

Manual instruction

Mower **Alpha** 2000
Mower **Alpha** Sensor



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1. Used application

The rotary mower **Alpha 2000 / Alpha Sensor**, adjustable in width, is designed for the use in wine and fruit growing, tested and assessed by the **DLG** ((Deutsche Landwirtschafts- Gesellschaft – German Agricultural Society).

Before realizing the initial commissioning of the machine, please read the operating instructions carefully and observe exactly the instructions and recommendations!

Any operator is obliged to use the mower Alpha 2000 / Alpha Sensor only for the intended use. The intended use is exclusively foreseen for mowing of herbage and is only partly suitable for pruning wood.

UNDER NO CIRCUMSTANCES, the machine may be used for stony grounds. By improper use, the warranty claim expires and the manufacturer is not liable for any damages caused by such unintended use as well as he is not liable for resulting damages towards third parties.

Furthermore, the operating, maintenance and service conditions must be observed. Any user must be qualified for operating the machine by an appropriate training, in order to be able to professionally assess the working conditions and thus, to be able to recognize possibly dangers in time. Besides that, the qualification must correspond to the work requirements regarding maintenance/service. The operator is responsible that the safety, occupational health and traffic regulations will be observed.

Any technical modification at the mower by the operator will result in a result into immediate expiration of complete warranty and/or guarantee claim.

2. General safety and accident prevention regulations

The general instructions for safety and health (VSG) of the Federal Association of the Agricultural (Landwirtschaftliche Berufsgenossenschaft) as well as of the Road Traffic Code must be observed.

The warning- and advising decals attached at the mower **Alpha 2000 / Alpha Sensor** give important hints for a safe operation (see picture).
An explanation of the pictograms (labels) you will find enclosed (page 14-16).

The machine is designed exclusively for an one-man operation; within a radius of 20 m around the machine no persons are allowed to stay. The operator's position is the tractor's seat.

Before start and/or commissioning of the machine, control the environment that no persons are in the danger zone (e. g. turning/swiveling area), especially children!!!!
It is not allowed to stay on the mower before and during the operation, as well as to stay in its working area.

Please observe that the driving behavior and the operability of any safety relevant component such as brakes, coupling etc. will change by accessory equipment. For the commission all safety devices must be installed properly. Before getting off the tractor, lower the machine onto the ground, switch off the motor and turn off the key. Between tractor and mower it is not allowed that any person will stay without the motor being switched off and the mower machine is lowered onto level ground.

Before switching on the tractive unit, make sure that the correct rotational speed of the tractive unit is set (**rotational speed tractive unit = 540 U/min**).

Before switching on the tractive unit, make sure that no persons stay in the danger zone of the mower (thrown object hazard)! Never switch on the tractive unit when the motor is switched off!

During movement with lifted mower, the operating level must be looked against lowering. In lifted status, the tractive unit must be switched off!

3. RESIDUAL RISK

Attention!!!

After switching off the tractive unit, the blades of the mower run on! Only when the machine has stopped completely, it is allowed to approach the mower as well as works to be carried out.

Works must only be carried out when the motor is switched off and the key is turned off.

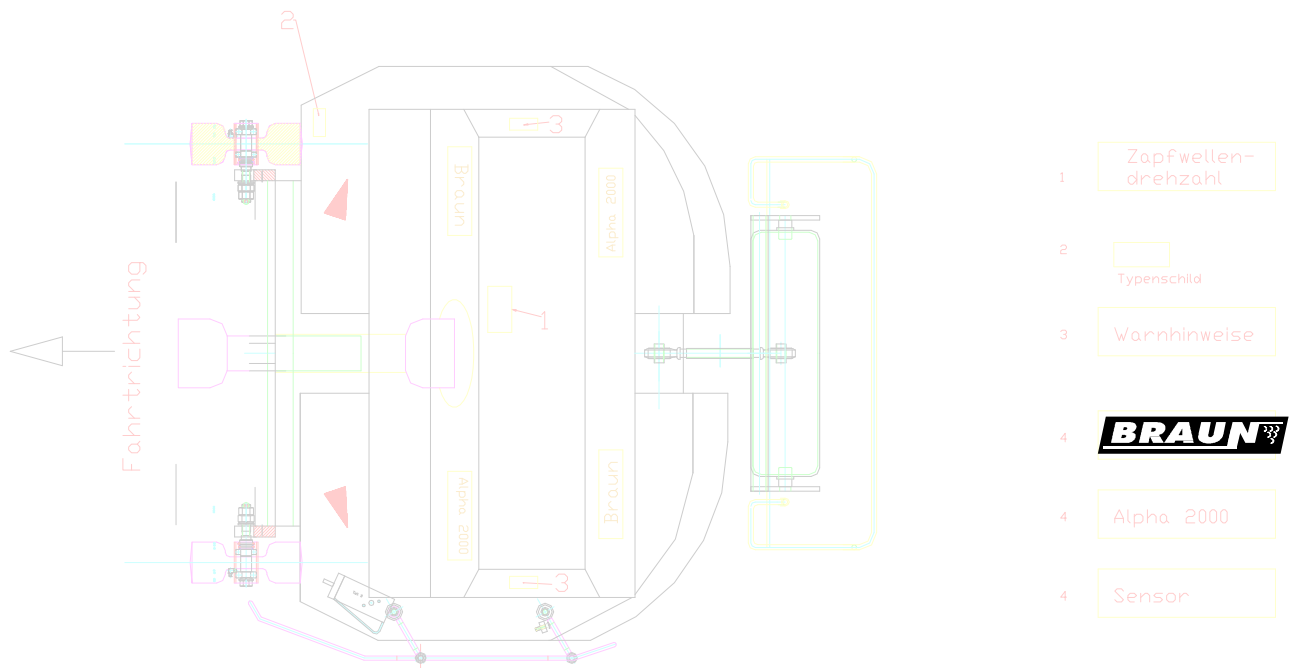
If works under the mower have to be realized, e.g. exchange of the blades, it is absolutely necessary to use adequate supports (brackets).

The noise development is smaller than 85 decibals and therefore, no further provisions must be foreseen.

Attention!!!

By installation of the three-point linkage, there is danger of injury by bruise and shearing points. Therefore, do not step between tractor and mower when operating the external control for the hydraulic lift!

After lowering down the mower, put joint shaft and hoses in the foreseen holding devices (see picture 3) and place the mower on level ground.



4. Mounting and dismounting of the mower Alpha 2000 / Alpha Sensor at the tractor

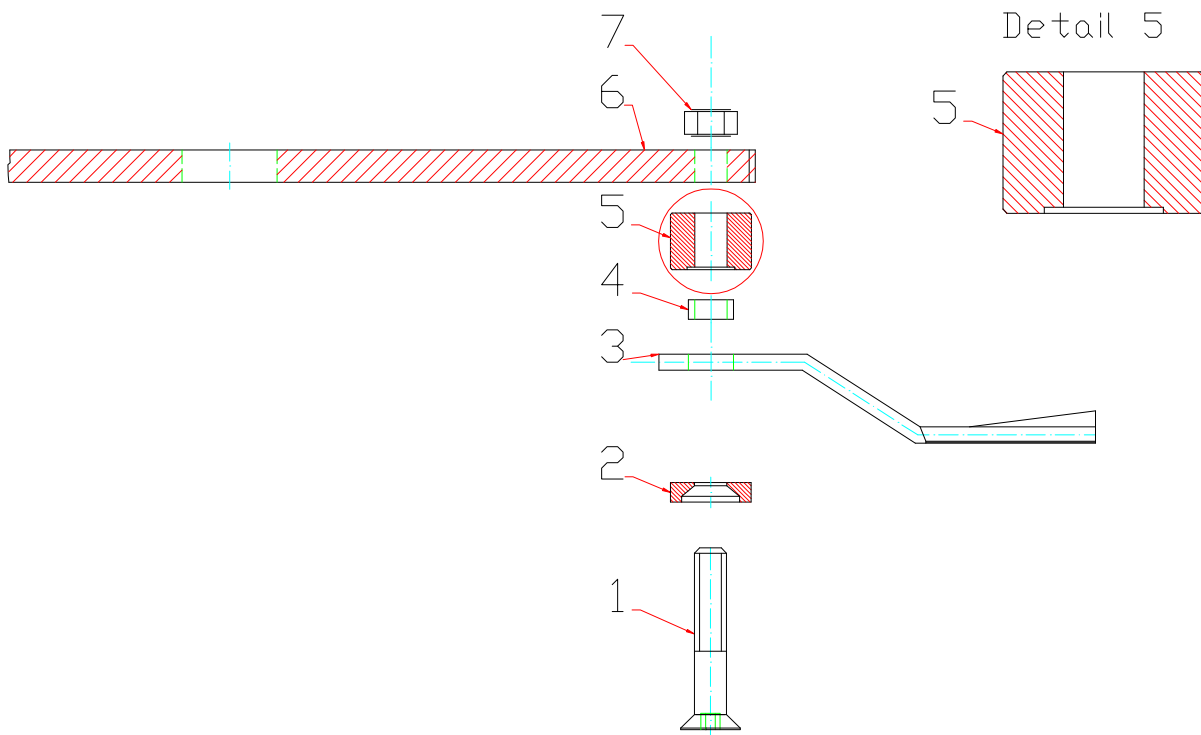
1. First, install joint shaft at the mower (see assembly instruction of the joint shaft manufacturer).
 2. Carry out trimming of the joint shaft according to manufacturer's instructions, hereby, only designcertified joint shafts with complete safety device (protective hose, shaft guard) must be used, otherwise it will result into immediate expiration of complete warranty and/or guarantee claim.
 3. Mounting and dismounting of the joint shaft only when the motor is switched off and the key is turned off.
 4. Secure shaft guard against revolving
 5. The three-point linkage of the tractor must be adapted to the mower.
 6. The mower must be firmly locked in the three-point linkage (lower linkage tensioned laterally).
 7. The release ropes for quick couplings should hang freely and may not release automatically when in lower position.
 8. Lower and upper linkage bolts must be secured by linch pins.
 9. Connect the center-mounted units with hydraulic width adjustment of the Alpha 2000 / Alpha Sensor to a double acting control valve.
 10. By **Alpha Sensor**: connect the marked hoses (black = return, red = pressure) to a single acting spool valve including oil flow management and free return. Please pay attention that the hydraulic couplings will lock.
 11. Lay hoses frictionless and NOT next to the exhaust. Fix them flexibly with hose clamps.
- After lowering down the mower, put joint shaft and hoses in the foreseen holding devices (see picture 3) and place the mower on level ground.

5. General maintenance instructions

1. Maintenance, service and cleaning works may only be realized when the tractor and mower are completely stopped/off (switch key off). In any case, use adequate supports (brackets) under the mower, in order to avoid an intentional endangerment by lowering.
2. **By initial commission, check the firm seat of the screws after 30 minutes and tight them again, if necessary! Check them regularly before every application.**
3. **Before the first operation, check the oil level in the gear, and refill gear oil SAE 80-90 up to the control point, if necessary.**
4. The center gear (R60EX) requires 1,1 liter SAE 80-90 gear oil, the outer gears (M55VEX) require 1,2 liter each.
5. The first oil change should be effected after 50 operational hours.
6. If works have to be carried out under the mower, adequate supports (brackets) are required.
7. By oil change or removing lubricants one must pay attention that the lubricants will be disposed properly.
8. Damaged blades must be replaced immediately, since damages may be caused by imbalance.
9. The blades may only be replaced or repaired by a workshop which is authorized by the manufacturer, since otherwise it will result into immediate expiration of any guarantee claim.
10. Use only original spare parts of BRAUN, since otherwise any guarantee claim expires.
11. The lubrication nipples of the main bearing have to be lubricated only 1-2 strokes per week. Before that the shafts have to be cleaned (see picture 2, position 8).
12. Effect the maintenance of the joint shaft according to manufacturer's instructions.
13. Apply adherent graphite spray to the joint shaft every 30 operational hours or lubricate with Molykote grease and let it dry.
14. Clean the mower after each application, in order to avoid that the herbage will dry onto the slip planes.
15. The hydraulic hoses must be exchanges after 6 years at the latest.
16. Before any maintenance or repair work will be carried at the hydraulic hoses/system, switch off the motor of the tractor and make sure that the hydraulic system and hoses are pressure free. That can be effected by actuating the valve lever at the hydraulic of the tractor.
17. After realization of maintenance works, the protective devices must be installed properly again, otherwise it will result into immediate expiration of any guarantee claim. **Firmly installed, DIN-1553**

6. Assembly/Disassembly of tools

Picture 1



The manufacturer explicitly states that the blade tools must only be exchanged by an authorized workshop. At least, the works should be realized by according to the requirements trained person, otherwise any guaranty claim expires.

Disassembly sequence:

When carrying out the disassembly (with work gloves), first the self-locking nut (Pos. 7) must be released, by stopping the socket head screw (Pos. 1). After that, unscrew the socket head screw (Pos 1).

Exchange always every damaged part. Pay special attention, if there are damages at the worm (Pos. 6) of the holder of the blade.

The following parts must be replaced absolutely:

The socket head screw M20x100 10.9 (Pos. 1), blade (Pos. 3) and the self-locking nut M20.

Locking torque of the nut:	250 Nm
Locking torque of the socket head screw	165 Nm

When installing, pay attention that the socket (Pos. 5) is installed as described in the detailed drawing (detail 5). That means that the turned position must fit into the hardened steel ring (Pos 4).

Assembly sequence:

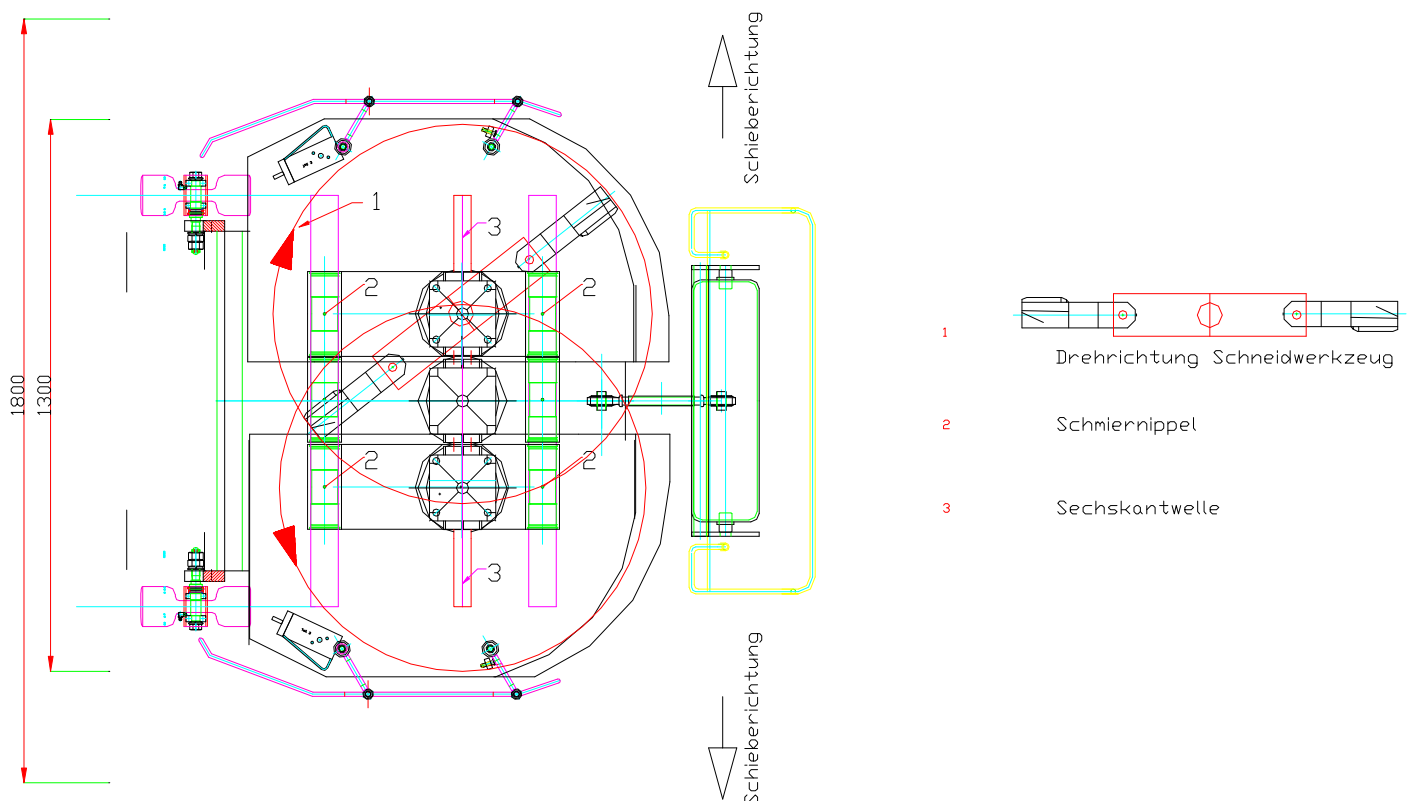
1. At first, tight the socket head screw M20x100 10.9 (Pos.1) using the indicated looking torque
2. After that, use exclusively a self-locking nut (Pos. 7) and tight it according to the indicated torque. Hereby, the socket head screw must be hold firmly and it must be made sure that a loosening is impossible. A used self-locking nut must always be replaced by a new one.
3. The blade edges of the mower must show in rotational direction.

The rotational direction, in view of above, is to be seen in travel direction and clockwise direction (see picture 2).

Use only original spare parts of BRAUN, since otherwise any guarantee claim and operating license expires.

Important! The protective devices which were deinstalled for a better access during maintenance and/or repair works must immediately be installed again. A use or test run without protective devices is strictly forbidden.

Picture 2



7. Application

The with hydraulic width adjustment of the mower Alpha 2000 / Alpha Sensor will be connected to a double-acting control valve.

As far as the mower Alpha Sensor is concerned, the connections for the sensor detection are marked with red for the pressure hoses and black for the return. They will be connected to a single-acting control valve with oil flow divider. The return should be pressure free.

By the hydraulic width adjustment the width of the vine rows can be set, whereby the adjustment can also be modified during the mowing.

In opposite to the Alpha 2000, the Alpha Sensor allows a permanent row adjustment, while moving apart or together the side parts by means of sensors (independently from each other).

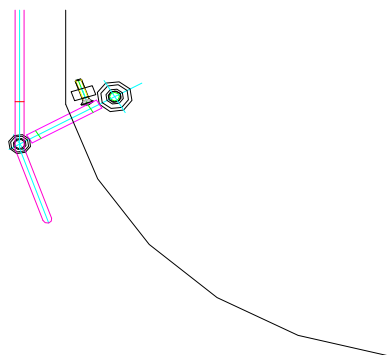
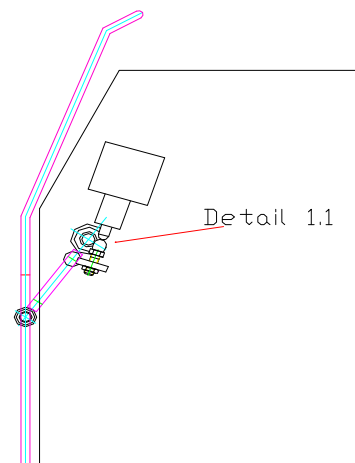
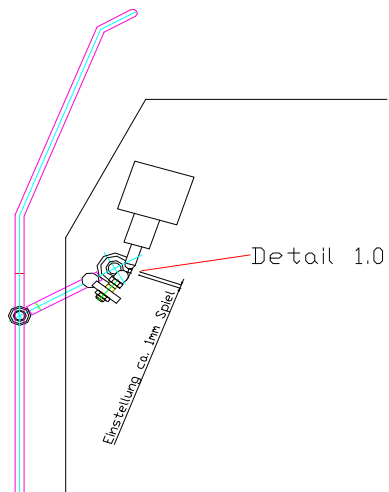
Precondition for that is that the hydraulic width adjustment moves approx. 200 mm apart, in order to allow the detection by sensors (that means, if the mower was moved apart to e.g. 1.600 mm, it can be moved together to 1.400 mm by actuating both sensors, e.g. if actuating only one sensor to 1.500 mm).

By means of the upper linkage (Pos. 2, picture 10), the height of the herbage cutting is set, whereas it is has to be paid attention to the fact that the mower does not run in the ground. For leveling the surface of the herbage rows, especially the BRAUN rotary harrow is proven in use in connection with the BRAUN cultivator.

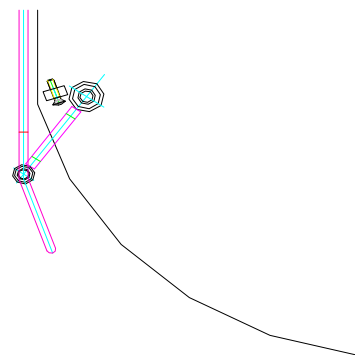
The support wheels can be adapted in height by means of a M16 screw and thus release the tractor, when they run onto the turf.

Please observe that when driving on the roads the mower must be transported according to the Road Traffic Code (totally moved together).

8. Settings of machine / Settings of the sensor system



Detail 2.0

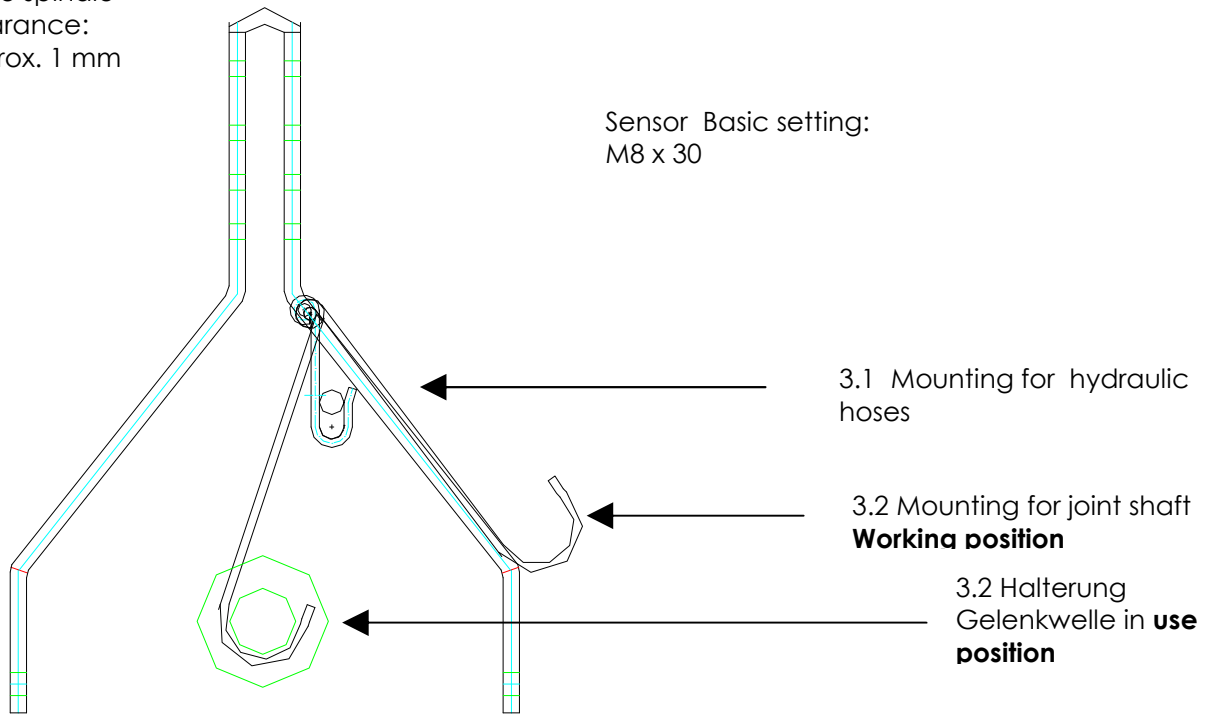


Detail 2.1

If the sensor was not actuated, between the screw ball head and the valve spindle should be a clearance of approx. 1 mm.

Valve spindle
Clearance:
approx. 1 mm

Sensor Basic setting:
M8 x 30

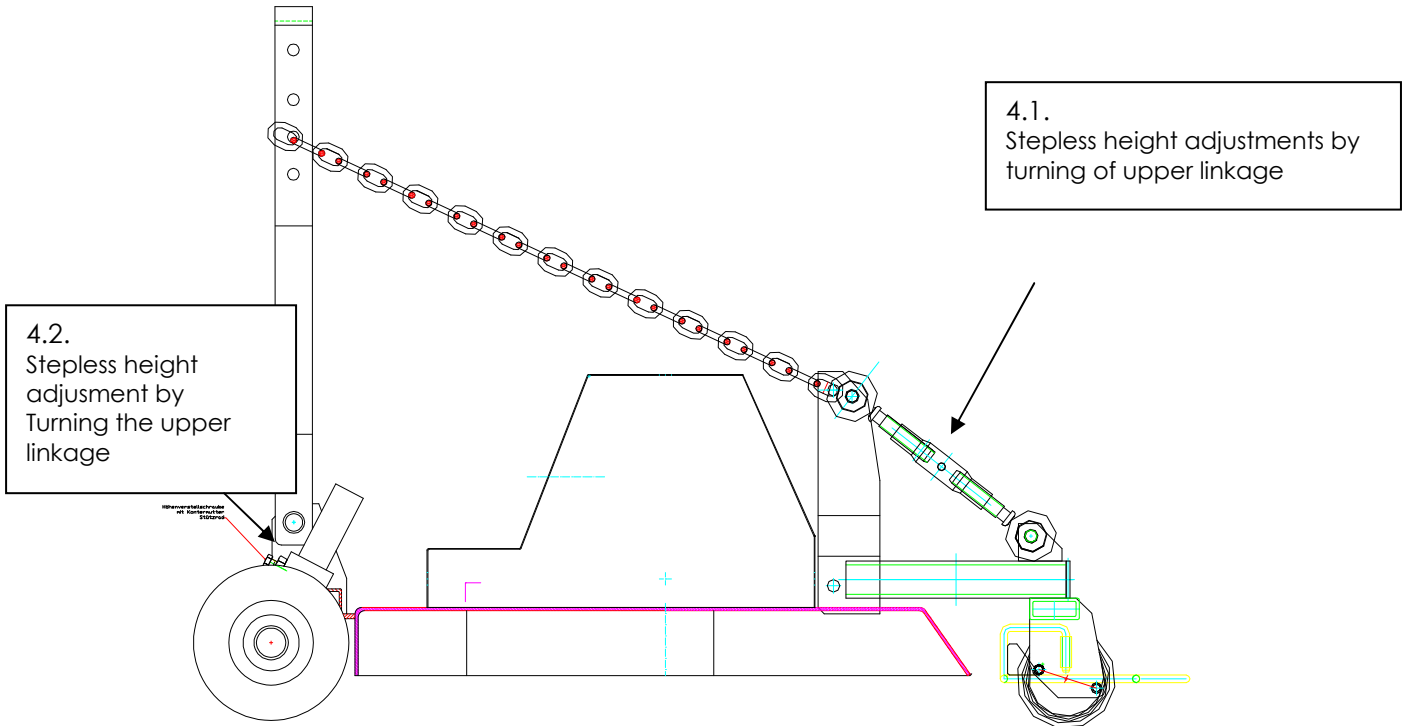


Set clearance:
Set approx. 1mm clearance
between valve spindle and screw
ball head

The **mower Alpha 2000 / Alpha Sensor** is serially equipped with height adjustable support wheels (4.2) and support rollers (4.1).

The guiding of the hydraulic width adjustment are designed with maintenance free plastic bushes and the sensors are designed with maintenance free two-sided closed ball bearings. Due to that the mower requires only less time consuming maintenance works. The support rollers are installed at the base frame and therefore, do not run laterally in the ground and they have no lateral loads when adjusting the working width.

Danger of crushing when lowering the machine.



Technical data

Working width Alpha / Alpha sensor:

TYPE

Weight:

Alpha

Alpha sensor

1.100 – 1.400 mm

460 kg

1.300 – 1.800 mm

540 kg

590 kg

1.400 – 1.900 mm

550 kg

600 kg

1.600 – 2.100 mm

565 kg

615 kg

Overall length:

approx. 1586 mm

Rotation speed blades:

approx. 1680 1/min.

Cardan shaft speed:

max. 540 1/min.

Hydraulic connections:

max. 180 bar

Minimum delivery rate:

15 l/min

Alpha:

1 double-acting valve

Alpha sensor:

1 double-acting valve

1 single-acting valve including oil flow management

1 free return

Setting data:

Sensor-

valve

tappet

at

hydraulic valve:

approx. ca. 1mm

Sensor basic setting stopper: approx. 5mm (center of screw)

Working height blade: Gradual adjustment of the support wheels (M 16)
Infinitely adjustable upper linkage of the support roller

Filling quantity gear oil:

Transfer gear box:	1,1 Liter SAE 80 – 90
Bevel gear (right/left):	1,2 Liter SAE 80 - 90

Change the oil every 350 operating hours. The disposal of mineral lubricants must be effected according to the legal regulations.

Performance data:

Required minimum capacity of the joint shaft:	8,8 kW
Average capacity at the joint shaft:	10,4 kW
Recommended travel speed:	3,8 km/h
Max travel speed:	4,3 km/h

Recommended tractor power: 37 kW / 50 PS
1 kW = 1,36 PS

Tightening torque:

Nut :	250 Nm
Socket head screw M 20 x100 -10.9:	165 Nm

In general, the operator has to pay attention to the fact that the front axle is loaded with at least 20 % of the total weight. This may be achieved by attaching respective auxiliary weights at the front axle.

9. Enclosure

Explanation of the pictograms

No. 1



Vor Inbetriebnahme die Betriebsanleitung und Sicherheitshinweise lesen und beachten!

Carefully read operator's manual before handling the machine. Observe strictly instructions and safety rules when operating!

Lire le livret d'entretien et les conseils de securite´ avant la mise en marche et en tenir compte pendant le fonctionnement!

Leggere attentamente il Manuale dell'operatore prima di far funzionare la macchina. Osservare le norme e le istruzioni di sicurezza durante il funzionamento!

No. 2



Während des Betriebes ausreichend Abstand zum Mähmesser halten.

Stay in sufficient distance to the mower blade as long as engine is running.

Rester a´ l'e'cart du couteau lorsque le moteur tourne.

Stare lontano dalla barra di taglio del tosaerba, quando il motore e' in moto.

No. 3



Maschinenbauteile nur dann berühren, wenn sie vollständig zum Stillstand gekommen sind.

Wait until all machine components have completely stopped before touchingf them.

Attendre límmobilisation comple´te de toutes les pieces de la machine avant d'y toucher.

Prima di toccare i componenti della macchina, attendre che si siano fermati completamente.

No. 4



Vorsicht bei austretender Hochdruckflüssigkeit. Hinweis in der Gebrauchsanweisung beachten.

Avoid fluid escaping under pressure. Consult technical manual for service procedures.

Attention aux fuites de liquide sous pression. Se conformer aux instructions du manuel technique pour les opérations d'entretien.

Evitare gli spruzzi di fluidi in pressione. Per le procedure di manutenzione, consultare il manuale tecnico.

No. 5

Shaft drives area



Sich nicht im Bereich der Antriebswelle aufhalten. Verletzungsgefahr!

Stay in sufficient distance to the rotating drive shaft avoid. Danger of injury.

Pour éviter tout risque de blessures, rester à l'écart de l'arbre de transmission en rotation.

Stare lontano dagli organi rotanti per evitare infortuni.

No. 6



Schutzeinrichtungen bei laufendem Motor nicht öffnen oder entfernen.

Do not open or remove safety shields while engine is running.

Ne pas ouvrir ni déposer les protecteurs le moteur tourne.

Quando il motore è in moto, non aprire o rimuovere la protezione.

No. 7



*Gelenkwelldrehzahl
540 Umdrehungen/ pro Minute*

Permissible operating speed 540 rpm.

Rotation normalise' de l'outil 540 min-1

Attenzione di giri delle prese di forza 540 Min-1