Precision Seed Drills

Maxima 2 Tm
Trailer with single bar frame
In buying a Kuhn machine you have chosen wisely. Into it have gone years of thought, research and improvement. You will find, as have thousands of owners all over the world, that you have the best that engineering skill and actual field testing can produce. You have purchased a dependable machine, but only through proper care and operation can you expect to receive the performance and long service built into it.

This manual contains all the necessary information for you to receive full efficiency from your machine. The performance you get from this machine is largely dependent on how well you read and understand this manual and apply this knowledge. Please DO NOT ASSUME YOU KNOW HOW TO OPERATE AND MAINTAIN YOUR MACHINE before reading this manual carefully. KEEP THIS MANUAL AVAILABLE FOR REFERENCE. Pass it on to the next owner if you re-sell the machine.

Your KUHN dealer can offer a complete line of genuine KUHN service parts. These parts are manufactured and carefully inspected in the same factory that builds the machine to assure high quality and accurate fitting of any necessary replacements.

- **About improvements**
  
  We are continually striving to improve our products. It therefore reserves the right to make improvements or changes when it becomes practical to do so, without incurring any obligations to make changes or additions to the equipment sold previously.

- **Designated use of the machine**
  
  The MAXIMA 2 TM precision seed drill must only be used for work for which it has been designed:
  - Precision drilling.
  - Mineral fertilizer placement (depending upon specification).
  - Application of microgranules in combination with drilling (depending upon specification).

- **Document illustrations**
  
  The illustrations in this manual may be based on one type of machine only. However, all instructions apply to all machines covered in this manual.
Contents

- Dear Owner ..................................................................................................................... 1
- Contents ......................................................................................................................... 2
- Identification of the machine .......................................................................................... 5
  - Front view (Single bar frame up to 5.00 m (16’4’’)) ................................................... 5
  - Rear view (Single bar frame up to 5.00 m (16’4’’)) .................................................. 5
  - Front view (Single bar frame exceeding 5.00 m (16’4’’)) ....................................... 6
  - Rear view (Single bar frame exceeding 5.00 m (16’4’’)) ....................................... 6
  - Model identification plate ......................................................................................... 7
  - Optional equipment ................................................................................................ 8
- Safety .................................................................................................................................. 9
  - Description of symbols used in this document ....................................................... 9
  - Safety instructions .................................................................................................. 10
  - Location and description of safety decals on the machine ...................................... 21
- Machine specifications .................................................................................................. 24
  - Description and glossary ....................................................................................... 24
  - General technical specifications .......................................................................... 26
  - Sound levels ........................................................................................................... 29
- Putting into service .......................................................................................................... 30
  - Description of control elements ......................................................................... 30
  - Control box description ....................................................................................... 30
  - Coupling and uncoupling .................................................................................... 34
- Instructions for transport ............................................................................................... 48
  - Putting the machine into transport position ....................................................... 48
  - Conformity with the road regulations .................................................................. 51
Contents

Precision Seed Drills
MAXIMA 2 TM

Instructions for work ................................................................................................... 53
  Putting the machine into work position................................................................. 53
  Adjustments in working position............................................................................. 55
  Machine use.............................................................................................................. 88

Optional equipment .................................................................................................. 98
  Clod clearer............................................................................................................. 102
  Spring assisted clod clearer ................................................................................... 103
  Star shaped trash remover...................................................................................... 105
  Furrow opening disk.............................................................................................. 107
  Covering scraper.................................................................................................... 109
  Composite intermediate axial press wheel........................................................... 111
  Stainless steel intermediate axial press wheel ...................................................... 113
  Furrow closing disks............................................................................................. 116
  Standard V-shaped roller...................................................................................... 117
  HD V roller............................................................................................................ 121
  "OTIFLEX" 370 x 165 roller.................................................................................. 128
  "OTIFLEX" 500 x 175 roller.................................................................................. 130
  Microgranulator...................................................................................................... 132
  Fertilizer unit......................................................................................................... 150
  Low flow kit for the fertilizer unit.......................................................................... 167
  Filling auger.......................................................................................................... 168
  Distribution disks................................................................................................... 170
  Belt and pulley units.............................................................................................. 171
  Rear PTO output stub............................................................................................ 171
  Vacuometer............................................................................................................ 172
  Dust anti-drift kit................................................................................................... 173
  HECTOR 3000 electronic control box..................................................................... 173
Passage control box kit KMS208 ................................................................. 174
Sowing control box kit KMS412 ................................................................. 174
Electronic disengagement kit ..................................................................... 175
Tramlining kit ............................................................................................. 175
Narrow gauge wheels 65 x 400 .................................................................... 175
45 mm (1.8”) spacer and 5 mm (0.2”) levelling pad ....................................... 176
82 mm (3.2”) spacer and 5 mm (0.2”) levelling pad ....................................... 176
Track eradicators .......................................................................................... 177
Marker working depth limitors .................................................................... 179
Mechanical hectare counter ........................................................................ 179

- Maintenance and storage ........................................................................ 181
  Frequency chart ....................................................................................... 181
  Cleaning the machine ............................................................................. 183
  Lubrication ............................................................................................... 184
  Maintenance ............................................................................................. 187
  Storage ..................................................................................................... 196

- Trouble shooting guide .......................................................................... 198

- Appendix ............................................................................................... 201
  Calculating the load on an axle .............................................................. 201

- Limited warranty ................................................................................... 207
Identification of the machine

1. Front view (Single bar frame up to 5.00 m (16’4’’))

2. Rear view (Single bar frame up to 5.00 m (16’4’’))
3. Front view (Single bar frame exceeding 5.00 m (16’4’’))

4. Rear view (Single bar frame exceeding 5.00 m (16’4’’))
5. Model identification plate

Please write below the type and serial number of the machine. This information is to be indicated to the dealer for all spare parts orders.

Type: MAXIMA 2 TM

Serial no.:
6. Optional equipment

Tick box corresponding to the equipment fitted on your machine:

- Sowing component.
- Distribution disks.
- Fertilizer unit.
- Blower.
- Control units.
- Other equipments.
1. Description of symbols used in this document

This symbol indicates a potentially hazardous situation that if not avoided, could result in serious bodily injury.

This symbol is used to identify special instructions or procedures which, if not followed strictly, could result in machinery damage.

This symbol is used to communicate technical information of particular interest.
2. Safety instructions

■ Introduction

The machine must only be operated, maintained and repaired by competent persons who are familiar with machines' specifications and operation and aware of safety regulations for preventing accidents.

The operator must imperatively respect safety instructions in this manual and in the warnings posted on the machine. The operator is also obliged to respect current legislation concerning accident prevention, work safety and public traffic circulation.

Designated use of the machine also means following operation, maintenance and repair recommendations given by the manufacturer, and using only genuine spare parts, equipment and accessories, as recommended by the manufacturer.

The manufacturer is not held liable for any damage resulting from machine applications other than those specified by the manufacturer. Any use other than the designated operation is at the risk and responsibility of the operator.

The manufacturer is not held liable for any damage or accident resulting from machine modifications carried out by the operator himself or by a third party without previous written agreement from the manufacturer.

■ Read and follow the safety instructions

Before using the machine, carefully read all the safety instructions in this manual and the warnings placed on the machine.

Before starting work, the operator must be familiar with all machine controls, handling devices and their functions. It is too late to learn once work has been started!

Never let anyone operate the machine who is not trained to do so.

Should you have any difficulties in understanding certain parts in this manual, please contact your KUHN dealer.

■ Precautions to be taken before carrying out any operations on the machine

Before leaving the tractor or before adjusting, maintaining or repairing the machine, disengage the PTO drive, turn off the engine, remove ignition key and wait until all moving parts have come to a complete stop and apply park brake.
**Precautions to take before using the machine**

Do not wear loose clothing which could become caught up in moving parts.
Wear the appropriate protective clothing for the work in hand (gloves, shoes, goggles, helmet, ear defenders, etc.).
Ensure that all operating controls (ropes, cables, rods, etc.) are placed so as they cannot be operated unintentionally and cause damage or injury.
Before operating the machine, check tightness of nuts and bolts, particularly on fixing elements (tines, forks, blades, knives, etc). Retighten if necessary.
Before operating the machine, ensure that all the safety guards are firmly in place and in good condition. Immediately replace any worn or damaged guard.

**Precautions when driving**

Tractor handling, stability, performance and braking efficiency are all affected by weight distribution, trailed or mounted implements, additional ballast and driving conditions. It is therefore of great importance that the operator exercises caution in every given situation.
Groundspeed must be adapted to ground conditions as well as to roads and paths. Always avoid abrupt changes of direction.
Be particularly cautious when turning corners, paying attention to machine overhang, length, height and weight.
Never use a narrow track tractor on very uneven or steeply sloping ground.
Never leave the tractor seat while the machine is operating.
Carrying people or animals on the machine when working or in transport is strictly forbidden.
Precautions when driving on public roads

Dimensions
Depending on the dimensions of the machine, contact the relevant authorities to ensure that it can be legally transported on public roads.
If the machine is over the maximum legal size, follow the local regulations for special transportation of oversize equipment.

Gross weight and weight per axle
Respect the tractor gross weight, its lift capacity or the permissible maximum load on the attachment and the maximum load per axle.
The front axle load (1) must never, under any circumstances, be less than 20% of the tractor's unladen weight. If necessary, add ballast weights to the front or to the rear to preserve the steering and braking efficiency.
Do not exceed the gross machine weight rating or the maximum machine axle load allowed.

For machines with hoppers or tanks:
- If the total weight exceeds the machine's total gross weight, empty the hopper to travel on public roads.
- In any case, we recommend to travel on public roads with empty hoppers and tanks.

Transport position
Before transporting the machine on public roads, place the machine into its transport position, according to the instructions in this manual.
Lights and indicators

Before transporting the machine on public roads, ensure that all legally required lightings and signalings are in place.

Ensure that lightings and signalings are clean and in good working order. Replace any missing or broken equipment.

Always obey current regulations for driving on roads.

Maximum speed

Always keep to the legal speed limit for driving a tractor-machine assembly on public roads.
■ Precautions when coupling

Before attaching the machine, make sure that it cannot accidentally start moving (chock the wheels) and that the parking stand is in the right position.
The machine must only be attached to the hitch points provided for this purpose.
Never stand between the tractor and the machine when operating the three point linkage.
Do not stand between the tractor and the machine without ensuring that the parking brake is applied.

■ Hydraulic circuit

Caution : The hydraulic circuit is under high pressure.
Maximum pressure at work: 200 bar (2857 psi).
Before connecting hoses to the tractor hydraulics, ensure that tractor and machine circuits are not under pressure. Before disconnecting a hose, depressurize the hydraulic circuit.
To avoid making incorrect connections, mark hydraulic couplers and corresponding hoses with colors.
WARNING! Functions could be reversed (for example: lift/lower) and cause accidents.
Regularly check the hydraulic hoses. In case of normal wear, replace the hydraulic hoses every 5 years.
Damaged or worn hoses must immediately be replaced.
When replacing the hydraulic hoses, only use hoses with the specification recommended by the manufacturer of the machine.
To locate a leak, use appropriate means.
Protect body and hands from liquid under pressure.
Any liquid under pressure (particularly oil from hydraulics) can penetrate the skin and cause severe injury. If injured, see a doctor immediately, there could be danger of infection.
Before any adjustments, maintenance or repairs are carried out, lower the machine to the ground, depressurize the hydraulics, turn off the engine, remove ignition key and wait until all moving parts have come to a complete stop.
**PTO shaft**

Use only PTO shafts supplied with the machine or recommended by the machine manufacturer. The protective shield of the tractor PTO stub, the PTO shaft guards and the protective shield of the machine input shaft must always be in place and in good condition. Make sure that the PTO shaft guards are secured with the safety chains provided. Any worn or damaged guards must be replaced immediately. A worn guard or an unprotected PTO shaft can cause a serious or even a lethal accident. Do not wear loose clothing that could be caught in the rotating PTO shaft. Before attaching or removing a PTO shaft, or before doing any work on the machine, disengage the PTO drive, turn off the engine, remove ignition key and wait for all moving parts have come to a complete stop. If the primary PTO shaft is equipped with a torque limiter or a free wheel, these must be fitted on the machine side. Ensure that the PTO shaft is always correctly fitted and locked into place. Before connecting the PTO shaft, ensure that the PTO speed (rotational frequency) and direction of rotation are in line with the machine manufacturer's recommendations. Before engaging the PTO drive, make sure all people and animals are clear from the machine. Never engage the PTO drive when the tractor engine is stopped. When uncoupling the machine, rest the PTO shaft on the support specially provided, and replace protective shield on the PTO stub of the tractor. Read and follow the instructions in the operator's manual provided with the PTO shaft.
Precautions during manoeuvres

When moving the machine from the transport position to the working position and vice versa, make sure that nobody is within the machine pivoting area.

Remote controlled components

Danger of crushing and shearing can exist when components are operated by hydraulic or pneumatic controls. Keep away from these danger zones.

Tyres

Regularly check the tyre pressure. Respect manufacturers' recommendations on pressure. Assembly, disassembly and repair of wheels and tyres must only be carried out by competent persons who are equipped with standardized tools. Before any work is performed on the wheels, ensure that the machine rests on the ground and is perfectly stable so that it cannot move accidentally (put chocks in place).

Safety decals

Safety warning decals are placed in pictorial form on various parts of the machine. They are there to warn you of potential dangers and to tell you how to avoid accidents. Always keep the safety decals clean and readable, and replace them when they are worn, damaged, missing or illegible.

Waste disposal

Respect the environment! Never spill pollutants (oil, grease, filters, etc.) on the ground, never pour them down the drain and never discard them in any other place where they could pollute the environment. Never throw away or burn a tyre. Always take waste to specialized recycling or waste disposal centers.
Precautions for maintenance and repair work

Before leaving the tractor or before adjusting, maintaining or repairing the machine, disengage the PTO drive, turn off the engine, remove ignition key and wait until all moving parts have come to a complete stop and apply park brake.

Rest the machine on the ground, release the pressure from the hydraulic circuit and leave the machine to cool down.

Make sure that the parts of the machine that need to be lifted for maintenance or repair work are firmly propped up.

Before any work is done on the electric circuit or before any electric welding is carried out on the attached machine, disconnect the machine from the tractor electrical circuit. Also disconnect alternator and battery terminals.

Repairs on elements under pressure or tension (springs, pressure accumulators, etc.) must only be carried out by competent persons with regulation equipment.

Wear the appropriate protective clothing for the work in hand (gloves, shoes, goggles, helmet, ear defenders, etc.).

Do not solder, weld or use a blow torch near fluids under pressure or inflammable products.

For your own safety and for correct machine operation, only use original manufacturer parts.

It is strongly recommended to have your machine checked by your Kuhn dealer after each season, especially tools and their attaching hardware.

Projection of stones and foreign objects

For driver safety, always use a tractor equipped with a cab. Never start the machine when there are people nearby. Even when the machine is used in accordance with its purpose, objects may be projected. Stones and other foreign objects projected by the moving parts can travel a considerable distance. Keep all persons and animals away from the danger zone.
Precautions for machine use

Before use, check the condition of the fasteners in accordance with the instructions contained in this manual.

Keep all persons and animals away from the danger zone. Check that nobody is within the side marker operating area on headlands.

Stay a safe distance from the machine when the cutting tools are in movement.

Never work in reverse.

Stay away from the machine until all moving parts have come to a complete standstill.

Check the entire machine for any damage before resuming work.

Never engage the tractor PTO drive when the machine is in transport position.

If the machine hits an obstacle, disengage the PTO drive, stop the tractor engine, remove the ignition key and wait for all moving parts to come to a complete standstill. Check the entire machine for any damage before resuming work.

Precautions to take with crop protection products

Keep crop protection products away from children.

Do not clean outlets, spreaders, tubes or other small parts by blowing with the mouth. When using crop protection products, never smoke or eat.

All precautions must be taken to prevent hopper from overflowing and products from flowing outside the treatment area.

Booms and tanks are to be drained in all cases over the areas under cultivation in accordance with regulatory provisions.

Keep machine control and handling devices clean and make sure to wash your hands prior to using these devices.

Rinse and pierce packagings to prevent them from being reused.

Find out about and comply with the instructions on the use of crop protection products with regards to their possible harmfulness for insects and wildlife, especially for pollinating insects.
Consulting and respecting the rules given in the operating instructions, the safety files and in the advice documents is the basis of behaving responsibly. Store crop protection products in a place with a leakproof floor enabling to recover product leaks.

**Body protection**

Wear waterproof clothing whenever there is a risk of splashing from or contact with crop protection products, even in diluted form. Wear specific protective clothing (suit, gloves, boots, glasses, mask) when handling phytosanitary products.

Wear gloves that are resistant to the various components contained in the products (ultranitrile gloves). Neoprene gloves are required in the presence of ketone in the formulations.

Strictly avoid certain materials such as latex or PVC. A watertightness indicator is insufficient.

Replace gloves as soon as they present signs of wear. Store the gloves in a place well away from the products.

Use special protection suits resistant to the products.

Wear a respiratory protection when preparing the spray mixture or spraying certain products.

Check that the respiratory protections are fitted with filters.

Change cartridges every 40h during intensive use periods.

Replace respiratory protection at least once per year.

---

**Anti-dust masks do not protect sufficiently against phytosanitary products.**
■ Toxic substances

It is recommended to have a first-aid kit within reach. Avoid all skin, eyes and mouth contact with products such as fuels, oils, solvents, antifreeze and cleaning products. Most of them contain harmful substances. In case of an incident, seek medical advice. Follow to the letter all instructions given on the safety decals of toxic substance containers.

■ Compatibility of phytosanitary products and microgranulators

There are no known contraindication of incompatibility between solid phytosanitary products and the material used in the microgranulator assembly.
3. Location and description of safety decals on the machine

- Location of safety decals
Description of safety decals

Operating instructions (1)
The operators’ manual contains all the information necessary for using the machine safely. It is imperative to read and comply with all instructions.

Working on the machine (2)
Before leaving the tractor or before adjusting, maintaining or repairing the machine, disengage the PTO drive, turn off the engine, remove ignition key and wait until all moving parts have come to a complete stop and apply park brake.

Body crushing (3)
The side markers must always be locked for transport.
Risk of falling (4)

Do not ride on the machine when it is moving. There is a risk of falling.
1. Description and glossary

1 : Coupling device
2 : Parking stand
3 : Drawbar
4 : Primary PTO shaft
5 : Intermediate PTO shaft
6 : Side marker
7 : Blower
8 : Vacuum turbine
9 : Coulter
10 : Seeding unit hopper
11 : Drive wheel
12 : Gearbox
13 : Platform
14 : Fertiliser hopper
1 : Seeding unit hopper
3 : Distribution disc
5 : Sowing depth adjustment handle
7 : Press wheel

2 : Control hatch
4 : Selector
6 : Gauge wheel
8 : Pressure spring
2. General technical specifications

<table>
<thead>
<tr>
<th>Maxima 2 TM</th>
<th>Trailed with single bar frame</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attachment type</td>
<td>Drawbar attached to the tractor pull bar</td>
</tr>
<tr>
<td>PTO speed</td>
<td>470 min$^{-1}$</td>
</tr>
<tr>
<td>Unit hopper capacity</td>
<td>52 L (14 US gal)</td>
</tr>
<tr>
<td>Minimum PTO power requirement</td>
<td></td>
</tr>
<tr>
<td>- When starting the PTO</td>
<td>8.2 kW (11 ch) (approximately)</td>
</tr>
<tr>
<td>- At work</td>
<td>4.4 kW (6 ch) (approximately)</td>
</tr>
<tr>
<td>Torque</td>
<td></td>
</tr>
<tr>
<td>- When starting the PTO</td>
<td>From 12 to 15 daN m (88 - 110 lbf ft)</td>
</tr>
<tr>
<td>- At work</td>
<td>From 8 to 9 daN m (59 - 66 lbf ft)</td>
</tr>
<tr>
<td>Tyre pressure</td>
<td></td>
</tr>
<tr>
<td>- 10.5/80-18</td>
<td>3.5 bar (50 psi)</td>
</tr>
</tbody>
</table>
3. **Technical specifications per model**

- **Models: Single bar frame up to 5.00 m**
  
  (16'4'"

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Number of rows</strong></td>
<td>3</td>
</tr>
<tr>
<td><strong>Fertilisation</strong></td>
<td>950 L (250 US gal)</td>
</tr>
</tbody>
</table>
| **Possible distances between seeding units** | 70 - 75 - 80 - 90 - 150 cm  
  
  (2'4'' - 2'6'' - 2'7'' - 2'11'' - 4'11'"

| **Width in transport position** | 3500 mm (11'5'"

| **Length in transport position** | 4600 - 5000 mm (15'1" - 16'4'"

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Number of rows</strong></td>
<td>3</td>
</tr>
<tr>
<td><strong>Fertilisation</strong></td>
<td>950 L (250 US gal)</td>
</tr>
</tbody>
</table>
| **Possible distances between seeding units** | 70 - 75 - 80 - 90 - 150 - 230 cm  
  
  (2'4'' - 2'6'' - 2'7'' - 2'11'' - 4'11'' - 7'7'"

| **Width in transport position** | 5000 mm (16'4'"

| **Length in transport position** | 4600 - 5000 mm (15'1" - 16'4'"


### Machine specifications

<table>
<thead>
<tr>
<th>Number of rows</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fertilisation</td>
<td>2 x 260 L (2 x 67 US gal)</td>
</tr>
<tr>
<td>Possible distances between seeding units</td>
<td>70 - 75 - 80 - 90 cm (2'4&quot; - 2'6&quot; - 2'7&quot; - 2'11&quot;)</td>
</tr>
<tr>
<td>Width in transport position</td>
<td>3000 mm (9'10&quot;)</td>
</tr>
<tr>
<td>Length in transport position</td>
<td>4600 - 5000 mm (15'1&quot; - 16'4&quot;)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Number of rows</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fertilisation</td>
<td>950 L (250 US gal)</td>
</tr>
<tr>
<td>Possible distances between seeding units</td>
<td>70 - 75 - 80 - 90 cm (2'4&quot; - 2'6&quot; - 2'7&quot; - 2'11&quot;)</td>
</tr>
<tr>
<td>Width in transport position</td>
<td>5000 mm (16'4&quot;)</td>
</tr>
<tr>
<td>Length in transport position</td>
<td>4600 - 5000 mm (15'1&quot; - 16'4&quot;)</td>
</tr>
</tbody>
</table>
• Trailed with single main frame exceeding 5.00 m (16’4’’)

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of rows</td>
<td>8</td>
</tr>
<tr>
<td>Fertilisation</td>
<td>1350 L (356 US gal)</td>
</tr>
<tr>
<td>Possible distances between seeding units</td>
<td>70 - 72.5 - 75 - 77.5 - 80 cm (2’4’’ - 2’5’’ - 2’6’’ - 2’7’’ - 2’8’’)</td>
</tr>
<tr>
<td>Width in transport position (According to the main frame)</td>
<td>6 m (19’8’’)</td>
</tr>
<tr>
<td>Length in transport position</td>
<td>From 4400 to 4800 mm (14’5’’ - 15’9’’)</td>
</tr>
</tbody>
</table>

4. Sound levels

Sound levels have been measured in accordance with the measuring methods as defined in:

**NF EN ISO 4254-1 «Agricultural machinery - Safety - Part 1: General requirements»**

Weighted equivalent continuous acoustic pressure level at the driver's seat (closed cabin) $L_{(A)}$ eq:

- Tractor only: **69.4 dB(A)**
- Tractor + machine: **70.1 dB(A)**
Putting into service

1. Description of control elements

The machine can be fitted with several control boxes to monitor all functions.

2. Control box description

The KMS412 control box enables monitoring the seed population.

The KMS208 control box enables controlling the seed passage.
The KMD112 disengagement control box can only function in combination with control boxes KMS208 or KMS412.

The KMD112 disengagement control box allows electrical disengagement of one or several rows at any time.

The HECTOR 3000 electronic control box is used to:
- Count the area sown (daily and total counter).
- Indicate forward speed.
- The tramlining system control (Depending on optional equipment).

The functioning and setting of the control boxes are indicated in the complementary instructions supplied.
Positioning and parking

Fitting the control boxes

The control boxes must be easy to access from the tractor cab.

Control boxes KMS412/KMS208 and KMD112:
- Drilling of 2 holes diameter 11 mm (1).
- 100 mm Hole to hole distance (2).
- Fit holder (3) using screws, washers and nuts (4).
- Position control box (5) using screws (6).

Control box HECTOR 3000:
The attachment is ensured by magnet (1).

Removing the control boxes

The control boxes must be stored in a dry place free of dust.
### 3 pin plug

The box is energized by the tractor's 3-pin socket (DIN 9680, ISO 12369) or the battery power cable supplied.

<table>
<thead>
<tr>
<th>Pin</th>
<th>Wire color</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 / 30 (1)</td>
<td>Brown</td>
<td>+ 12 Volt</td>
</tr>
<tr>
<td>31 (2)</td>
<td>Blue</td>
<td>Ground</td>
</tr>
<tr>
<td>82 (3)</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

### Description of the connection

Never connect battery charger or perform welding tasks without having previously disconnected the control box.

The control boxes are connected to:
- A tractor 3-pin socket.
- A supplied battery power cable.

To use the machine with another tractor, a second tractor-side power harness can be ordered under p/n 83233001.

Do not connect the wiring harness to the starter connections.

Check that the connectors are in a good condition and clean.

If the tractor is not fitted with a battery isolation switch:
Connect the wiring harness directly to the battery terminals respecting the polarities.

If the tractor is fitted with a battery isolation switch:
Connect the wiring harness to the battery isolation switch output.

The wiring harness is fitted with a 15 Amp ATO type fuse: Part no. 82333017(2).
3. Coupling and uncoupling

- **Description of coupling elements**
  The machine is equipped with:
  - 1 PTO shaft 1 3/8" - 6 splines.
  - 1 3-pin socket.
  - An electric 7-pin plug for the signalling equipment.
  - 2 hydraulic hoses to supply the side marker cylinders.
  - 2 hydraulic hoses pressurizing the undercarriage lift cylinders.

When optional equipment is used, follow specific procedures mentioned in the related section: Filling auger.

- **Preparing the tractor**
  The machine adapts to tractors fitted with a pull bar.
The tractor must be equipped with:
- 1 double-acting hydraulic valves.
- 1 double acting valve with float position.

When optional equipment is used, follow specific procedures mentioned in the related section: Filling auger.

The tractor PTO stub must rotate at a speed of 470 min⁻¹.

Belt and pulley assemblies are available to adapt the blower speed to the tractor PTO speed.
- 540 min⁻¹ pulley and belt unit: Kit no. 1676737
- 870 min⁻¹ pulley and belt unit: Kit no. 1676731
- 1000 min⁻¹ pulley and belt unit: Kit no. 1676738

Check that the tractor’s authorized gross weight as well as its lift capacity and maximum weight per axle are not exceeded:
See section:
- Safety / Safety instructions / Precautions when driving on public roads.
- Appendix.

The tractor must be fitted with lower link stabilizers.
Tyres

If compatible with the seed drill configuration, we recommend fitting the tractor with dual wheels or extra-wide wheels in order to reduce the ground pressure.

Make sure that the seed drill never interferes with the tractor wheels.

Tractor tire pressure

To ensure that tractor can be driven safely and that machine gives the desired finish, each tyre must be inflated to the correct pressure for the load supported.

- Slightly lift the machine from the ground.
- Measure the load on each wheel (or the load of one axle divided by 2) using a weight indicator or a scale.
- Refer to the tyre manufacturer's pressure chart.
- Adjust the tyre pressure to the measured loads.

The tyre pressure must be identical on each side of the tractor.
Putting into service

Precision Seed Drills
MAXIMA 2 TM

■ Coupling the machine

- Couple machine to tractor and secure hitch pin.

- Raise parking stand (1) using crank (2).

- Remove R-clip (1) and pin (2).
- Remove and place parking stand in its holder (3).
- Lock parking stand using pin (2).
- Reinstall R-clip (1).
Safety chain

The machine is supplied with a ANSI/ASAE safety chain type with a minimum ultimate system strength of 45 kN (10100 lbf).

The safety chain is intended to keep the machine under control in the event of a loss or failure of the hitch pin.

The safety chain must be tied around a tractor attachment point other than the attachment bar.
Electrical connection

- Connect 7-pin plug to the tractor.
- Connect control box wiring harness to the tractor 3-pin socket.

After making the connections, check that there is no risk of the cables being caught during operation.

Hydraulic connections

Connect hydraulic hoses (a) and (b) to a double acting outlet.
Hoses (a) and (b) supply the side marker folding / unfolding cylinders.

Connect hydraulic hoses (c) and (d) to a double acting outlet.
Hoses (c) and (d) pressurize the undercarriage raising/lowering cylinders.

When optional equipment is used, follow specific procedures mentioned in the related section: Filling auger.
■ Adjusting the machine

Adjusting the vertical setting

To facilitate machine horizontality adjustment, we recommend to use the side stands.

- Position the machine on level hard ground.
- Activate tractor valve to fully raise the machine.
- Remove lynch pin (1) and pin (2).
- Lower parking stand (3).
- Insert pin (2) and lock using lynch pin (1).
- Repeat procedure on the other parking stand.
- Lower the machine on the stands to remove load from drawbar.

Adjust rod (1) length to place machine level in relation to the ground.
- Loosen counter nut (2).
- Screw or unscrew to modify length of rod (1). This setting can be checked with the seed drill level gauge (3).
- Tighten counter nut (2).

- Remove lynch pin (1) and pin (2).
- Raise parking stand (3).
- Insert pin (2) and lock using lynch pin (1).
- Repeat procedure on the other parking stand.

Check setting over the first few metres sown.
Adjusting the scrapers of the side gauge wheels

The scrapers remove soil build-up on the rubber tread of the side gauge wheels.
- Loosen bolts (1).
- Adjusting scrapers (2):

**Lateral adjustment**
Adjust scraper to obtain play (X) of approximately 3 mm (0.12”) between scraper (2) and the inside rubber tread of gauge wheel (3).

**Lengthways adjustment**
Adjust scraper (2) as close as possible to the gauge wheel, without touching it. Rotate gauge wheel once to check that it is not in contact.
- Tighten screws (1).

---

In certain wet conditions with plant debris, it may be necessary to remove the scrapers to continue working without risking stopping the gauge wheels from turning.

---

Adjustment of the side gauge wheels

The side gauge wheels must be positioned as close as possible to the opener disks to allow their cleaning.

**Adjustment:**
- Raise the machine.
- Stop the opener disks (1) from rotating manually.
- Using nut (2), adjust side gauge wheel (3) position. The side gauge wheel (3) must be slightly in contact with opener disk (1).

Rotate gauge wheel at least by one turn to check that it is free to rotate. Also check that the opener disk is free to rotate.

- Repeat procedure on the second side gauge wheel.

Proceed with this adjustment on each seeding unit.
Setting the seed row spacing

For machine with 8 - 12 - 18 rows.

Adjusting the central sowing units:
- Raise the machine.
- Measure the frame middle.
- Loosen nuts (1).
- Adjust position of the two central sowing units in order to obtain a spacing (D) with regards to the frame middle equalling half of spacing (E) required between rows.
- Tighten nuts (1).
  • Torque: 13 daN m (96 lbf ft).

Setting sowing components:
- Loosen nuts (1).
- Adjust position of the seeding units to obtain required spacing (E) between rows.
- Tighten nuts (1).
  • Torque: 13 daN m (96 lbf ft).

Repeat procedure on each seeding unit.

For machine with 9 - 11 rows.

Setting sowing components:
- Raise the machine.
- Measure the frame middle.
- Check that central unit (1) is positioned in the frame middle.
- Loosen nuts (2).
- Adjust position of the seeding units to obtain required spacing (E) between rows.
- Tighten nuts (2).
  • Torque: 13 daN m (96 lbf ft).

Repeat procedure on each seeding unit.
Wheel arm positioning

(Single bar frame up to 5.00 m (16’4’’))
- Remove screws (1) and washers (2).

(Single bar frame exceeding 5.00 m (16’4’’))
- Loosen bolts (1).
- Loosen nuts (2).

All models
- Position wheel arm (3) so that there is an equivalent distance (A) between the wheel arm and the close seeding units.

(Single bar frame up to 5.00 m (16’4’’))
- Reinstall screws (1) and washers (2):
  • Torque: 31 daN m (229 lbf ft).

(Single bar frame exceeding 5.00 m (16’4’’))
- Tighten bolts (1).
- Tighten nuts (2).
  • Torque: 31 daN m (229 lbf ft).

Check that the wheel arms do not interfere with the seeding units when raising/lowering the undercarriage.
Primary PTO shaft

Make sure that the PTO shaft is correctly adjusted, to avoid premature wear and tear.

The direction of rotation is shown on a decal.

Separate the two half PTO shafts and connect them to the machine's input shaft and to the tractor PTO stub.

Check the length of the PTO shaft:
- When the PTO shaft is in its maximum overlap position (retracted), tubes should not butt against the yokes.
- As a safety measure, a clearance (L) of at least 25 mm (1”) must be maintained.
- When the PTO shaft is in its maximum extended position, the tube overlap must be more than 250 mm (10”).

If this is not the case:

Apply the safety and maintenance instructions stipulated in the manual supplied with the transmission.

Check that there is still a minimum overlap of 250 mm (10”) when the machine is in working position and the tractor in line with the machine.

Never operate the PTO shaft at an angle X exceeding 30°.
To avoid serious accidents, the PTO drive shaft guards must be properly in place and fixed with the chains provided.

On machine side, hook drive guard chain to ring (1).

Immediately replace any worn or damaged guard.
Uncoupling the machine

Park the machine on an even fairly level ground.

From the transport position:
- Lower the machine on the ground.
- Remove R-clip (1) and pin (2).
- Install parking stand (3) on drawbar.
- Insert pin (2) and lock it using R-clip (1).
- Adjust parking stand height using crank handle.

- Unfold pto shaft support (1).
- Uncouple and place PTO shaft in support (1).

- Disconnect and store hydraulic hoses in holder (1).
- Disconnect and store signalling electric plug on holder (1).
- Remove and store safety chain on the drawbar.
- Remove hitch pin.
- Move forward with the tractor.

The machine is uncoupled.
Instructions for transport

Before placing the machine into transport position:
Wait until the rotating parts have come to a complete stop.

1. Putting the machine into transport position

From the working position:
- Operate transport/work position cylinder in transport position direction until the seeding units are no longer in contact with the ground.

For stability reasons, we recommend to travel with the machine positioned at a distance X of 400 mm (1'3'') between the ground and the seeding units.

- Switch hydraulic hose in neutral position.
If the machine is not fitted with a fertilizer or if the machine is fitted with a fertilizer with a 950 L (251 US gal) hopper:

- Activate cylinders to fold side markers.
- Lock side markers using valves (1) (1 on each marker).

- Position pin (1) in lower hole (2).

This position enables leaving the marker disks (3) pointing outwards.

If the machine is fitted with a fertilizer with 2 x 260 L (2 x 67 US gal) hoppers or a 1350 L (356 US gal) hopper:

- Activate cylinders to fold side markers.
- Lock side markers using valves (1) (1 on each marker).
- Remove tube clip (1).
- Position side marker disk towards the machine inside.
- Insert and lock tube clip (1).
Repeat procedure for the other marker.

- Position pin (1) in upper hole (2).

- Lock undercarriage using valves (1) (1 valve on each wheel arm).
The machine is in transport position.

Never engage the tractor PTO drive when the machine is in transport position.

2. Conformity with the road regulations

Before driving the machine on public roads, ensure that the machine complies with current highway code regulations.

Check that the light boards are clean and that the lighting equipment functions before transporting the machine on public roads.

Immediately replace any worn or damaged signalling panels or lights.
Check that the valves of the various hydraulic circuits are in locked position (Markers and wheel arms).

During transport, adapt the travel speed to suit the road conditions.
Instructions for work

Before placing the machine in working position:
- Check that nobody is within the machine pivoting area.
- If there is someone, make sure the person moves away.

1. Putting the machine into work position

From the transport position:
If the machine is fitted with a fertilizer with 2 x 260 L (2 x 67 US gal) hoppers or a 1350 L (356 US gal) hopper:

- Remove tube clip (1).
- Position side marker disk on the machine outside.
- Insert and lock tube clip (1).
Repeat procedure for the other marker.

- Unlock side marker valve (1) (1 on each marker).
- Unlock undercarriage using valves (1) (1 valve on each wheel arm).

- Deploy the right or left side marker.

- Operate transport/work position cylinder in work position direction until the seeding units touch the ground.
- Set hydraulic valve in floating position.

The machine is in working position.
2. Adjustments in working position

- Adjusting the seeding unit ground pressure

  The seeding unit ground pressure is modified by changing the position of springs (1).

  **Coupling device (a):**
  By moving one spring (1) rearwards, the seeding unit ground pressure is increased by 20 kg (44 lb).

  **Coupling device (b):**
  By moving 2 springs (1) rearwards, the seeding unit ground pressure is increased by 40 kg (88 lb).

---

When the 2 springs (1) are positioned in configuration (b), check that the frame is sufficiently ballasted.
The drive wheels must not slip. If necessary ballast the frame.
When the machine is fitted with electronic seeding unit disengagement system (1), never position springs (2) in configuration (c). There is a risk of interference.
- Adjusting the sowing depth

Handle (1) enables adjusting the sowing depth.

The sowing depth can be adjusted from 0 to 8.5 cm (0” - 3.34”)(approximately).

Adjustment:
Refer to the decal applied on the machine to determine handle (1) setting position.

Settings are only indicated for your information.
The seeding unit setting must be adjusted according to the sowing conditions (Soil preparation and nature).

Example:
To adjust the sowing depth at 4.5 cm (1.77”), place adjustment handle in position D-E.

- Repeat procedure on each seeding unit.

The marking enables identical setting of each seeding unit.
Adjusting the markers

The side markers are designed to provide marking in the tractor centre or wheel track.

Marking to the tractor wheel

Calculating the distance (M):
- M: distance between the marker disk and the outer seeding unit.
- N: Number of rows.
- E: distance between rows.
- V: Tractor wheel track.

\[ M = \frac{E \times (N + 1) - V}{2} \]

Example:

N = 8 rows
E = 750 mm (2.5’’)
V = 1800 mm (5’11’’)

\[ M = \frac{750 \times (8 + 1) - 1800}{2} = 2475 \text{ mm (8’10’’)} \]
Marking in line with the tractor

Calculating the distance (M):
- **M**: distance between the marker disk and the outer seeding unit.
- **N**: Number of rows.
- **E**: distance between rows.

\[ M = \frac{E \times (N + 1)}{2} \]

Example:

N = 8 rows
E = 750 mm (2.5'')

\[ M = \frac{750 \times (8 + 1)}{2} = 3375 \text{ mm (11'')} \]
Adjusting the length (M)

- Unscrew the 2 bolts (1).
- Move side marker extension (2) to obtain required length M.
- Check that spacer (3) located between the rigid arm and the pivoting arm is fully inside the rigid arm.

The spacer prevents deterioration of the moving arm when tightening the screws.

- Tighten bolts (1).

Repeat procedure for the second side marker.

You are recommended to check this setting in the field, by inspecting several runs.

For models 9 m (29'6"):
- Unscrew the 2 bolts (1).
- Move side marker extension (2) to obtain required length M.
- Tighten bolts (1).

Repeat procedure for the second side marker.

You are recommended to check this setting in the field, by inspecting several runs.
Angle adjustment

- Loosen U-bolts (1).
- Pivot arm (2) to adjust the disc angle with regards to the soil type.
- Tighten U-bolts (1).

Repeat procedure for the second side marker.

For models 9 m (29’6”):
- Loosen U-bolts (1).
- Pivot arm (2) to adjust the disc angle with regards to the soil type.
- Tighten U-bolts (1).

Repeat procedure for the second side marker.
### Selection of disks

Never drill out disks in order to increase the diameter of the intake holes, otherwise serious deterioration of sowing accuracy may result.

**For Maize seeds**

In general, use disks with holes of diameter 5 mm (0.2 '') for maximum versatility (Standard supplied).

Maize seeds with very angular or pointed shapes can be sown with a disk with 4.5 mm (0.17 '') diameter holes to improve seed placement in the row.

For sowing very large maize seeds, we recommend using a disk with 5.5 mm (0.21 '') diameter holes.

For sowing very small sweet corn seeds, we recommend using a disk with 3.5 mm (0.14 '') diameter holes.

**For Sunflower seeds**

Successful sunflower sowing depends on two factors:
- The adaptation of the disk hole diameter to the seed size.
- The selector adjustment.

*Indications on the seed bags do not mention the seed size.*

*We recommend to possess 2 disk models (holes diameter 2.5 mm (0.1 '') and 3.5 mm (0.14 '')) if the seed size to be purchased cannot be specified.*
Fine and medium Sunflower
For sowing fine or medium sunflower seeds, we recommend using a disk with 2.5 mm (0.1 ‘’) diameter holes.

For sowing fine or medium sunflower seeds, using a disk with 3.5 mm (0.14 ‘’) diameter holes does not enable fine tuning of the selection (Too many misses or doubles).

Coarse Sunflower
For sowing large sunflower seeds, we recommend using a disk with 3.5 mm (0.14 ‘’) diameter holes.

For sowing large sunflower seeds, using a disk with 2.5 mm (0.1 ‘’) diameter holes does not enable fine tuning of the selection (Correct positioning but with too much misses).
## Table of recommended distribution disks

<table>
<thead>
<tr>
<th>Type of seeds</th>
<th>Number of holes</th>
<th>Hole diameter (mm)</th>
<th>Min/max spacing (cm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maize</td>
<td>27</td>
<td>5.0</td>
<td>from 8 to 24.1</td>
</tr>
<tr>
<td>Maize</td>
<td>27</td>
<td>4.5</td>
<td>from 8 to 24.1</td>
</tr>
<tr>
<td>Maize</td>
<td>27</td>
<td>5.5</td>
<td>from 8 to 24.1</td>
</tr>
<tr>
<td>Maize</td>
<td>22</td>
<td>5.0</td>
<td>from 9.8 to 29.5</td>
</tr>
<tr>
<td>Maize</td>
<td>22</td>
<td>4.5</td>
<td>from 9.8 to 29.5</td>
</tr>
<tr>
<td>Maize</td>
<td>22</td>
<td>5.5</td>
<td>from 9.8 to 29.5</td>
</tr>
<tr>
<td>Sunflower</td>
<td>18</td>
<td>2.5</td>
<td>from 12 to 36.1</td>
</tr>
<tr>
<td>Sunflower</td>
<td>18</td>
<td>3.5</td>
<td>from 12 to 36.1</td>
</tr>
<tr>
<td>Bean</td>
<td>48</td>
<td>3.5</td>
<td>from 4.5 to 13.5</td>
</tr>
<tr>
<td>Bean</td>
<td>48</td>
<td>2.5</td>
<td>from 4.5 to 13.5</td>
</tr>
<tr>
<td>Sorghum</td>
<td>70</td>
<td>2.5</td>
<td>from 3.1 to 9.3</td>
</tr>
<tr>
<td>Beet</td>
<td>31</td>
<td>2.1</td>
<td>from 7 to 21</td>
</tr>
<tr>
<td>Beet</td>
<td>22</td>
<td>2.1</td>
<td>from 9.8 to 29.5</td>
</tr>
<tr>
<td>Soy</td>
<td>70</td>
<td>4.5</td>
<td>from 3.1 to 6.3</td>
</tr>
<tr>
<td>Delinted cotton</td>
<td>33</td>
<td>3.5</td>
<td>from 6.5 to 19.7</td>
</tr>
</tbody>
</table>
Fitting distribution disks

Always fit a distribution disc in each seeding unit, used or not, in order to allow correct machine functioning.

Before changing a disk, empty the seeding unit hopper.
Mark disks prior to removing them in order to determine their respective position. A disk must always be fitted on the same sowing unit.

- Open hood (1).
- Install distribution disk (2) on drive shaft (3).

Respect disc direction of mount:
The disk face with the identification engraving (4) must be placed on the suction side.
When disks are fitted with agitator blades, position disks with agitator blades pointing inwards.
When the discs are fitted with a groove, position the discs with the groove pointing outwards.

Check that the distribution disk is properly positioned on the drive shaft.

- Close hood (1).
Fitting the seed ejector

When the machine is used with disks with only one row of holes, the ejector BNB0083 (1) must be fitted.

This ejector must always be fitted whatever the seed variety.

Fitting the seed flow reducer

When disks are not fitted with agitator blades, install spacer BNB0048 (1).

The agitator blades fitted on the disk enable preventing seed bridging in the casing.

Spacer BNB0048 stops small seeds from flowing freely through the groove.

When the disks are fitted with agitator blades, spacer BNB0048 (1) must be removed.
Adjusting the number of plants per hectare

Number of plants per hectare according to spacing between seeds and between rows
Distribution output charts

### Calibration chart: 12 hole disk

<table>
<thead>
<tr>
<th>Number of holes: 12</th>
<th>20 ratio gearbox</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seed spacing (mm)</td>
<td>30</td>
</tr>
<tr>
<td>Number of seeds per meter</td>
<td>10</td>
</tr>
<tr>
<td>Row spacing = 40 cm</td>
<td>13.0</td>
</tr>
<tr>
<td>Row spacing = 45 cm</td>
<td>12.6</td>
</tr>
<tr>
<td>Row spacing = 50 cm</td>
<td>12.0</td>
</tr>
<tr>
<td>Row spacing = 55 cm</td>
<td>11.6</td>
</tr>
<tr>
<td>Row spacing = 60 cm</td>
<td>11.2</td>
</tr>
<tr>
<td>Row spacing = 65 cm</td>
<td>10.8</td>
</tr>
<tr>
<td>Row spacing = 70 cm</td>
<td>10.4</td>
</tr>
<tr>
<td>Row spacing = 75 cm</td>
<td>10.0</td>
</tr>
<tr>
<td>Row spacing = 80 cm</td>
<td>9.6</td>
</tr>
</tbody>
</table>

**Quantities are only indicated for your information.**
They correspond to 64.4 drive wheel rotations for a distance of 100 m (328'1")

### Calibration chart: 18 hole disk

<table>
<thead>
<tr>
<th>Number of holes: 18</th>
<th>20 ratio gearbox</th>
</tr>
</thead>
<tbody>
<tr>
<td>Position of the gearbox</td>
<td>A1</td>
</tr>
<tr>
<td>Seed spacing (mm)</td>
<td>30</td>
</tr>
<tr>
<td>Number of seeds per meter</td>
<td>10</td>
</tr>
<tr>
<td>Row spacing = 40 cm</td>
<td>13.0</td>
</tr>
<tr>
<td>Row spacing = 45 cm</td>
<td>12.7</td>
</tr>
<tr>
<td>Row spacing = 50 cm</td>
<td>12.4</td>
</tr>
<tr>
<td>Row spacing = 55 cm</td>
<td>12.1</td>
</tr>
<tr>
<td>Row spacing = 60 cm</td>
<td>11.8</td>
</tr>
<tr>
<td>Row spacing = 65 cm</td>
<td>11.5</td>
</tr>
<tr>
<td>Row spacing = 70 cm</td>
<td>11.2</td>
</tr>
<tr>
<td>Row spacing = 75 cm</td>
<td>10.9</td>
</tr>
<tr>
<td>Row spacing = 80 cm</td>
<td>10.6</td>
</tr>
</tbody>
</table>

**Quantities are only indicated for your information.**
They correspond to 64.4 drive wheel rotations for a distance of 100 m (328'1")
### Calibration chart: 22 hole disk

<table>
<thead>
<tr>
<th>Number of holes: 22</th>
<th>20 ratio gearbox</th>
</tr>
</thead>
<tbody>
<tr>
<td>Position of the gearbox</td>
<td></td>
</tr>
<tr>
<td>Seed spacing (mm)</td>
<td></td>
</tr>
<tr>
<td>Number of seeds per meter</td>
<td></td>
</tr>
<tr>
<td>Row spacing = 40 cm</td>
<td></td>
</tr>
<tr>
<td>Row spacing = 45 cm</td>
<td></td>
</tr>
<tr>
<td>Row spacing = 50 cm</td>
<td></td>
</tr>
<tr>
<td>Row spacing = 55 cm</td>
<td></td>
</tr>
<tr>
<td>Row spacing = 60 cm</td>
<td></td>
</tr>
<tr>
<td>Row spacing = 65 cm</td>
<td></td>
</tr>
<tr>
<td>Row spacing = 70 cm</td>
<td></td>
</tr>
<tr>
<td>Row spacing = 75 cm</td>
<td></td>
</tr>
<tr>
<td>Row spacing = 80 cm</td>
<td></td>
</tr>
</tbody>
</table>

Thousand seeds per hectare

Quantities are only indicated for your information. They correspond to 64.4 drive wheel rotations for a distance of 100 m (328'1")

### Calibration chart: 27 hole disk

<table>
<thead>
<tr>
<th>Number of holes: 27</th>
<th>20 ratio gearbox</th>
</tr>
</thead>
<tbody>
<tr>
<td>Position of the gearbox</td>
<td></td>
</tr>
<tr>
<td>Seed spacing (mm)</td>
<td></td>
</tr>
<tr>
<td>Number of seeds per meter</td>
<td></td>
</tr>
<tr>
<td>Row spacing = 40 cm</td>
<td></td>
</tr>
<tr>
<td>Row spacing = 45 cm</td>
<td></td>
</tr>
<tr>
<td>Row spacing = 50 cm</td>
<td></td>
</tr>
<tr>
<td>Row spacing = 55 cm</td>
<td></td>
</tr>
<tr>
<td>Row spacing = 60 cm</td>
<td></td>
</tr>
<tr>
<td>Row spacing = 65 cm</td>
<td></td>
</tr>
<tr>
<td>Row spacing = 70 cm</td>
<td></td>
</tr>
<tr>
<td>Row spacing = 75 cm</td>
<td></td>
</tr>
<tr>
<td>Row spacing = 80 cm</td>
<td></td>
</tr>
</tbody>
</table>

Thousand seeds per hectare

Quantities are only indicated for your information. They correspond to 64.4 drive wheel rotations for a distance of 100 m (328'1")
## Precision Seed Drills

### MAXIMA 2 TM

#### Instructions for work

**Calibration chart: 30 hole disk**

<table>
<thead>
<tr>
<th>Number of holes: 30</th>
<th>20 ratio gearbox</th>
</tr>
</thead>
<tbody>
<tr>
<td>Position of the gearbox</td>
<td></td>
</tr>
<tr>
<td>Seed spacing (mm)</td>
<td></td>
</tr>
<tr>
<td>Number of seeds per meter</td>
<td></td>
</tr>
<tr>
<td>Row spacing = 40 cm</td>
<td>13.9, 13.0, 12.3, 11.6, 11.0, 10.3, 9.6, 9.0, 8.3, 7.6, 6.9, 6.2, 5.5, 4.9, 4.6</td>
</tr>
<tr>
<td>Row spacing = 45 cm</td>
<td>198.9, 198.6, 198.4, 198.2, 198.0, 197.8, 197.6, 197.4, 197.2, 197.0, 196.8, 196.6, 196.4, 196.2</td>
</tr>
<tr>
<td>Row spacing = 50 cm</td>
<td>227.8, 227.6, 227.4, 227.2, 227.0, 226.8, 226.6, 226.4, 226.2, 226.0, 225.8, 225.6, 225.4, 225.2</td>
</tr>
<tr>
<td>Row spacing = 55 cm</td>
<td>252.5, 252.3, 252.1, 251.9, 251.7, 251.5, 251.3, 251.1, 250.9, 250.7, 250.5, 250.3, 250.1, 249.9</td>
</tr>
<tr>
<td>Row spacing = 60 cm</td>
<td>281.5, 281.3, 281.1, 280.9, 280.7, 280.5, 280.3, 280.1, 279.9, 279.7, 279.5, 279.3, 279.1, 278.9</td>
</tr>
<tr>
<td>Row spacing = 65 cm</td>
<td>312.7, 312.5, 312.3, 312.1, 311.9, 311.7, 311.5, 311.3, 311.1, 310.9, 310.7, 310.4, 310.2, 309.9</td>
</tr>
<tr>
<td>Row spacing = 70 cm</td>
<td>332.9, 332.7, 332.5, 332.3, 332.1, 331.9, 331.7, 331.5, 331.3, 331.1, 330.9, 330.7, 330.5, 330.3</td>
</tr>
<tr>
<td>Row spacing = 75 cm</td>
<td>339.4, 339.2, 339.0, 338.8, 338.6, 338.4, 338.2, 338.0, 337.8, 337.6, 337.4, 337.2, 337.0, 336.8</td>
</tr>
<tr>
<td>Row spacing = 80 cm</td>
<td>347.7, 347.5, 347.3, 347.1, 346.9, 346.7, 346.5, 346.3, 346.1, 345.9, 345.7, 345.5, 345.3, 345.1</td>
</tr>
</tbody>
</table>

**Quantities are only indicated for your information.**

They correspond to 64.4 drive wheel rotations for a distance of 100 m (328’1”)

---

**Calibration chart: 31 hole disk**

<table>
<thead>
<tr>
<th>Number of holes: 31</th>
<th>20 ratio gearbox</th>
</tr>
</thead>
<tbody>
<tr>
<td>Position of the gearbox</td>
<td></td>
</tr>
<tr>
<td>Seed spacing (mm)</td>
<td></td>
</tr>
<tr>
<td>Number of seeds per meter</td>
<td></td>
</tr>
<tr>
<td>Row spacing = 40 cm</td>
<td>14.3, 13.5, 12.8, 12.0, 11.3, 10.6, 10.0, 9.3, 8.6, 7.9, 7.2, 6.5, 5.8, 5.1, 4.4</td>
</tr>
<tr>
<td>Row spacing = 45 cm</td>
<td>198.1, 197.8, 197.5, 197.2, 196.9, 196.6, 196.3, 196.0, 195.7, 195.4, 195.1, 194.8, 194.5, 194.2</td>
</tr>
<tr>
<td>Row spacing = 50 cm</td>
<td>227.1, 226.8, 226.5, 226.2, 225.9, 225.6, 225.3, 225.0, 224.7, 224.4, 224.1, 223.8, 223.5, 223.2</td>
</tr>
<tr>
<td>Row spacing = 55 cm</td>
<td>252.3, 252.0, 251.7, 251.4, 251.1, 250.8, 250.5, 250.2, 249.9, 249.6, 249.3, 249.0, 248.7, 248.4</td>
</tr>
<tr>
<td>Row spacing = 60 cm</td>
<td>281.3, 281.0, 280.7, 280.4, 280.1, 279.8, 279.5, 279.2, 278.9, 278.6, 278.3, 278.0, 277.7, 277.4</td>
</tr>
<tr>
<td>Row spacing = 65 cm</td>
<td>312.5, 312.2, 311.9, 311.6, 311.3, 311.0, 310.7, 310.4, 309.9, 309.6, 309.3, 309.0, 308.7, 308.4</td>
</tr>
<tr>
<td>Row spacing = 70 cm</td>
<td>332.7, 332.4, 332.1, 331.8, 331.5, 331.1, 330.8, 330.5, 329.9, 329.6, 329.3, 328.9, 328.6, 328.3</td>
</tr>
<tr>
<td>Row spacing = 75 cm</td>
<td>339.2, 338.9, 338.5, 338.2, 337.8, 337.5, 337.1, 336.8, 336.4, 336.0, 335.6, 335.2, 334.8, 334.4</td>
</tr>
<tr>
<td>Row spacing = 80 cm</td>
<td>347.7, 347.4, 347.0, 346.6, 346.2, 345.8, 345.3, 344.9, 344.5, 344.0, 343.6, 343.2, 342.8, 342.3</td>
</tr>
</tbody>
</table>

**Quantities are only indicated for your information.**

They correspond to 64.4 drive wheel rotations for a distance of 100 m (328’1”)

---

70 Instructions for work
**Precision Seed Drills**

**MAXIMA 2 TM**

### Calibration chart: 33 hole disk

<table>
<thead>
<tr>
<th>Number of holes: 33</th>
<th>20 ratio gearbox</th>
</tr>
</thead>
<tbody>
<tr>
<td>Position of the gearbox</td>
<td></td>
</tr>
<tr>
<td>Seed spacing (mm)</td>
<td></td>
</tr>
<tr>
<td>Number of seeds per meter</td>
<td></td>
</tr>
<tr>
<td>Row spacing = 40 cm</td>
<td>15.4, 14.3, 13.5, 12.8, 12.0, 11.4, 10.8, 10.2, 9.6, 9.1, 8.5, 8.1, 7.8, 7.2, 6.8, 6.4, 6.0, 5.7, 5.3, 5.1</td>
</tr>
<tr>
<td>Row spacing = 45 cm</td>
<td>241.9, 231.5, 204.9, 207.3, 202.7, 205.3, 208.0, 210.7, 213.7, 216.3, 218.9, 221.7, 224.4, 227.3, 230.1, 232.9, 235.7</td>
</tr>
<tr>
<td>Row spacing = 50 cm</td>
<td>307.7, 285.7, 263.6, 265.4, 268.8, 272.3, 275.8, 279.4, 283.0, 286.6, 290.2, 293.8, 297.4, 301.0, 304.6, 308.2</td>
</tr>
<tr>
<td>Row spacing = 55 cm</td>
<td>295.9, 274.4, 253.0, 254.8, 258.2, 261.8, 265.4, 269.0, 272.6, 276.2, 279.8, 283.4, 287.0, 290.6, 294.2, 297.8</td>
</tr>
<tr>
<td>Row spacing = 60 cm</td>
<td>284.1, 263.3, 242.8, 245.5, 249.0, 252.5, 256.0, 259.5, 263.0, 266.5, 270.0, 273.5, 277.0, 280.5, 284.0, 287.5</td>
</tr>
<tr>
<td>Row spacing = 65 cm</td>
<td>272.3, 252.4, 232.2, 235.3, 239.0, 242.7, 246.4, 250.1, 253.7, 257.4, 261.0, 264.7, 268.4, 272.0, 275.6, 279.2</td>
</tr>
<tr>
<td>Row spacing = 70 cm</td>
<td>260.7, 241.5, 222.4, 225.4, 229.1, 232.8, 236.5, 240.2, 243.8, 247.5, 251.2, 254.9, 258.6, 262.2, 265.9, 269.5</td>
</tr>
<tr>
<td>Row spacing = 75 cm</td>
<td>249.1, 230.5, 212.3, 215.3, 219.0, 222.7, 226.4, 230.1, 233.7, 237.4, 241.1, 244.8, 248.5, 252.2, 255.9, 259.5</td>
</tr>
<tr>
<td>Row spacing = 80 cm</td>
<td>237.6, 219.8, 202.5, 205.5, 209.2, 212.8, 216.5, 220.1, 223.8, 227.4, 231.1, 234.8, 238.5, 242.2, 245.9, 249.5</td>
</tr>
</tbody>
</table>

Thousand seeds per hectare

Quantities are only indicated for your information. They correspond to 64.4 drive wheel rotations for a distance of 100 m (328.1’)

### Calibration chart: 35 hole disk

<table>
<thead>
<tr>
<th>Number of holes: 35</th>
<th>20 ratio gearbox</th>
</tr>
</thead>
<tbody>
<tr>
<td>Position of the gearbox</td>
<td></td>
</tr>
<tr>
<td>Seed spacing (mm)</td>
<td></td>
</tr>
<tr>
<td>Number of seeds per meter</td>
<td></td>
</tr>
<tr>
<td>Row spacing = 40 cm</td>
<td>16.1, 15.2, 14.3, 13.5, 12.8, 12.0, 11.4, 10.8, 10.2, 9.6, 9.1, 8.5, 8.1, 7.8, 7.2, 6.8, 6.4, 6.0, 5.7, 5.4</td>
</tr>
<tr>
<td>Row spacing = 45 cm</td>
<td>232.6, 222.1, 212.6, 215.1, 217.7, 220.2, 222.7, 225.3, 227.8, 230.4, 232.9, 235.4, 237.9, 240.4, 242.9, 245.4</td>
</tr>
<tr>
<td>Row spacing = 50 cm</td>
<td>292.0, 276.9, 258.8, 261.3, 263.8, 266.3, 268.8, 271.3, 273.8, 276.3, 278.8, 281.3, 283.8, 286.3, 288.8, 291.3</td>
</tr>
<tr>
<td>Row spacing = 55 cm</td>
<td>341.5, 324.6, 306.7, 309.1, 311.6, 314.1, 316.6, 319.1, 321.6, 324.1, 326.6, 329.1, 331.6, 334.1, 336.6, 339.1</td>
</tr>
<tr>
<td>Row spacing = 60 cm</td>
<td>380.9, 363.0, 345.1, 347.6, 350.1, 352.6, 355.1, 357.6, 360.1, 362.6, 365.1, 367.6, 370.1, 372.6, 375.1, 377.6</td>
</tr>
<tr>
<td>Row spacing = 65 cm</td>
<td>410.3, 392.4, 374.5, 377.0, 379.5, 382.0, 384.5, 387.0, 389.5, 392.0, 394.5, 397.0, 399.5, 402.0, 404.5, 407.0</td>
</tr>
<tr>
<td>Row spacing = 70 cm</td>
<td>432.8, 414.9, 396.9, 399.4, 401.9, 404.4, 406.9, 409.4, 411.9, 414.4, 416.9, 419.4, 421.9, 424.4, 426.9, 429.4</td>
</tr>
<tr>
<td>Row spacing = 75 cm</td>
<td>454.3, 436.4, 418.4, 420.9, 423.4, 425.9, 428.4, 430.9, 433.4, 435.9, 438.4, 440.9, 443.4, 445.9, 448.4, 450.9</td>
</tr>
<tr>
<td>Row spacing = 80 cm</td>
<td>473.7, 455.8, 437.8, 440.3, 442.8, 445.3, 447.8, 450.3, 452.8, 455.3, 457.8, 460.3, 462.8, 465.3, 467.8, 470.3</td>
</tr>
</tbody>
</table>

Thousand seeds per hectare

Quantities are only indicated for your information. They correspond to 64.4 drive wheel rotations for a distance of 100 m (328.1’).
### Calibration chart: 48 hole disk

<table>
<thead>
<tr>
<th>Position of the gearbox</th>
<th>20 ratio gearbox</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seed spacing (mm)</td>
<td></td>
</tr>
<tr>
<td>Number of seeds per meter</td>
<td></td>
</tr>
<tr>
<td>Row spacing = 40 cm</td>
<td>555, 524, 606, 471, 430, 408, 386, 364, 342, 320, 300, 279, 255, 230, 207, 184, 162, 140, 120, 100</td>
</tr>
<tr>
<td>Row spacing = 50 cm</td>
<td>444, 416, 389, 361, 334, 307, 280, 253, 226, 200, 173, 146, 119, 92, 65, 38, 11</td>
</tr>
<tr>
<td>Row spacing = 55 cm</td>
<td>404, 378, 352, 326, 300, 274, 248, 222, 196, 170, 144, 118, 92, 66, 40, 14, 1</td>
</tr>
<tr>
<td>Row spacing = 60 cm</td>
<td>378, 352, 326, 300, 274, 248, 222, 196, 170, 144, 118, 92, 66, 40, 14, 1</td>
</tr>
<tr>
<td>Row spacing = 65 cm</td>
<td>341, 315, 290, 265, 240, 215, 190, 165, 140, 115, 90, 65, 40, 14, 1</td>
</tr>
<tr>
<td>Row spacing = 70 cm</td>
<td>317, 291, 265, 240, 215, 190, 165, 140, 115, 90, 65, 40, 14, 1</td>
</tr>
<tr>
<td>Row spacing = 75 cm</td>
<td>296, 270, 245, 220, 195, 170, 145, 120, 95, 70, 45, 20, 7, 1</td>
</tr>
<tr>
<td>Row spacing = 80 cm</td>
<td>278, 252, 226, 200, 174, 148, 122, 96, 70, 44, 18, 6, 1</td>
</tr>
</tbody>
</table>

**Thousand seeds per hectare**

Quantities are only indicated for your information.
They correspond to 64.4 drive wheel rotations for a distance of 100 m (328'1")

### Calibration chart: 54 hole disk

<table>
<thead>
<tr>
<th>Position of the gearbox</th>
<th>20 ratio gearbox</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seed spacing (mm)</td>
<td></td>
</tr>
<tr>
<td>Number of seeds per meter</td>
<td></td>
</tr>
<tr>
<td>Row spacing = 40 cm</td>
<td>625, 609, 593, 577, 561, 545, 529, 513, 497, 481, 465, 449, 433, 417, 392, 377, 361, 345, 329</td>
</tr>
<tr>
<td>Row spacing = 50 cm</td>
<td>500, 484, 468, 452, 437, 421, 406, 390, 374, 358, 342, 326, 310, 294, 278, 262, 246, 230, 214</td>
</tr>
<tr>
<td>Row spacing = 55 cm</td>
<td>456, 440, 424, 408, 392, 376, 360, 344, 328, 312, 296, 280, 264, 248, 232, 216, 199, 183, 167</td>
</tr>
<tr>
<td>Row spacing = 60 cm</td>
<td>406, 390, 374, 358, 342, 326, 310, 294, 278, 262, 246, 230, 214, 198, 182, 166, 149, 133, 117</td>
</tr>
<tr>
<td>Row spacing = 65 cm</td>
<td>366, 350, 334, 318, 302, 286, 270, 254, 238, 222, 206, 190, 174, 158, 142, 126, 110, 94, 78</td>
</tr>
<tr>
<td>Row spacing = 70 cm</td>
<td>326, 310, 294, 278, 262, 246, 230, 214, 198, 182, 166, 150, 134, 118, 102, 86, 70, 54, 38</td>
</tr>
<tr>
<td>Row spacing = 75 cm</td>
<td>286, 270, 254, 238, 222, 206, 190, 174, 158, 142, 126, 110, 94, 78, 62, 46, 30, 14</td>
</tr>
<tr>
<td>Row spacing = 80 cm</td>
<td>246, 230, 214, 198, 182, 166, 150, 134, 118, 102, 86, 70, 54, 38, 22, 6, 0</td>
</tr>
</tbody>
</table>

**Thousand seeds per hectare**

Quantities are only indicated for your information.
They correspond to 64.4 drive wheel rotations for a distance of 100 m (328'1")
**Calibration chart: 70 hole disk**

<table>
<thead>
<tr>
<th>Number of holes: 70</th>
<th>20 ratio gearbox</th>
</tr>
</thead>
<tbody>
<tr>
<td>Position of the gearbox</td>
<td></td>
</tr>
<tr>
<td>Seed spacing (mm)</td>
<td></td>
</tr>
<tr>
<td>Number of seeds per meter</td>
<td></td>
</tr>
</tbody>
</table>

**Calibration chart: 80 hole disk**

<table>
<thead>
<tr>
<th>Number of holes: 80</th>
<th>20 ratio gearbox</th>
</tr>
</thead>
<tbody>
<tr>
<td>Position of the gearbox</td>
<td></td>
</tr>
<tr>
<td>Seed spacing (mm)</td>
<td></td>
</tr>
<tr>
<td>Number of seeds per meter</td>
<td></td>
</tr>
</tbody>
</table>

Quantities are only indicated for your information. They correspond to 64.4 drive wheel rotations for a distance of 100 m (328'1")
### Calibration chart: 100 hole disk

<table>
<thead>
<tr>
<th>Position of the gearbox</th>
<th>20 ratio gearbox</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seed spacing (mm)</td>
<td></td>
</tr>
<tr>
<td>Number of seeds per meter</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Row spacing = 40 cm</td>
<td></td>
</tr>
<tr>
<td>Row spacing = 45 cm</td>
<td></td>
</tr>
<tr>
<td>Row spacing = 50 cm</td>
<td></td>
</tr>
<tr>
<td>Row spacing = 55 cm</td>
<td></td>
</tr>
<tr>
<td>Row spacing = 60 cm</td>
<td></td>
</tr>
<tr>
<td>Row spacing = 65 cm</td>
<td></td>
</tr>
<tr>
<td>Row spacing = 70 cm</td>
<td></td>
</tr>
<tr>
<td>Row spacing = 75 cm</td>
<td></td>
</tr>
<tr>
<td>Row spacing = 80 cm</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Thousand seeds per hectare</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quantities are only indicated for your information. They correspond to 64.4 drive wheel rotations for a distance of 100 m (328.1”)</td>
</tr>
</tbody>
</table>
How to read the calibration charts

Use the chart corresponding to the selected disk type (According to the number of holes).

The chart enables determining the position of the gearbox gearwheels according to the spacing between the seed drill rows and the number of plants required per hectare.

Example:
For Maize seeds: 27 hole disk.
Seed row spacing: 75 cm (2'5'').
Required population: 83000 plants/hectare.

To obtain a number of plants (1) close to the required number with a spacing between rows (2) of 75 cm (2'5''), position gearbox gearwheels on ratio D1 (3).

The chart also indicates the spacing between seeds (4) and the theoretical number of seeds (5) over 1 m (3'3'').

It is possible to determine the gearbox ration as from this data.

If in between 2 values in the adjustment chart, select the setting that gives the less plants per hectare.
When the chart does not correspond to the disk used (number of holes), use "1 hole disk" chart:

The 1 hole disk chart enables determining the following values:
- Number of plants per hectare.
- Spacing between seeds.
- Number of seeds per meter.

Example:
Seed row spacing: 75 cm (2'5'').
24 hole disk.
Selected speed ratio: A1

**Number of plants per hectare:**
P = Number of plants per hectare.
N = Number of holes on the disk used.
N1 = Number of seeds with 1 hole disk.

\[ P = (N \times N1) \times 1000 \]

Example:

\[ P = (24 \times 6.17) \times 1000 = 148080 \text{ seeds/ha} \]
Spacing between seeds:
E = Spacing between seeds.
E1 = Spacing between seeds with 1 hole disk.
N = Number of holes on the disk used.

E = E1 / N

Example:
E = 2161 / 24 = 90 mm (3.5")

Number of seeds per meter:
N1 = Number of seeds per meter.
N2 = Number of seeds per meter with 1 hole disk.
N = Number of holes on the disk used.

N1 = N2 x N

Example:
N1 = 0.463 x 24 = 11 Seeds per meter.
Adjustment of the gearbox

Combination chart
Adjust gearbox gearwheel and chain position according to the ratio recommended in the calibration chart.

Example:
Ratio to adjust: D1.

- Position chain on upper level gearwheel D.
- Position chain on lower level gearwheel 1.

Variation of 6 % between each ratio.
Adjustment:

- Remove lynch pin (1).
- Open gearbox (2).

- Lower lever (1) until chain tension is loosened.
- Push handle (2) to lock lever (1) in low position.
- Position lever (3) in notch (4) to enable moving the upper level gearwheels sideways.
- Position chain (5) on the recommended gearwheels.
- Position lever (3) in notch (4) to lock upper level gearwheels.

Check that chain and gearwheels are in line.

- Maintain lever (1) downwards and pull handle (2) to unlock the lever.
- Lift lever (1) to retension the chain.

- Close gearbox (1).
- Insert and lock lynch pin (2).
Checking the number of plants per hectare

2 methods are possible:
- Checking by counting over a set distance.
- Checking the spacing between seeds.

Checking by counting over a set distance

<table>
<thead>
<tr>
<th>Seed row spacing</th>
<th>Counting length</th>
</tr>
</thead>
<tbody>
<tr>
<td>30 cm (1.18”)</td>
<td>33.33 m (109'4'”)</td>
</tr>
<tr>
<td>35 cm (1.38”)</td>
<td>28.57 m (93'9'”)</td>
</tr>
<tr>
<td>40 cm (1.57”)</td>
<td>25.00 m (82”)</td>
</tr>
<tr>
<td>45 cm (1.77”)</td>
<td>22.22 m (72'11'”)</td>
</tr>
<tr>
<td>50 cm (1.97”)</td>
<td>20.00 m (65'7'”)</td>
</tr>
<tr>
<td>55 cm (2.16”)</td>
<td>18.18 m (59'8'”)</td>
</tr>
<tr>
<td>60 cm (2.36”)</td>
<td>16.66 m (54'8'”)</td>
</tr>
<tr>
<td>65 cm (2.56”)</td>
<td>15.38 m (50'5'”)</td>
</tr>
<tr>
<td>70 cm (2.75”)</td>
<td>14.28 m (46'10'”)</td>
</tr>
<tr>
<td>75 cm (2.95”)</td>
<td>13.30 m (43'8'”)</td>
</tr>
<tr>
<td>80 cm (3.15”)</td>
<td>12.50 m (41”)</td>
</tr>
</tbody>
</table>

Example:
Seed row spacing: 75 cm (2'5'”).

The seed count must be made over a length of 13.30 m (43'8'”).

The count gives 83 seeds over a length of 13.30 m (43'8'”).

Multiply the number of seeds per 1000:

83 x 1000 = 83000 seeds/ha.

The KMS412 control box enables knowing instantaneously the average number of plants sown per hectare.

If the distance between the real population and the population target exceeds 4 %, the difference can be reduced by modifying the gearbox ratio.
Checking the spacing between seeds
- Uncover 11 seeds on the seeding line.
- Measure distance D between the first and eleventh seed.
- Divide the measured distance by 10 to obtain the spacing between two seeds.

Example:
For Maize seeds: 27 hole disk.
Seed row spacing: 75 cm (2'5"').
Required population: 83000 plants/hectare.
Distance (D) measured between the first and eleventh seed: 1600 mm (5'3'').

Seed spacing:
1600 / 10 = 160 mm (6.3'').

Compare the average distance measured with value (1) indicated in the chart. Modify settings if necessary.

<table>
<thead>
<tr>
<th>Position of the gearbox</th>
<th>Number of seeds per meter</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1  A2  A3  A4  B1  B2  B3  B4  C1  C2  C3  C4  D1  D2  D3  D4  E1  E2  E3  E4</td>
<td></td>
</tr>
<tr>
<td>80  85  90  95  100  105  110  115  120  125  130  135  140  145  150  155  160  165  170  175  180  185  190  195  200</td>
<td></td>
</tr>
</tbody>
</table>

The KMS412 control box enables knowing instantaneously the average distance between seeds.
■ Adjusting the selector

The selector adjustment must be made after having installed the disks best adapted to the seed variety to sow.

The selector enables preventing misses and doubles along the seeding line.

Pre-setting:
- Position selector (1) on the teeth bottom on the notched quadrant (2).

Plate (2) is graduated from 0 to 30.

- Pull knob (3) to place selector (1) on the recommended position.

<table>
<thead>
<tr>
<th></th>
<th>Recommended adjustment range</th>
<th>Position of 1st running test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maize</td>
<td>15 to 25</td>
<td>21</td>
</tr>
<tr>
<td>Sunflower</td>
<td>10 to 16</td>
<td>14</td>
</tr>
<tr>
<td>Beet</td>
<td>18 to 25</td>
<td>21</td>
</tr>
</tbody>
</table>

Settings are only indicated for your information.

The seeding unit setting must be adjusted according to the sowing conditions (Work speed and soil nature).

It is indispensable to refine the adjustments when starting the machine and every time the seed variety or type changes.
Stationary checking:

- Lift the seed drill.
- Engage the tractor pto and increase speed gradually until reaching the recommended blower speed.
- Fill hoppers with seeds.
- Disengage the other seeding units by hand (Refer to "Manual seeding unit disengagement" chapter).
- Lift the observation flap (1).

- Turn the seed drill wheel through several revolutions by hand to monitor seed take-up by the disk. If doubles or misses are noticed during the seed take-up control, modify the selector position.

If you notice seed doubles on the disk, move selector (1) of one or several graduations in direction 0.

If you notice seed misses on the disk, move selector (1) of one or several graduations in direction 30.

- Repeat procedure until obtaining the right setting.

After checking:

- Lower control hatch and engage all other seeding units.
- Carry out same setting for each seeding unit.

The marking enables identical setting of each seeding unit.
Checking during sowing:

The seed take-up control can be made while following the seed drill during a sowing operation.
- Lift the observation flap (1).

- If doubles or misses are noticed during the seed take-up control, modify the selector position.
- Push knob (1) to place selector (2) in the required position.

| If you notice seed doubles on the disk, move selector (1) of one or several graduations in direction 0. |
| ❌ |
| If you notice seed misses on the disk, move selector (1) of one or several graduations in direction 30. |

- Repeat procedure until obtaining the right setting.

After checking:
- Lower control hatch.
- Carry out same setting for each seeding unit.

| ✔ |
| The marking enables identical setting of each seeding unit. |
Adjusting the seed flow

When sowing fluid seeds (sunflower, rapeseed...) on slopes or stony grounds, there is a risk of overpopulation due to overflow. The reduction spacer may have to be adjusted.

- Loosen the wing nut (1).

- Lift output reduction spacer lever (1) to reduce the seed supply to the disks.

- Lower output reduction spacer lever (1) to increase the seed supply to the disks.

- Tighten the wing nut.

- Repeat procedure on each seeding unit.
3. Machine use

Before carrying out any maintenance on the machine, disengage the power take-off, switch off the tractor engine, remove ignition key and wait until all moving parts have come to a complete stop and apply park brake.

Seeding instructions

In all cases, check that for any change in seed variety, seed drill equipment or setting, the seeding precision still complies with the user's requirements. Check the precision over a distance representative for each seeding unit prior to starting sowing on the field.

The seeding precision depends from several parameters, especially:

- The number of seeds/ha or the seeding density.
- The forward speed.
- The diameter and number of holes per disk or the metering unit adjustment.
- The implantation depth.
- The ground conditions (upward or downwards slopes, seedbed, ...).
- The seed type and variety.
- The turbine speed and vacuum in case of a pneumatic seed drill.
- The tyre inflation pressure.

The control must be made every time the hopper is reloaded or a least once per day.

Only work in straight lines. Lift the machine to turn.
Manual unit disengagement

To disengage a unit by hand, pull knob (1).

To engage a unit by hand, push and turn slightly knob (1) to facilitate the unit engagement.

Seeding unit safety

When an incident occurs on one of the sowing units, the safety bolt (2) shears causing the metering unit to stop.
- Disengage the unit.
- Use a punch to remove the remaining shear bolt part.
- Replace the components.

Nuts (1) Part no. 80200640.
Safety bolt (2) Part no. N03273A0.

- Torque: 10 daN m (74 lbf ft).
Seeding unit high and low position

Never lift a seeding unit using the hopper assembly in order not to damage its link with the distribution.

For safety reasons forbidding to handle loads exceeding 25 daN (56.20 lbf) by hand, the seeding unit must be adjusted with the machine coupled to the tractor and in raised position.

Setting the seeding unit in high position

The high position setting of the seeding units enables sowing on 1 row out of 2.

- Disengage the unit using knob (1).
- Position spring (1) behind part (2).
- Lock (3) comes into contact with stop (4).
- Raise machine using tractor lift.
- Position a wedge (1) approximately 15 cm (5.90") thick underneath the seeding unit.

- Lower the machine using the tractor lift linkage.
- Lock (1) automatically positions itself underneath stop (2).

Setting the seeding unit in low position
- Position spring (1) inside hole (2).
- Raise machine using tractor lift.
- Position a wedge (1) approximately 15 cm (5.90") thick underneath the seeding unit.

- Using the tractor lift linkage, lower machine to release lock (1).

- Engage the seeding unit using knob (1).
Adjustment of the seeding unit lower stop

- Remove bolt (1) and nut (2).
- Position stop (3) according to the required setting:
  
  - Position (a): Factory setting.
  - Position (b): In this position, the seeding unit can travel lower for improved ground contour following.

![Diagram of seeding unit lower stop adjustment]

The outer seeding unit stops can be adjusted in this position for improved ground following when sowing on field edges.

- Reinstall bolt (1) and nut (2).
Hoppers

Hopper filling

Lower the machine on the ground.

- Open the hopper cover (1).

Before filling:
- Check that there are no foreign bodies in the hoppers.
- Check that distribution disks are in the proper position.
- Check that distribution emptying hatches are closed.

- Fill sowing unit hoppers in order to have approximately equal seed quantity in all hoppers.

Each hopper has a capacity of 52 L (14 US gal).

- After filling, close hopper cover.
- Repeat procedure for each hopper.

Emptying the hoppers

When seed variety is changed, or at the end of the season, it is important to fully empty the hoppers.

- Position a container close to the emptying hatch.
- Position funnel (2) underneath emptying hatch (1).
- Pull emptying hatch handle (1).
- Repeat procedure for each hopper.
Checking

Seeding depth
It is recommended to check sowing depth every time you refill the different hoppers.

Sowing depth must be matched to the type of seed, the soil and conditions in the seed bed.

An insufficient or excessive depth can impact the emergence quality.
On plots with variable quality soil, the depth setting must be checked and adjusted so as to obtain the correct sowing depth across the whole area of the field.

Distribution
During filling, rotate drive wheel by hand to check the good seed distribution underneath each sowing unit.

Seed application rate
Check and compare the seed quantity used in relation to the adjustments and the area sown.
For each filling, compare residual seed quantity in each hopper. A variation of the residual seed volume in the hopper indicates there is a problem in the sowing unit setting or that the sowing unit is clogged. Search source of malfunction and remedy the problem prior to resuming sowing operation.
Suction adjustment

For 4.40 m to 6 m (14’4” - 19’8”) models

For models 9 m (29’6’’)
The PM20 twin blower is only fitted on seed drills with 9.00 m single bar frame fitted with a 1350 L fertilizer unit.

Suction must be comprised between 50 and 65 mbar (or cm water column).
- A lower suction value can cause misses on the seeding line.
- A higher suction value can cause doubles on the seeding line and premature disk wear.

The measure must be made with disks fitted, seeds engaged on the disks.

For precise measure of the suction value, a vacuometer can be installed on the machine.
Kit no. 1677223.
When the machine is equipped with a dust anti-drift kit, it is possible to adjust a suction flap:

- Loosen nut (1).
- Position stop in the hole:
  - Minimum suction when stop is placed in the hole bottom position (Position (a)).
  - Maximum suction when the stop is placed in the hole top position (Position (b)).
- Tighten nut (1).

Check that the flap is free to rotate and that no element interferes during its movement.

If the flap is not free to move upwards during seeding, there will be no suction at the distribution disk level.

**Groundspeed**

Adapt the forward speed to the working conditions.

For optimum precision and seeding evenness, it is recommended to travel at a speed comprised between 6 and 8 km/h (3.7 - 4.9 mph).

A variation in the ground speed of 2 km/h (1.2 mph) is equivalent to a loss of accuracy of around 10%.

Groundspeed must be adapted to the encountered working conditions (Soil nature and presence or absence of plant residues).
Optional equipment

- Assembly combinations possible for front equipments

1: Wide gauge wheels 115 x 400
2: Narrow gauge wheels 65 x 400
3: Clod clearer with disk coulter for narrow gauge wheels 65 x 400
4: Clod clearer with disk coulter for wide gauge wheels 115 x 400
5: Spring assisted clod clearer
6: Star shaped trash remover
7: Opener disk solo
8: Star-shaped trash remover for furrow opening disk
9: Furrow opening disk with star-shaped trash remover
Assembly combinations possible for rear equipments

1: Composite intermediate axial press wheel
2: Stainless steel intermediate axial press wheel
3: Spacer 5 mm (0.2"")
4: Spacer 82 mm (3.2"")
5: Spacer 45 mm (1.8"")
6: Furrow closing disks
7: Covering scraper
8: HD smooth steel V roller
9: HD notched steel V roller
Optional equipment

Precision Seed Drills
MAXIMA 2 TM

10 : HD 2" "V" rubber rollers
11 : HD 1" "V" rubber rollers
12 : Standard smooth steel V roller
13 : Standard notched steel V roller
14 : Standard Rubber V roller 2"
15 : Standard Rubber V roller 1"
16 : 370 x 165 OTIFLEX roller
17 : 500 x 175 OTIFLEX roller
1. Clod clearer

Kit no. 1676801
Clod clearer with disk coulter for narrow gauge wheels 115 x 400 (a).

Kit no. 1676802
Clod clearer with disk coulter for wide gauge wheels 65 x 400 (b).

The clod clearer is used to clear clods and small stones to prepare for the passage of the lateral gauge wheels and create a furrow in humid soil after having pushed away the dry and clody part.

Adjustments

Height adjustment

- Loosen screws (1).
- Set the required height:
  - Clod clearer (2) must be set high enough to prevent seeding unit from engaging in the soil.
- Tighten screws (1).

We recommend adjusting the clod clearer at approximately 20 mm (0.78") from the ground.

- The independent knife coulter (3) enables preparing the passage for the coulter and facilitates its engagement in the soil.

Respect a distance $L$ of 2 to 6 cm (0.78 - 2.36") between the clod clearer (2) base and the independent coulter (3) base.

- Tighten screws (1).

Adjust the optional equipment height when altering the sowing depth.
Lateral adjustment

- Unscrew the 4 bolts (1).
- Centre clod clearer (2) with regards to the seeding line.
- Tighten the 4 bolts (1).

Adjust all seeding units to the same settings.

Machine use

In very wet, sticky or stony conditions, the clod clearer and coulter can be folded upwards or the equipment can be removed from the seed drill.

2. Spring assisted clod clearer

Kit no. 1676803

The clod clearer is used to clear clods and small stones to prepare for the passage of the lateral gauge wheels and create a furrow in humid soil after having pushed away the dry and clody part.
■ Adjustments

**Height adjustment**
- Loosen screws (1).
- Set the required height:
  - Clod clearer (2) must be set high enough to prevent seeding unit from engaging in the soil.

**We recommend adjusting the clod clearer at approximately 20 mm (0.78") from the ground.**

- The independent knife coulter (3) enables preparing the passage for the coulter and facilitates its engagement in the soil.

**Respect a distance L of 2 to 6 cm (0.78 - 2.36") between the clod clearer (2) base and the independent coulter (3) base.**

- Tighten screws (1).

Adjust the optional equipment height when altering the sowing depth.

**Lateral adjustment**
- Unscrew the 4 bolts (1).
- Centre clod clearer (2) with regards to the seeding line.
- Tighten the 4 bolts (1).

Adjust all seeding units to the same settings.
Machine use

In very wet, sticky or stony conditions, the clod clearer and coulter can be folded upwards or the equipment can be removed from the seed drill.

3. Star shaped trash remover

Kit no. 1676783

The star-shaped trash remover is used to push aside plant residues in order to prepare for the passage of the seeding unit.

Adjustments

Height adjustment
- Remove lynch pin (1).
- Adjust working height using pin (2).

The working height can be adjusted to 10 different positions.

The adjustment range is of 82.5 mm (3.25\').

- Insert and lock lynch pin (1).

Adjust the optional equipment height when altering the sowing depth.
**Working width adjustment**

The working width can be adjusted to 3 different positions.

- Remove nut (1).

- Place star-shaped disks (2) in the required position:
  - By moving the star-shaped disks (2) frontwards, organic residues are more easily separated.
  - By moving the star-shaped disks (2) rearwards, the clearing width is increased prior to the passage of the gauge wheels.

- Reinstall nut (1).

The pointed part (1) of the teeth must always be pointing frontwards in the lower part of the star-shaped disks.

Repeat procedure on the other disk.

Adjust all seeding units to the same settings.
4. Furrow opening disk

Kit no. 1676775
Opener disk solo (a).

Kit no. 1676780
Furrow opening disk with star-shaped trash remover (b).

The circular knife coulter facilitates penetration of the furrow opening disks in plant residues. The star-shaped trash remover is used to push aside plant residues in order to prepare for the passage of the seeding unit.

■ Adjustment

Furrow opening disk

Height adjustment
- Unscrew the 2 nuts (1) (1 on each side).
- Loosen the 2 screws (2) (1 on each side).
- Position disk holder (3) in one of the holes to increase or reduce the working depth.
- Tighten the 2 screws (2) (1 on each side).
- Tighten the 2 nuts (1) (1 on each side).

The adjustment range is of 25 mm (0.98”).

Adjust the optional equipment height when altering the sowing depth.
Star shaped trash remover

Height adjustment
- Loosen counter nut (1).
- Turn adjustment screw (2) to increase or reduce working height.

The adjustment range is of 80 mm (3.15").
- Tighten counter nut (1).

Working width adjustment
The working width can be adjusted to 3 different positions.

The working width must be adjusted according to the type of residues to push aside.
- Remove nut (1).
- Place star-shaped disks (2) in the required position:
  • By moving the star-shaped disks (2) frontwards, organic residues are more easily separated.
  • By moving the star-shaped disks (2) rearwards, the clearing width is increased prior to the passage of the gauge wheels.
- Reinstall nut (1).
The pointed part (1) of the teeth must always be pointing frontwards in the lower part of the star-shaped disks.

Repeat procedure on the other disk.

Adjust all seeding units to the same settings.

- **Machine use**

Only one spring (1) can be positioned in the centre of the parallelogram. The second spring (2) can be fitted on the right side of the parallelogram.

This equipment does not allow the seeding unit to be locked in the raised position.

---

**5. Covering scraper**

Kit no. 1676761

The covering scrapers transfers soil in the sowing line for easier furrow closing.

A 82 mm (3.2’’) spacer is delivered with this equipment.
■ Adjustment

Lateral adjustment
- Unscrew the 4 bolts (1).
- Centre scrapers (2) with regards to the furrow.
- Tighten the 4 bolts (1).

Check setting over the first few metres sown.

■ Machine use

The work fulfilled by the covering scrapers can vary according to the sowing conditions and depth.
Check that the ground pressure applied with the springs, does not cause too much soil to be transferred in the furrow or that the scraper action does not damage the sowing operation.

If necessary, remove springs (1) to reduce the scraper ground pressure.
6. Composite intermediate axial press wheel

Kit no. 1676762

The purpose of the intermediate centerline roller is to tamp down the seed at the bottom of the furrow in order to encourage germination by optimising its contact with its moist environment.

■ Adjustments

Lateral adjustment
- Unscrew the 4 bolts (1).
- Centre wheel (2) with regards to the furrow.

Incorrect wheel positioning could cause its incorrect functioning and alter the sowing precision.
- Tighten the 4 bolts (1).

Check setting over the first few metres sown.
Deflector adjustment
The deflector prevents stones from getting jammed.

- Loosen screws (1).
- Position deflector (2) as close as possible to the wheel, without touching it. Wheel (3) must be free to rotate by hand. Rotate wheel by hand and check that the wheel is free to rotate at least once.
- Torque bolts to (1).

Machine use
The wheel must be free to rotate and the return spring must allow a downward vertical effort of 3.5 to 6 daN. The wheel must instantaneously resume its lower position and must not be blocked during its down travel.

In very wet, sticky or stony conditions, the wheel can be folded upwards to prevent damage on the wheel and ensure seeding precision.
- Push screw (1).
- Raise wheel (2).
- Pull screw (1).
7. **Stainless steel intermediate axial press wheel**

Kit no. 1676766

The purpose of the intermediate centerline roller is to tamp down the seed at the bottom of the furrow in order to encourage germination by optimising its contact with its moist environment.

- **Adjustments**
  - **Lateral adjustment**
    - Unscrew the 4 bolts (1).
    - Centre wheel (2) with regards to the furrow.
  
  Incorrect wheel positioning could cause its incorrect functioning and alter the sowing precision.

  - Tighten the 4 bolts (1).

  Check setting over the first few metres sown.
Adjusting the scraper's position
The scraper's position must be adjusted according to the sowing conditions:

- Position (a): Slightly wet conditions.
  Loosen nut (1) to reduce distance between scraper (2) and the wheel.
- Position (b): Dry conditions.
  Tighten nut (1) to increase distance between scraper (2) and the wheel.
  Repeat procedure on each seeding unit.

Adjusting the intermediate axial wheel scrapers
The scraper removes soil build-up around the wheel.

**Adjusting the plates:**
- Loosen nut (1).
- Position plate (2) closest to the wheel, but without touching it. Rotate wheel once to check that it is not in contact.

```markdown
In slightly wet conditions, reduce spacing between plate and wheel as much as possible to reduce wear.
```

- Tighten nut (1).
  Repeat procedure on each seeding unit.

■ Machine use
In very wet, sticky or stony conditions, the wheel can be folded upwards to prevent damage on the wheel and ensure seeding precision.
- Remove R-clips (1).
- Mover levers (2) rearwards to raise the wheel.
- Insert split pins (1).
  Repeat procedure on each seeding unit.
When the use of the wheel is no longer required or inadequate, it can be removed without removing the other equipments.
- Remove R-clips (1).
- Remove screws (2), nuts (4) and washers (3).
- Remove the 2 handles (5).
- Remove lynch pin (6).
- Remove screw (7) and pin (8).
- Remove wheel (9).
Repeat procedure on each seeding unit.

**Maintenance**

**Greasing (Every 50 hours)**
- The tamping wheel pivot pin.

**Replacing the scraper plates**
- Remove bolt (1) and nut (2).
- Remove plate (3).
- Turn plate over or replace it if necessary.

*Scraper plate Part no. K3600550.*
- Install plate (3).
- Reinstall bolt (1) and nut (2).
8. Furrow closing disks

Kit no. 1676790

The closing disks transfer soil in the sowing line for easier furrow closing.
We recommend using the closing disks in the presence of debris or where the edges of the furrow are hard with little fine tilth.

A 45 mm (1.8’’) spacer is delivered with this equipment.

Adjustments

Lateral adjustment
- Unscrew the 4 bolts (1).
- Centre disks (2) in relation to the furrow.
- Tighten the 4 bolts (1).

Height adjustment
- Remove lynch pin (1).
- Remove pin (2).
- Insert pin (2) in one of bracket (3) holes to set the required working depth.
- Lock pin using lynch pin (1).

Adjust all seeding units to the same settings.
9. Standard V-shaped roller

Kit no. 1677235:
Standard Rubber V roller 1” (a).

Kit no. 1677234:
Standard Rubber V roller 2” (b).

Kit no. 1677237:
Standard smooth steel V roller (c).

Kit no. 1677236:
Standard notched steel V roller (d).

The V-shaped roller enables closing and tamping the seeding line.

■ Adjustments

Adjusting the tamping pressure

Lever (1) enables adjusting the tamping pressure.

- Position lever (1) in one of the 5 adjusting catches:
  • To reduce the tamping pressure in F, move adjustment lever (1) frontwards.
  • Mover adjustment lever (1) rearwards to increase tamping pressure in F.

Adjust all seeding units to the same settings.
Adjusting the spacing between the press wheels

- Remove nut (1).
- Remove the struts (2).
- Remove wheel (3).

- Place one or several spacers (1) on the inside to increase spacing between the press wheels.
- Place one or several spacers (1) on the outside to reduce spacing between the press wheels.

For standard 1 and 2” rubber V rollers, spacer (1) must remain on the inside to prevent interferences with the press wheels.

- Reinstall nut (1).

Repeat procedure on the other press wheel.
Adjustment of the tamping wheel cleaners

The cleaners remove soil build up around the tamping wheels.

Lateral adjustment
- Loosen nut (1).
- Center cleaner (2) with regards to wheel (3).
- Tighten nut (1).
- Repeat procedure on the other cleaner.

Adjusting the scraper’s position
The scraper’s position must be adjusted according to the sowing conditions:
• Position (a): Slightly wet conditions. Loosen nut (1) to reduce distance between scraper (2) and the wheel.
• Position (b): Dry conditions. Tighten nut (1) to increase distance between scraper (2) and the wheel.
Repeat procedure on each seeding unit.

Adjusting the plates
- Loosen nut (1).
- Adjust plate (2) to bring it closer to the tamping wheel but without touching it. Rotate wheel once to check that it is not in contact.

In slightly wet conditions, reduce spacing between plate and wheel as much as possible to reduce wear.

- Tighten screws (1).
- Repeat procedure on each seeding unit.
Maintenance

Greasing (Every 50 hours)
- The tamping wheel pivot pin.

Replacing the scraper plates
- Remove nut (1).
- Remove screw (2) and washer (3).
- Turn plate over or replace it if necessary.

Scraper plate Part no. K3600550.

- Reinstall screw (2), nut (1) and washer (3).
10. HD V roller

Kit no. 1677241:
HD Rubber V roller 1” (a).
Kit no. 1677240:
HD Rubber V roller 2” (b).
Kit no. 1677239:
HD smooth steel V roller (c).
Kit no. 1677238:
HD notched steel V roller (d).

The V-shaped roller enables closing and tamping the seeding line.

Adjustments

Adjusting the tamping pressure
Lever (1) enables adjusting the tamping pressure.

- Position lever (1) in one of the 5 adjusting catches:
  • To reduce the tamping pressure in F, move adjustment lever (1) frontwards.
  • Mover adjustment lever (1) rearwards to increase tamping pressure in F.
For seeding conditions requiring a heavier tamping, it is possible to modify the pressure spring position:

- Position adjustment lever (1) frontwards to reduce the spring tension as much as possible.
- Remove one of the press wheels (2).
- Remove bolt (3) and nut (4).

- Remove spring (1).
- Raise the roller (2).
- Remove bolt (3) and nut (4).
- Position screw (3) in one of the holes (5) to increase or decrease the roller tamping capacity.
- Reinstall spring (1).

- Reinstall bolt (3) and nut (4).
- Reinstall the press wheel (2) making sure to keep a spacer inside.
- Adjust the tamping pressure using lever (1).

Adjust all seeding units to the same settings.
Adjusting the roller opening angle

Lever (2) allows adjusting the roller opening angle.
- Loosen and raise the locking handle (1).

- Move adjustment lever (2) frontwards to increase the roller opening angle.

✓ In current conditions, the roller opening facilitates furrow closing and seed covering.

- Move adjustment lever (2) rearwards to reduce the roller opening angle.

✓ In stony conditions, closing the rollers prevents stones from getting jammed.

- Lower and retighten the locking handle (1).

Adjust all seeding units to the same settings.
Adjusting the press wheel offset

To prevent stones from getting jammed between the press wheels, the right wheel must be slightly offset towards the front.

- Remove right press wheel (1).
- Position right press wheel (1) in hole (2).

In slightly humid conditions and when the right press wheel is offset towards the front, we recommend to install a mud scraper offset (1). Mud scraper offset Part no. K3611060.
Adjusting the spacing between the press wheels

- Remove screw (1).
- Remove the struts (2).
- Remove wheel (3).

- Place one or several spacers (1) on the inside to increase spacing between the press wheels.
- Place one or several spacers (1) on the outside to reduce spacing between the press wheels.

Always make sure position a spacer inside to prevent any interference between the press wheels. Always place the thicker spacer inside.

- Reinstall screw (1).

Repeat procedure on the other press wheel.
Adjustment of the tamping wheel cleaners

The cleaners remove soil build up around the tamping wheels.

**Lateral adjustment**
- Loosen nut (1).
- Center cleaner (2) with regards to wheel (3).
- Tighten nut (1).
- Repeat procedure on the other cleaner.

Adjusting the scraper's position

The scraper's position must be adjusted according to the sowing conditions:

- Position (a): Slightly wet conditions.
  - Loosen nut (1) to reduce distance between scraper (2) and the wheel.
- Position (b): Dry conditions.
  - Tighten nut (1) to increase distance between scraper (2) and the wheel.

Repeat procedure on each seeding unit.

Adjusting the plates

- Loosen nut (1).
- Adjust plate (2) to bring it closer to the tamping wheel but without touching it. Rotate wheel once to check that it is not in contact.

In slightly wet conditions, reduce spacing between plate and wheel as much as possible to reduce wear.

- Tighten screws (1).
- Repeat procedure on each seeding unit.
Maintenance

Greasing (Every 50 hours)
- The tamping wheel pivot pin.

Replacing the scraper plates
- Remove nut (1).
- Remove screw (2) and washer (3).
- Turn plate over or replace it if necessary.

Scraper plate Part no. K3600550.
- Reinstall screw (2), nut (1) and washer (3).
11. "OTIFLEX" 370 x 165 roller

The OTIFLEX roller must be used in combination with a soil centering system.

**Kit no. 1676757**
370 x 165 OTIFLEX roller and covering scrapers.

**Kit no. 1676859**
370 x 165 OTIFLEX roller and furrow closing disks.

The OTIFLEX roller enables packing soil mounds formed by the soil centering system (Furrow closing disks and/or covering plates).

The rubber banding is self-cleaning.

### Adjustments

**Lateral adjustment**

- Unscrew the 4 bolts (1).
- Centre roller (2) in relation to the seeding line.
- Tighten the 4 bolts (1).

Check setting over the first few metres sown.
Adjusting the tamping pressure

Lever (1) enables adjusting the tamping pressure.

- Position lever (1) in one of the 5 adjusting catches:
  - To reduce the tamping pressure in F, move adjustment lever (1) frontwards.
  - Mover adjustment lever (1) rearwards to increase tamping pressure in F.

■ Grease (Every 50 hours)

- The tamping wheel pivot pin.
12. "OTIFLEX" 500 x 175 roller

The OTIFLEX roller must be used in combination with a soil centering system.

Kit no. 1676758
500 x 175 OTIFLEX roller and covering scrapers.

Kit no. 1676863
500 x 175 OTIFLEX roller and furrow closing disks.

The OTIFLEX roller enables packing soil mounds formed by the soil centering system (Furrow closing disks and/or covering plates).

The rubber banding is self-cleaning.

Adjustments

Lateral adjustment
- Unscrew the 4 bolts (1).
- Centre roller (2) in relation to the seeding line.
- Tighten the 4 bolts (1).

Check setting over the first few metres sown.
Adjusting the tamping pressure
Lever (1) enables adjusting the tamping pressure.

- Position lever (1) in one of the 5 adjusting catches:
  • To reduce the tamping pressure in F, move adjustment lever (1) frontwards.
  • Mover adjustment lever (1) rearwards to increase tamping pressure in F.

- Grease (Every 50 hours)
  - The tamping wheel pivot pin.
13. Microgranulator

Several microgranulators can be fitted on the machine:

**First equipment microgranulator**

Kit no. 1677068
Slug pellet microgranulator 4 rows with 80 L (21 US gal) hopper and fitting on the attachment.

Kit no. 1677073
Insecticide microgranulator 4 rows, with 80 L (21 US gal) hoppers and fitting on air duct.

Kit no. 1677074
Slug pellet microgranulator 4 rows with 80 L (21 US gal) hopper and fitting on air duct.

Kit no. 1677075
High output microgranulator 4 rows with 150 L (40 US gal) hopper and fitting on air duct.

Kit no. 1677079
Insecticide microgranulator 4 rows with 80 L (21 US gal) hopper and fitting in high position.

Kit no. 1677080
Anti-slug pellet microgranulator 4 rows with 80 L (21 US gal) hopper and fitting in high position.

Kit no. 1677081
High output microgranulator 4 rows with 150 L (40 US gal) hopper and fitting in high position.

Kit no. 1677103
Insecticide microgranulator 6 rows with 80 L (21 US gal) hopper and fitting on air duct.

Kit no. 1677104
Slug pellet microgranulator 6 rows with 80 L (21 US gal) hopper and fitting on air duct.

Kit no. 1677105
High output microgranulator 6 rows with 150 L (40 US gal) hopper and fitting on air duct.

Kit no. 1677109
Insecticide microgranulator 6 rows with 80 L (21 US gal) hopper and fitting in high position.

Kit no. 1677110
Anti-slug pellet microgranulator 6 rows with 80 L (21 US gal) hopper and fitting in high position.

Kit no. 1677145
High output microgranulator 8 rows with 100 L (26 US gal) hopper and fitting in high position.

Kit no. 1677146
Anti-slug pellet microgranulator 8 rows with 100 L (26 US gal) hopper and fitting in high position.

Kit no. 1677147
High output microgranulator 8 rows with 190 L (50 US gal) hopper and fitting in high position.
Kit no. 1677163
Insecticide microgranulator 8 rows, 100 L (26 US gal) hopper with front blower and fitting on air duct.

Kit no. 1677164
Slug pellet microgranulator 8 rows, 100 L (26 US gal) hopper with front blower and fitting on air duct.

Kit no. 1677165
High output microgranulator 8 rows, 190 L (50 US gal) hopper with front blower and fitting on air duct.

Kit no. 1677190
High output microgranulator 6 rows with 150 L (40 US gal) hopper and fitting in high position.

Kit no. 1677354
Insecticide microgranulator 6 rows with 150 L (40 US gal) hopper and fitting on air duct.

Kit no. 1677356
Insecticide microgranulator 6 rows with 150 L (40 US gal) hopper and fitting in high position.

**Second equipment microgranulator**

Kit no. 1677070
Insecticide microgranulator 4 rows with 80 L (21 US gal) hopper and fitting on attachment frame or air duct.

Kit no. 1677071
Anti-slug pellet microgranulator 4 rows with 80 L (21 US gal) hopper and fitting on attachment frame or air duct.

Kit no. 1677072
High output microgranulator 4 rows with 150 L (40 US gal) hopper and fitting on attachment or air duct.

Kit no. 1677079
Insecticide microgranulator 4 rows with 80 L (21 US gal) hopper and fitting in high position.

Kit no. 1677080
Anti-slug pellet microgranulator 4 rows with 80 L (21 US gal) hopper and fitting in high position.

Kit no. 1677081
High output microgranulator 4 rows with 150 L (40 US gal) hopper and fitting in high position.

Kit no. 1677100
Insecticide microgranulator 6 rows with 80 L (21 US gal) hopper and fitting on attachment frame or air duct.

Kit no. 1677101
Anti-slug pellet microgranulator 6 rows with 80 L (21 US gal) hopper and fitting on attachment frame or air duct.

Kit no. 1677102
High output microgranulator 6 rows with 150 L (40 US gal) hopper and fitting on attachment or air duct.

Kit no. 1677109
Insecticide microgranulator 6 rows with 80 L (21 US gal) hopper and fitting in high position.

Kit no. 1677110
Anti-slug pellet microgranulator 6 rows with 80 L (21 US gal) hopper and fitting in high position.
Kit no. 1677141
High output microgranulator 8 rows with 190 L (50 US gal) hopper and fitting on air duct.

Kit no. 1677142
Insecticide microgranulator 8 rows with 100 L (26 US gal) hopper and fitting on air duct.

Kit no. 1677143
Slug pellet microgranulator 8 rows with 100 L (26 US gal) hopper and fitting on air duct.

Kit no. 1677145
Insecticide microgranulator 8 rows with 100 L (26 US gal) hopper and fitting in high position.

Kit no. 1677146
Anti-slug pellet microgranulator 8 rows with 100 L (26 US gal) hopper and fitting in high position.

Kit no. 1677147
High output microgranulator 8 rows with 190 L (50 US gal) hopper and fitting in high position.

Kit no. 1677190
High output microgranulator 6 rows with 150 L (40 US gal) hopper and fitting in high position.

Kit no. 1677355
Insecticide microgranulator 6 rows with 150 L (40 US gal) hopper and fitting on attachment frame or air duct.

Kit no. 1677356
Insecticide microgranulator 6 rows with 150 L (40 US gal) hopper and fitting in high position.
### Description and glossary

- **1**: Cover
- **3**: Hopper
- **5**: Emptying lever
- **7**: Driven shaft
- **9**: Gearwheel storage
- **11**: Application of slug pellets in front of the roller
- **13**: Application of insecticide on the furrow bottom
- **2**: Sieve
- **4**: Distribution
- **6**: Outlet opening lever
- **8**: Drive shaft
- **10**: Application of slug pellets behind the roller
- **12**: Application of slug pellets on the furrow bottom
# Technical specifications

## MAXIMA 2

### Insecticide microgranulator

<table>
<thead>
<tr>
<th>Part number</th>
<th>A D00835A0</th>
<th>B D00220B0</th>
<th>C D00222B0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hopper</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Metering units</td>
<td>3</td>
<td>6</td>
<td>9</td>
</tr>
<tr>
<td>Capacity (L)</td>
<td>60</td>
<td>80</td>
<td>100</td>
</tr>
<tr>
<td>Material</td>
<td>polyethylene</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Length (cm)</td>
<td>47</td>
<td>58</td>
<td>69</td>
</tr>
<tr>
<td>Height (cm)</td>
<td>64</td>
<td>64</td>
<td>64</td>
</tr>
<tr>
<td>Width (cm)</td>
<td>58</td>
<td>58</td>
<td>58</td>
</tr>
<tr>
<td>Opening</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Length (cm)</td>
<td>20.5</td>
<td>31.5</td>
<td>43.0</td>
</tr>
<tr>
<td>Width (cm)</td>
<td>32.0</td>
<td>32.0</td>
<td>32.0</td>
</tr>
<tr>
<td>Sieve</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Length (cm)</td>
<td>22.5</td>
<td>33.5</td>
<td>44.6</td>
</tr>
<tr>
<td>Width (cm)</td>
<td>34.0</td>
<td>34.0</td>
<td>34.0</td>
</tr>
<tr>
<td>Height (cm)</td>
<td>6.5</td>
<td>6.5</td>
<td>6.5</td>
</tr>
<tr>
<td>Area</td>
<td>747</td>
<td>1158</td>
<td>1568</td>
</tr>
<tr>
<td>Material</td>
<td>Steel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meshes</td>
<td>Diameter 2.5 mm ; Spacing 3.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cover</td>
<td>Type</td>
<td>Pivoting</td>
<td></td>
</tr>
<tr>
<td>Agitator</td>
<td>Type</td>
<td>Without</td>
<td></td>
</tr>
<tr>
<td>Hopper emptying</td>
<td>Type</td>
<td>Sliding hatch</td>
<td></td>
</tr>
<tr>
<td>Metering unit</td>
<td>Type</td>
<td>Gear</td>
<td></td>
</tr>
<tr>
<td>Drive</td>
<td>Type</td>
<td>Chain and gearwheels</td>
<td></td>
</tr>
<tr>
<td>Adjustment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Valve and gears</td>
<td>Spacing 75 cm : 8,5 L/ Ha</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PTO and belt</td>
<td>Spacing 75 cm : 79,6 L/ Ha</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type</td>
<td>Valve and gears</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blower</td>
<td>Drive</td>
<td>PTO and belt</td>
<td></td>
</tr>
<tr>
<td>min⁻¹</td>
<td>6300</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Outputs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number</td>
<td>In the furrow</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Dimensions (mm)</td>
<td>Diameter 25 / Diameter 21</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Length (cm)</td>
<td>31.5</td>
<td>cm</td>
<td></td>
</tr>
<tr>
<td>Cyclone and tube</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Rigid tube</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Burster</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Line width</td>
<td>1 to 2 cm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tubes</td>
<td>Material</td>
<td>PVC</td>
<td></td>
</tr>
<tr>
<td>Dimensions</td>
<td>Inner diameter 25 mm ; Length 1 to 9 m</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## MAXIMA 2

### Slug pellet microgranulator

<table>
<thead>
<tr>
<th>Part number</th>
<th>D00835A0</th>
<th>E D00220B0</th>
<th>F D00222B0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metering units</td>
<td>3</td>
<td>6</td>
<td>9</td>
</tr>
<tr>
<td>Capacity (L)</td>
<td>60</td>
<td>80</td>
<td>100</td>
</tr>
</tbody>
</table>

### Hopper

- **Material**: polyethylene
- **Length (cm)**: 47, 58, 69
- **Height (cm)**: 64, 64, 64
- **Width (cm)**: 58, 58, 58

### Opening

- **Length (cm)**: 20.5, 31.5, 43.0
- **Width (cm)**: 32.0, 32.0, 32.0

### Sieve

- **Material**: Steel
- **Meshes**: Diameter 2.5 mm ; Spacing 3.5 mm
- **Length (cm)**: 22.5, 33.5, 44.6
- **Width (cm)**: 34.0, 34.0, 34.0
- **Height (cm)**: 6.5, 6.5, 6.5
- **Area**: 747, 1158, 1568

### Cover

- **Type**: Pivoting

### Agitator

- **Type**: Without

### Hopper emptying

- **Type**: Sliding hatch

### Metering unit

- **Type**: Gear

### Drive

- **Valve and gears**: Spacing 75 cm : 8.5 L/Ha
- **PTO and belt**: Spacing 75 cm : 79.6 L/Ha

### Adjustment

- **Type**: Valve and gears

### Blower

- **Drive**: PTO and belt
- **min⁻¹**: 6300

### Outputs

<table>
<thead>
<tr>
<th>Number</th>
<th>In the furrow</th>
<th>Between coulter and rollers</th>
<th>Behind rollers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>2 3 4 5 6 7 8 9</td>
</tr>
<tr>
<td>Dimensions (mm)</td>
<td>Diameter 25 / Diameter 21</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Length (cm)</td>
<td>24.5 cm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cyclone and tube</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rigid tube</td>
<td>2 3 4 5 6 7 8 9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Burster</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Line width</td>
<td>2 to 6 cm</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Tubes

- **Material**: PVC
- **Dimensions**: Inner diameter 25 mm ; Length 1 to 9 m
### MAXIMA 2

**High output microgranulator**

<table>
<thead>
<tr>
<th>Part number</th>
<th>G D00835A0</th>
<th>H D00220B0</th>
<th>I D00222B0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metering units</td>
<td>3</td>
<td>6</td>
<td>9</td>
</tr>
<tr>
<td>Capacity (L)</td>
<td>110</td>
<td>150</td>
<td>190</td>
</tr>
<tr>
<td>Material</td>
<td>polyethylene</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Length (cm)</td>
<td>47</td>
<td>58</td>
<td>69</td>
</tr>
<tr>
<td>Height (cm)</td>
<td>84</td>
<td>84</td>
<td>84</td>
</tr>
<tr>
<td>Width (cm)</td>
<td>58</td>
<td>58</td>
<td>58</td>
</tr>
</tbody>
</table>

**Hopper**

| Length (cm)    | 20.5       | 31.5       | 43.0       |
| Width (cm)     | 32.0       | 32.0       | 32.0       |

**Opening**

| Length (cm)    | 22.5       | 33.5       | 44.6       |
| Width (cm)     | 34.0       | 34.0       | 34.0       |
| Height (cm)    | 6.5        | 6.5        | 6.5        |
| Area           | 747        | 1158       | 1568       |
| Material       | Steel      |            |            |
| Meshes         | Diameter 2.5 mm ; Spacing 3.5 mm |

**Sieve**

| Material       | Steel      |            |            |
| Meshes         | Diameter 2.5 mm ; Spacing 3.5 mm |

**Cover**

| Type           | Pivoting   |            |            |

**Agitator**

| Type           | Without    |            |            |

**Hopper emptying**

| Type           | Sliding hatch |

**Metering unit**

| Type           | Gear |

**Drive**

| Type           | Chain and gearwheels |

**Adjustment**

| Valve and gears | Spacing 75 cm : 8,5 L/ha |
| PTO and belt    | Spacing 75 cm : 79.6 L/ha |
| Type            | Valve and gears |

**Blower**

| Drive | PTO and belt |
| PTO and belt | 6300 |

**Outputs**

<table>
<thead>
<tr>
<th>Number</th>
<th>In the furrow</th>
<th>Between coulter and rollers</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>6</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dimensions (mm)</td>
<td>Diameter 25 / Diameter 21</td>
<td></td>
</tr>
<tr>
<td>Length (cm)</td>
<td>108 cm</td>
<td></td>
</tr>
<tr>
<td>Cyclone and tube</td>
<td>4 5 6 7 8 9</td>
<td></td>
</tr>
<tr>
<td>Rigid tube</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Tubes**

| Material | PVC |
| Dimensions | Inner diameter 25 mm ; Length 1 to 9 m |
- Adjusting the seed rate

Adjustment charts for insecticide and slug pellet microgranulator

Settings are only indicated for your information.
### Adjustment charts for high output microgranulator

<table>
<thead>
<tr>
<th>L (cm)</th>
<th>Ecartement</th>
<th>Spacing</th>
<th>Reihenabstand</th>
<th>Separation</th>
<th>Scostamento</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>40</td>
<td>45</td>
<td>50</td>
<td>55</td>
<td>60</td>
</tr>
<tr>
<td>0.06</td>
<td>60</td>
<td>65</td>
<td>70</td>
<td>75</td>
<td>80</td>
</tr>
<tr>
<td>0.12</td>
<td>80</td>
<td>85</td>
<td>90</td>
<td>95</td>
<td>100</td>
</tr>
<tr>
<td>0.18</td>
<td>100</td>
<td>105</td>
<td>110</td>
<td>115</td>
<td>120</td>
</tr>
</tbody>
</table>

Settings are only indicated for your information.
How to read the calibration charts

Select the required volume per hectare in the column corresponding to the spacing between rows.

The values indicated in the calibration charts are given in litre per hectare.

Calculating the application rate per hectare:

- For insecticides:

Divide the product quantity to apply per hectare by the density of the non packed product.

Example:
Required application rate: 10 kg (22 lb) / ha.
Density of the non packed product: 1.5

Volume / ha = 10 / 1.5 = 6.66 l (1.76 US gal) / ha

- For anti-slug pellets:

Divide the product quantity to apply per hectare by the correction factor of the product used.

- Correction factor for HELARION: 0.40
- Correction factor for MESUROL: 0.43

Example:
Required application rate: 5kg (11 lb) / ha.
Correction factor for HELARION: 0.40

Volume / ha = 5 / 0.4 = 12.5 l (3.30 US gal) / ha

For a precise adjustment of the microgranulator, check the density of the products used.
Determine the drive gearwheel / driven gearwheel matching set according to the spacing between the seed drill rows and the required volume per hectare.

Refer to the decal fitted on the machine.

Example:
Seed row spacing: 80 cm (2’7”).
Required volume per hectare: 12.5 l (3.30 US gal) / ha.

<table>
<thead>
<tr>
<th>L. 100M</th>
<th>25</th>
<th>30</th>
<th>35</th>
<th>40</th>
<th>45</th>
<th>50</th>
<th>55</th>
<th>60</th>
<th>65</th>
<th>70</th>
<th>75</th>
<th>80</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0.0608</td>
<td>24.3</td>
<td>20.3</td>
<td>17.4</td>
<td>15.2</td>
<td>13.5</td>
<td>12.2</td>
<td>11.1</td>
<td>10.1</td>
<td>9.4</td>
<td>8.7</td>
<td>8.1</td>
</tr>
<tr>
<td>1</td>
<td>0.063</td>
<td>25.2</td>
<td>21.0</td>
<td>18.0</td>
<td>15.8</td>
<td>14.0</td>
<td>12.6</td>
<td>11.5</td>
<td>10.5</td>
<td>9.7</td>
<td>9.0</td>
<td>8.4</td>
</tr>
<tr>
<td>2</td>
<td>0.0656</td>
<td>26.2</td>
<td>21.9</td>
<td>18.7</td>
<td>16.4</td>
<td>14.6</td>
<td>13.1</td>
<td>11.9</td>
<td>10.9</td>
<td>10.1</td>
<td>9.4</td>
<td>8.7</td>
</tr>
<tr>
<td>3</td>
<td>0.0702</td>
<td>28.1</td>
<td>23.4</td>
<td>20.1</td>
<td>17.6</td>
<td>15.6</td>
<td>14.0</td>
<td>12.8</td>
<td>11.7</td>
<td>10.8</td>
<td>10.0</td>
<td>9.4</td>
</tr>
<tr>
<td>4</td>
<td>0.0752</td>
<td>30.1</td>
<td>25.1</td>
<td>21.5</td>
<td>18.8</td>
<td>16.7</td>
<td>15.0</td>
<td>13.7</td>
<td>12.5</td>
<td>11.6</td>
<td>10.7</td>
<td>10.0</td>
</tr>
<tr>
<td>5</td>
<td>0.0804</td>
<td>32.2</td>
<td>26.8</td>
<td>23.0</td>
<td>20.1</td>
<td>17.9</td>
<td>16.1</td>
<td>14.6</td>
<td>13.4</td>
<td>12.4</td>
<td>11.5</td>
<td>10.7</td>
</tr>
<tr>
<td>6</td>
<td>0.085</td>
<td>34.0</td>
<td>28.3</td>
<td>24.3</td>
<td>21.3</td>
<td>18.9</td>
<td>17.0</td>
<td>15.5</td>
<td>14.2</td>
<td>13.1</td>
<td>12.1</td>
<td>11.3</td>
</tr>
<tr>
<td>7</td>
<td>0.09</td>
<td>36.0</td>
<td>30.0</td>
<td>25.7</td>
<td>22.5</td>
<td>20.0</td>
<td>18.0</td>
<td>16.4</td>
<td>15.0</td>
<td>13.8</td>
<td>12.9</td>
<td>12.0</td>
</tr>
<tr>
<td>8</td>
<td>0.095</td>
<td>38.0</td>
<td>31.7</td>
<td>27.1</td>
<td>23.8</td>
<td>21.1</td>
<td>19.0</td>
<td>17.3</td>
<td>15.8</td>
<td>14.6</td>
<td>13.6</td>
<td>12.7</td>
</tr>
<tr>
<td>9</td>
<td>0.1006</td>
<td>40.2</td>
<td>33.5</td>
<td>28.7</td>
<td>25.2</td>
<td>22.4</td>
<td>20.1</td>
<td>18.3</td>
<td>16.8</td>
<td>15.5</td>
<td>14.4</td>
<td>13.4</td>
</tr>
<tr>
<td>10</td>
<td>0.104</td>
<td>41.6</td>
<td>34.7</td>
<td>29.7</td>
<td>26.0</td>
<td>23.1</td>
<td>20.8</td>
<td>18.9</td>
<td>17.3</td>
<td>16.0</td>
<td>14.9</td>
<td>13.9</td>
</tr>
<tr>
<td>11</td>
<td>0.1056</td>
<td>42.2</td>
<td>35.2</td>
<td>30.2</td>
<td>26.4</td>
<td>23.5</td>
<td>21.1</td>
<td>19.2</td>
<td>17.6</td>
<td>16.2</td>
<td>15.1</td>
<td>14.1</td>
</tr>
</tbody>
</table>

The volume per hectare closest to the required volume per hectare for a spacing between rows of 80 cm (2’7”) is located in the chart for a 20 teeth drive gearwheel and 16 teeth driven gearwheel matching set.
The line where the required volume per hectare is located enables determining the outlet opening adjustment value.

Example:

For a volume to apply of 12.5 l (3.30 US gal) / ha, adjust index on 9.
Adjusting the outlet opening
- Loosen knob (1).
- Position adjustment lever tip (2) on the required value.
- Tighten knob (1).

Refer to the adjustment chart to determine the outlet opening adjustment index according to the required volume per hectare and the spacing between the seed drill rows.

The values indicated in the adjustment chart are only for your information.

Adjusting the distribution shaft rotational speed

Refer to the adjustment chart to determine the drive gearwheel / driven gearwheel matching set according to the required volume per hectare and the spacing between the seed drill rows.

- Remove lynch pins (1).
- Position sprockets recommended in the adjustment charts in the adequate position:
  • Drive gearwheel (a).
  • Driven gearwheel (b).

Position non-used gearwheels on holder (2).

- Insert lynch pins (1).
Man. calibration

The flow can vary according to the product, the ambient temperature and the humidity level.

Carry out a calibration test to check that the microgranulator adjustment is correct.

After having preset the microgranulator, it is necessary to carry out a calibration test to know the real product volume applied.

Preparing the machine:
- Divert a product transfer tube (1) towards a container.
- Position a container (2) underneath the metering unit.

Checking flow rate:
- Travel a distance of 100 m (328’1”), or rotate the drive shaft (1) through 64 revolutions to simulate the 100 m (328’1”) distance.
- Weigh and deduct the container weight in order to assess the quantity collected.
- Compare the collected product quantity for one row with the value indicated in the chart column (1). Modify settings if necessary.

Values are given in litre.

## Machine use

### Filling the hopper

Wear waterproof clothing adapted for handling phytosanitary products (gloves, goggles, boots, mask).

- Lower the machine on the ground.
- Release hook (1).
- Open and lock the lid.

Make sure that sieve (1) is well installed.

- Empty the bag of microgranulates over the sieve.
- Close the lid and lock it.
Supply shut-off for a few rows

The 2 spacers (2) and (3) allow shutting off the product supply of 1 to 3 rows.
- Remove bolts (1).
- Install the spacer or spacers.

Spacer (2) enables shutting-off the supply to one row.
Spacer (3) enables shutting-off the supply to 2 rows.

- Reinstall bolts (1).
  • Torque: 2.3 daN m (17 lbf ft).

■ Checking

During filling, rotate drive wheel by hand to check proper functioning of the microgranulator and product flow. If no product comes out of the application system, this indicates there is a problem in the setting or that the supply tube is clogged. Search source of malfunction and remedy the problem prior to resuming sowing operation.
Maintenance

Emptying the hopper
- Position a container close to the emptying hatch.
- Push lever (1) upwards to open the emptying hatch.
- Empty the seed box completely.
- Close the hatch.
- Empty transfer tubes (by shaking them).

Cleaning the machine

Do not clean the microgranulator with water.
Clean the unit using compressed air.

Metering units:
- Remove plug (1).
- Clean the venturi using compressed air.
- Reinstall plug (1).
- Repeat procedure on all other venturis.

Lubrication

Spray biodegradable oil on the outside of the microgranulator to protect it from oxidation during the storage period.

Check (Each time the machine is used)
Check wear of foils to prevent sealing loss and overdosage.
## Trouble shooting guide

<table>
<thead>
<tr>
<th>Problem</th>
<th>Cause</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incorrect distribution rotation.</td>
<td>Metering unit encrusted.</td>
<td>Clean metering unit.</td>
</tr>
<tr>
<td>Irregular drive.</td>
<td>Friction point in metering unit.</td>
<td>Check the condition of the drive (condition of gears, sprockets, chains and tensioners).</td>
</tr>
<tr>
<td>Uneven spreading.</td>
<td>Metering unit encrusted.</td>
<td>Clean metering unit.</td>
</tr>
<tr>
<td></td>
<td>Friction point in metering unit.</td>
<td>Check the condition of the drive (condition of gears, sprockets, chains and tensioners).</td>
</tr>
<tr>
<td>No distribution.</td>
<td>Pipes blocked.</td>
<td>Clear or replace the tube.</td>
</tr>
<tr>
<td></td>
<td>Too tight a bend in the seed delivery pipe.</td>
<td>Shorten the pipe to eliminate the bend.</td>
</tr>
<tr>
<td></td>
<td>Blocked venturi.</td>
<td>Clean the venturi.</td>
</tr>
<tr>
<td>Clogging inside the hopper.</td>
<td>Product remained too long inside the hopper during wet weather</td>
<td>Never leave microgranulates inside the hopper or they will form compact blocks.</td>
</tr>
</tbody>
</table>
14. Fertilizer unit

For machine with 3 rows:

Kit no. 1677384
Fertilizer 3 rows with 950 L (251 US gal) hopper and applicators with standard Suffolk coulters.

Kit no. 1677385
Fertilizer 3 rows with 950 L (251 US gal) hopper and applicators with non-stop Suffolk coulters.

Kit no. 1677386
Fertilizer 3 rows with 950 L (251 US gal) hopper and applicators with non-top disk coulters.

For machine with 4 rows:

Kit no. 1677007
Fertilizer 4 rows with 2 x 260 L (2 x 67 US gal) hopper and applicators with standard Suffolk coulters.

Kit no. 1677008
Fertilizer 4 rows with 2 x 260 L (2 x 67 US gal) hopper and applicators with non-stop Suffolk coulters.

Kit no. 1677009
Fertilizer 4 rows with 2 x 260 L (2 x 67 US gal) hopper and applicators with non-top disk coulters.

For machine with 6 rows:

Kit no. 1677026
Fertilizer 6 rows with 950 L (251 US gal) hopper and applicators with standard Suffolk coulters.

Kit no. 1677027
Fertilizer 6 rows with 950 L (251 US gal) hopper and applicators with non-stop Suffolk coulters.

Kit no. 1677028
Fertilizer 6 rows with 950 L (251 US gal) hopper and applicators with non-top disk coulters.

For machine with 8 rows:

Kit no. 1677046
Fertilizer 8 rows with 1350 L (356 US gal) hopper and applicators with standard Suffolk coulters.

Kit no. 1677047
Fertilizer 8 rows with 1350 L (356 US gal) hopper and applicators with non-stop Suffolk coulters.

Kit no. 1677048
Fertilizer 8 rows with 1350 L (356 US gal) hopper and applicators with non-top disk coulters.
■ Location of safety decals

■ Description of safety decals

Risk of falling (1)
Do not ride on the machine when it is moving. There is a risk of falling.
Description and glossary

1 : Hopper
2 : Agitator
3 : Metering unit
4 : Spline opening lever
5 : Upper foil
6 : Draining tube
7 : Distribution
8 : Applicator with non stop disks
9 : Applicator with non stop Suffolk coulter
10 : Applicator with standard coulter
Adjusting the seed rate

Calibration chart

The values indicated in the adjustment chart are only for your information.
Reading the chart
Select the required application rate in the column corresponding to the spacing between the seed drill rows.

Example:
Seed row spacing: 75 cm (2'5").
Required application rate: 190 kg (419 lb) / ha.

The line on which the required application rate is located enables determining the index (1) and the distribution shaft speed (2).

Example:
For an application rate of 190 kg (419 lb) / ha, adjust index on 42 and use gearwheel enabling to obtain a distribution shaft speed ratio of 13 rotations for 100 m (328').
Adjusting the spline opening
The spline opening is adjusted by means of crank (1).

Refer to adjustment chart to determine the spline opening adjustment index according to the required application rate and the spacing between the seed drill rows.

Adjusting the distribution shaft rotational speed

Refer to the adjustment chart to determine the drive gearwheel direction of mount according to the required application rate and the spacing between the seed drill rows.

- Loosen wing nut (1).
- Pivot tensioner (4).
- Remove spacer (2).
- Move the double gearwheel (3) and chain to the required position:
  - Position (a): Distribution shaft speed of 13 revs for a travel of 100 m (328').
  - Position (b): Distribution shaft speed of 30 revs for a travel of 100 m (328').
- Reinstall wedge (2) according to double gearwheel (3) position.
- Pivot tensioner (4).
- Tighten the wing nut (1).
Man. calibration

The flow can vary according to the fertilizer type, the ambient temperature and the humidity level.

Proceed with regular calibration tests to check the fertilizer is properly adjusted.

After having preset the fertilizer, it is necessary to carry out a calibration test in order to assess the real fertilizer dose supplied.

Preparing the machine:
- Disconnect tube (1) from one of the metering units.
- Position a container (2) underneath the metering unit.
- Open hatch (3).

Checking flow rate:
- Travel a distance of 100 m (328’1’’), or rotate the drive shaft (1) through 64 revolutions to simulate the 100 m (328’1’’) distance.
- Weigh and deduct the container weight in order to assess the quantity collected.
- Compare the collected product quantity for one row with the value indicated in the chart column (1). Modify settings if necessary.

- **Adjusting the applicators**

  **Non stop disk applicators**
  
  **Lateral adjustment**
  
  The applicator (D) is factory offset with regards to the seeding line by approximately 50 mm (1.97”).
Adjusting the application depth

The seeding unit setting must be adjusted according to the sowing conditions (Soil preparation and nature).

- Raise the machine.
- Remove lynch pin (1) and pin (2).
- Insert pin (2) in one of bracket (3) holes to set the required working depth.
- Insert and lock lynch pin (1).
Adjust all applicators to the same setting.

In difficult working conditions, it is possible to lower the applicator to improve the ground penetration:
- Remove nut and pin (1).
- Remove pin (2).
- Position the applicator pivot point in line with the lower hole (3).
- Reinstall shaft (1).
- Reinstall nut.
- Position one of the control rod holes (4) in line with hole (5) to adjust the working depth and lock with pin (2).
- Insert and lock lynch pin.
Adjusting the plates
- Loosen nut (1).
- Set plate (2) as close as possible to the disks but without touching it. Rotate disk once to check that it is not in contact.
- Tighten nut (1).
Repeat procedure on each applicator.

Applicators with standard coulters
Lateral adjustment
The applicator (D) is factory offset with regards to the seeding line by approximately 50 mm (1.97”).

Adjusting the application depth
The seeding unit setting must be adjusted according to the sowing conditions (Soil preparation and nature).
- Raise the machine.
- Loosen bolts (1).
- Adjust coulter height to obtain the required working depth.
- Tighten screws (1).
Adjust all applicators to the same setting.
Non stop coulter applicators

Lateral adjustment
The applicator (D) is factory offset with regards to the seeding line by approximately 50 mm (1.97”).

Adjusting the application depth

- Raise the machine.
- Remove lynch pin (1) and pin (2).
- Insert pin (2) in one of bracket (3) holes to set the required working depth.
- Insert and lock lynch pin (1).
Adjust all applicators to the same setting.

In difficult working conditions, it is possible to lower the applicator to improve the ground penetration:
- Remove nut and pin (1).
- Remove pin (2).
- Position the applicator pivot point in line with the lower hole (3).
- Reinstall shaft (1).
- Reinstall nut.
- Position one of the control rod holes (4) in line with hole (5) to adjust the working depth and lock with pin (2).
- Insert and lock lynch pin.

The seeding unit setting must be adjusted according to the sowing conditions (Soil preparation and nature).
Machine use

Disengaging the fertilizer

- Remove lynch pin (1).
- Use spacer (3) to stop spacer (2) from moving sideways.

Safety

When an incident occurs, the safety bolt (3) shears causing the metering unit to stop.
- Use a punch to remove the remaining shear bolt parts.

- Hole (4) of larger diameter enables easier removal of the remaining shear bolt parts.

- Replace the components.

- A full set of replacement components (5) is positioned on the machine.

Nut (1) Part no. 80200640.
Washer (2) Part no. 80250611.
Safety bolt (3) Part no. N03481B0.
Supply shut-off for a few rows

It is possible to shut-off the fertilizer supply to certain rows.

- Position (a): Distribution open.
- Position (b): Distribution shut-off.

Agitator adjustment

- Remove the sieve fitted in the hopper to access agitators.

When the distribution is not used, place agitator (1) in high position (a).
When the distribution is used, place agitator (1) in low position (b).

Filling the hopper

- Lower the machine on the ground.

If the machine is fitted with an access platform:
- Lower platform using lever (1).

Hoppers of 950 L (251 US gal) and 1350 L (356 US gal)
- Raise protection cover (1).
Hopper of 2 x 260 L (2 x 67 US gal)
- Open hood (3).

**Make sure that sieve (2) is well installed.**

**Before filling, check that there is no foreign matter in the hopper.**

Hoppers of 950 L (251 US gal) and 1350 L (356 US gal)
- After filling, lower and attach the protection cover.

**Hopper of 2 x 260 L (2 x 67 US gal)**
- Close hood (3).

**If the machine is fitted with an access platform:**
- Raise access platform.

The machine can be fitted with a loading screw for easier hopper filling.
- **Loading screw for fertilizer equipped with 2 x 260 L (2 x 67 US gal) hoppers Kit no. 1677224.**
- **Loading screw for fertilizer equipped with 950 L (251 US gal) or 1350 L (356 US gal) hopper Kit no. 1677226.**

**Checking**

During filling, rotate drive wheel by hand to check proper functioning of the fertilizer and product flow. If no product appears at the coulter outlet, there is either a setting problem, the coulter is clogged or the distribution is disengaged. Search source of malfunction and remedy the problem prior to resuming sowing operation.
Maintenance

Fertilizers used can cause tool corrosion and fast deterioration.

Emptying the hopper (At the end of each day of work or for long parking periods)

Some fertilizers are sensitive to humidity and can build blocks during a long machine parking period. Fully empty hopper and rotate metering units to empty the grooves.

To empty hopper partially:
- Place a container (1) underneath the hatch that does not supply a metering unit.
- Open hatch.

To fully remove fertilizer in the metering units:
Remove the metering unit assembly to clean the machine completely.
- Disengage the fertilizer.
  - Remove lynch pin (1).
  - Slide spacer (2) to free distribution drive shaft.
- Loosen knurled knob (1) on each metering unit.

- Remove the unit.

Greasing (Every 50 hours)
- Eccentrics.
## Trouble shooting guide

<table>
<thead>
<tr>
<th>Problem</th>
<th>Cause</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incorrect distribution rotation.</td>
<td>Metering unit encrusted.</td>
<td>Clean metering unit.</td>
</tr>
<tr>
<td>Irregular drive.</td>
<td>Friction point in metering unit.</td>
<td>Check the condition of the drive (condition of gears, sprockets, chains and tensioners).</td>
</tr>
<tr>
<td>Uneven spreading.</td>
<td>Too tight a bend in the seed delivery pipe.</td>
<td>Shorten the pipe to eliminate the bend.</td>
</tr>
<tr>
<td></td>
<td>Moisture problems.</td>
<td>Damp fertilizer will not flow, do not use fertilizer unless it is dry.</td>
</tr>
<tr>
<td>No distribution.</td>
<td>Applicators blocked.</td>
<td>Clean the applicators.</td>
</tr>
<tr>
<td></td>
<td>Pipes blocked.</td>
<td>Clear or replace the tube.</td>
</tr>
<tr>
<td></td>
<td>The safety system shear bolt has sheared.</td>
<td>Do not work when the tube inside are too wet.</td>
</tr>
<tr>
<td></td>
<td>Distributions disengaged.</td>
<td>Check that the lynch pin is in position and locked.</td>
</tr>
<tr>
<td></td>
<td>Fertilizer forming blocks.</td>
<td>The hopper must be emptied at the end of each work day or for long parking periods.</td>
</tr>
</tbody>
</table>
15. Low flow kit for the fertilizer unit

Kit no. 1677228

This equipment allows reducing the flow for low application rate fertilisation.

Install calibration chart decal.
Part no. K3602200.

<table>
<thead>
<tr>
<th>Kg/100m</th>
<th>40</th>
<th>45</th>
<th>50</th>
<th>55</th>
<th>60</th>
<th>65</th>
<th>70</th>
<th>75</th>
<th>80</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>0.347</td>
<td>87</td>
<td>77</td>
<td>69</td>
<td>63</td>
<td>58</td>
<td>53</td>
<td>50</td>
<td>46</td>
</tr>
<tr>
<td>22</td>
<td>0.397</td>
<td>99</td>
<td>88</td>
<td>79</td>
<td>72</td>
<td>66</td>
<td>61</td>
<td>57</td>
<td>53</td>
</tr>
<tr>
<td>24</td>
<td>0.446</td>
<td>112</td>
<td>99</td>
<td>90</td>
<td>81</td>
<td>75</td>
<td>69</td>
<td>64</td>
<td>60</td>
</tr>
<tr>
<td>26</td>
<td>0.498</td>
<td>125</td>
<td>111</td>
<td>100</td>
<td>91</td>
<td>83</td>
<td>77</td>
<td>71</td>
<td>66</td>
</tr>
<tr>
<td>28</td>
<td>0.549</td>
<td>137</td>
<td>122</td>
<td>110</td>
<td>100</td>
<td>91</td>
<td>84</td>
<td>78</td>
<td>73</td>
</tr>
<tr>
<td>30</td>
<td>0.600</td>
<td>150</td>
<td>133</td>
<td>120</td>
<td>109</td>
<td>100</td>
<td>92</td>
<td>86</td>
<td>80</td>
</tr>
<tr>
<td>32</td>
<td>0.650</td>
<td>163</td>
<td>144</td>
<td>130</td>
<td>118</td>
<td>108</td>
<td>100</td>
<td>93</td>
<td>81</td>
</tr>
<tr>
<td>34</td>
<td>0.701</td>
<td>175</td>
<td>156</td>
<td>140</td>
<td>127</td>
<td>117</td>
<td>108</td>
<td>100</td>
<td>93</td>
</tr>
<tr>
<td>36</td>
<td>0.751</td>
<td>188</td>
<td>167</td>
<td>150</td>
<td>137</td>
<td>125</td>
<td>116</td>
<td>107</td>
<td>100</td>
</tr>
<tr>
<td>38</td>
<td>0.802</td>
<td>200</td>
<td>178</td>
<td>160</td>
<td>146</td>
<td>134</td>
<td>123</td>
<td>115</td>
<td>107</td>
</tr>
<tr>
<td>40</td>
<td>0.853</td>
<td>213</td>
<td>189</td>
<td>171</td>
<td>155</td>
<td>142</td>
<td>131</td>
<td>122</td>
<td>114</td>
</tr>
<tr>
<td>42</td>
<td>0.903</td>
<td>226</td>
<td>201</td>
<td>181</td>
<td>164</td>
<td>151</td>
<td>139</td>
<td>129</td>
<td>120</td>
</tr>
<tr>
<td>44</td>
<td>0.954</td>
<td>238</td>
<td>212</td>
<td>191</td>
<td>173</td>
<td>159</td>
<td>147</td>
<td>136</td>
<td>127</td>
</tr>
<tr>
<td>46</td>
<td>1.004</td>
<td>251</td>
<td>223</td>
<td>201</td>
<td>183</td>
<td>164</td>
<td>153</td>
<td>143</td>
<td>134</td>
</tr>
<tr>
<td>48</td>
<td>1.055</td>
<td>264</td>
<td>234</td>
<td>211</td>
<td>192</td>
<td>176</td>
<td>162</td>
<td>151</td>
<td>141</td>
</tr>
<tr>
<td>50</td>
<td>1.106</td>
<td>276</td>
<td>246</td>
<td>221</td>
<td>201</td>
<td>184</td>
<td>170</td>
<td>156</td>
<td>147</td>
</tr>
<tr>
<td>52</td>
<td>1.156</td>
<td>289</td>
<td>257</td>
<td>231</td>
<td>210</td>
<td>193</td>
<td>178</td>
<td>165</td>
<td>154</td>
</tr>
<tr>
<td>54</td>
<td>1.207</td>
<td>302</td>
<td>268</td>
<td>241</td>
<td>221</td>
<td>201</td>
<td>186</td>
<td>171</td>
<td>161</td>
</tr>
<tr>
<td>56</td>
<td>1.257</td>
<td>314</td>
<td>279</td>
<td>251</td>
<td>230</td>
<td>210</td>
<td>193</td>
<td>180</td>
<td>168</td>
</tr>
<tr>
<td>58</td>
<td>1.308</td>
<td>327</td>
<td>291</td>
<td>262</td>
<td>238</td>
<td>210</td>
<td>187</td>
<td>174</td>
<td>163</td>
</tr>
<tr>
<td>60</td>
<td>1.359</td>
<td>340</td>
<td>302</td>
<td>272</td>
<td>247</td>
<td>226</td>
<td>209</td>
<td>194</td>
<td>181</td>
</tr>
<tr>
<td>62</td>
<td>1.409</td>
<td>352</td>
<td>313</td>
<td>282</td>
<td>256</td>
<td>235</td>
<td>217</td>
<td>201</td>
<td>188</td>
</tr>
<tr>
<td>64</td>
<td>1.460</td>
<td>365</td>
<td>324</td>
<td>292</td>
<td>265</td>
<td>243</td>
<td>225</td>
<td>209</td>
<td>195</td>
</tr>
<tr>
<td>66</td>
<td>1.510</td>
<td>378</td>
<td>336</td>
<td>302</td>
<td>275</td>
<td>252</td>
<td>232</td>
<td>216</td>
<td>201</td>
</tr>
<tr>
<td>68</td>
<td>1.561</td>
<td>390</td>
<td>347</td>
<td>312</td>
<td>284</td>
<td>260</td>
<td>240</td>
<td>223</td>
<td>208</td>
</tr>
</tbody>
</table>

K3602200

∑ Kg / Ha
16. Filling auger

Kit no. 1677224
Loading screw for fertilizer equipped with 2 x 260 L (2 x 67 US gal) hoppers.

Kit no. 1677226
Loading screw for fertilizer equipped with 950 or 1350 L (251 - 356 US gal) hopper.

The machine can be fitted with a loading screw for easier hopper filling.

- Hydraulic connections
  Connect hydraulic hoses to the tractor double acting spool valve.

- Machine use
  Lever (1) linked to the hatch enables altering the screw flow.
Lever (1) enables directing the fertilizer flow to the right or left for an even hopper filling.

### Maintenance

**Cleaning the machine**

> Fertilizers used cause corrosion in the machine and rapid deterioration.

In case of a long interruption, or at the end of the season, the container must be fully emptied.
- Release hook (1).
- Open hatch (2).
- Empty remaining fertilizer and clean container thoroughly.
- Shut hatch (2).
- Lock hook (1).
## 17. Distribution disks

<table>
<thead>
<tr>
<th>Hole diameter (mm)</th>
<th>12</th>
<th>18</th>
<th>22</th>
<th>27</th>
<th>30</th>
<th>31</th>
<th>35</th>
<th>48</th>
<th>54</th>
<th>70</th>
<th>80</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>N1501051</strong></td>
</tr>
<tr>
<td>1.25</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>K3601440</strong></td>
</tr>
<tr>
<td>1.5</td>
<td>N1503620</td>
<td>N04286B0*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.75</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>N1500701</strong></td>
</tr>
<tr>
<td>2.1</td>
<td>N00856B0*</td>
<td>N1503810</td>
<td>N00845B0*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.5</td>
<td>N04343B0</td>
<td>N00848B0</td>
<td>N04341B0</td>
<td>N1503140</td>
<td></td>
<td></td>
<td>N02951B0</td>
<td>N02851B0</td>
<td>N1502170</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>N04318B0</td>
<td>N1500670*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>N1500061</strong></td>
</tr>
<tr>
<td>3.5</td>
<td>N1502090</td>
<td>N00847B0</td>
<td>N03840B0</td>
<td>N03828B0</td>
<td>N00855B0</td>
<td>N1503380</td>
<td>N00848B0</td>
<td>N04342B0</td>
<td>N1501591</td>
<td>N04293B0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.5</td>
<td>N00851B0</td>
<td>N00843B0</td>
<td></td>
<td></td>
<td>N04107B0</td>
<td>N1503390</td>
<td>N04305B0</td>
<td>N1500681</td>
<td>N00850B0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>N02511B0</td>
<td>N00905B0</td>
<td>N1503400</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.5</td>
<td>N00852B0</td>
<td>N00844B0</td>
<td></td>
<td></td>
<td>N04282B0</td>
<td>N1503410</td>
<td>N1503130</td>
<td>N1500691</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>N1500340</strong></td>
</tr>
</tbody>
</table>

* Without agitator blades and plan additional spacer **BNB0048** to install in the casing.

Other types of disks available. Contact your **Kuhn authorized dealer**.
18. Belt and pulley units

Belt and pulley assemblies are available to adapt the blower speed to the tractor PTO speed.

**Kit no. 1676737**
Belt and pulley assembly for tractors with a pto speed of 540 min\(^{-1}\).

**Kit no. 1676731**
Belt and pulley assembly for tractors with a pto speed of 870 min\(^{-1}\).

**Kit no. 1676738**
Belt and pulley assembly for tractors with a pto speed of 1000 min\(^{-1}\).

19. Rear PTO output stub

**Kit no. 1676730**
This equipment enables creating a drive source for driving another device.
Example: Driving a diaphragm pump for a fluid fertilizer placement system.
20. Vacuometer

Kit no. 1677223

The vacuometer enables determining precisely the suction value at disk hole level.

The vacuometer calibration is factory checked.

- Maintenance

Check (At the start of each season)

Remove air intake cap (1) and check that the opening is not clogged. Clean air intake cap (1) using compressed air.
21. Dust anti-drift kit

Kit no. 1677362

This device allows reducing the potential dust drift originating from seed treatment and to distribute it over the ground.

The distance (A) between the tube outlets and the ground must be comprised between 200 and 300 mm (7.87" - 11.81").

22. HECTOR 3000 electronic control box

Kit no. 1676822

The HECTOR 3000 electronic control box is used to:
- Count the area sown (daily and total counter).
- Indicate forward speed.
- The tramlining system control (Depending on optional equipment).
23. Passage control box kit KMS208

For machine with 8 rows:
Kit no. 1676648

The passage control box enables controlling seed passage.

24. Sowing control box kit KMS412

For machine with 8 rows:
Kit no. 1676408B
For machine with 9 rows:
Kit no. 1676409B
For machine with 11 rows:
Kit no. 1676411B
For machine with 12 rows:
Kit no. 1676412B: Sowing Beet.
Kit no. 1676413B: Sowing maize.
For machine with 18 rows:
Kit no. 1676418B

The sowing control box enables controlling the seed population.

25. Tramlining kit

The tramlining kit is made up of:
- A control box KMS208 or KMS412.
- A control box KMD112.
- 2 disengagement mechanisms.
- An electric wiring harness connected to the control box HECTOR 3000 or T75.
26. Electronic disengagement kit

For machine with 8 rows:
Kit no. 1676678
For machine with 9 rows:
Kit no. 1676682
For machine with 11 rows:
Kit no. 1676682
For machine with 12 rows:
Kit no. 1676681

The electronic disengagement kit is made up of:
- A control box KMD112.
- One or several disengagement systems (Part no. 1676423).

A disengagement system is required for each seeding unit to disengage.

27. Narrow gauge wheels 65 x 400

Kit no. 1676520

This equipment may be required for sowing crops that need little spacing between rows.
28. 45 mm (1.8”) spacer and 5 mm (0.2”) levelling pad

Kit no. 1677293

This equipment may be necessary to combine certain optional equipments.

29. 82 mm (3.2”) spacer and 5 mm (0.2”) levelling pad

Kit no. 1676792

This equipment may be necessary to combine certain optional equipments.
30. Track eradicators

Kit no. 1626614

The track eradicators reduce tractor wheel marks in the seedbed.

- **Lateral adjustment**
  - Loosen U-bolts (1).
  - Track eradicators must be mounted centrally to the tractor wheels.
  - Tighten U-bolts (1).
    * Torque: 13 daN m (96 lbf ft).

*Fit additional track eradicators when using wide tyres or dual wheels.*
**Working depth adjustment**

- Loosen bolts (1).
- Position track eradicators in the required position.

Adjust track eradicator working depth in order to eliminate the tracks made by the tires on the ground.

- Tighten screws (1).
- Proceed the same way on the other side.

**Share replacement**

- Remove bolt (1) and nut (2).
- Remove and replace the worn coulter.

![Share Part no. B0000573](image)

- Reinstall bolt (1) and nut (2).
  - Torque: 8.1 daN m (59 lbf ft).
31. Marker working depth limitors

Kit no. 1676815

This equipment enables limiting the marker working depth in loose soil.

32. Mechanical hectare counter

Kit no. 1676820

The mechanical hectare counter shows the area sown.

Machine use

The chart indicates the number of rotations made by the hexagonal drive shaft to sow one hectare according to the number of rows used and the spacing between rows. To determine the area sown:

- Find the value in the chart that corresponds to the number of rows used and the spacing between rows.

Example:
Number of rows: 12.
Seed row spacing: 45 cm (1'5").
The value in the chart that corresponds to the number of rows used (1) and the spacing between rows (2) is 1193.

- Divide the value indicated on the counter by the value indicated in the chart:

Example:
Value indicated on the hectare counter: 45000.
Number of hectares sown: $45000 / 1193 = 37.72$ ha.

To reset:
Turn the wheel (1) to reset the hectare counter to zero.
Maintenance and storage

Before carrying out any maintenance or repairs on the machine, switch off the tractor engine, remove ignition key, wait until all moving parts have come to a standstill and apply park brake.

1. Frequency chart

Maintenance intervals are indicated for normal conditions of use.

<table>
<thead>
<tr>
<th>Lubrication</th>
<th>Each time the machine is used</th>
<th>After the first 8 hours of use</th>
<th>Every 8 hours</th>
<th>Every 25 hours</th>
<th>Every 50 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grease:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- The gauge wheel pivot point</td>
<td></td>
<td></td>
<td></td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>- The marker pivot point</td>
<td></td>
<td></td>
<td></td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>- The roller guide pivot points</td>
<td></td>
<td></td>
<td></td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>- The jaw clutches</td>
<td></td>
<td></td>
<td>✔</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- The lift cylinder pivot points</td>
<td></td>
<td></td>
<td></td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>- The press wheel pivot point</td>
<td></td>
<td></td>
<td></td>
<td>✔</td>
<td></td>
</tr>
</tbody>
</table>
## Maintenance and storage

**Oil**
- The moving parts and pivot points
- Chains

**Maintenance**

<table>
<thead>
<tr>
<th>Check</th>
<th>Each time the machine is used</th>
<th>After the first 8 hours of use</th>
<th>Every 8 hours</th>
<th>Every 25 hours</th>
<th>Every 50 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wearing parts</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seeding units</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Tyre pressure</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fixing elements</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Blower belt tension</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drive components</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Sowing monitoring units</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td></td>
<td>✓</td>
</tr>
</tbody>
</table>
2. Cleaning the machine

Regularly clean hopper inside walls and furrow openers.

- **Hoppers**
  Empty and clean hopper inside and outside.

- **Blower and control boxes**
  Do not pressure-wash with water.

- **Distribution disc**
  Clean disks with a clean rag.
  Mark each disc with the number of the row to which it was fitted.
  This task enables to better match the wear of the disk to the wear of the friction seal to the benefit of seed drill accuracy in the future.

- **Transmission chains**
  Carefully clean the transmission chains making sure to remove dust deposits that could cause premature chain wear.
3. Lubrication

The pictorials show the points to be greased (Part no. 099054002).
Clean grease nipples before greasing.

| Lubricate with multi-purpose grease grade NLGI 2. |
| Lubricate with all purpose oil S 6994 EP90. |

- **PTO shaft**
  
  **Primary PTO shaft**
  - Every 8 hours:
    - The U-joints (1).
    - constant velocity joint (4).
  - Every 20 hours:
    - transmission tube (2).
  - Every 40 hours:
    - guide rings (3).

  **Intermediate PTO shaft**
  - Every 8 hours:
    - The U-joints (1).
    - Free wheel (4).
  - Every 20 hours:
    - transmission tube (2).
  - Every 40 hours:
    - guide rings (3).
- Grease:
  - The gauge wheel pivot point.

- The marker pivot point (1 on each side).

- The jaw clutches.
- The lift cylinder pivot points.

- Oil:
  - The moving parts and pivot points.
  - Chains.

It is possible to spray silicone or other based aerosols to prevent dust from sticking on the chains.
4. Maintenance

Before carrying out any maintenance or repairs on the machine, switch off the tractor engine, remove ignition key, wait until all moving parts have come to a standstill and apply park brake.

■ Check

Wearing parts

It is important to check seed drill components sensitive to wear. Components must be replaced before wear affects the sowing quality.

- Opener disks:
  The diameter of a new disk is of 380 mm (12.96") for a thickness of 4 mm (0.15").

- Door seals and distribution disks:
  • Check door seal (1) wear.
  • Check wear and flatness of distribution disks (2).
  • Check drive pin play (3) of each disk.
- Selector:
  Wear modifies its action and risks creating doubles. Change if necessary.

**In case of disassembly or replacement of a selector, proceed with an adjustment when reinstalling it.**

A gauge enables checking the selector wear.

*Gauge part no.: K3605750.*

- Position selector (1) on 11.
- Position gauge (2) on drive shaft (3). Gauge (2) must be in contact with the fourth tooth (4) of the selector.

- Tyres:

  *Tire wear has a direct effect on the required sowing density.*
Seeding units
Check all working parts for proper alignment to the sowing row (Coulters, clod-clearers, opener disks and rear rollers).
- Also check that all sections are equidistant.
- The correct positioning of the seed transfer ducts on the welded chassis and the proper condition inside and at the bottom part.

Tyre pressure
Tire pressure has a direct effect on the required sowing density.
A 1 bar (14 psi) low pressure can generate up to 3 % additional population.
- Tyres 10.5/80-18: 3.5 bar (50 psi).

Fixing elements
- Torque: 27 daN m (199 lbf ft).
- Torque setting for screws (2):
  - Torque: 8.5 daN m (63 lbf ft).
Belt tension

Regularly check belt tension and in particular during the first hours of use.

- Exert a force of 7 daN on the belt.
- The deflection (H) must not exceed 20 mm (0.78").

Procedure to re-tension the belt:
- Remove 4 bolts (1).
- Remove guard (2).
- Loosen nuts (1).
- Loosen counter nut (2).
- Rotate nut (3) to tension the belt.

The belt tension must be moderate to prevent overheating.

- Tighten counter nut (2).
- Tighten nuts (1).

- Fit guard (2).
- Reinstall the 4 screws (1).
If the machine is fitted with a microgranulator, a blower is installed on the front of the vacuum turbine.

To retension the blower belt:
- Remove 6 bolts (1).
- Remove guard (2).
- Loosen nuts (1).
- Loosen counter nut (2).
- Rotate screw (3) clockwise to tension the belt.
- Tighten counter nut (2).
- Tighten nuts (1).

The belt tension must be moderate to prevent overheating.
- Fit guard (2).
- Reinstall the 6 screws (1).

To retension fan blower:
- Remove 6 bolts (1).
- Remove guard (2).
- Loosen nuts (1).
- Loosen counternuts (2).
- Rotate screw (3) clockwise to tension the belt.

---

The belt tension must be moderate to prevent overheating.

---

- Tighten counternuts (2).
- Tighten nuts (1).

---

- Fit guard (2).
- Reinstall the 6 screws (1).
Drive components
Check the condition of the drive (condition of gears, sprockets, chains and tensioners).

Irregular drive can cause sowing variations.

Check regularly the chain tension. Retension them if necessary using the tensioners.

Never fully tension the chains.

Sowing monitoring units
The sowing control cell (1) must be close to the distribution disk.

The cover must be correct without any possibility of the cell moving to the right.
5. Storage

- **At the end of each season**
  - Clean the machine with a garden hose.
  - Touch up any areas of damaged paintwork.
  - Put the machine under cover in a dry place.
  - Store controls boxes in a dry place free of dust.
  - Empty hoppers.
  - Lubricate the whole machine.
  - Remove and place transmission chains in an oil bath.
  - Check the operation of the doors and metering flaps.

- **At the start of each season**
  - Re-read the operators’ manual.
  - Make sure that all protection devices are in place and in good condition.
  - Check cleanliness of the signalling devices.
  - Check tyre pressure.
  - Check the condition of the hydraulic hoses.
  - Reinstall transmission chains.
  - Check the condition and setting of the belts.
- Check that all nuts and bolts are sufficiently tightened.

To keep a moving and self-aligning assembly, nuts (1) present on each seeding unit must not be locked.

Nuts (1) of door hinges must not be blocked. The springs must never be coil bound.
## Trouble shooting guide

<table>
<thead>
<tr>
<th>Problem</th>
<th>Cause</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Seeding units</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inappropriate disk being used.</td>
<td>Fit a disk to match seed size.</td>
<td></td>
</tr>
<tr>
<td>Excessive ground speed.</td>
<td>Adapt the forward speed to the working conditions.</td>
<td></td>
</tr>
<tr>
<td>Incorrect selector adjustment.</td>
<td>Adjust selector.</td>
<td></td>
</tr>
<tr>
<td>Selector worn.</td>
<td>Adjust setting or change selector.</td>
<td></td>
</tr>
<tr>
<td>Suction cover not closed properly.</td>
<td>Close it properly checking its sealing at the front and the rear of the metering housing.</td>
<td></td>
</tr>
<tr>
<td>Spacer disk distorted, unsuitable or holes blocked.</td>
<td>Replace disc.</td>
<td>Fit a disk to match seed size.</td>
</tr>
<tr>
<td>Fan belt improperly tensioned or displaced.</td>
<td>Tension belt.</td>
<td></td>
</tr>
<tr>
<td>Failure of mechanical drive to disk.</td>
<td>Check the safety bolt and check that the disk rotates freely using the manual disengagement knob.</td>
<td></td>
</tr>
<tr>
<td>Seed coating too delicate or uneven size.</td>
<td>Change seeds and do not mix varieties.</td>
<td>Fit disks without blades.</td>
</tr>
<tr>
<td>Worn door seal.</td>
<td>Replace seal.</td>
<td></td>
</tr>
<tr>
<td><strong>There are doubles on the seeding line.</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Incorrect selector adjustment.</td>
<td>Adjust selector.</td>
<td></td>
</tr>
<tr>
<td>Selector worn.</td>
<td>Adjust setting or change selector.</td>
<td></td>
</tr>
<tr>
<td>Inappropriate disk being used.</td>
<td>Fit a disk to match seed size.</td>
<td></td>
</tr>
<tr>
<td>Insufficient vacuum.</td>
<td>Reduce PTO speed.</td>
<td></td>
</tr>
<tr>
<td>Seed level too high in the metering unit and overflowing into seed row.</td>
<td>Adjust seed supply.</td>
<td></td>
</tr>
<tr>
<td>Problem</td>
<td>Cause</td>
<td>Remedy</td>
</tr>
<tr>
<td>---------</td>
<td>-------</td>
<td>--------</td>
</tr>
<tr>
<td>Unevenness while sowing.</td>
<td>Inappropriate disk being used.</td>
<td>Fit a disk to match seed size.</td>
</tr>
<tr>
<td></td>
<td>Incorrect selector adjustment.</td>
<td>Adjust selector.</td>
</tr>
<tr>
<td></td>
<td>Seed variety or batch promote poor placement.</td>
<td>Check improvement with another variety. (if possible send us a sample to the factory in order to check the problem with this type of seed on our test rig and to optimise settings).</td>
</tr>
<tr>
<td></td>
<td>Ground conditions.</td>
<td>Prepare ground correctly. Moisture content must be correct.</td>
</tr>
<tr>
<td></td>
<td>Friction point in drive.</td>
<td>Check drive condition (gears, sprockets and chains).</td>
</tr>
<tr>
<td></td>
<td>Incorrect gearbox setting.</td>
<td>Use ratio adapted to the required population.</td>
</tr>
<tr>
<td></td>
<td>Excessive ground speed.</td>
<td>Adapt the forward speed to the working conditions.</td>
</tr>
<tr>
<td></td>
<td>Worn opening disks.</td>
<td>Replace opening disks.</td>
</tr>
<tr>
<td></td>
<td>Improper pressing and covering adjustment.</td>
<td>Reposition them so they do not interfere with seed positioning.</td>
</tr>
<tr>
<td></td>
<td>Incorrect seed drill horizontality adjustment.</td>
<td>Adjust the 3rd point such that the machine operates perfectly level.</td>
</tr>
<tr>
<td></td>
<td>Seed transfer duct encrusted and partially blocked.</td>
<td>Clean the inside and do not hesitate to replace it if necessary.</td>
</tr>
<tr>
<td></td>
<td>Warped disk.</td>
<td>Replace disk.</td>
</tr>
<tr>
<td></td>
<td>Drive wheels are not always in contact with the ground.</td>
<td>Adjust spring adjustment in order to limit the ground pressure or add weights on the frame.</td>
</tr>
<tr>
<td>Uneven sowing depth.</td>
<td>Ground too lumpy or too stony.</td>
<td>Prepare ground correctly.</td>
</tr>
<tr>
<td></td>
<td>Excessive ground speed.</td>
<td>Adapt the forward speed to the working conditions.</td>
</tr>
<tr>
<td></td>
<td>Incorrect seed drill horizontality adjustment.</td>
<td>Adjust the 3rd point such that the machine operates perfectly level.</td>
</tr>
<tr>
<td></td>
<td>Disks have difficulty in penetrating the ground.</td>
<td>Install ground pressure springs or fit a pre-cutting disk.</td>
</tr>
</tbody>
</table>
### Problem | Cause | Remedy
--- | --- | ---
Side markers | Throttle valve not fitted or not adapted to the tractor oil flow. | Install adequate throttle valves. |
Too sharp raising and lowering of the markers. | The side marker cylinder is not pressurized. | Pressurize the hydraulic circuit. |
Side markers do not react. | The spool of the solenoid valve has seized up. | Connect hoses to the other valve. |
Remove the slide valve from the sequence valve and polish it.
1. Calculating the load on an axle

When coupling a tool to the front and rear 3-point lift linkage, the maximum authorized payload must not be exceeded.

The load on the tractor front axle must always represent 20% of the tractor unladen weight.

Prior to use, check that these conditions are satisfied by making this calculation or by weighing the tractor-machine unit.

- Define the total weight, axle loads, tyre capacity and minimum additional mass:

![Diagram of tractor with labels for T, T1, T2, M1, M2, a, b, c, d]

The following values are required for the calculation:

<table>
<thead>
<tr>
<th>Description</th>
<th>Units</th>
<th>Obtained by</th>
</tr>
</thead>
<tbody>
<tr>
<td>T</td>
<td>kg</td>
<td></td>
</tr>
<tr>
<td>T1</td>
<td>kg</td>
<td></td>
</tr>
<tr>
<td>T2</td>
<td>kg</td>
<td></td>
</tr>
<tr>
<td>t</td>
<td>kg</td>
<td></td>
</tr>
<tr>
<td>t1</td>
<td>kg</td>
<td></td>
</tr>
<tr>
<td>t2</td>
<td>kg</td>
<td></td>
</tr>
<tr>
<td>M1</td>
<td>kg</td>
<td></td>
</tr>
<tr>
<td>M2</td>
<td>kg</td>
<td></td>
</tr>
<tr>
<td>a</td>
<td>m</td>
<td></td>
</tr>
<tr>
<td>b</td>
<td>m</td>
<td></td>
</tr>
<tr>
<td>c</td>
<td>m</td>
<td></td>
</tr>
<tr>
<td>d</td>
<td>m</td>
<td></td>
</tr>
</tbody>
</table>

Refer to the tractor operators’ manual
Dimensions
Refer to the machine price-list or operators’ manual
Measure on scale
### Rear tool or front-rear combination:

1) **Calculation of the minimum front ballast weight** $M_{1\text{ minimum}}$

\[
M_{1\text{ minimum}} = \frac{M_2 \times (c+d) - T_1 \times b + 0.2 \times T \times b}{a+b}
\]

Write the minimal additional weight in the chart.

2) **Calculation of the minimum rear ballast weight** $M_{2\text{ minimum}}$

\[
M_{2\text{ minimum}} = \frac{M_1 \times a - T_2 \times b + 0.45 \times T \times b}{b+c+d}
\]

Write the minimal additional weight in the chart.

3) **Calculation of the actual load on the front axle** $T_{1\text{ real}}$

*If the front tool (M1) is lighter than the minimum load required at the front (minimum), increase tool weight until the required minimum front load is reached*

\[
T_{1\text{ real}} = \frac{M_1 \times (a+b) + T_1 \times b - M_2 \times (c+d)}{b}
\]

Indicate front axle calculated load value and the one indicated in the tractor operators' manual.

4) **Calculation of the total weight** $M_{\text{ real}}$

*If the rear tool (M2) is lighter than the minimum load required at the rear (minimum), increase tool weight until the required minimum rear load is reached*

\[
M_{\text{ real}} = M_1 + T + M_2
\]

Indicate calculated total load value and the one authorized as indicated in the tractor operator's manual.

5) **Calculation of the actual rear axle load** $T_{2\text{ real}}$

\[
T_{2\text{ real}} = M_{\text{ real}} - T_{1\text{ real}}
\]

Indicate rear axle calculated load value and the one indicated in the tractor operator's manual.

6) **Tyre carrying capacity**

*Indicate double (2 tyres) the authorized load value (see tyre manufacturer indications).*
Table:

<table>
<thead>
<tr>
<th></th>
<th>Actual value obtained by calculation</th>
<th>Value authorized according to operator’s manual</th>
<th>Double value of the authorized capacity per tyre (2 tyres)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum front/rear ballasting</td>
<td>kg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total weight</td>
<td>kg ≤</td>
<td>kg</td>
<td></td>
</tr>
<tr>
<td>Load on front axle</td>
<td>kg ≤</td>
<td>kg ≤</td>
<td>kg</td>
</tr>
<tr>
<td>Load on rear axle</td>
<td>kg ≤</td>
<td>kg ≤</td>
<td>kg</td>
</tr>
</tbody>
</table>

The minimum ballasting must be made by fitting a tool or an additional mass to the tractor.

The values obtained must be below or equal the authorized values.
Determining the machine weight (M2) and the position of its centre of gravity (d)

If the data required to calculate the total weight, axle loads and minimum ballasting are not supplied, use the following method.

**Tractor only:**

- T1: Load on front axle.
  - Tractor only.

- T2: Load on rear axle.
  - Tractor only.
- T: Axle loads.
  - Tractor only.

T = _____ kg
Rear tool or front-rear combination:

If the total unit weight exceeds the tractor Gross Combined Weight Rating in accordance with the country’s legislation, empty the hopper to travel on public roads.

In any case, we recommend to travel on public roads with empty hoppers and tanks.

- Measure dimension (b).
- Measure dimension (c).

- t1: Load on front axle.
  - Tractor + machine.
  - Hopper empty.

- t: Axle loads.
  - Tractor + machine.
  - Hopper empty.

Calculating the rear tool weight (M2):

\[ M2 = T - t \]

Calculating the distance (d):

\[ d = \left( \frac{b \times (T1 - t1)}{M2} \right) - c \]
Limited warranty

KUHN S.A. 4, Impasse des Fabriques, 67706 SAVERNE Cedex FRANCE (hereinafter called "the Company") warrants, in accordance with the provisions below, to each retail purchaser of a new KUHN equipment from an authorized KUHN dealer, that such equipment is, at the time of delivery to such purchaser, free from defects in material and workmanship, and that such equipment is covered under this Limited Warranty providing the machine is used and serviced in accordance with the recommendations in the Operator’s manual.

This Limited Warranty covers the equipment for a period of one year starting from the date the equipment is delivered to the retail purchaser and during this period up to a limit of 500 hours of use. The date of invoice to the retail purchaser and the registration of the machine by the dealer are taken as evidence of delivery of the machine.

This Limited Warranty covers the reimbursement (or repair) of components as well as labor charges incurred, based on the Company warranty labor rate and allowable time for repair.

These conditions are subject to the following exceptions:

- Parts of the machine which are not of KUHN manufacture, such as tires, PTO shafts, slip clutches, hydraulic cylinders, etc. are not covered by this Limited Warranty, but are subject to the warranty of the original manufacturer.

  Warranty claims applying to these types of parts must be submitted in the same way as if they were parts manufactured by KUHN. However, compensation will be paid in accordance with the warranty agreement of the manufacturer concerned, in as much as the latter justifies such a claim.

- This Limited Warranty does not apply to failure through normal wear and tear, to damage resulting from negligence or from lack of inspection, from misuse, from lack of maintenance and/or if the machine has been involved in an accident, lent out or used for purposes other than those for which it was intended by the Company.

- This Limited Warranty will not apply to any product that has been altered or modified in any way without the express permission of the Company, or if parts and/or equipment not approved by Kuhn are used on a machine manufactured by the Company and/or if repairs have been carried out by anyone other than an authorized KUHN dealer.

- The Company shall not be responsible for any damage to the machine or its equipment in transit or handling by any common carrier, within or without the Warranty period. Machines, equipment and parts are transported at owner’s risk.

- The Company cannot be held responsible for any claims or injuries to the owner or to any third party, nor to any resulting responsibility.

- Also, on no account can the Company be held liable for incidental or consequential damages (including loss of anticipated profits) or for any impairment due to a failure, a latent defect or a breakdown of the machine.

The customer will be responsible for and bear the costs of:

- Normal maintenance such as greasing, maintenance of oil levels, minor adjustments, etc.
- Dealer travel time, or travelling costs to and from the machine.
- Transporting machines, equipment or parts to the repair site and returning them to the user site.
- Parts defined as normal wearing items such as, but not limited to belts, blades, discs, knives, shares, tines, tine holders, slip clutches, etc. that are not covered by the Limited Warranty.
The Limited Warranty is dependent on the strict observance of the following conditions:

- The machine has been put in service by the dealer according to our instructions.
- The machine has been registered on line via extranet - www.kuhn.com or the warranty/product registration form has been completed and returned to the address indicated on the form as soon as the machine had been delivered to the retail purchaser.
- The warranty claim is completed on line via extranet - www.kuhn.com or submitted on a KUHN warranty claim form and returned to the Company within one month after the date of failure or the date of problem becoming apparent.
- The claim must be completed by the dealer and following information must be mentioned.
  - Dealer’s name and address
  - Name and address of retail purchaser
  - Exact type of machine
  - Machine serial number
  - Date of delivery to the retail purchaser
  - Date of failure
  - Number of hours of use or area (hectares, acres) worked
  - Power of tractor used
  - PTO speed (if applicable)
  - Detailed description and estimated cause of the failure
  - Quantity, reference number and name of the damaged parts
  - Invoice number and invoicing date for replacement parts.
- The dealer has stored the damaged parts safely and labelled them clearly so that they can be recognised and returned to the Company if requested. They must be retained until a credit note has been issued to cover the parts. Carriage charges for the return of said parts are borne by the sender.
- The machine has been used and maintained according to the instructions in the operator’s manual. The quality and quantity of lubricants used must always be in accordance with Company specifications.
- The safety measures mentioned in the Operator’s manual and on the machine itself have been followed, and all the guards and protective elements, of whatever nature, have been inspected regularly and maintained in perfect working order.
- The judgment of the Company in all case of claims under this Limited Warranty shall be final and conclusive and the retail purchaser agrees to accept its decisions.
- If damaged parts have been returned to the Company and Warranty is refused, the dealer is allowed a period of 1 month from the date of receiving our letter of decision to request the return of the damaged parts to the dealer site.

Further conditions: limits of application and responsibility

- This Limited Warranty can not be assigned or transferred to anyone without the prior written consent of the Company.
- Authorized KUHN Dealers have no right or authority to assume any obligation or take any decision on the Company’s behalf, whether expressly or tacitly.
- Technical assistance given by the Company or its agents for repairing or operating equipment does not lead to any responsibility on the Company’s behalf and cannot under any circumstances bring novation or derogation to the conditions of the present Limited Warranty.
- The Company reserves the right to incorporate changes in its machines without prior notice and without obligation to apply these changes to machines previously manufactured.
- Moreover, because of the constant progress in technology, no guarantee is given to the descriptions of equipment published in any document by the Company.
- The present Limited Warranty excludes any other responsibility, whether legal or conventional, express or implied, and there are no warranties extending beyond those defined herein.
EC Declaration of conformity
(European directive 2006/42/CE)

The manufacturer:
KUHN S.A., 4 impasse des fabriques B.P. 50060 F - 67706 SAVERNE CEDEX

declares that the product described hereafter:

Type: "Machine name"

Serial no.: "Machine serial number"

- conforms to the requirements of the European directive 2006/42/CE

- conforms to the requirements of following European harmonized standards:
  
  EN 1553 - NF U 02-007 - EN 703 - EN 708 - EN 745+A1 - EN 907
  
  EN 14017 - EN 14018 - EN ISO 4254-6

- conforms to the requirements of following standards or technical specifications:

Name and address of the person authorised to compile the technical file:

Made in Saverne, on 00/00/0000

In the event of the machine being re-sold, this declaration of conformity is to be passed on to the new owner

Customer code or order number 98 - - -