermore, AGRISEM shall not be liable to pay any compensation whatsoever in the event of loss of the crop or any damage whatsoever due to a defect, hidden fault or breakdown of the machine.

The buyer is always responsible for the choice of the product, the suitability of the machine and the result expected by him or her. He or she is responsible for its proper use in accordance with the rules of the trade and regulations.

Under no circumstances does AGRISEM have any obligation with regard to the final decision.

13.1.7 LIMITS OF APPLICATION AND LIABILITY

The warranty may not be assigned or transferred to any person without the prior written consent of AGRISEM.

Dealers of our machines have no right or authority to make any decision, either express or implied, on behalf of the Company.

The technical assistance provided by the Company or its representatives for the repair or operation of the equipment shall not entail any liability on its part and shall not, under any circumstances, constitute a novation or derogation from the conditions of this warranty.

13.1.8 PROCEDURE FOR IMPLEMENTING THE WARRANTY

MUST BE OBSERVED BY THE DISTRIBUTOR AND THE BUYER

The implementation of the warranty is subject to the dealer's and user's strict compliance with the following provisions:

1) Return of the warranty certificate dulycompleted and signed by the dealer and the buyer.

2) The claim must be submitted on an AGRRISEM ‘ WARRANTY CLAIM FORM ‘ (see in Annex) and sent by registered mail by the retailer to the Company's technical department within 10 days of the incident. This form must be written legibly by the dealer and must contain the following information:

- name and address of the dealer, code number,
- name and address of the buyer,
- machine model,
- operating width,
- machine serial number,
- date of delivery to the buyer,
- date of the defect,
- precise references of the replaced parts, invoice number and date,
- make and model of the tractor used,
- detailed description and suspected causes of the incident.
- area worked with the Disc-O-Mulch,
- useful agricultural area of the farm,
- soil type % of clay,
- proof of invoice for wearing parts,
- stones (yes/no),
- replaced parts (yes/no) (send photocopy of invoice).

3) The suspected defective parts are to be returned by the dealer to the Company's address for inspection, together with the duplicate warranty claim form provided for this purpose. The dealer must order the replacement part from the spare parts department. The sender shall be responsible for the costs of transporting the returned parts.

4) The final decision on whether or not to accept the warranty is made by the **Company's technical or general management.** Regardless of the object of the warranty claim, this decision is final and irrevocable and the buyer agrees to accept this decision both in relation to the defect and to the replacement of the part(s).

The Company's sales staff are not authorised to take such a decision, which would be null and void.

Note

In case of refusal, the part remains at the customer's disposal for eight days; after this period, it will be scrapped without recourse.

Dealers of our machines have no right or authority to make any decision, either express or implied, on behalf of the Company.

13.1.9 WARRANTY EXTENSION

If the warranty extension is taken out, please refer to this contract for the terms and conditions for implementing this warranty extension.

13.2 EXCLUSION OF LIABILITY CLAUSE

The AGRISEM Company accepts no liability for damage (and any related indirect consequences) resulting from one or more of the following causes:

- Improper use of the machine.
- Failure to comply with the manufacturer's instructions contained in this manual, in particular with regard to: safety, assembly, commissioning, use, operation and maintenance.
- Improper assembly, commissioning, use and maintenance of the machine.
- Using the machine with defective protective and safety devices or improperly installed or inoperative protective and safety devices.
- Combining the machine with other machines or implements without the prior written consent of AGRISEM, and/or not complying with the specifications of the manufacturers of the tractor and the other implements or machines.
- Changes made to the machine without the written consent of AGRISEM.
- Fitting of non-original spare parts, accessories or equipment on the machine that have not been approved by AGRISEM
- Failure to inspect wearing parts of the machine.
- Use of the machine other than for the applications specified by the manufacturer.
- Improper repair and maintenance.
- Accidents resulting from foreign bodies, acts of God and force majeure.

Furthermore, the AGRISEM Company shall not be liable for personal injury to the owner or any third party, nor for any indirect consequences resulting from this, whether or not they were caused by a defect. It should be remembered that a safety radius of 50 m must be respected.

Any claim for compensation for damage that has not occurred directly on the machine is excluded.

The AGRISEM Company cannot be held liable for consequential damage caused by improper conduct or use.

The AGRISEM Company shall not be liable for any compensation for the adverse consequences of the immobilisation of the equipment due to a defect or problem in the machine.