Precision planters for minimum tillage
MS 9000

MaterMacc

# Precision of seeding and maximum adaptability

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# Precision of seeding and maximum adaptability

All information on dimensions, weights, output, etc. and the photos are approximate and are not binding. The equipment shown is not country-specific and may include equipment that is not standard or is not available in all countries. Your local MaterMacc dealer would be pleased to provide you with all the information you need.

# MS 9000

The MS 9000 pneumatic precision planters for minimum tillage delivers highest precision of seeding and maximum adaptability. The folding frame makes it easy to switch fast beween different fields and a large choice of metering discs makes it easy to switch between crops. The metering unit, which is the heart of every precision planter, has been designed for maximum sowing accuracy and spped in every kind of operating conditions found worldwide. It ensures perfect seed placement season after season. To help your crop get off to a perfect start, the MS 9000 is also equiped with fertiliser and micro-granule distribution systems.

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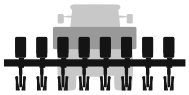


# The basis for sowing a successful crop


## The importance of soil

Soil forms the basis for farming and is one of the most important yet finite resources in the world. Soil is the very essence of our existence, because we need it to grow high-quality nutrients - for us and for our livestock.

Healthy soil is essential for healthy plant growth and for the sustainability of soil life with the aim of optimising soil yield and quality.

In addition to weather conditions and the type of crop, soil plays a fundamental role in the growth of crop plants.

A loose soil with a good distribution of pores and without compaction allows each plant to develop an extensive root system. Plenty of space for the roots is important so that they can absorb nutrients and water during the initial phases of growth.
Good tillage and seedbed preparation are prerequisites for successful sowing.

## Optimum preparation

Optimum planting is made easier if the seedbed is well prepared.

A well prepared seedbed features a uniform, level finish, an ideal proportion of tilth and optimum consolidation. The seeds then need to be covered sufficiently to create the best germination conditions for rapid and uniform crop growth.

MaterMacc precision planters can be used to sow seed material on well-levelled seedbeds as well as on soil that has not been optimally prepared. Thanks to a wide range of accessories, these planters are suitable for operating in damp soil with harvest residues, as well as on heavier types of soil.

## Perfectly placed

The results of planting also depend on the environmental conditions, the physical properties of the seed material and its genetics; especially its germination capacity.

To promote rapid and uniform germination, the seed needs to be planted precisely and evenly so that it is completely covered with soil.

Precision seed placement is achieved by forming a precisely defined seed slot and a uniform seed placement depth. The depth at which the seed is placed is decisive for determining subsequent plant growth.
If the seed is planted too deep, germination will take longer. This increases the risk of pests infesting the seed or surrounding soil. To avoid this, careful planting and precise placement are essential. This gives the crop the opportunity to emerge within the planned timeframe and not have to compete with other plants.

## Planting a successful crop

Planting is one of the most tricky and costly phases in the crop cycle. Mistakes made during this phase are difficult to put right, especially with crops such as maize, soya, sugar beet and sunflower seeds, where it is essential that the seed is sown at the correct depth, between the rows (inter-row) and in the same row (intra-row).

That is why MaterMacc has developed a range of precision planters that are capable of separating each individual seed from the hopper and placing it in the soil in the right place and at the right depth.

# Precision of seeding


## The importance of precision

Planting is one of the most important processes in the cropping cycle and requires a great deal of focus, because it is the seeds that will become the plants that will produce the harvest.

Only uniform and precise seed placement together with optimum soil contact can guarantee uniform emergence.

The precision planters in the MaterMacc product range have been designed to carry out this delicate operation as carefully as possible in three specific phases:

- Optimum formation of the seed slot in the soil
- Precision placement of the seed in the slot at a consistent depth in relation to the soil surface
- Closing the seed slot and consolidating the soil lightly to promote adhesion of soil to the seed

In order to achieve optimum planting that is able to bring out the best in terms of the genetic characteristics of the seed, the planter also needs to carry out the following operations correctly:

- Placing the seed with consistent inter-row and intra-row spacing to avoid competition between the plants
- Preventing damage to the seed material
- Being able to handle versatile applications with different types of seed, and easy to adjust when switching between crops
- Maintaining a high working speed with consistent reliability

## An innovative metering unit

MaterMacc is well aware of the importance of precision and consistency in sowing seed and has developed a range of precision planters with features that allow the user to sow seed profitably. This is possible thanks to the expertise of the company, which can look back on over 40 years of experience in the field.

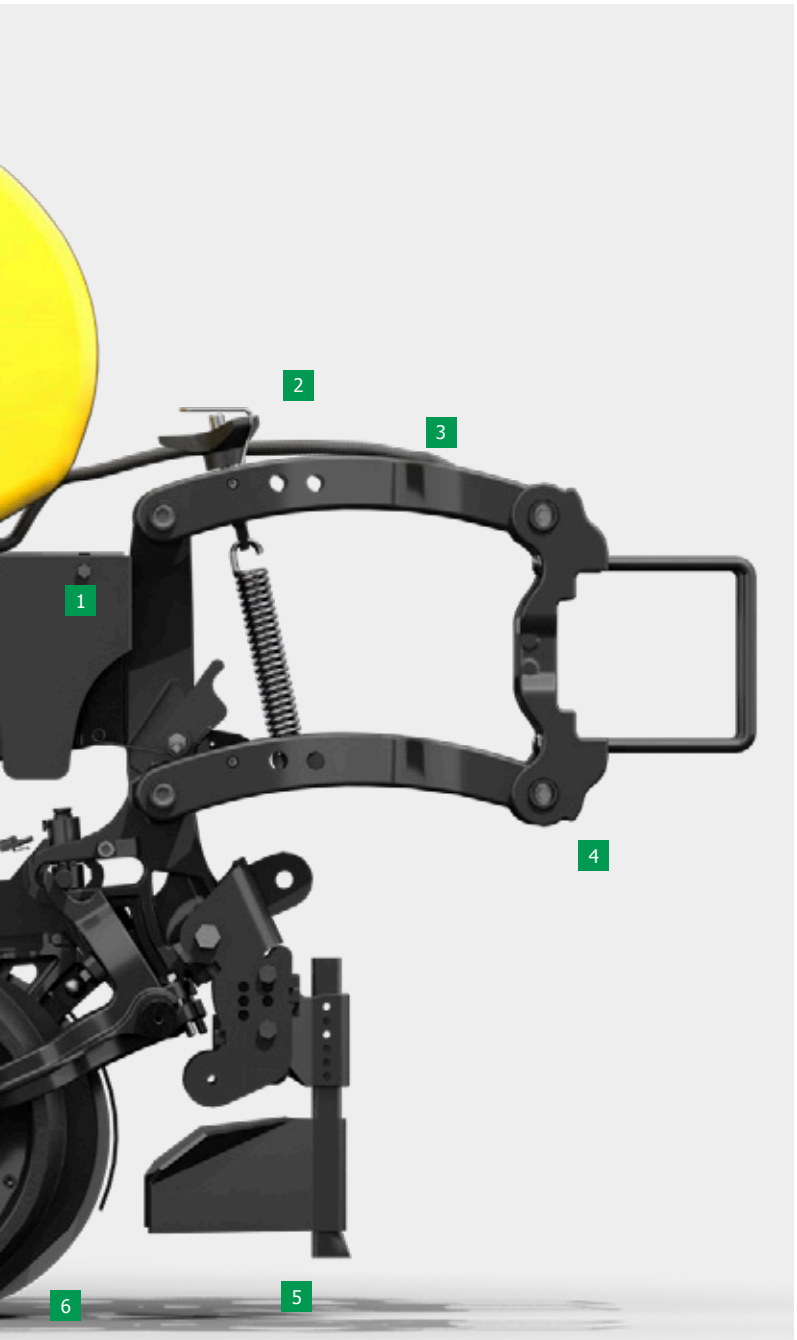
The MAGICSEM metering unit is the heart of MaterMacc planters; it is made of materials that guarantee high torsional and bending strength as well as high resilience to fluctuations in temperature. The planter is packed with features that make it reliable and precise.

It can be adapted to all seed types, from the smallest, such as oil seed rape, to the largest, such as beans. The metering discs can be changed quickly and easily whenever necessary, without the need for tools.

# Precision of seeding

## Seeding unit MS 9000


1. Electric motor with integrated unit
2. Easy down-pressure adjustment with sprung knob system
3. X structure parallel linkage arms to absorb shocks and loads (300 mm vertical stroke)
4. Self-lubricating sintered steel bushings maintenance free
5. Front clod pusher replaceable with alternative tools depending on soil working and typology
6. Ø390 mm staggered discs openers with double anti-wearing scraping system
7. 1" cover wheels, replaceable with 2" trapezoid or toothed wheels
8. V wheels cast-iron support with 4 adjustments: down-pressure, inclination, spacing and off-set
9. Sowing depth adjustment with endless screw to optimize seed placing
10. Seed distributor model MAGICSEM Plus




## Seeding unit

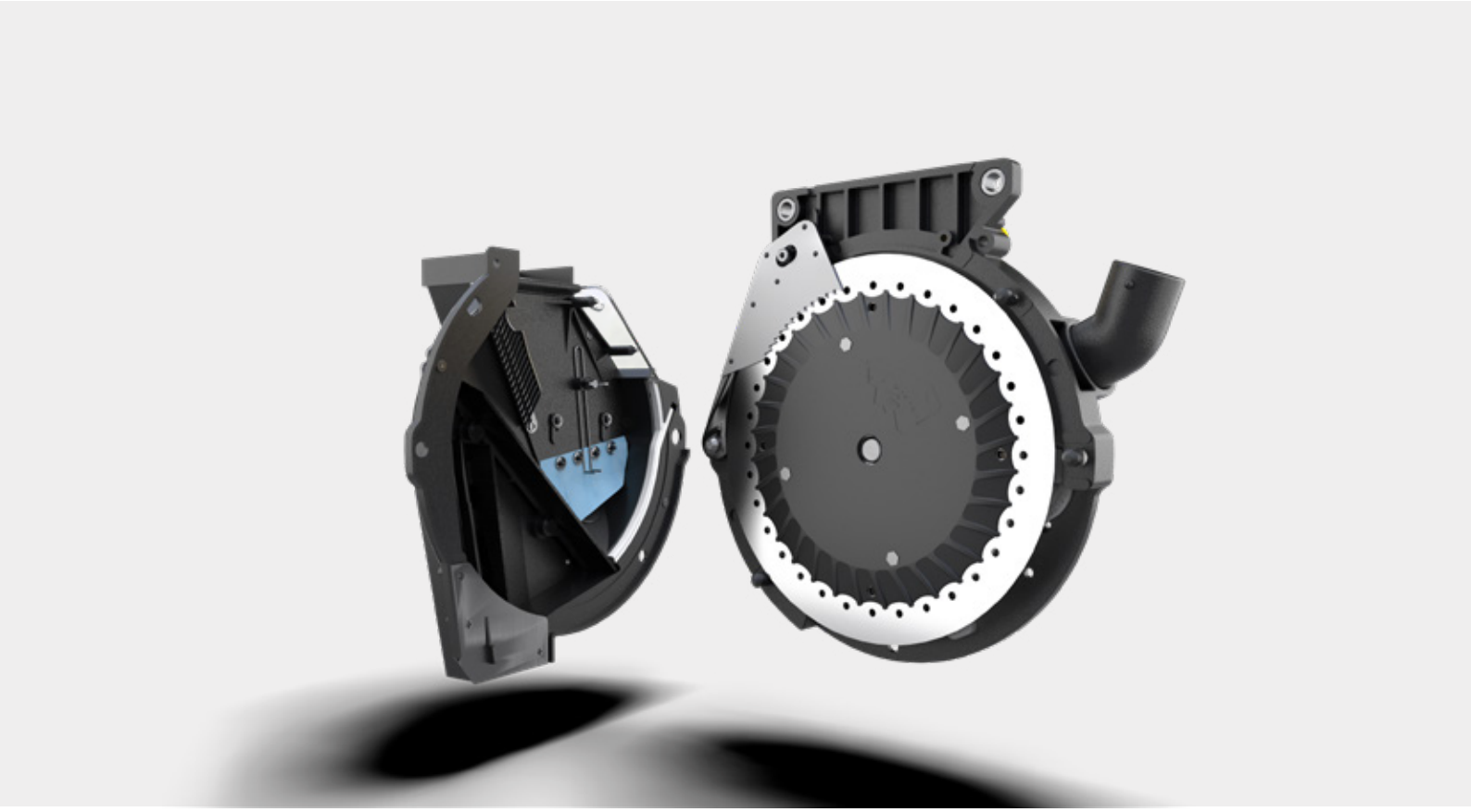
Every single part of the MS 9000 element is an original product of MaterMacc engineering: an element to ensure high productivity that is well suited to any farming technique, whether conventional, minimum, conservative or direct. This is given by a robust element that can load up to 250 kg when needed.

## Highlights

- Sturdy parallel linkage arms machined out starting from solid cast iron blocks
- Heavy-duty spring down-pressure adjustment, from 115 kg to 250 kg
- In-field easy adjustments to suite all working conditions
- Ready-to-use for any crop: no need to replace tools, seed-drop tubes or add seed-press wheels to the equipment
- Microgranulator mounted on the planting unit with its own electric drive
- Low power absorption

# Precision of seeding

MAGICSEM PLUS metering unit



## Robust

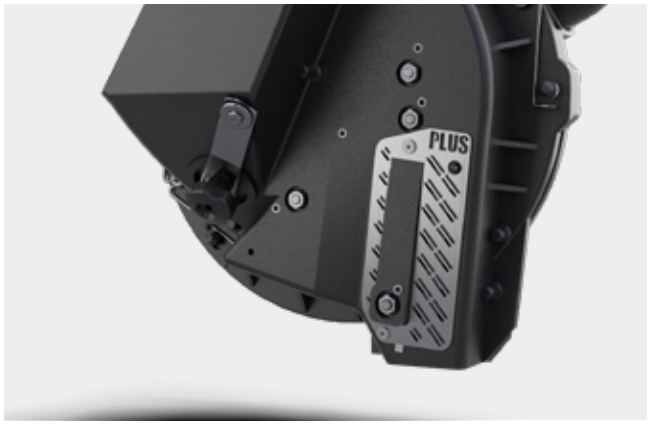
The MAGICSEM metering unit is made of a special blend of polymers and fiberglass that provides greater torsion and flexural strength than aluminum.

The seeding disc is made of stainless steel requiring little torque. The drive is not axial but rather radial by means of the same pegs where the disc is housed and which simultaneously act as agitators in the seed-drawing chamber.

A thin foil in contact with the disc is located along the midsection of the holes that house the seeds. This prevents the suction back into the holes, with consequent embedding of the thin part of the sharper seeds.

## Easily transformable

To switch from one crop to another, simply replace the seeding disc and vary the height of the selector: the latter must be adjusted correctly both so as not to cause duplicate seeds but also, if mistakenly adjusted too low, so as not to cause seeds to fall off the disc (missing seeds).




## MAGICSEM PLUS metering unit

It is the evolution of the MAGICSEM metering unit on which a series of improvements are introduced to increase seeding speed, ensuring the same accuracy as the basic version of the MAGICSEM distributor at higher speeds.

## Built-in agitator

Seeding disc with built-in agitator. The agitation inside the loading chamber improves seed drawdown even at high speeds while protecting seed integrity and without limiting the range of distributable crops.

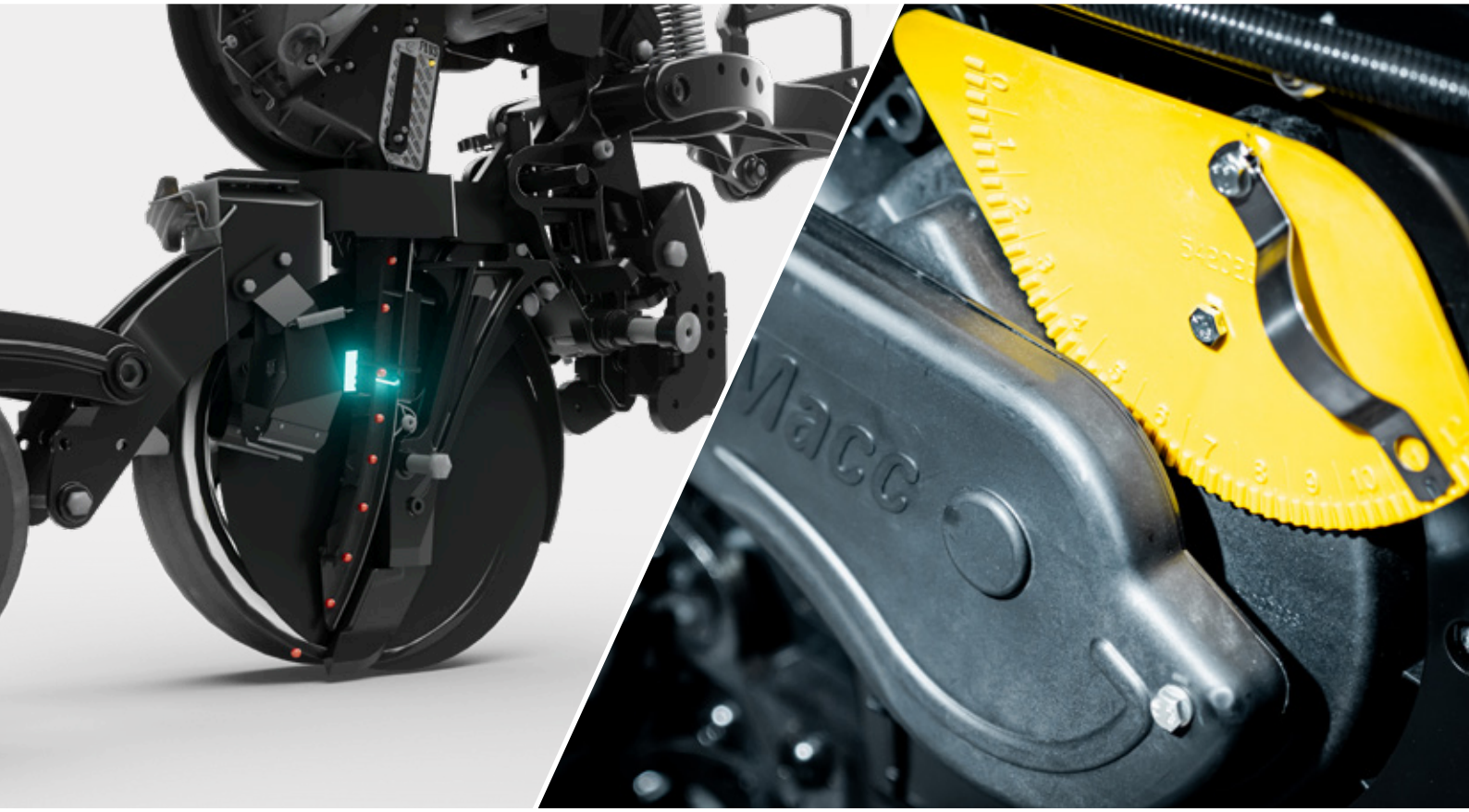
## 360° gasket

The 360-degree gasket limits friction with the coupled seeding disc and, as a result, reduces torque efforts. This improves suction performance while reducing maintenance activities.

## Tested quality

It is important to MaterMacc that every single row works perfectly. Each metering unit is tested by a machine that verifies the correct assembly and operation. If successful, a coupon is issued certifying the suitability of the device by creating an identification code and recording the result obtained.

# Precision of seeding




## Seed sensor for seeding investment control

All electronic control systems must be equipped with a photocell to detect the passage of seeds, whether large or minute seeds (optional).
The optional minute seed photocell is suitable for detecting different seeds such as canola, tomato, radicchio, onion, mustard, and many others.

For the detection of minute seeds, it turns out to be an essential tool since crops such as canola have often monitoring problems given the specific and characteristic size.
This device makes it possible to keep track on the crop's seeding investment and avoids seed wastage by allowing action to be taken on seeding settings.

## Singulator switch adjustment

If the seed sensor reports an incorrect seeding investment, the singulator can be adjusted to ensure that only one seed per hole is distributed.

The simple but effective system removes all excess seed from the disc. An inspection window allows the operator to check the effectiveness of the singulator.

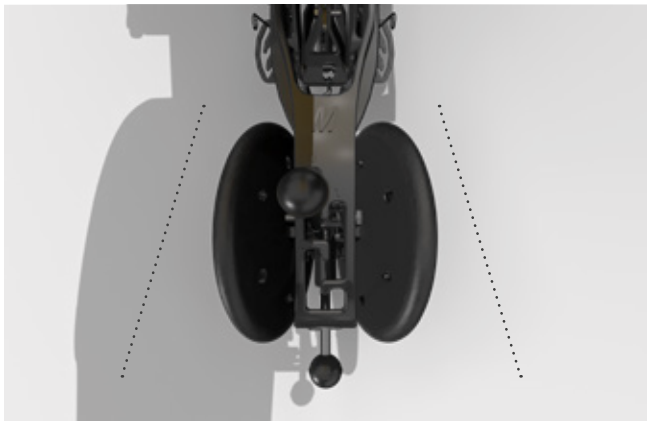
The inclination of the singulator must be adjusted correctly to avoid double seeds and missing seeds.


## Adaptability on all kinds of soils

1 Compression adjustment: should be varied according to the soil composition but also the seeding depth chosen.
2 Wheel convergence adjustment: the convergence between the wheels is varied to match the ground texture. Several options are possible as illustrated by the pictures below.

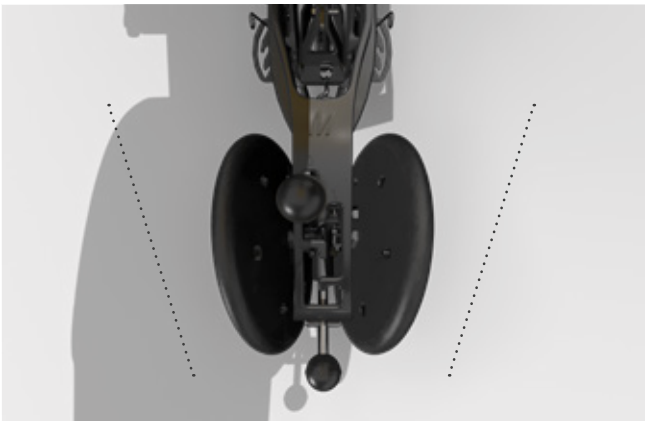
## Compression wheel distance adjustment

Through the use of the threaded system, the distance between the wheels can be adjusted. This adjustment refines the furrow closure with greater uniformity so as to ensure the best possible germination.



## Option gravelly soils

In gravelly soils it is recommended to open the furrow closing arc.



## Option sandy soils

In sandy soils it is recommended to tighten the furrow closure arc.

# Maximum adaptability


## Why use micro-granules?

By applying micro-granule fertiliser while planting, the nutrients can be used directly by the crop plants from the first stages of plant development.

Starter fertilisers are especially recommended for soil that is not particularly fertile, because when it is distributed along the row it makes it easier for the plants to absorb the nutrients and compete effectively against weeds. At the same time, the quantities of fertiliser used are reduced and, consequently, so is the amount of chemicals released into the environment.

Soil-active plant protection products can also be applied in micro-granule form to prevent damage to the seed and the emerging plant caused by pests and insects.

Application at the time of planting reduces the number of passes over the soil, which means less compaction, less time spent in the field, and lower operating costs for the farmer.




## Location of the micro-granule spreaders

The micro-granule spreader is installed behind the seed hopper. This ensures easy accessibility by the operator, both in the filling phase and during inspection and adjustment.

The sub slot application system deposits the microgranules into the seed slot together with the seed.

## Easy to adjust and clean

1 The adjustment system is located at the bottom of each hopper and is regulated manually using a practical knob.

Each micro-granule spreader has a practical system consisting of two openings for emptying; this also makes it easier to clean at the end of each job.

## Perfect furrow closure

The seed and microgranular product can act properly if, after they are deposited on the ground, the furrow is closed properly allowing seed development and microgranular product action.

To maximize the effectiveness of furrow closing, MaterMacc provides several accessories suitable for seed covering that can be chosen according to the type of soil.

Among them: 2 the pair of cover sprockets wheels suggested for direct seeding; the 'V'-shaped compression wheel for heavy soils.

# Maximum adaptability

Each soil has its own characteristics and peculiarities. MS 9000 planting unit answers the operator's needs by adapting equipment to tillage operation. The quick setup makes it suitable for planting various crops: there is no need to replace coulters, seed drop tubes, or press wheels when changing from one seeding condition to another. For exemple: it is possible to exclude the row cleaner without removing it and without any kind of tool.

## Minimum tillage

The clods pusher moves clods and debris away to make furrow opening easier.

## Minimum tillage with crop residue

The sweeping effect of the trash wheels moves sideways clods, crop residues on minimum tillage soil conditions.

## Minimum or direct seeding on stones

In tough and stony soil conditions, the front tine integrated with clod pusher breaks down the top layer and moves away any stone.

## Direct seeding

On fairly loose ground with superficial crust, the turbo disc facilitates the working of furrow opener.

## Direct sowing with crop residues

In very tough soil conditions or in presence of superficial crust and heavier crop residues, several optional tools can be combined.

# Profitability

## Soil fertility

Soil fertility rates the suitability of the soil in a particular location for growing plants to produce the highest yield. It consists of various characteristics and is measured using the fluctuations in yield and quality at harvest.

The physical properties of the soil are characterised by its structure. The correct method of cultivation maintains and stabilises the soil structure. Plant roots in particular directly influence other factors such as nutrient balance and microbial activity.

The chemical properties are primarily determined by the pH value and the type of rock on which the soil is based. Fertilisation and a varied crop rotation can help to maintain soil fertility.

The biological properties involve organic material activity and the presence of soil life.

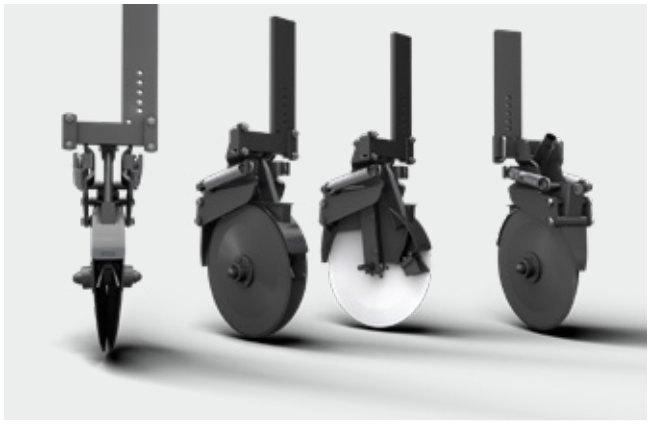
## Great capacity

The MS 9100 hopper is made in painted steel and has a capacity of 2.300 l.

The internal shape of the tank and the angle of the walls, together with the internal guide plates, ensure that the fertiliser slides easily inside the hopper down to the fertiliser dosers, allowing the hopper to be completely emptied. Two convenient windows allow inspection of the hopper even from the outside

The MS 9100 hopper is high versatile giving the possibility to distribute various types of fertilizer, both for high and low quantities per hectare. Also very low quantities, from 40 kg/ha to 150 kg/ha, can be managed by means of the VARIOVOLUMEX doser for low rates.

The great volume of the hopper allows the distribution of even high quantity of fertilizer reducing the time needed to refill the machine during the work session.

## Uniform distribution and section control

The fertilizer is distributed pneumatically on the four outer rows while the four middle rows are served by gravity. This ensures uniformity of distribution thanks to single dosers for each row.

Moreover, the distribution system gives the possibility of closing half of the machine by means automatic section control allowing a product saving.
This is particularly helpful on irregular shaped fields.

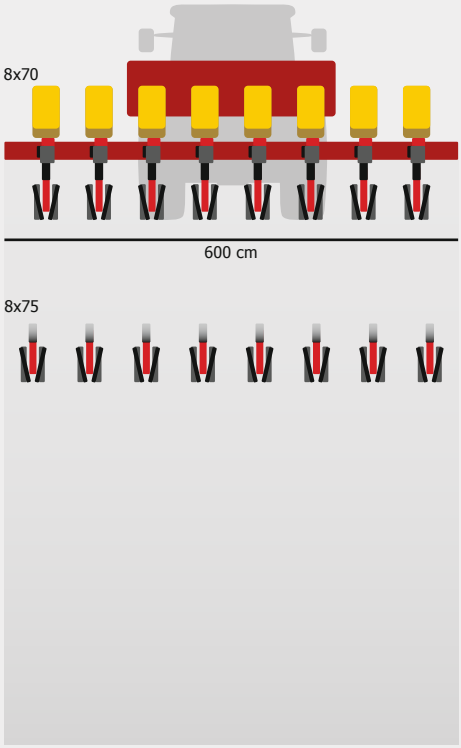
## Double-disc coulter

If the planter is equipped with a fertilizer hopper it is fitted with double disc coulters.
These consist of a double disc with a diameter of 350 mm and a scraper between the discs.
The depth is adjusted quickly without the need for tools thanks to a simple hub on the front of the planter unit.

# Precision planters: 8 rows

## MS 9100 FF ELEKTRO

MS 9100 FF ELEKTRO




## MS 9100

Front folding frame with sequentially operated wheel supports and telescopic drawbar. All the movements described are hydraulic and everything is managed by electro valves with sensors for an easy folding-unfolding sequence. The robust foldable frame has a 180 mm square section and it is suitable for 70 cm and 75 cm row spacing. The transport width is 3 m.


## Electrical transmission

Electric transmission has several advantages including the management of prescription maps, which are useful for optimizing agronomic resources through variable seeding, and row exclusion in an automatic and prefixed mode. (Please note: variable rate with prescription maps is only possible across the width of the machine, not on individual rows.)

All MaterMacc ELEKTRO versions are ISOBUS, so they are governed by a single control unit connected to the ISOBUS terminal on the tractor.
The electric motor is connected to the metering unit via chain transmission. This is to keep the structure compact without altering the established design of the seeding unit and frame, which allows for versatility in terms of row spacing.

MaterMacc systems are autonomous: the MS ELEKTROs are equipped with an alternator so as not to overload the tractor's electrical system. The machine is equipped with a capacitor bank instead of the common battery: the system is therefore maintenance-free.

# Technical data

| | Rubber seed press wheel kit | Intermediate seed cover kit | 2” “V” closing wheels | “V” closing wheels for heavy soils | VARIOVOLUMEX low rate from 40 to 150 kg/ha |
|---|---|---|---|---|---|
| MS 9100 FF ELEKTRO | □ | □ | □ | □ | □ |

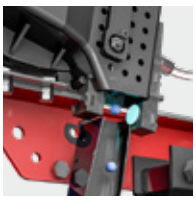
| | Number of rows | Row spacing | Transport width/ working width | Power requirement | Weight with fertiliser tank and double-disc coulter |
|---|---|---|---|---|---|
| MS 9100 FF ELEKTRO | 8 | 70 cm | 300 cm / 600 cm | 140 hp | 3.600 kg |
| MS 9100 FF ELEKTRO | 8 | 75 cm | 300 cm / 600 cm | 140 hp | 3.630 kg |
| MS 9100 FF ELEKTRO | 8 | 70 cm | 300 cm / 600 cm | 140 hp | 3.600 kg |
| MS 9100 FF ELEKTRO | 8 | 75 cm | 300 cm / 600 cm | 140 hp | 3.630 kg |

**Cover toothed wheels**

□

**Row cleaner kit**

□



**Small seed sensor**

□

## Configure your personal machine

| Weight with fertiliser tank, double disc coulter and micro-granule spreader | Seed hopper capacity | Fertiliser hopper capacity | Microgranulat hopper capacity |
|---|---|---|---|
| 3.700 kg | 8x50 l | 2.300 l | – |
| 3.730 kg | 8x50 l | 2.300 l | – |
| 3.700 kg | 8x50 l | 2.300 l | 8x25 l |
| 3.730 kg | 8x50 l | 2.300 l | 8x25 l |

■ = Standard, □ = optional, – = not available

MaterMacc

## Our company history

- MaterMacc was founded in 1983 out of a passion for agriculture and the constant search for new solutions in agriculture.
- The company specialises in the development and manufacture of pneumatic precision planters for traditional crops as well as pneumatic and mechanical planters, no-till planters and crop care machines.
- We also manufacture electronic equipment for the control and management of agricultural machinery and tools for controlling irrigation systems.
- MaterMacc stands for technology and quality – made in Italy to serve agriculture.

## Quality in precision planting

- MaterMacc is proud to offer planters suitable for use in conventional tillage, minimal tillage or direct seeding (No-Till), meeting the needs of all farms
- The MagicSem pneumatic distributor, the greatest strenght and core of MaterMacc planters, was designed to insure accurate seeds distribution at a constant and precise distance. It always maintains excellent performance with all seeds typology and size
- The corporate belief is that the equipment performance and the high level of service provided, above all guarantee customers growth over time, as customers success becomes MaterMacc success
- MaterMacc, Smart precision planters

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