Trailed shallow cultivator
PLANO

PÖTTINGER

Precision in every centimetre

97+219.EN.0226

Precision in every centimetre

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It is a well known credo that less is often more. The PLANO trailed shallow cultivator also follows this line of thinking. Because it moves the whole surface, this shallow form of tillage is perfect for conserving ground water, mechanically controlling weeds, and incorporating cover crops. A choice of tine systems, shares and additional tillage tools is available to match the application. This means that the PLANO can be configured for seedbed preparation or medium-depth loosening up to 15 cm.

Table of contents

The best soil

Soil is the source

Fertile soil is the most important resource for agriculture and is only available for arable farming to a limited extent. That is why it is essential that it is conserved very carefully to ensure the sustainable production of high-quality food and animal feed.

Healthy soil with a natural tilth structure and optimum pore distribution with no harmful compaction allows the crop to develop strong and deep roots. Tillage is about changing the structure of the soil. Shallow cultivation conserves the soil structure stabilised by plant roots and soil organisms in the deeper soil layers. It also causes less disturbance to soil life habitat, as there is much less deep movement of the soil.

Conserving soil water

Water is the most important site-specific factor in arable farming. Especially during dry periods, the availability of water is essential for germination, plant development and crop yield. Differences are particularly noticeable from one location to another and it is essential that cultivation methods are implemented that conserve water.

With the help of shallow tillage and a crumbly soil surface, the capillary rise of water to the soil surface can be interrupted. This keeps the water in the soil and prevents unproductive water evaporation while the soil is ready to be planted. That is how moisture can be retained in the soil so that it is available to the plants.

In addition, ultra-shallow tillage minimises the volume of surface loosened soil that causes evaporation. This also saves valuable soil water.

Conserving the soil

Shallow tillage ensures that organic matter is distributed on the soil surface, because it is not incorporated into deeper layers. This ground cover protects the soil from direct sunlight, creates shade and conserves the soil water.

Protection against erosion is just as important. Even on slopes with a gradual gradient, there is risk of soil erosion in the event of heavy rainfall. The organic material on the surface dissipates the energy of the water droplets so that the soil beneath is not directly exposed to the full force of the rain. The soil particles are protected from extreme weather conditions. This also prevents ponding and conserves the surface structure. The natural infiltration capacity of the soil is retained. In addition, the material on the surface significantly slows down rainwater run-off and prevents the water from displacing the soil.

Sustainable and cost effective

"As shallow as possible, as deep as necessary" is one of the principle rules of tillage. With the PÖTTINGER shallow cultivator, the whole surface can be moved even at the shallowest working depth. This means that less soil needs to be moved. This saves fuel and time. For every centimetre of working depth saved, between 100 tonnes and 160 tonnes of soil per hectare less has to be moved, depending on the density of the soil.

New strategies are needed to cope with the increasingly stringent regulations in chemical plant protection and resistance of weeds to herbicides. Shallow yet full-surface tillage plays an important role here. Weeds are encouraged to germinate quickly by the shallow tillage so that they can be controlled in a further step. Weed control measures with repeated cutting are also possible for the sustainable reduction of root weeds.

Ingenious precision

Shallow to medium depth tillage

The design of the frame, tines, coulter tools and precise depth control across the entire working area combine perfectly to deliver full surface shallow tillage. The PLANO unites all these features while remaining compact.

The trailed shallow cultivator from PÖTTINGER ensures full-surface movement, even at working depths as shallow as 3 cm. But shallow is not the only thing the PLANO can do. Working depths of up to 15 cm are possible too. The range of tasks it can perform is therefore wide, providing completely flexible operation all the year round.

Neat and tidy

Uniform and optimised working results across the entire width of the machine are crucial for a successful tillage pass. To prevent side pull and the resulting disadvantages, the tines on the frame sections are arranged symmetrically either side of the central pull line. There are also advantages in terms of running costs thanks to lower fuel consumption and uniform wear.

The optimised tine configuration in combination with the 6-row layout and the large underframe clearance ensures there is plenty of space between the tines and the frame. This ensures blockage-free operation even with high volumes of organic material.

Precision guided

Precise depth control and maintaining the set depth is essential, especially during shallow cultivation. That is how the capillaries, weeds, volunteers and cover crops can be cut as shallow as possible over the entire surface so that the roots are cleanly separated from the shoot and vegetation point. This, as well as ensuring that as little soil as possible remains on the plants above ground, is a sure way of making sure unwanted plants perish.

Uniform cultivation across the entire width of the machine is ensured to make sure that all plants and weeds are accounted for. The PLANO achieves the best ground tracking by controlling the working depth using a choice of depth wheels at the front, and the rear rollers or chassis at the back. For maximum convenience, the working depth is simply adjusted hydraulically from the tractor cab.

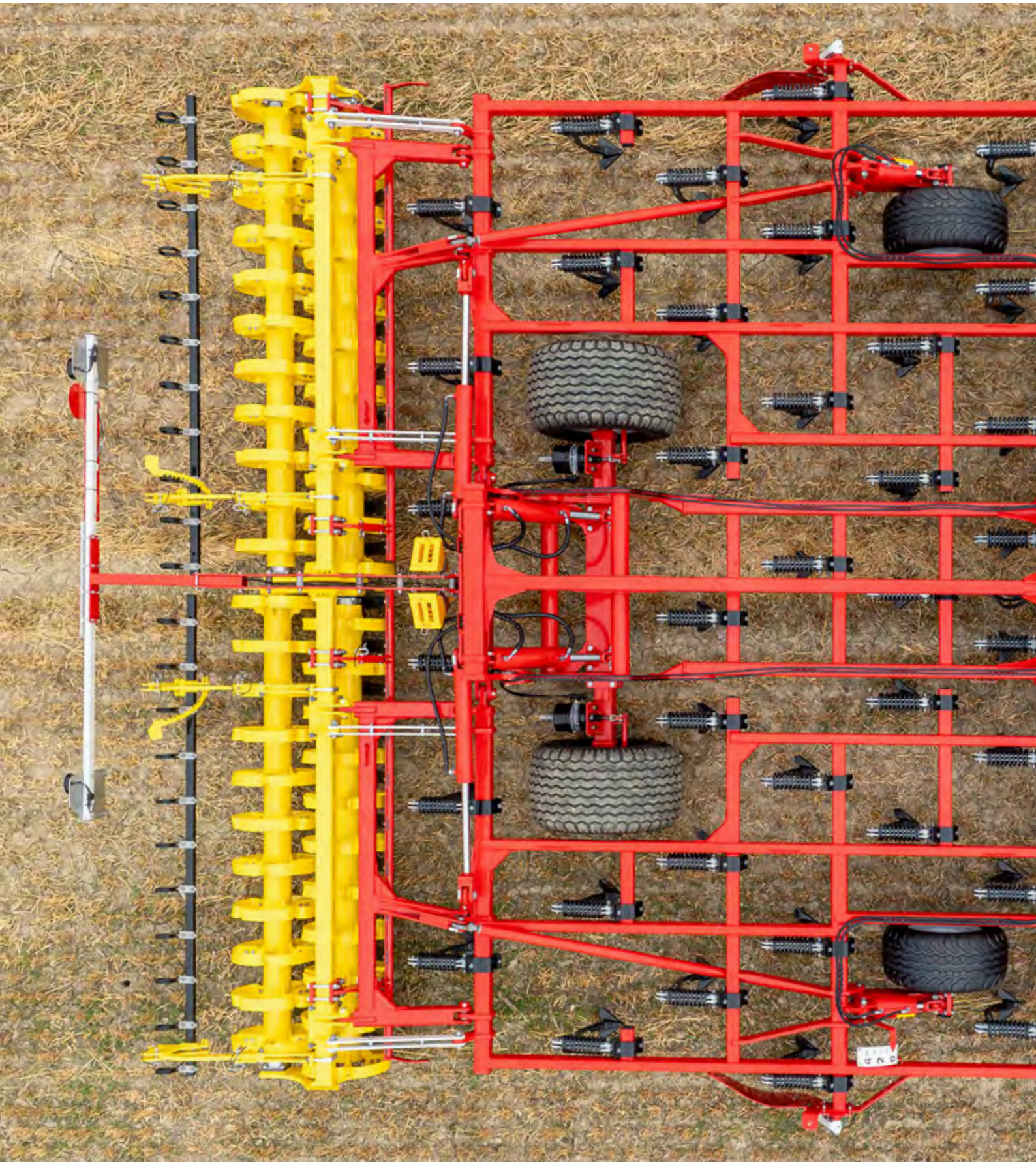
Choice of tillage tools

At the heart of every PLANO is the tine system. The arrangement and properties of the tines greatly influence the tillage process and the working results. That's why two different tine systems are available for the PLANO, depending on the soil conditions on site and the type of application.

Both tine systems can be equipped with DURASTAR PLUS duck foot shares or DURASTAR chisel points. The shape of the duck foot shares makes them ideal for shallow, full-surface movement with a slicing action. The chisel points are particularly suitable for deeper tillage and intensive mixing, although they can also be used for shallow stubble cultivation.

Ingenious precision

Tine configuration



Large clearance

The PLANO tine section consists of a fixed centre section with a folding frame section on each side and has a 6-gang configuration. The gang beams are spaced 65 cm apart for a compact design. A central through-way of 73 cm with an underframe clearance of 60 cm enables blockage-free tillage even with high volumes of organic material.

Symmetrical configuration

The tines are arranged symmetrically on the six beams either side of the central pull line. Crabbing is prevented as a result. This means less pulling power is needed, the tillage tools wear evenly, the implement delivers consistent working results and its entire working width is utilised, along with precise adjacent passes.

The PLANO VT 6060 is equipped with 37 tines across its six metre working width mounted on clamped brackets. The tines are spaced at 16.2 cm for a very good crumbling effect, mixing and levelling. The optimised configuration of the tillage tools amplifies this effect. The close tine spacing also has a positive effect on slicing through root balls in very heavily rooted plants.

Ingenious precision

Tine systems

Compression spring tines

These rigid tines are protected against overloading by a compression spring. If the tines collide with obstacles, the stone protection system trips at a triggering pressure above 200 kg. When it is triggered, the tine has a trip clearance of up to 19 cm in order to create sufficient clearance over large rocks and other obstacles.

Straight down the line

The outstanding advantage of these pre-tensioned tines is that they work in a straight line no matter what. They are configured in such a way that lateral movement is prevented, thanks also to the width of the clamped mounting brackets. As a result, the tines and shares always stay in position, and yet there are no blockages from plant residues.

This characteristic enables precise, full surface movement during reliable shallow work. By maintaining the set working depth, the full potential of ultra-shallow tillage can be utilised. In addition, the overlap is constant with duck foot shares to ensure complete movement of the soil surface across the full width of the machine.

For minimum depth

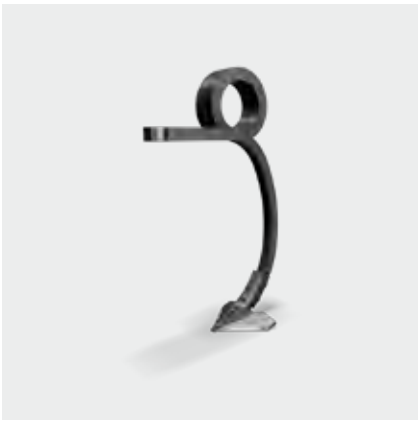
For stubble cultivation and simultaneous control of problematic weeds, with compression spring tines the PLANO moves the full surface area of the soil even at a minimum working depth. As a consequence, only a few roots remain on the above-ground plant material, making further growth or regrowth virtually impossible. The plants inevitably perish. This effect is also put to good use when incorporating greening crops and cover crops.

Overview of compression spring tines

- No line deviation
- Consistent working depth
- Exact overlap
- Stone protection with 200 kg triggering pressure
- 19 cm trip clearance
- Reliable working results down to a depth of 15 cm

Spiral spring tines

The spiral spring tines are made of 35 x 35 mm spring steel. These tines are ideal for seedbed preparation and incorporation of harvest residues as well as for weed control.



Crumbling effect

The vibration of the tines separates the roots of the plants much better from the soil adhering to them. This causes the plants to dry out so that regrowth is prevented.

The proportion of fine tilth created by the oscillation of the spiral spring tines is higher than with rigid tines. This improves the germination conditions for the next crop when the seedbed is prepared. Moreover, inoculant bacteria are activated and organic material is better incorporated into the soil. This accelerates rotting and microbial decomposition.

Smooth running and self-cleaning

The oscillation of the tines makes it easier for the tines and shares to slice through the soil. In hard soils and shallow working depths, the spring tine can deviate slightly to the rear and to the side. In more challenging conditions with high volumes of organic matter, the oscillation effect has a positive influence on soil flow and the self-cleaning of the tines.

Overview of spiral spring tines

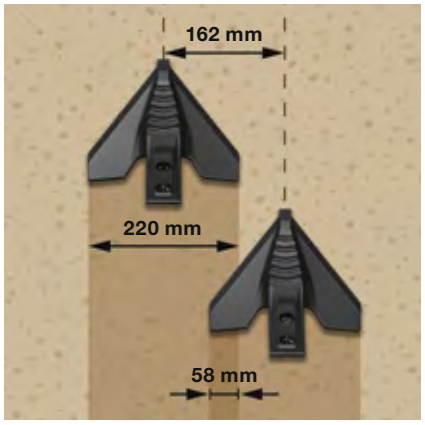
- Oscillate to produce a higher proportion of tilth
- Improves removal of soil from plant roots
- Lower pulling power requirement
- Self-cleaning tines
- Less in-line stability than compression spring tines
- For light to medium soil and working depths to 12 cm

Ingenious precision

Shares

Shallow working duck foot shares

Full surface shallow slicing is the aim of many cultivation steps in arable farming. The geometry of the shares and the angle they are set in relation to the soil are important factors in making sure that this happens reliably. Moreover, these duck foot shares are 22 cm wide.



Precise overlap

With a tine spacing of 16.2 cm, there is an overlap band of 5.8 cm on either side that is processed twice. That is how even stubborn weeds and plants are reliably cut right through. This can reduce the use of herbicides for weed control.

Due to the durability of the duck foot shares in terms of wear, the extent of the overlap has been optimised in terms of the resistance generated in the soil. This results in a lower pulling power requirement, as well as less fuel consumption and wear. In addition, the shares remain at a constant depth in the soil thanks to the lower soil resistance.

Optimised mixing performance

The duck foot shares are set at a slightly aggressive angle to ensure a sufficient mixing effect during deeper tillage, in addition to the shallow slicing action achieved nearer the surface. This means that these shares can also be used on passes after the first stubble cultivation step.

Mixing and covering the organic material with soil, and thus with inoculant bacteria and fungi, accelerates the decomposition process. Promoting rapid rotting improves the conditions sowing the next crop and reduces the potential for diseases.

Reliably cut through organic matter

Duck foot shares are particularly suitable for stubble cultivation due to their ability to cut shallow while mixing the whole surface area. The focus is on moving the entire surface to control weeds and interrupt the capillary effect to retain soil water.

These shares are also recommended for the tillage of cover crops and tackling weeds. Above-ground vegetation is reliably separated from the plant roots and soil adhering to the roots is largely removed. This is a basic prerequisite for making sure that the plants perish.

Chisel points from shallow to deep

Shallow working is not needed, necessary or useful for every type of tillage. Where this is the case, the chisel points are the ideal alternative to the duck foot shares.

Versatile applications

With a width of 5 cm, these chisel points are ideal for medium-deep loosening during seedbed preparation as well as the second stubble cultivation pass. During the first pass, the chisel points produce a high proportion of fine soil, causing weeds and volunteers to emerge reliably. Thanks to their intensive mixing performance, the chisel points are also suitable for incorporating fertiliser. In combination with the narrow spacing, an excellent mixing result is achieved to the full working depth.

Drying out damp soil

In spring, the ground is often too damp for optimum seed drill conditions and it is not likely to dry out any time soon. In order to be able to still sow on time, it is necessary to break up the partially encrusted soil. A pass with the chisel points opens up the surface structure of the soil, providing a larger surface area to promoting drying.

Because the points do not move the soil across the whole width of the machine, the surface is broken up rather than cut right through. In more damp conditions, this prevents smearing of the soil layers and promotes an exchange of water and air.

Optimum seedbed

Following primary tillage with a cultivator or plough, the seedbed needs to be prepared ahead of the seed drill. Since the soil has already been tilled intensively, the aim of the next step is to create a tilth and level it. The steeper angle of the chisel points makes them ideal for achieving this effect because they enable the soil to be worked through more intensively.

If sowing takes place in the autumn on soil that already has a good structure, medium-depth loosening up to 15 cm can be carried out using the chisel points. These points can also be used for subsequent seedbed preparation in an offset row seeding process.

Ingenious precision

Depth guidance

Precise depth control

Precise depth control is essential for maintaining the required working depth of the whole machine. This is especially important when aiming to cut through the soil as shallow and evenly as possible. The PLANO ensures this using the depth control wheels at the front, together with the rear roller.

If the PLANO is deployed without a rear roller, then this can no longer control depth guidance. In this case, the transport chassis is used to set the working depth at the rear of the machine. A vertical travel limiter with indicator integrated into the chassis hydraulics is used to precisely control the height of the chassis in the working position in relation to the soil surface.

Clever solution

To adjust the rear roller to match the depth wheels at the front, without having to adjust the roller again, the change in setting at the depth wheels is transferred to the rear roller by a linkage rod. This ensures that the rear roller is automatically and precisely adjusted in tandem with the depth wheels so that the PLANO is always parallel to the ground. While increasing operating convenience it also prevents setting errors.

Fully hydraulic for maximum convenience

The optimum cultivation depth requires precise and fine tuning, especially during shallow tillage. Depth adjustment on the PLANO is fully hydraulic for fast adjustment to different working depths and maximum convenience. The clearly readable scale on the right-hand depth wheel helps find the correct setting.

Individual depth wheels

The PLANO is fitted with depth wheels integrated into the tine section as standard. This not only guarantees the most compact design possible for the shallow cultivator, but also enables a selection of additional tillage tools to be mounted in front. The two individual depth wheels are fitted with 340/55-16 tyres with an implement profile.

Dual depth wheels

The optional dual depth wheels provide impressive performance with double the surface area of contact. Especially in areas with light soils and soils with a low load-bearing capacity, the dual depth wheels really come into a class of their own. In addition, these depth wheels are positioned in front of the tine section, so they track the ground that has not yet been cultivated. The dual depth wheels are fitted with the same 340/55-16 tyres as the individual depth wheels.

Custom-tailored versatility

Custom-tailored to your specifications

Reliable and flexible deployment of machines is essential for successful job completion and cost effective machine utilisation. That is why, in addition to a choice of shares and points, the PLANO can be equipped with various rear rollers, different leading tillage tools and levelling tines. This not only enables a wider range of applications to be covered, but also ensures more efficient and reliable operation.

Enhanced reliability

High volumes of organic matter and long stalks of plant residues present a particular challenge during tillage and can often limit the effectiveness of an application. This makes the optimum distribution and cutting of organic material all the more important. If this has not been carried out by the previous harvest machine, the PLANO can also be used to initiate a uniform decomposition process and enable reliable operation. The equipment options include a knife roller for extra versatility and efficiency.

A level finish

A perfectly prepared seedbed features a uniform, level finish, an ideal proportion of tilth and optimum consolidation. These are the perfect conditions for rapid and uniform plant growth. As a passive tillage implement, the PLANO creates precisely these conditions.

The front board supports the levelling and crumbling of the soil in front of the tine system. A seamless seedbed transition between each pass is created by the edging boards and levelling tine. The optional levelling board provides an additional crumbling effect for an even smoother surface finish. A choice of rear rollers enhances the tilth quality and provides the necessary consolidation of varying intensity.

Weeds dry out reliably

During the mechanical control of weeds and the tillage of cover crops that have not been wilted by frost, it is crucial that the roots and shoots are cut through and deposited on the soil surface. The optional tine harrows can be used to rake plant residues onto the level surface. Due to the additional effect of removing soil from the roots, plants dry out reliably and perish.

Custom-tailored versatility

Leading tillage tools

Slicing, levelling and crumbling or loosening

The optional leading tillage tools handle the first step in soil cultivation to provide the tine system with optimum conditions for slicing and mixing. This involves the distribution and intensive shredding of organic material, the loosening of wheel marks and the pre-crumbling of the soil.

This expands the range of applications covered by the PLANO. Whether seedbed preparation, stubble cultivation or turning in a cover crop, you can react to the site-specific conditions in the field.

The integration of the front depth wheels into the tine section makes for a compact design that allows a knife roller or front board to be installed.

Leading knife roller

The knife roller with a diameter of 350 mm demonstrates its cutting effect particularly well when there are high volumes of organic matter, such as oil seed rape stubble or a cover crop. The additional cutting effect improves incorporation, significantly accelerates the organic decomposition process and makes it more difficult for harmful organisms to overwinter as a result.

Hydraulic adjustment allows the working depth to be set conveniently or the entire knife roller to be pivoted away from the work area. Rubber elements protect the knife roller against overload and impact with large stones.

The spiral arrangement of the knives ensure the roller rotates smoothly because it is in constant contact with the ground and produces a high load on the cutting edge. The knives are made of a special low-wear Hardox steel to ensure cost effective operation and to preserve the cutting edge on the knives.

Front board breaks up clumps

To create an even more level seedbed and optimum tilth when preparing seedbeds on ploughed land, the front board can be selected as an optional extra. This is equipped with 24 sturdy drag tines that crush even coarse clumps. Adjustable and replaceable wear plates are fitted to the tines.

If the front board is not required, it can be folded away completely out of the working area so that it does not contact the soil. The front board is adjusted hydraulically.

Wheel mark loosening tines

To loosen any compacted areas in the tractor wheel marks, two loosening tines per tractor track can be mounted on the PLANO. These easily loosen wheel mark compaction during seedbed preparation without having to set the whole PLANO to a deeper working depth.

The wheel mark loosening tines are mounted in front of the tine section and are equipped with overload protection of up to 180 kg and special carbide-tipped chisel points. The working depth is set using a pin-in-hole matrix. This can be up to 10 cm lower than the tine section to loosen deeper soil compaction. Simply shift horizontally along the frame tube to adjust their position in relation to the tractor wheels.

Custom-tailored versatility

Rear rollers

Wide choice of rear rollers

In addition to precise depth control, the rear roller is also responsible for achieving the necessary consolidation. This is essential for optimising the germination conditions for volunteers and weeds, and also to prevent the soil from drying out, especially in the summer months.

In addition, the roller crumbles and levels the soil to improve its structure at the surface. Different soils and soil types have their own specific characteristics. That is why PÖTTINGER offers a wide range of rear rollers, depending on the soil, application and the objective of the tillage pass. It's your choice.

Working without a rear roller

In certain conditions and for specific applications, consolidation of the soil behind the machine may not be required. This can be the case when working in high volumes of cover crop, breaking up the soil surface to promote drying, and during soil cultivation in autumn.

To carry out the process without consolidation, simply remove the rear roller from the PLANO in order to leave the soil loosened. Plant and root residues are then left on the surface to wilt and perish.

The working depth is controlled by the integrated transport chassis. The tines located behind the chassis wheels provide the necessary loosening. A heavy-duty tine harrow can also be fitted.

Requirements	Cage roller	Double cage roller	Pack ring roller	Rubber packer roller	CONOROLL roller	Tandem CONOROLL roller	Tandem U profile roller
Consolidation	o	o	++	++	+	++	++
Damp conditions	o	o	++	+	++	+	+
Dry conditions	++	++	++	++	++	++	++
Crumbling effect	+	++	++	++	++	++	+
Load capacity	+	++	++	++	+	++	++
Self-propulsion	++	++	++	+	+	++	+
Applicability for stones	+	o	++	o	++	++	o
Scrapers	No	No	yes	yes	yes	no	No
Weight for 6 m working width	650 kg	1,040 kg	1,190 kg	1,120 kg	860 kg	1,370 kg	1,300 kg
diameter	660 mm	540 mm, 420 mm	550 mm	590 mm	540 mm	560 mm	600 mm

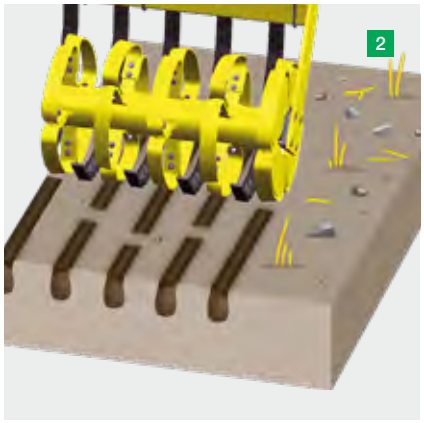
++ ideally suited, + well suited, o suitable, – not suitable

Custom-tailored versatility

Rear rollers

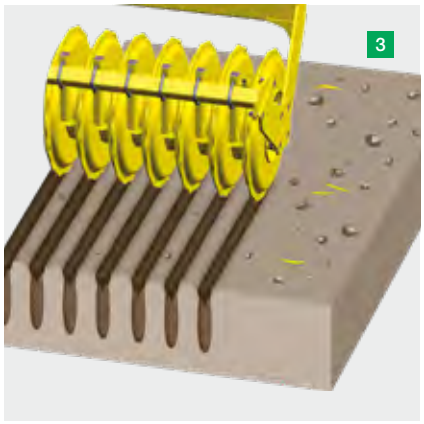
1 Cage roller

The cage roller is ideal for dealing with dry, non-sticky soils. The strong bars consolidate the soil across the direction of travel, making sure that the roller keeps rotating, while creating a high proportion of fine soil. With a diameter of 660 mm, the cage roller is equipped with twelve horizontal bars that provide the necessary self-propulsion.



2 CONOROLL roller

Four individually bolted segments form a 540 mm diameter ring. The segments are conical and offset to the left and right. This produces consolidated ridges with alternating indentations to the left and right of each groore. Rainwater can seep into these indentations so that it is prevented from running off the surface. In addition, the loose soil between the rings can absorb water better. The optimised structure on the soil surface prevents erosion caused by rain. Spring-loaded scrapers are mounted between the rings, and these also produce a fine tilth thanks to their conical shape.



3 Pack ring roller

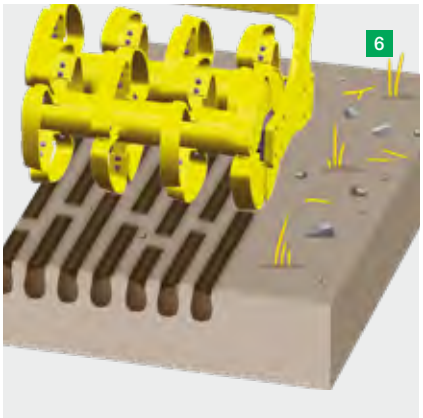
The pack ring roller consists of eight pack rings with solid rims per metre of working width. The roller produces consolidated ridges to promote drainage and let the soil breathe. The roller achieves solid working results even on stony or damp soil with high volumes of organic material. In dry conditions, the deep consolidation has a positive effect on seed germination conditions. The coated scrapers mounted between the rings ensure the roller keeps rotating even on sticky soil.

4 Rubber packer roller

The rubber packer roller is a versatile implement that is able to handle a wide assortment of highly variable soils. The profile of the roller produces consolidated ridges and has a large area of contact with the soil. The roller has a diameter of 590 mm and offers a high load-bearing capacity. The scrapers are coated and ensure neat and tidy operation.

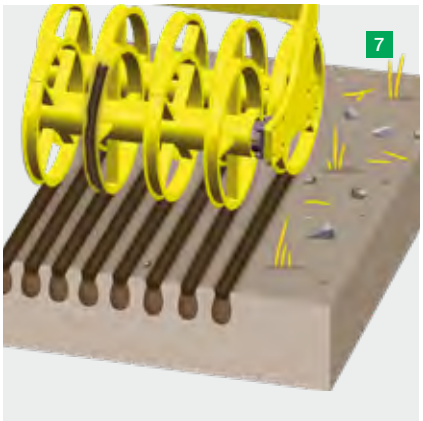
5 Double cage roller

The double cage roller consists of two rollers with different diameters. The front cage roller has a diameter of 540 mm, while the rear roller is 420 mm. The two rollers are mounted on floating suspension for optimum ground tracking. The second roller increases the crumbling effect and the proportion of fine soil. It also increases the load-bearing capacity thanks to the larger ground contact area.



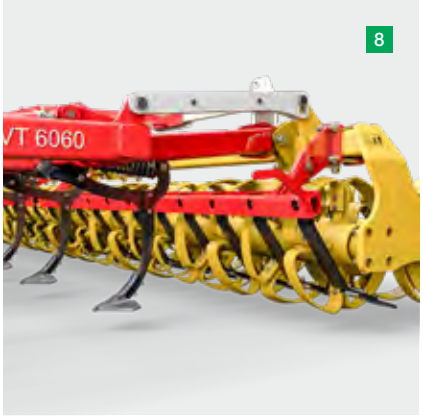
6 Tandem CONOROLL roller

Like the single CONOROLL roller, each ring on the tandem CONOROLL roller consists of four segments, two angled to the left and two angled to the right. Each segment creates an indentation in which rainwater can seep into the soil before it runs off the surface. Both rollers have a diameter of 560 mm. With a ring width of 70 mm, the tandem roller configuration offers an impressive load-bearing capacity, especially on lighter soils, and has good self-cleaning properties. The freedom of movement and the angle of the rear roller can be adjusted to match the operating conditions for optimum ground tracking.



7 Tandem U profile roller

The U profiles on each ring with a diameter of 600 mm fill with soil during operation. This results in direct earth-to-earth contact, ensuring well-formed consolidated ridges, while conserving the soil structure. In addition, it achieves good self-propulsion and the adhering layer of soil reduces wear. The tandem rear roller configuration guarantees a high load capacity, making this tandem U-profile roller equally suitable for fields with light soil types. The angle of the rear roller can be adjusted to match different operating conditions.



8 Levelling board

When fitted with the tandem CONOROLL roller or the tandem U-profile roller, the PLANO can also be equipped with a levelling board between the last row of tines and the roller. The spring-mounted drag tines with replaceable wear plates level and crumble the soil. Depth control is always synchronised with the rear roller. The work intensity is adjusted mechanically.

Custom-tailored versatility

Levelling tines

Removing soil from deposited plants and weeds

To control weeds and unwilted cover crops effectively, a layer of plant and root residues needs to be deposited on the surface of the soil. The optional rear tine harrow plays a vital role here. In addition to depositing the organic matter on the surface, it also removes soil adhering to the roots. All set with optimum conditions for sustainable weed control.

Rear harrow

The optional rear harrow with a tine diameter of 12 mm can be mounted behind the rear roller to leave a finely crumbled surface that provides the best germination conditions for seeds and volunteers. At the same time, the rear harrow combs out roots and plant residues pressed into the soil by the rear roller and distributes them across the surface to dry out.

In addition, the structure left behind by the rollers is levelled again and only crumbled on the surface to prevent capillary action right up to the surface so that the water remains in the soil.

Height and position can be easily adjusted using a hole matrix to set the aggressiveness of the rear harrow. This level of precision adjustment helps achieve the best working results.

Heavy-duty tine harrow

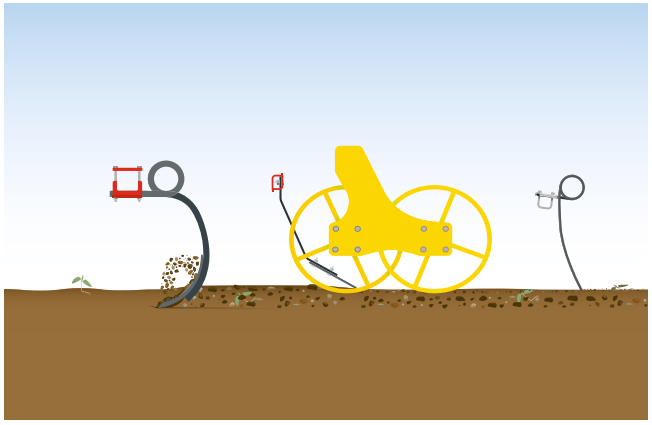
When the PLANO is deployed without a rear roller, a heavy-duty tine harrow is available as an option to be installed in its place. The harrow is equipped with three rows of 12 mm-thick tines. These ensure the necessary distribution of organic matter as well as levelling and crumbling the soil behind the tillage tools.

The heavy-duty tine harrow can be adjusted hydraulically and folded completely away from the working area. The angle of soil entry and working intensity of each row in relation to the other rows can be adjusted mechanically. The height of the harrow is adjusted automatically by linkage rods to match the setting of the depth wheels.

Despite the close tine spacing of 12 cm, the three-row configuration with an interval of 45 cm provides good clearance for high volumes of organic matter.

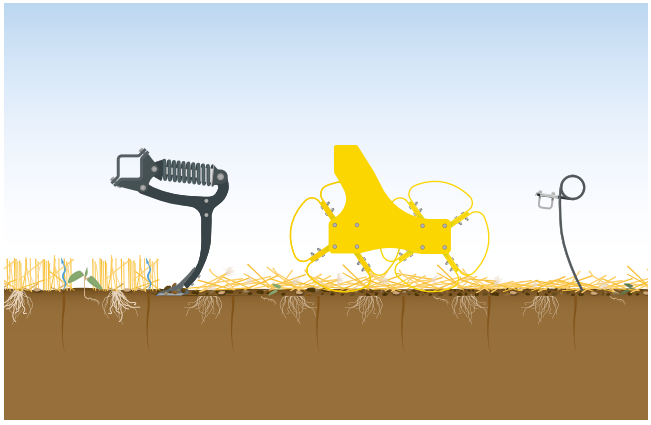
Custom-tailored versatility

The wide choice of equipment options makes the PLANO an extremely versatile tillage tool. The spectrum of applications ranges from seedbed preparation and stubble cultivation to deeper, soil loosening tillage down to a crumb depth of 15 cm. Just some of the possible applications are represented below.



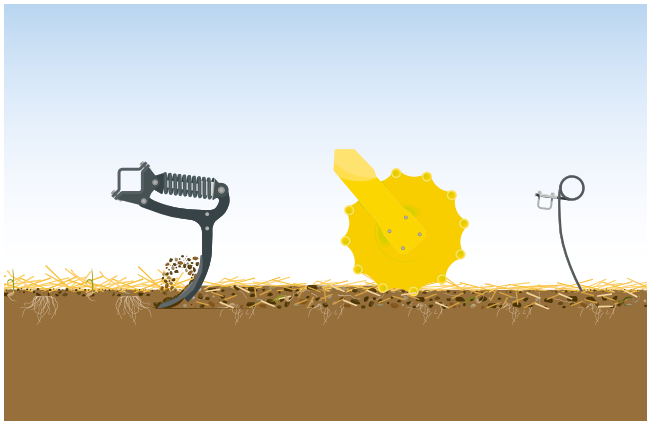
Seedbed preparation

During seedbed preparation, the objective is to create an even, finely crumbled and optimally reconsolidated topsoil. At the same time, any incrustations can be broken up, drying of the soil is promoted and weeds controlled. If fertiliser has been distributed on the surface, that can also be incorporated.



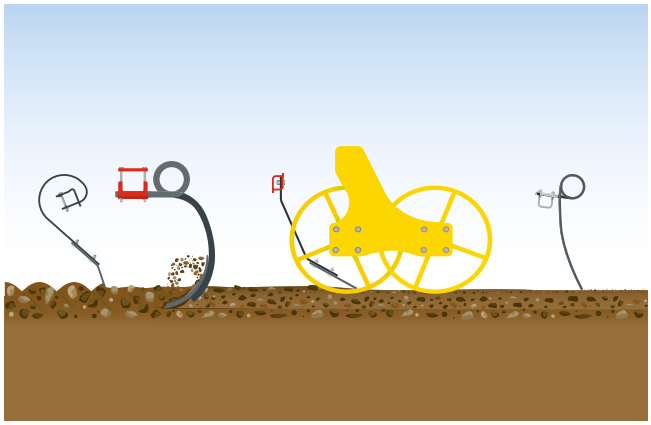
Shallow stubble cultivation

The focus of shallow stubble cultivation starting at a depth of 3 cm is to slice through the stubble, weeds and capillaries over the entire surface. This prevents unproductive water evaporation. At the same time, seeds from weeds and volunteers are encouraged to germinate. Harvest residues are incorporated and inoculant bacteria are activated to start the decomposition process. Several shallow passes can contribute to long-term weed control.



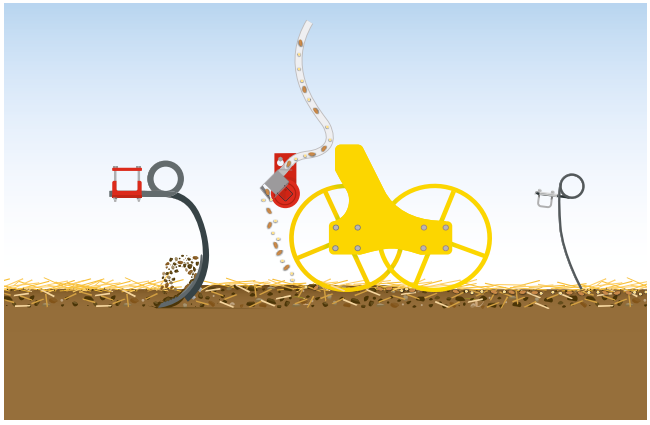
Medium-depth stubble cultivation

Medium-depth stubble cultivation with the PLANO combines loosening the soil to a depth of 15 cm with intensive mixing of harvest residues and direct weed control by covering germinated plants with soil. Mixing the harvest residues with soil promotes rapid decomposition of the organic matter.



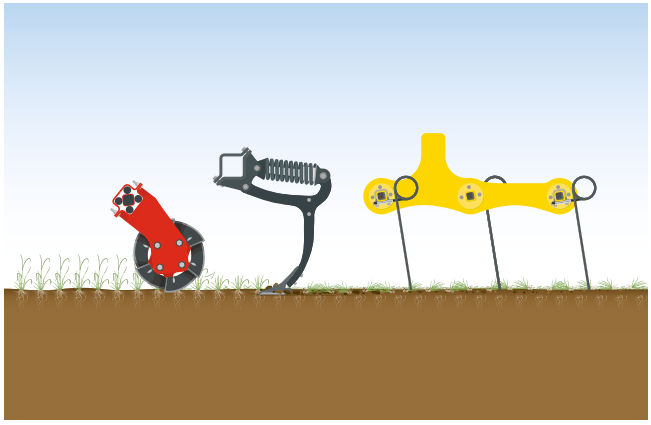
Seedbed preparation after ploughing

After ploughing, it is important that clumps are broken up and levelled, while the soil is crumbled and consolidated. In dry weather conditions, water is retained in the soil and the field is optimally prepared for the seed drill.



Sowing a cover crop

Using the flexible TEGOSEM hopper, a cover crop can be sown during the same tillage pass. Straw residues and weeds are mixed in, the soil is loosened, crumbled, levelled and consolidated with the seed. Depositing the seed material on the surface of the soil over the full width of the machine ensures fast and full-surface coverage.



Incorporating a green manure cover crop

When incorporating cover crops such as clover, the focus is on making sure that the green manure plants cannot continue to grow. The plants are sliced right through and separated from the soil and their roots over the full surface. Because the soil is also reliably removed from their roots as they are deposited on the surface, the plants are sure to perish.

Efficient and cost effective

Wear parts and TRACTION CONTROL

Durability

When cultivating the soil, the tillage tools are subject to unavoidable wear. This depends on various factors. Factors that cannot be influenced are the soil texture, the different grain size distributions, and the mineral composition of the soil. In addition, soil density and soil moisture play an important role. In terms of the ploughing process, the driving speed and the ploughing depth also affect the rate of wear of the wear parts.

Points and shares change their shape and geometry as they become more affected by wear, which can also influence the soil entry angle, the tillage effect and pulling power requirements. On PÖTTINGER tillage tools, tungsten carbide coatings guarantee the highest possible wear protection for more consistent work quality and a long service life.

DURASTAR and DURASTAR PLUS

The duck foot shares are made using DURASTAR PLUS grade material and are equipped with hardened plates at the point and along the horizontal shins. Thanks to their wear resistance, sharp cutting edges and shin geometry are maintained over the service life of the shares. This ensures consistent overlap while the pulling power requirement is kept low and there is no risk of smearing caused by blunt tools.

To ensure a long service life, the DURASTAR chisel points are equipped with two extremely wear-resistant hardened plates at the point. This significantly reduces wear and maintains the shape and length of the chisel points for a long time. They ensure a consistent quality of working results over their service life.

Both the shares and the points have a scale pattern on the front edge, which is designed to fill with soil. The soil-to-soil contact reduces friction and wear, protecting the base metal.

Traction booster

As an option, the drawbar can be equipped with the TRACTION CONTROL hydraulic pulling power booster. This system transfers weight from the cultivator to the rear axle of the tractor. The pressure in the drawbar cylinder can be adapted for different working depths, and deactivated completely for very shallow work. The shift in weight of up to 1100 kg increases traction and eliminates possible wheel slip while reducing fuel consumption. Ultimately, the system reduces operating costs and increases the efficiency of your machine. The integrated nitrogen accumulator provides the necessary ground tracking along the axis of the machine.

The drawbar is equipped with a variable hydraulic cylinder as standard that can be set to either floating or, by engaging swing clips, rigid. In rigid mode, the weight of the machine is transferred to the tractor rear axle. In floating mode, the stubble cultivator follows the contours of the field for perfect ground tracking.

Combining passes

Efficiency and the ability to combine passes is becoming more and more important due to increasingly shorter time frames for getting out into the field. With the flexible TEGOSEM hopper, cover crops and micro-granules can be distributed during tillage to save the number of passes.

While making it easier to stay on schedule for planting cover crops after harvest, it also has a number of agronomic advantages. By establishing ground cover rapidly and extensively, unproductive water evaporation is prevented. Likewise, excess nitrogen in the soil is absorbed by the plants and retained on site. Improving and stabilising the soil structure with organisms increases water infiltration while reducing the risk of erosion.

Convenient and safe

Hydraulic control

To ensure the best working quality, it is essential that the machine is easy to set up precisely and that the working depth can be adapted during operation to match changing conditions in the field. Especially during ultra-shallow tillage, precision adjustment is crucial for finding the optimum working depth. With its fully hydraulic depth adjustment, the PLANO guarantees the highest precision and maximum convenience when setting the machine.

Ingenious edging

A level surface from pass to pass forms the basis for optimum drilling. Thanks to its solid design, the optional edging board ensures that the soil is reliably kept within the working width. Levelling tines are available as an option to be installed after the tine section to level the edges in front of the rear roller. This creates a neat and tidy finish by preventing the formation of ridges between passes, or along the edge of the field.

The set height, angle and position of the edging boards can all be conveniently adjusted. If they collide with any obstacles, they simply fold up to the rear. In addition, compression spring allow the edging boards to deviate to the side. and they do not need to be folded or interlocked during road transport. Ultimately, there is no need to leave the tractor cab when changing fields.

Integrated chassis

The chassis wheels are located inside the work area between the tillage tools, so the PLANO has a compact overall length. The compact dimensions and good manoeuvrability make the machine easy to handle while working in the field. Likewise, neat and tidy working results are achieved right into the tightest corner with an excellent level of ground tracking. The special chassis linkage enables quick lifting and lowering at headlands. The chassis is fitted with 500/50-17 tyres for maximum soil conservation.

Long replacement intervals

The high-strength wear resistant DURASTAR and DURASTAR PLUS grade tillage tools do more than offer cost effective operation. Thanks to their long service life, the replacement frequency, and consequently the work required to change the shares and points, are reduced. Especially during busy phases and demanding work, you won't be held up by changing the tillage tools. As a result, every available minute can be used for productive operation without interruption.

Convenient and safe

Versatile mounting options

The PLANO can be coupled to the tractor either using the lower linkages or a ring hitch. Lower linkage attachment is standard for Cat. 2 and 3; optional for Cat. 4N and 4. The ring hitch version is available as an option with a diameter of 40 mm, 50 mm, or 70 mm. Thanks to the narrow design of the drawbar, a turning angle of 90° is possible for high manoeuvrability. The support leg on the drawbar is operated mechanically.

Safety during road transport

While reliable operation in the field is indispensable, so is safety during road transport. A ground clearance of 35 cm when raised and the optional air brake system contribute to enhancing safety. LED lighting is provided as standard to give the necessary visibility at night. A tine guard is also available for an extra level of safety on the road.

Simple distributor technology

Thanks to its refined design, only three double-acting hydraulic connections are needed to operate the basic version of the PLANO. Double-acting hydraulic connections are required for each of the optional knife roller, front board, and heavy-duty tine harrow. A high level of operating convenience is ensured as a result thanks to a neatly laid out hydraulic system and quick coupling.

Overview of hydraulic functions

- Folding system
- Transport chassis
- Working depth adjustment
- Optional: Depth adjustment of leading tillage tools
- Optional: TEGOSEM fan

Trailed shallow cultivators

Trailed shallow cultivators

PLANO VT 6060

1 Precision tines

The tines work with precision and are arranged symmetrically across the tine section.

- Compression spring tines: hold their position exactly in a straight line
- Spiral spring tines: oscillate to increase their crumbling effect

2 Choice of shares

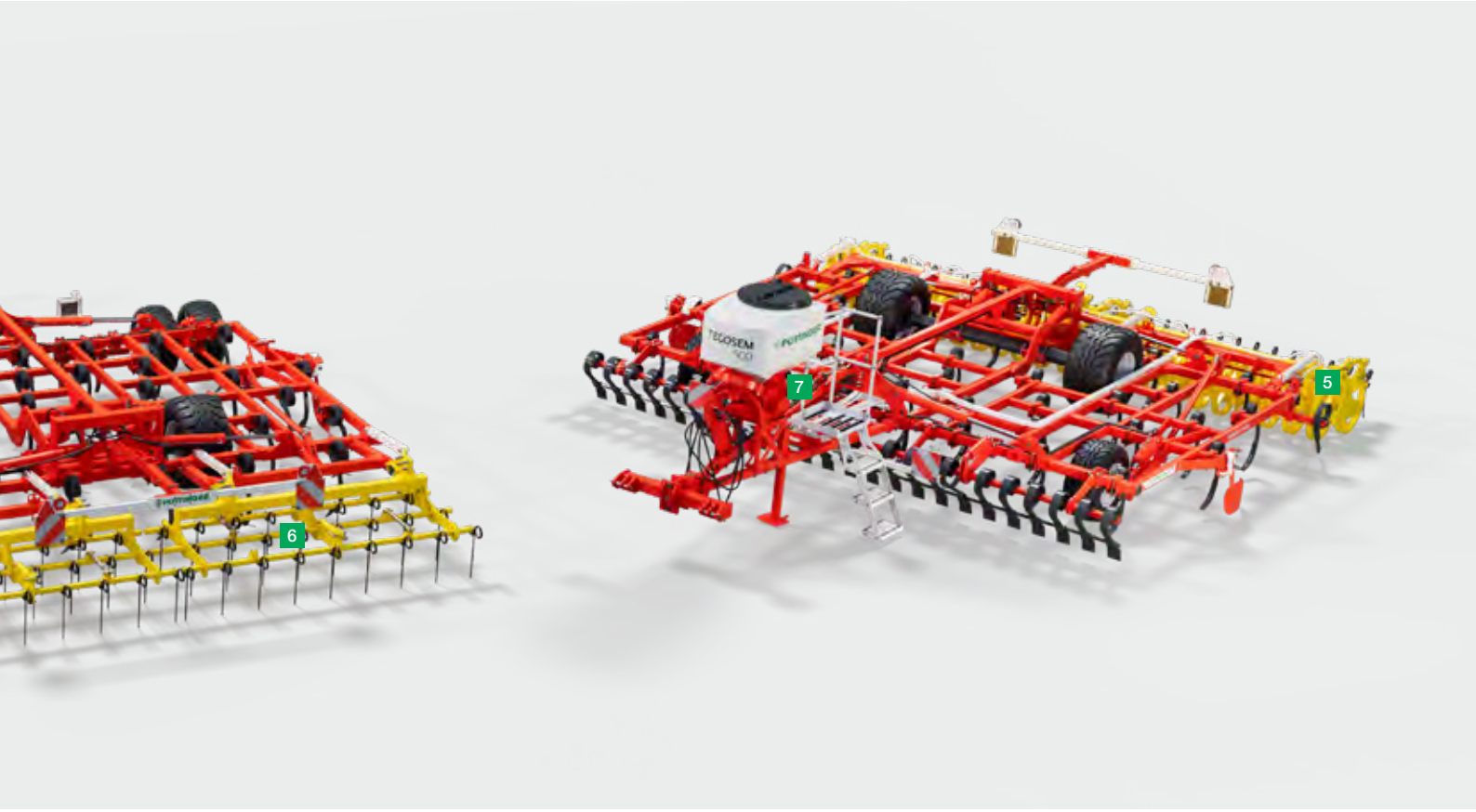
With the choice of shares, shallow full-surface movement is possible, as well as intensive mixing.

- Duck foot share: 220 mm wide for shallow yet full-surface movement
- Chisel points: 50 mm wide for intensive mixing and crumbling

3 Reliable depth control

The working depth of the PLANO VT 6060 is controlled by the front depth wheels and the rear roller, when deployed with the rear roller. The working depth is transferred synchronously from the depth wheels to the rear roller. When operated without a rear roller, the transport chassis is used to control working depth at the rear of the machine.

- Individual depth wheels: integrated into the tine section, can be combined with leading tillage tools
- Dual depth wheels: in front of the tine section, larger area of contact



4 Optional leading tillage tools

Additional tillage tools can be fitted to the PLANO VT 6060 in front of the tine section. This significantly extends the range of applications to deliver perfect working results in different operating conditions.

- Knife roller
- Front board
- Wheel mark loosening tines

5 With and without rear roller

The PLANO VT 6060 is available with a wide choice of rear rollers to match the site-specific soil conditions and applications. Tandem rollers can also be fitted with a levelling board in front of the rollers. The PLANO VT 6060 can also be deployed without a rear roller.

6 Rear tine harrow

The rear tine harrow is available as an option behind the rear roller to round off the cultivation process and deposit organic material on the soil surface. When the machine is deployed without a rear roller, these can be replaced by the three-row heavy-duty tine harrow. Ideal for mechanical weed control and for incorporating cover crops.

7 TEGOSEM

The flexible TEGOSEM hopper can be used to sow cover crops. This means that sowing is carried out directly during soil cultivation in order to save resources and the number of passes needed.

Compatible products

TEGOSEM

PLANO and TEGOSEM 500

The seed material or micro-granules are distributed over the surface by the flexible TEGOSEM hopper, which has outlets close to the ground that spread over a wide area. The rear roller then immediately consolidates the soil and presses the seed down, so the seed is covered for optimum germination conditions. This is a good way to get a cover crop off to a quick start efficiently during the same pass as the tillage. The working time and fuel needed to do this are saved by reducing the number of passes.

Intelligent systems

The flexible TEGOSEM hopper with a capacity of 500 litres is equipped with an adaptable metering shaft, which is electrically controlled depending on the driving speed, and switches off automatically at the headland.

Conveying the material to the distribution system is done pneumatically through hoses. At the distribution system, the material is distributed evenly over the soil by the distribution plates.

A clear and intuitive control terminal is available for operating the flexible TEGOSEM hopper. This is used to optimise the settings according to the operating conditions.

Precision metering

Two different sizes of metering shaft are provided as standard to ensure precision distribution of the seed material or micro-granules. The driving speed controls either the fine or coarse metering shaft, even when low application rates are required. Changing between metering shafts is quick and easy without the need for tools. Before starting work, the system is optimised using a calibration test.

Reliable transport

The material is transported pneumatically through eight spiral hoses from the metering system on the drawbar to the distribution plates. Due to the distance that the material needs to be conveyed, the fan on the PLANO is driven hydraulically. This provides a continuous flow over the entire length of the hose for reliable transport without causing blockages.

Uniform distribution

Surface application and distribution is carried out by baffle plates close to the ground. This guarantees full surface application regardless of the wind conditions. The distributor plates are adjusted by changing the shaft angle to vary the distribution range.

The shaft with the baffle plates is positioned in front of the rear roller. As a result, the seed is immediately pressed into the soil. Soil contact is established and capillary action for successful seed emergence starts straight away.

Simple operation

The different functions and settings of the flexible TEGOSEM hopper are operated using its dedicated control unit. The settings for precision metering are entered and the calibration test is started at the push of a button.

Sensor signals needed during operation, such as the ground speed and the position of the lower linkage, can be input from the tractor. If the tractor cannot provide these signals, add-on sensors are available. For increased convenience, the flexible TEGOSEM hopper is equipped with additional features, including a level sensor.

Equipment options

					
	Compression spring tines	**Spiral spring tines**	**DURASTAR PLUS duck foot share**	**DURASTAR chisel points**	**Individual depth wheel 340/55-16**
PLANO VT 6060	■	□	■	□	■

					
	Levelling board	**Levelling tines between rollers**	**Rear harrow**	**Heavy-duty tine harrow**	**TEGOSEM 500**
PLANO VT 6060	□	□	□	□	□

Dual depth wheel 2x 340/55-16

□

Knife roller

□

Front board

□

Wheel mark loosening tines

□

Edging board

□

Levelling tines for smoothing edges

□

Lower linkage mounting Cat. 2, Cat. 3 / Cat. 4N, Cat. 4

■ / □

Ring hitch 40 mm / 50 mm / 70 mm

□

Long drawbar

□

TRACTION CONTROL

□

Pneumatic brakes

□

Tine transport protection

□

Configure your own machine

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

Technical data

	PLANO VT 6060
Working width	6.0 m
Number of rows	6
Number of tines	37
Tine spacing	16.2 cm
Inter row spacing	65 cm
Underframe clearance	60 cm
Frame tube dimensions	100 mm x 100 mm, 80 mm x 80 mm
Working depth	3 cm – 15 cm
Depth wheel tyres	340/55-16
Chassis tyres	500/50-17
Mounting category	Cat. 2, Cat. 3 / Cat. 4N, Cat. 4
Ring hitch diameter	40 mm / 50 mm / 70 mm
Transport width	3.0 m
Transport height	3.6 m
Transport length[1]	8.0 m
Basic weight[2]	3,900 kg
Power requirement	180 hp – 350 hp

[1] Minimum transport length incl. tandem rear rollers and lights, without rear tine harrow

[2] Basic weight without tine system, rear roller and additional equipment

Cat. 2 = dia. 2 / width 2, Cat. 3 = dia. 3 / width 3, Cat. 4N = dia. 4 / width 3, Cat. 4 = dia. 4 / width 4

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More success with PÖTTINGER

- Your reliable partner, as a family-owned company since 1871
- Specialist for arable and grassland
- Future-safe innovation for outstanding working results
- Roots in Austria – at home throughout the world

Precision in every centimetre

- Water-conserving tillage thanks to full-surface, shallow soil movement starting at a working depth of 3 cm and intensive mixing down to a depth of 15 cm
- Mechanical control of problematic weeds and incorporation of cover crops by shallow slicing that removes soil from their roots
- Compression spring tines that stay in line during operation
- Spiral spring tines for increased crumbling effect
- Cost effective solution that conserves the soil and protects the environment

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