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INSTRUCTION MANUAL

„PS" SEEDING ATTACHMENT

Translation of the original

instruction manual

8th Edition, Issue 05.2025

IM-PS-01

Before using the machine, read the instruction manual!

DECLARATION OF CONFORMITY

Czajkowski Maszyny Sp. z o.o.
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VAT: PL 5030079262

The person authorized to provide technical documentation is the Chairman of the Board of CZAJKOWSKI MASZYNY SP. z o.o., Sokołowo 1c, 87-400 Golub-Dobrzyń, Poland.

Machine:	Seeding Attachment
Type/model:	PS / Czajkowski PS 300 6R / 7R / 8R
	PS 400 6R / 7R / 8R / 9R / 10R
	PS 450 6R / 8R / 10R / 12R
	PS 600 6R / 8R / 10R / 12R / 16R
Commercial name:	PS 300 / PS 400 / PS 450 / PS 600
Serial number/VIN:	_____
Function:	Seeding with strip-till

Product name: Seeding Attachment PS 300, PS 400, PS 450 and PS 600, to which this declaration relates, complies with all the relevant provisions of Directive 2006/42/EC of the European Parliament and of the Council of 17 May 2006 on machinery, and amending Directive 95/16/EC (OJ EU L 157 of 09.06.2006, p. 24).

In order to meet the health and safety requirements of the EC Directive, the following standards and technical specifications have been taken into account:

PN-EN ISO 4254-1:2016-02; PN-EN ISO 4254-8:2018-08;
PN-EN ISO 4254-9:2019-01; PN-EN ISO 12100:2012;
PN-EN ISO 3600:1998; PN-EN ISO 20607:2019-08

This declaration of conformity only refers to the machine in the state in which it was placed on the market and does not cover components added by the end user or any subsequent actions carried out by him.

The user manual is an integral part of the product. The product can only be transferred to another person if it is technically fully functional, together with the attached user manual and declaration of conformity.

INTRODUCTION

The Czajkowski ST/STK + PS (seeding attachment) unit has been designed for strip soil preparation for sowing plants. Before using the machine, read the user manual carefully. Do not read the user manual carelessly, this may cause the machine to malfunction or endanger health or even life. The user manual contains basic rules of conduct and proper use of the machine, as well as instructions that must be strictly followed to ensure your own safety, failure-free operation of the machine, reduction of operating costs as well as reliability and durability of the machine. Everyone operating the machine must read the user manual, be trained and qualified. Machine users should also become familiar with the purpose of all machine components and how to use them. It is necessary to comply with occupational health and safety regulations and pay special attention to warning signs. The strip cultivation unit is intended for field work only. The manufacturer is not responsible for any damage to the machine resulting from its other use. The warranty expires as a result of unauthorized repairs or changes to the machine, as well as neglect and use of non-original parts. If you experience problems operating the machine, please contact the manufacturer's service department.

This instruction manual is an extension of the instruction manual for the Czajkowski ST or Czajkowski STK strip tillage unit.

ATTENTION The user manual is valid on the date of issue. The manufacturer reserves the right to make changes to manufactured products without making changes to the user manual.

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3. Service

Our company has made every effort to ensure that you are fully satisfied with our cooperation and with the continued use of our products. In case of problems, it is recommended to contact the company's service department or our distributor directly. In order for us to solve the problem as quickly as possible, please prepare the following details:

- full name and address;
- model and serial number of the machine;
- model and power of the tractor used with the machine;
- problem description;
- purchase date, hours or hectares worked.

Tips and minor faults - quick telephone assistance:

If you require information or advice beyond the scope of the operating instructions, or assistance in eliminating a minor fault, please contact the service department by phone.

Serious faults and defects - service request:

In case of major problems or product defects, in addition to contacting us by phone, please submit a service request by sending an e-mail to the following address: serwis@uprawapasowa.pl
The e-mail must contain the above-mentioned data required for reporting, a detailed description and photos showing the fault or defect in question.

4. Consequential damages

During the use of the machine, failures may occur due to:

- wear and tear of consumable parts;
- damage caused by external factors;
- failure to follow the user manual;
- excessive driving speed exceeding 30 km/h;
- machine overload;
- neglect of maintenance and care or performing them in an unprofessional manner
- incorrect setting of the machine (failure to follow instructions about settings, incorrect installation);

During the use of the machine it needs to be inspected and checked whether it's working correctly. The company is not liable for consequential damages caused by errors resulting from incorrect handling or transportation. Claims for damages that do not occur within the machine are automatically rejected.

5. Safety

Fig. 1. Pictogram NP001

This user manual contains safety instructions and warnings that apply to all chapters. Machines have been designed and constructed according to the modern technical requirements and recognized safety regulations. However, threats to third parties, health and property of the user, as well as material losses and damage to the machine, may still occur while operating the machine regardless of kept caution. Before starting work, read and follow bits of information and instructions of this user manual.

This warning symbol:  in this user manual indicates important information when there is a particular danger to the user or others.

Safety regulations:

1. In addition to the recommendations contained in this manual, occupational health and safety regulations must also be followed.
2. It is forbidden for minors and individuals under the influence of alcohol or drugs to operate the machine.
3. It is forbidden for unauthorized persons and animals to remain within the range of the machine.
4. Warnings (self-adhesive labels) placed on the machine provide information regarding the safety of the user and third parties and help to avoid accidents.
5. When driving on public roads, you must comply with the regulations of the applicable Road Traffic Code.
6. Before starting work, familiarize yourself with all components, systems and their operation.
7. The operator's clothing should not be too loose, this will prevent it from getting caught in the moving parts of the machine.

8. Each time before starting the tractor and the machine, check their connection to ensure safe driving and work.
9. Before moving off, check the immediate surroundings of the machine and tractor, especially to make sure there are no unwanted people around. Proper visibility is important.

   ATTENTION  It is dangerous for children to be near the unit (especially in the field). Children should be under the supervision of their parents, legal guardian or other adult!!!

10. It is forbidden to stand on the machine during work and transport.
11. Exercise particular caution when attaching to or detaching seeding attachment to the tractor.
12. Before attaching the unit, check whether the front axle of the tractor is sufficiently loaded.
13. Strictly follow rules for axle loads, allowable total weight and transport loads.
14. Before leaving on public roads, check the correct location and operation of traffic lights (road lights, reflectors) required by the regulations of the Road Traffic Code.
15. All lines (hoses, cables, etc.) must be secured in such a way that any unexpected disconnection is excluded, as this could result in accidents and damage.
16. Before leaving on public roads, the machine must be in the transport position.
17. When driving the tractor, never leave the operator's cabin.
18. The speed and driving style of the tractor must always correspond to the terrain and road conditions. In all circumstances, avoid sudden changes in direction
19. While turning, consider a greater scope of deviation and an increased weight of the machines.
20. It is forbidden to stay in the working area of the machine and tractor.
21. Before each machine departure, check that all safety devices are in good condition.
22. Pay attention to crush hazard zones, especially those that are remotely and hydraulically operated.
23. The hydraulic folding of the frame can only be activated when there are no people in the deviation zone.
24. Before leaving the tractor cabin, lower the machine to the ground, turn off the engine, remove the key from the ignition and make sure that all rotating units have stopped.
25. Do not stand between the tractor and the connected machine if the parking brake has not been applied or anti-rolling blocks (chocks) have not been placed under the tractor wheels
26. The folded frame and lifting system must be secured in the transport position.
27. Track markers must be locked in the transport position.

28. Before any activities performed on the machine, make sure that it will not start on its own.
29. Do not use a jack or crane to lift the machine when it is full.
30. Keep the machine clean to avoid fire hazards.
31. Pay attention to danger zones near the rotating parts of the machine.
32. When operating, starting, folding or unfolding the machine, stay outside the danger zone.
33. When filling the tank, do not place any unwanted objects inside the tank
34. Before filling, it is necessary to check that the fertiliser and seed chambers are empty and free of any dirt and foreign elements.
35. The specified tank filling amounts must be observed.
36. During each break, the machine drive should be switched off.
37. When filling the tank, do not under any circumstances enter the fertilizer or seed chamber.
38. The hydraulic system is under high pressure. Escaping liquid may penetrate the skin and cause severe injuries. If you are injured, seek medical attention immediately.
39. There are pressure accumulators in the hydraulic system. It is forbidden to modify or open pressure accumulators. Before maintenance, reduce the pressure in the hydraulic system. After emptying, there is gas pressure in the tank.
40. Use only telescopic shafts with CE marking allowed by the producer of the machine.
41. Anti-slip mats should be replaced with new ones if they are damaged or after a maximum of 5 years of machine use. New anti-slip mat strips must be at least 5 cm wide.
42. The machine with a filled tank must always be hitched to the tractor. The machine can only be disconnected from the tractor if the tank is empty.

6. Rules of conduct in event of a breakdown or accident

- In the event of a breakdown or accident on the road or during work, the scene of the incident must be immediately secured, the condition of the injured persons must be checked and the appropriate services must be notified, e.g. ambulance, fire brigade or police.
- In the event of unexpected breakdowns or faults, work must be stopped immediately, the tractor engine must be switched off and the manufacturer must be contacted, providing the contact details and the serial number of the device provided in the operating instructions.

7. Residual risk

Czajkowski Maszyny Sp. z o.o. has made every effort to reduce the risk of accidents. However, there is a certain residual risk that may lead to an accident if the following recommendations are not followed:

- read the user manual carefully;
- precise and careful operation of the machine;
- do not put your hands into forbidden places;
- secure the machine against children access;
- do not stay within area of the machine while it's working;
- keep a safe distance from dangerous places;
- have the machine maintained and repaired only by qualified individuals;
- have the machine operated by individuals familiar with the user manual.

By following the recommendations above, residual risk can be eliminated.

The most common mistakes while operating the machine are:

- use of the machine for purposes other than its intended use;
- having an untrained person operate it;
- having a person under the influence of alcohol or narcotics operate it;
- performing diagnostics while the machine is working;
- machine maintenance and cleaning with the tractor engine running;
- staying outside the tractor cabin while the machine is working;
- staying between the tractor and the machine while attaching them or while the machine is working.

8. Intended use of the machine

The machine is intended for soil cultivation in agriculture. Any other use (e.g. as a means of transport, etc.) is forbidden and may result in bodily injury or even death. The machine may only be used if it is technically sound and all faults must be repaired immediately. Applicable occupational health and safety regulations, generally accepted principles of occupational medicine, road and technical safety must be followed. The operating manual is an integral part of the machine and should be easily accessible. In the event of reselling the machine, the operating manual must also be passed on to the new owner. Original accessories and spare parts are designed specifically for this machine. The installation and use of non-original parts may result in adverse structural changes and negatively affect the safety of people and machines. The manufacturer is not liable for damage resulting from the use of unauthorized parts.

9. Use other than intended

The machine must not be used for activities that could be foreseen as improper use. The risk associated with using the machine other than for its intended purpose is borne solely by its user.

Examples of using the device contrary to its intended purpose:

- For transporting people or animals,
- For transporting building materials,
- For transporting fuels,
- For subsoiling.

10. Personnel qualifications

In order to avoid accidents, all people using the machine must meet the basic requirements:

- understanding the operation of the machine;
- recognize possible threats and prevent them from occurring;
- have proper physical attributes required to handle the machine;
- carrying out work in a safe manner as described in the manual;
- understanding the operating manual and following the information contained therein;
- have experience in driving vehicles;
- having a driving license for transport on public roads;
- adequate qualifications of people working with the machine;
- having appropriate physical conditions necessary to control the machine;
- supervision by a suitably qualified person of the person being trained in the use of the machine;

The owner or persons who will work with the machine must undergo training conducted by service employees during the first start-up and read the user manual.

It is the owner's responsibility to:

- train and instruct the operator;
- make the operating instructions available to the operator and ensure that the operator understands the information contained therein.

Machine operators must have appropriate knowledge to perform activities such as:

- maintenance;
- use;
- troubleshooting and repairing faults and defects;
- transport on public roads;
- adjustment and setting of the machine.

11. Fire regulations

- The tractor must be equipped with a fire extinguisher and placed in the holder;
- Fuel and hydraulic leaks from the machine and the tractor must be prevented;
- Using open fire or smoking is forbidden when fuelling up and operating the fuel system of the tractor;
- The fuel filler cap on the tractor must be tightly closed;
- The engine must remain turned off while refuelling;
- Flammable materials mustn't be stored in the vicinity of the machine.

12. Transportation on public roads

- Before transportation, the working elements of the machine should be properly folded and lifted according to the manufacturer's recommendations.
- During transport, the width of the folded machine must not exceed 3 m and the 4 m height. You should also remember about the appropriate transport clearance.
- When driving, the prevailing road conditions must be taken into account.
- Always abide by allowable dimensions and weights.
- The weight of the tractor must be appropriately matched to the machine to ensure proper handling and braking performance of the entire set.
- Before driving, check whether the road and warning lights are properly connected and working.

ATTENTION 

- It is forbidden to transport people and objects on the machine.
- It is forbidden to drive on public roads with the filled tank.
- It is forbidden to drive the machine at a speed above 30 km/h.

13. Danger to children

Children in the close vicinity of the machine are subject to exceptional danger. It's forbidden for children to approach the machine. Before leaving the cabin, you must turn the tractor engine off and remove the keys from the ignition so children cannot start the machine by accident. Before starting work, you must check if there aren't any children in the danger zone. Always secure the machine where it's parked.

14. Complaints

Complaints should be submitted to the service department of Czajkowski Maszyny Sp. z o.o.

15. Mounted and trailed equipment

1. Before connecting and disconnecting the suspended device to the 3-point hitch system, the hydraulic lift arms (in an agricultural tractor) should be left in such a position that the hydraulic system cannot start operating automatically.
2. For a three-point linkage system for an aggregated tractor with an STK unit, three-point linkage categories 3 and 4 apply. For a three-point linkage system for an aggregated seeder with an STK unit, three-point hitch categories 1, 2 and 3 apply.
3. Be especially careful in the operating zone of the three-point linkage. You can get crushed or suffer cuts. No one should stand between the Czajkowski STK unit and the PS seed drill or precision seeder when reversing the unit towards the machine.

Fig. 2. Pictogram NP002

4. When operating the three-point linkage from the outside, it is prohibited to:
   - staying between the agricultural tractor and the unit,
   - staying between the aggregate and the precision seeder,
   - staying between the unit and the PS seeding attachment,
   - staying on the unit's platforms.
5. When the machine is in the transport position, pay attention to protruding elements (hooks, rods) of the three-point linkage (if the PS seeding attachment or precision seeder is not connected).
6. It is important to secure the device against unwanted movement and rolling by using the parking brake locks.
7. When hitching with a drawbar, make sure that the drawbar has sufficient range of movement at the hitch point.

16. Warning pictograms

An important safety element of the machine's equipment are warning pictograms that inform about possible threats in dangerous places. The lack of warning pictograms increases the risk of serious and fatal injuries. It is necessary to stick the appropriate warning stickers on spare parts. Dirty warning stickers must be cleaned. Damaged or invisible warning stickers must be replaced immediately. New ones can be purchased from the manufacturer.

Pictograms have the following meaning:

NP001 – Before starting the machine, read the operating manual and follow its recommendations

NP002 – It is forbidden for people to be between the machine and the tractor when hitching the device

NP003 – It is forbidden to transport people on the machine.

NP004 – Before starting inspection, maintenance or repair work, turn off the engine and remove the key from the ignition.

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NP005 – Keep your distance

NP006 – Do not enter the folding/unfolding area of the machine

NP007 – As long as there is a possibility of parts turning/folding, never reach into the area where there is a risk of crushing

NP008 – The pressure accumulator is under gas and oil pressure. Disassembly and repairs should be performed only in accordance with generally accepted technical principles

NP009 – Keep caution when releasing the high-pressure liquid, follow the instructions of the user manual

NP010 – Do not step on rotating components. Use only the platforms provided for this purpose and use the parking brake

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NP011 – After connecting the machine to the tractor, fold the drawbar support

NP012 – It's forbidden to touch working discs while the machine is working

NP013 – Never direct the water stream directly at electronic devices located under the cover

NP014 – Pay attention to the possibility of excessive hydraulic pressure while operating the machine

NP015 – Never reach into the area around the gears where there is a risk of crushing

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17. Technical data

The attachment is a machine that enables sowing at different working widths adjusted to the working widths of aerators and fertilizer machines, e.g. machines for strip till

ST 600, ST 450, ST 400, ST 300, STK 400, STK 300.

The PS attachment has not been adapted for point sowing of seeds (e.g. corn, beetroot), the seed dosing system does not allow for maintaining even spacing between seeds in a row, required for precision seeding.

Table 1. Technical data

MODEL	PS 300S	PS 300	PS 400SH	PS 400/450	PS 600
Working width [cm]	7 x 42,8 8 x 37,5	8 x 37,5	7 x 42,8 9 x 44,4	10 x 40 12 x 37,5	12 x 45 14 x 42,8 16 x 37,5
Transport width [m] *	3				
Transport height [m] *	2,9	2,3	2,9	3,1	3,7
Transport length [m] *	3,7	3,6	3,4	3,6	3,6
Weight [kg] *	1800	2300	2200	3300	4000
Maximum number of coulters	8		9	12	16
Working depth [cm]	From 0 to 12				
Control	Tablet				
Lightning	LED				
3-point linkage	Cat. II i III				
Power supply	12v				

* The given values are the maximum weights and dimensions that occur in a full option of a given version of the machine

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PS 300

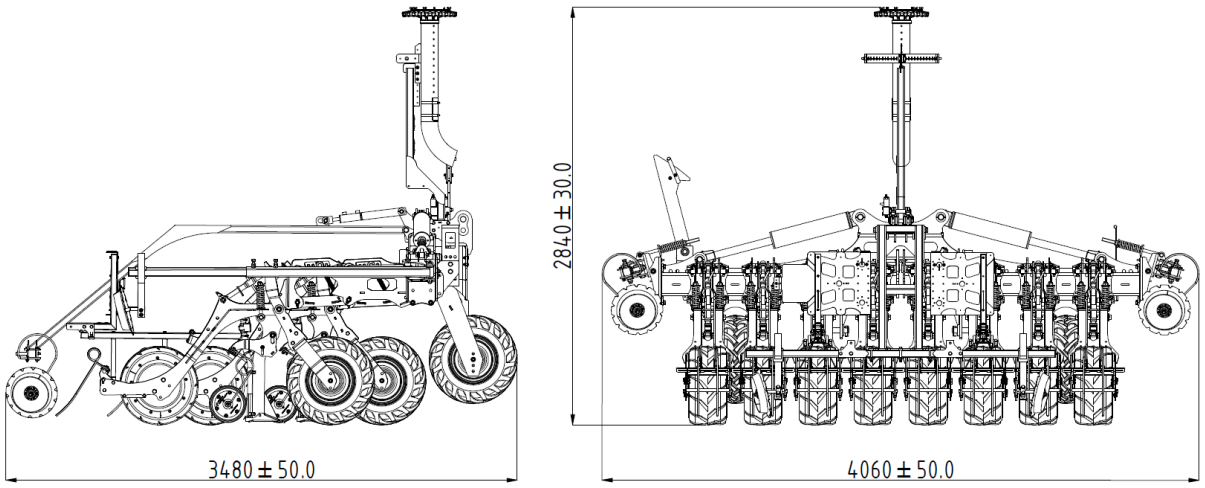

Fig.3. Overall dimensions of PS 300 – working position

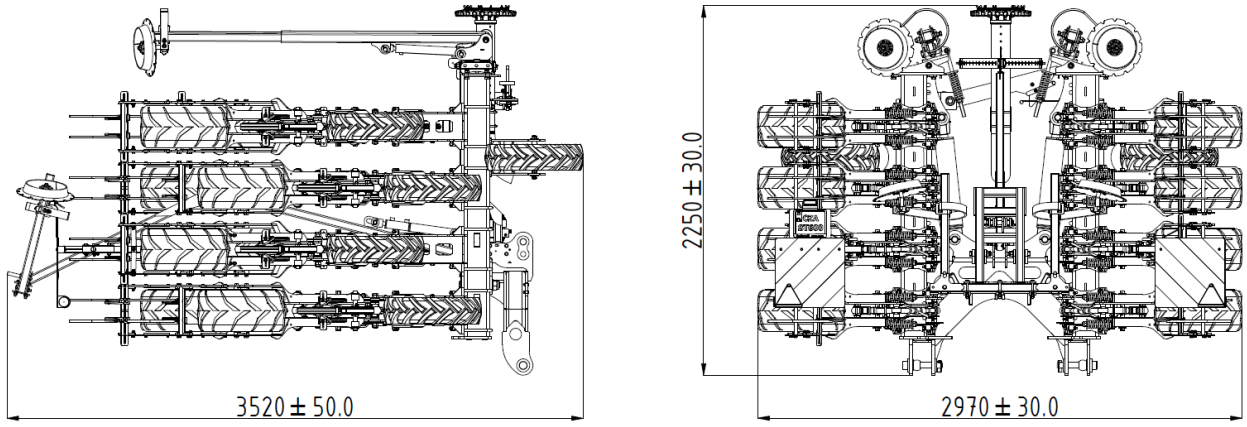

Fig.4. Overall dimensions of PS 300 – transport position

PS 300S

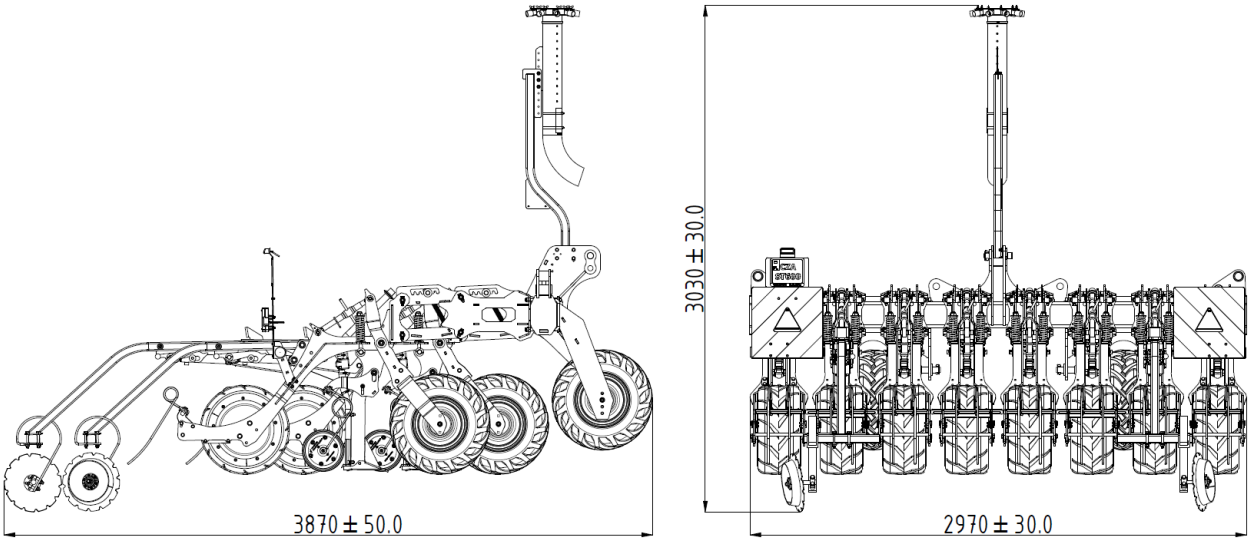

Fig.5. Overall dimensions of PS 300S - working position

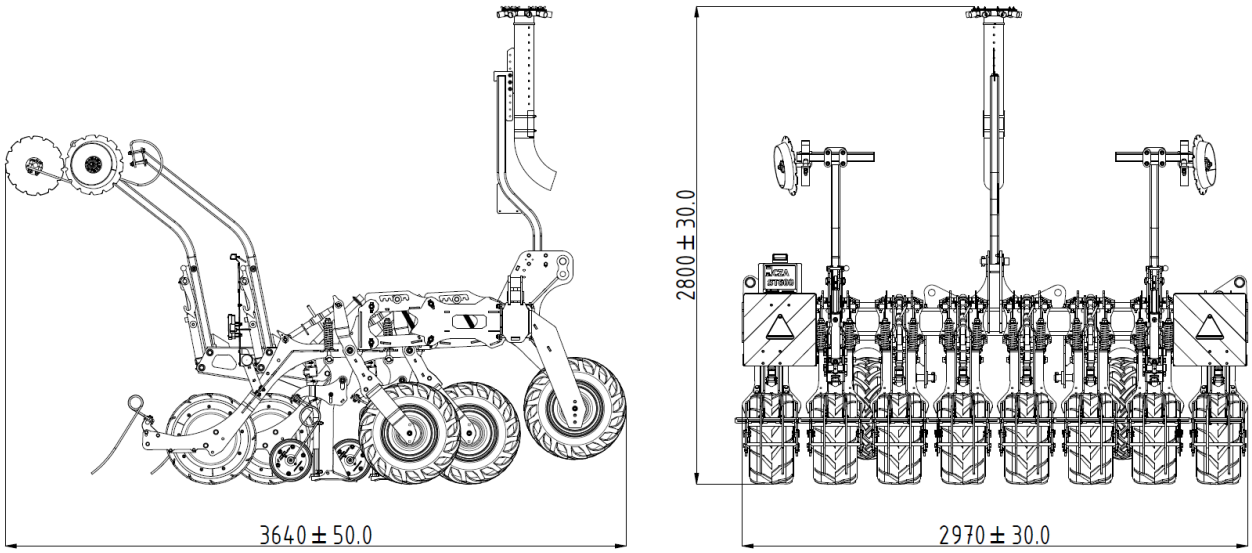

Fig.6. Overall dimensions of PS 300S – transport position

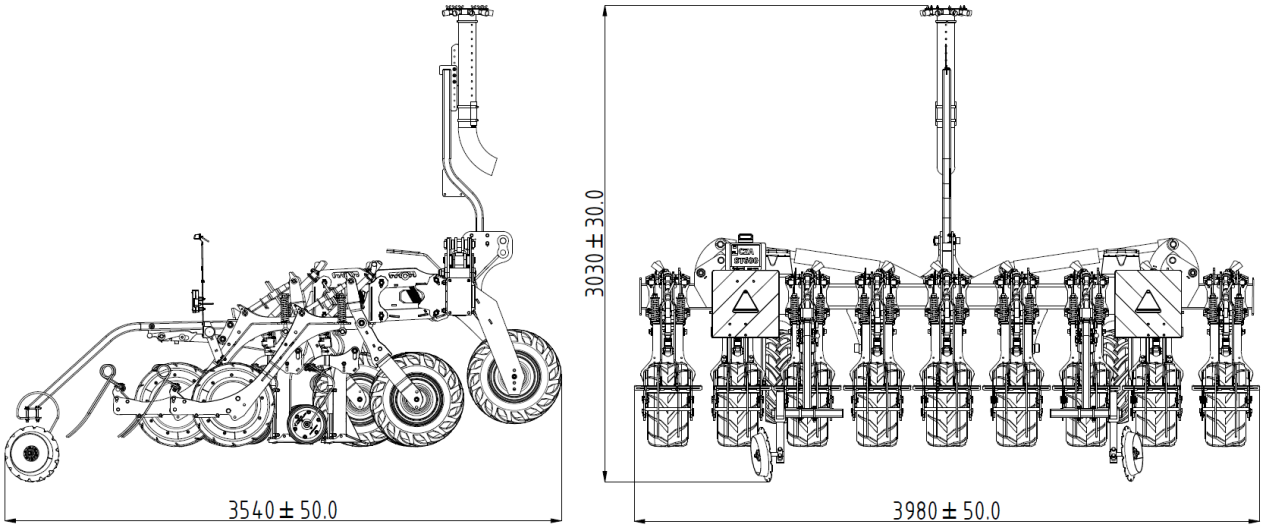

Fig.7. Overall dimensions of PS 400SH - working position

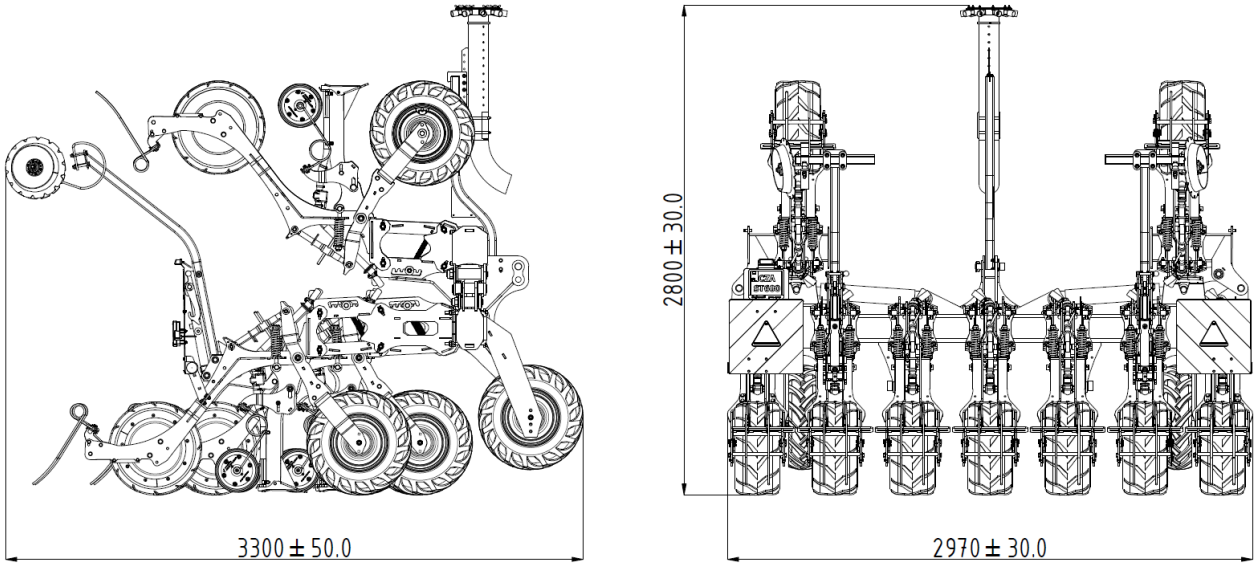

Fig.8. Overall dimensions of PS 400SH - transport position

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PS 450

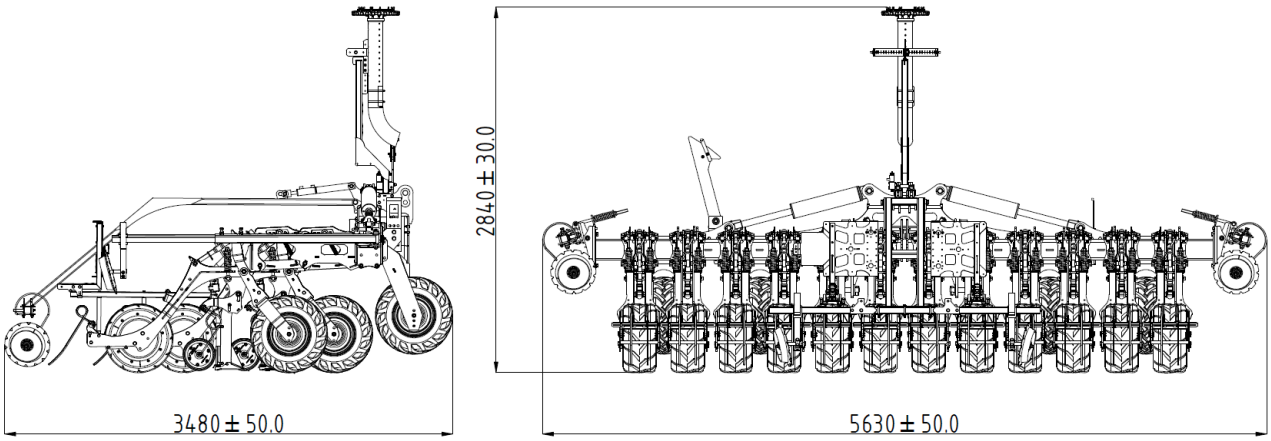

Fig.9. Overall dimensions of PS 450 - working position

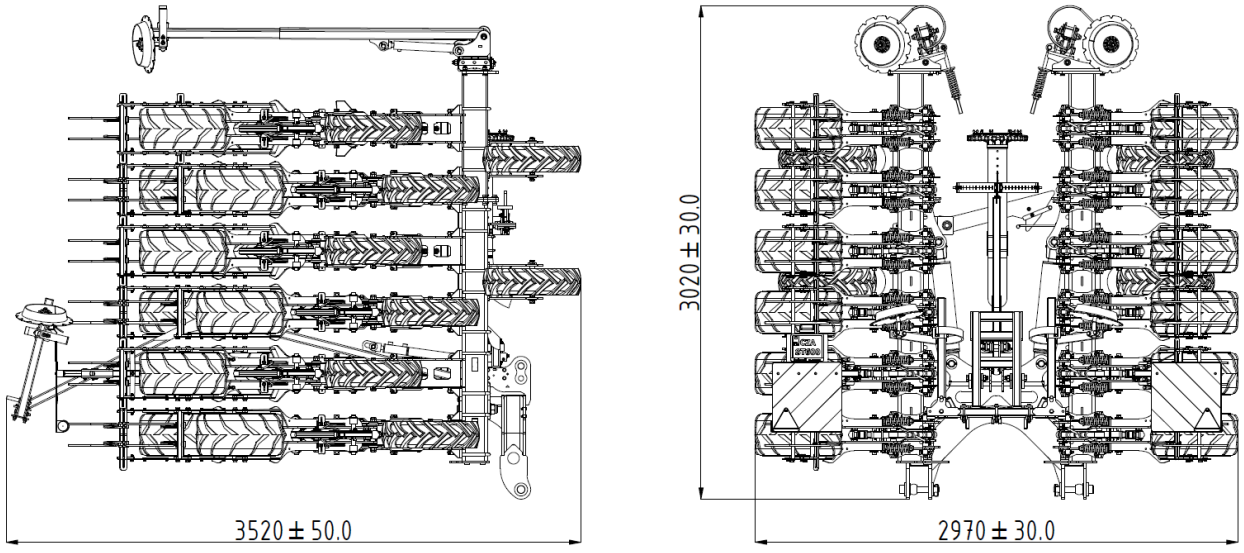

Fig.10. Overall dimensions of PS 450 – transport position

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PS 600

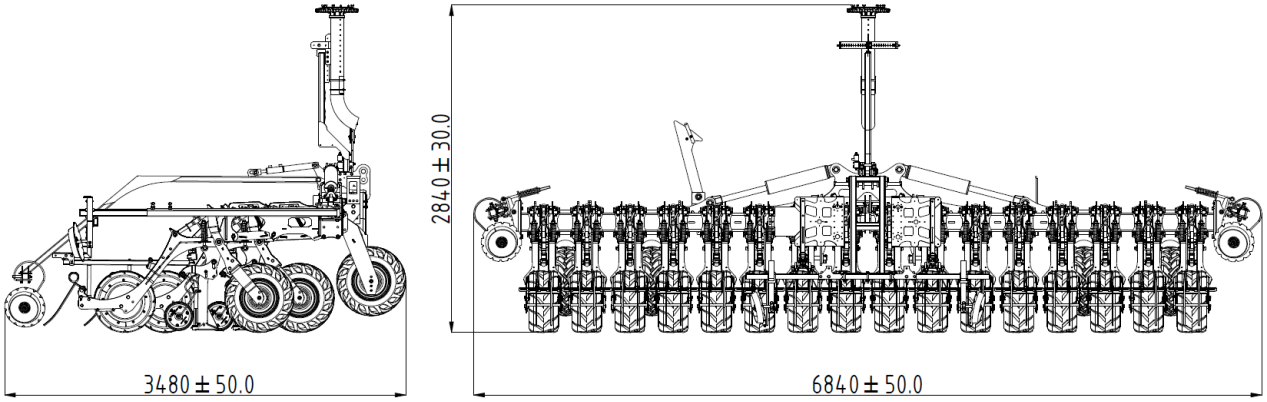

Fig.11. Overall dimensions of PS 600 – working position

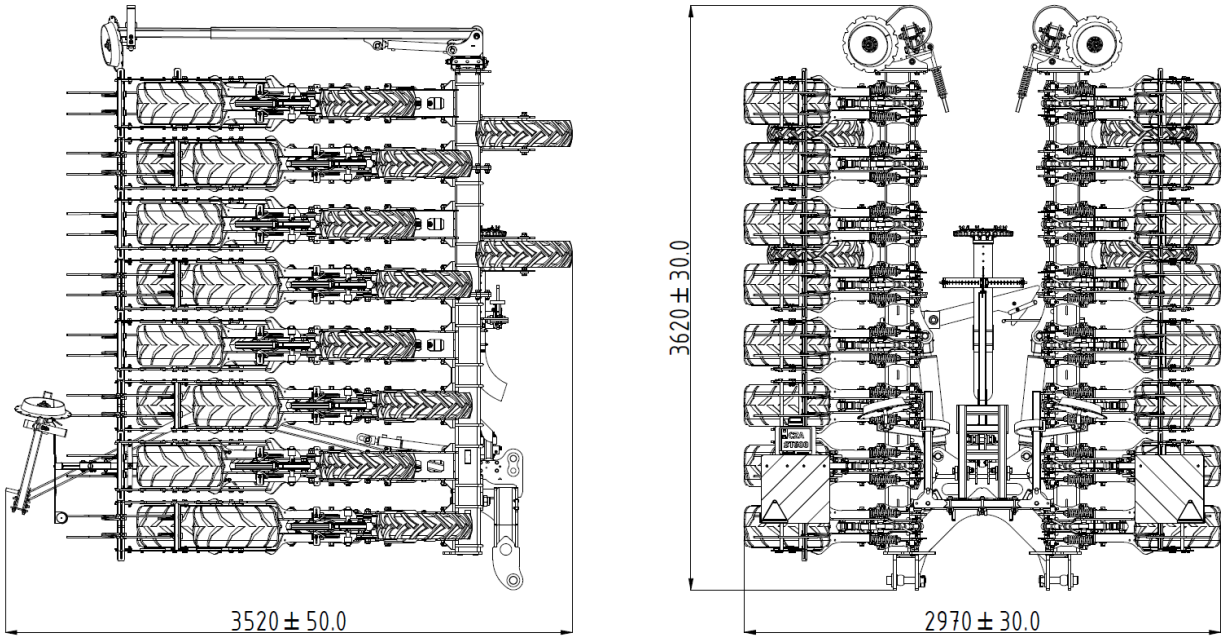

Fig.12. Overall dimensions of PS 600 – transport position

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18. Load calculation

The permissible load capacity of the tyres, axles and tractor weight must not be exceeded when hitching or mounting the equipment. Before road transport, check whether the tractor being used has not been overloaded and is compatible with the machine. The front axle of the tractor must always be loaded with a weight of at least 20% of the tractor's own weight. Due to differences in equipment, machines must be weighed separately to determine their self-weight.

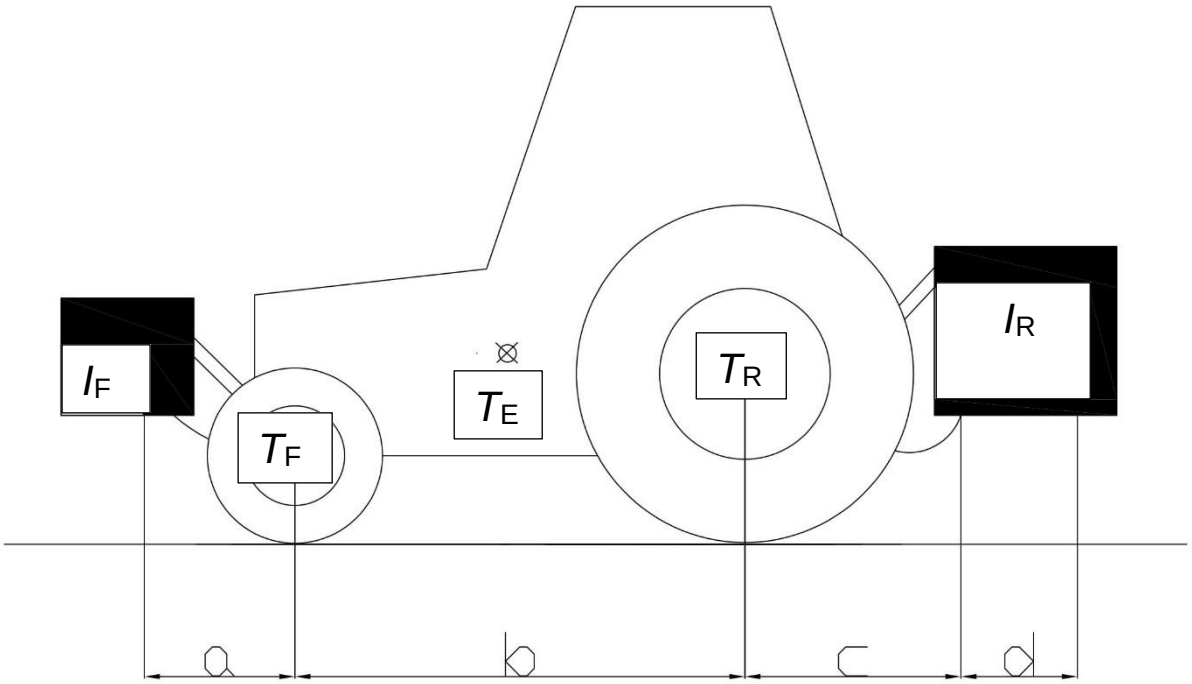

Fig. 13. Load calculation scheme

T_E [kg] – tractor's own weight
T_F [kg] – front axle load of the tractor without load
T_R [kg] – rear axle load of the tractor without load
I_R [kg] – total weight of the rear mounted machine/ rear weights
I_F [kg] – total weight of the front mounted machine/ front weights
a [m] – the distance from the center of the front axle to the center of gravity of the front mounted machine/front weights
b [m] – tractor wheelbase
c [m] – distance from the center of the rear axle to the center of the bottom mounting points
d [m] – distance from the center of the bottom mounting points to the center of gravity of the rear-mounted machine/rear weights
x - the tractor manufacturer's information refers to the minimum rear load (if no additional information is given, enter 0.45).

1. Calculation of the minimum front load when the equipment is mounted at the rear:

$$I_{Fmin} = \frac{[I_R \ x \ (c+d)] - (T_F \ x \ b) + (0{,}2 \ x \ T_E \ x \ b)}{a+b}$$

2. Calculation of the minimum rear load when the equipment is mounted at the front:

$$I_{Rmin} = \frac{(I_F \ x \ a) - (T_R \ x \ b) + (x \ x \ T_E \ x \ b)}{b+c+d}$$

3. Calculation of actual front axle load:

$$T_{Fmin} = \frac{[I_R \ x \ (a+b)] - (T_F \ x \ b) + [(T_R \ x \ (c+d))]}{b}$$

4. Calculation of the real total weight:

$$T_{real} = I_f + T_E + I_R$$

5. Calculation of the actual rear axle load:

$$T_{R\,real} = T_{real} - T_{F\,real}$$

Verification of calculations

The calculations should be additionally checked. It is important to weigh up the front axle load and the rear axle load with the attached machine and the load. The measured values should be compared with the limit values.
In addition, the following should be checked:

- minimum front axle load (20% of the tractor's net weight),
- maximum front and rear axle load,
- allowable total weight.

19. Danger zone

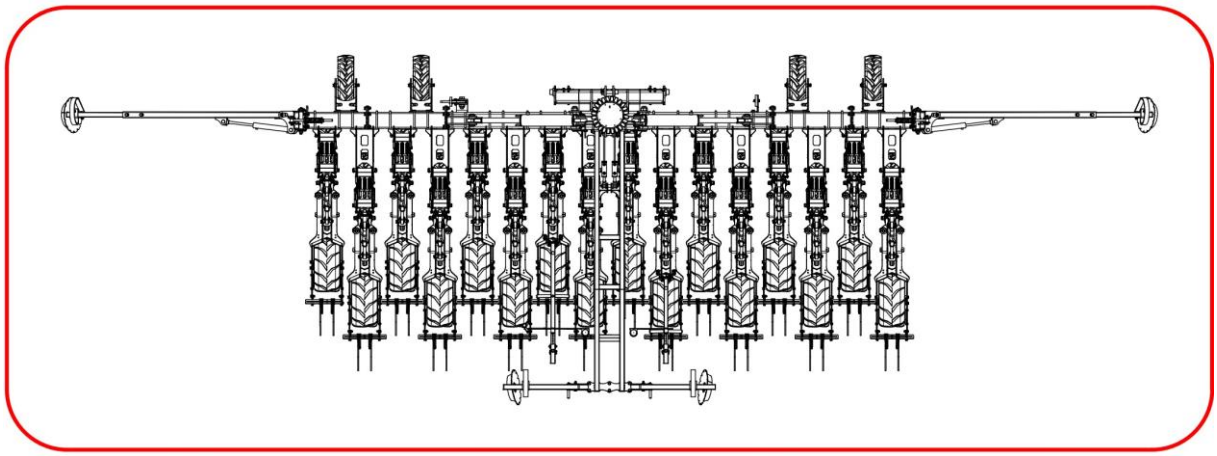

Fig. 14. Danger zone

Figure above shows the machine's danger zone.
The following hazards may occur in this area:

- hydraulically lifted parts may move unnoticed;
- machine movements;
- torn or partially insulated cables may cause electric shock;
- accidental activation of the hydraulic system may cause uncontrolled machine movements.

Entering or remaining in the danger zone may result in serious bodily injury or death. It is forbidden for people to stay in the area between the machine and the tractor. The tractor engine must be turned off when in the danger zone - this also applies to routine inspections. It is forbidden to stay under the lifted elements of the machine.
Compliance with the operating instructions is mandatory.

ATTENTION ⚠ When moving and unfolding the machine, check whether there are no bystanders within the danger zone.

20. Use of fertilizers and treated seeds

The manufacturer recommends using high-quality original fertilizers with a moisture content that allows the seeder to work without any issues. Both fertilizers and treated seeds must be handled in a professional manner that does not endanger the life and health of the operator.
The manufacturer's safety specifications must also be followed, if there aren't any, please contact the dealer or manufacturer. When working, you need to have personal protective equipment, that complies with information provided by the manufacturer, at hand.

21. Identification plate

Fig. 15. Certification ID plate

22. Certification ID plate location

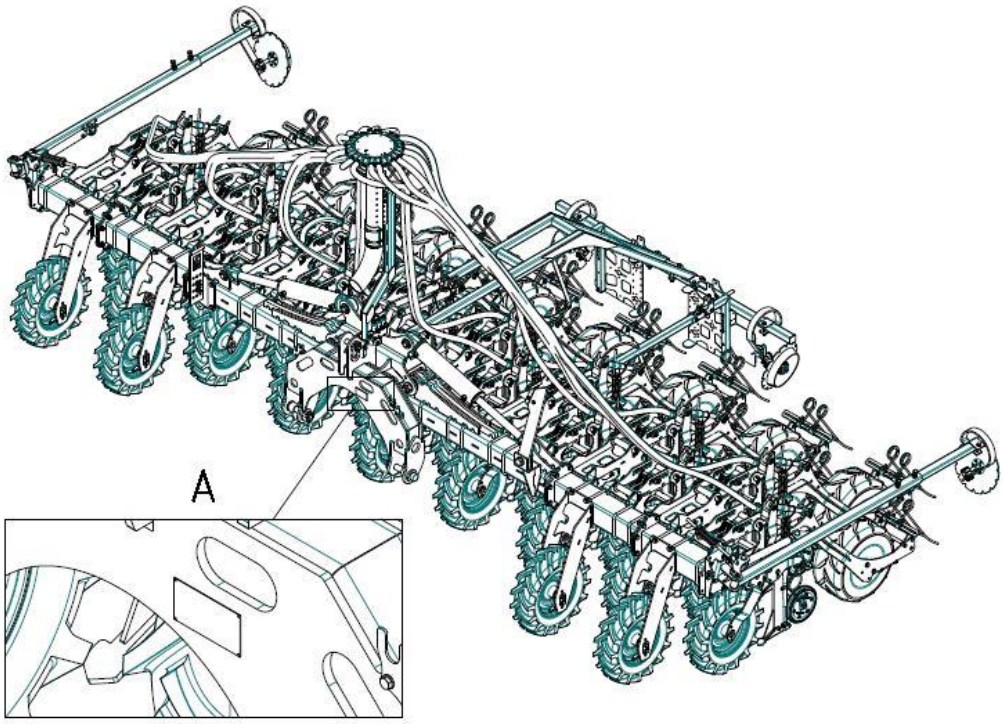

Fig. 16. Certification ID plate location

23. Handling

23.1. Preparing machine for work

Before starting work, check the technical condition of the machine, especially the condition of the working elements. If the working elements are found to be worn, replace them with new ones.
Additionally:

- Check the screw connections and pins, working sections, tighten loose connections, secure pins.
- Raise the machine to the transport position and check the folding and unfolding of the machine.
- Check the condition of the hydraulic and pneumatic hoses of the machine, whether there are no leaks and pressure losses, damage. Replace damaged hoses with new ones.
- Check whether the quick connectors of the machine's hydraulic hoses match the hydraulic sockets, adjust if necessary.
- Check the cable (extension) between the agricultural tractor and the precision seeder.
- Check the spacing of the working sections whether it corresponds to the planned sowing, adjust if necessary.
- Lubricate the machine according to the instructions given in the chapter "Greasing points".

ATTENTION  Do not reverse or turn around with the machine lowered. This may result in damage to the machine.

23.2. Operator position

The machine operator's position is located in the tractor cabin. The machine is operated by one person.

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23.3. Operating the hydraulic system

The hydraulic system is under high pressure. Escaping fluid can penetrate the skin and cause serious injury. If you are injured, seek medical attention immediately. The hydraulic system of the machine can pose a risk to people and the machine itself in the event of incorrect operation.

It is important to pay attention to the following aspects:

- The system is under high pressure;
- Hydraulic hoses may only be connected to the tractor when the hydraulic systems of the tractor and the implement are depressurized.
- Leaking oil can cause fires and endanger health.
- All hydraulic lines (hoses, fittings) should be regularly checked for visible damage or leaks. If any exist, they should be removed immediately.
- Plugs and sockets for hydraulic connections must be marked to prevent operating errors.
- Hydraulic hoses should be replaced at least every 6 years.
- There are pressure accumulators installed in the hydraulic system.
  It is forbidden to modify pressure accumulators. Before maintenance, it is necessary to reduce the pressure in the hydraulic system. After emptying, the gas pressure is present in the tank.

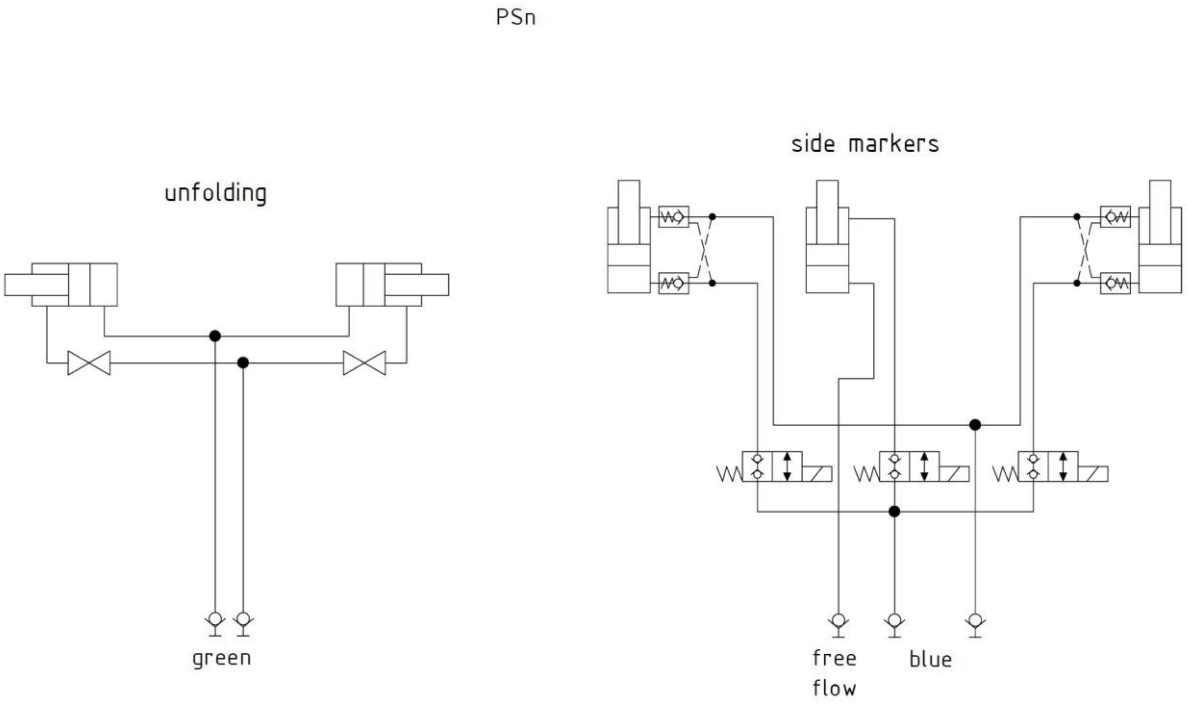

Fig.17. Hydraulic scheme

23.4. Sowing hose system

The hose system is always prepared for full equipment, the hoses should be attached individually to the distributor. In case of changing the spacing, the type of cover and hose lengths should be adjusted according to the diagrams shown below:

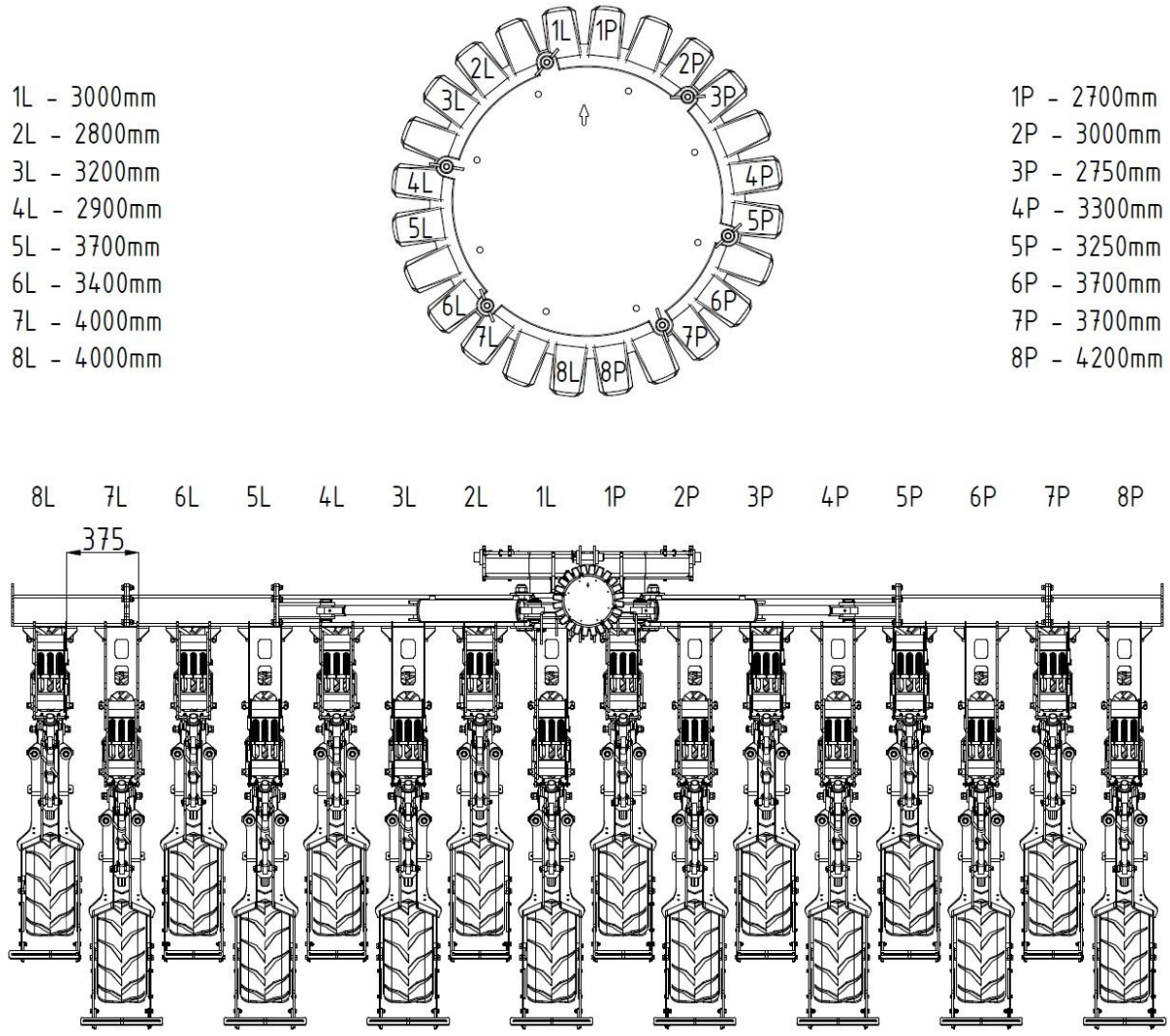

Fig.18. Spacing 16 x 37,5

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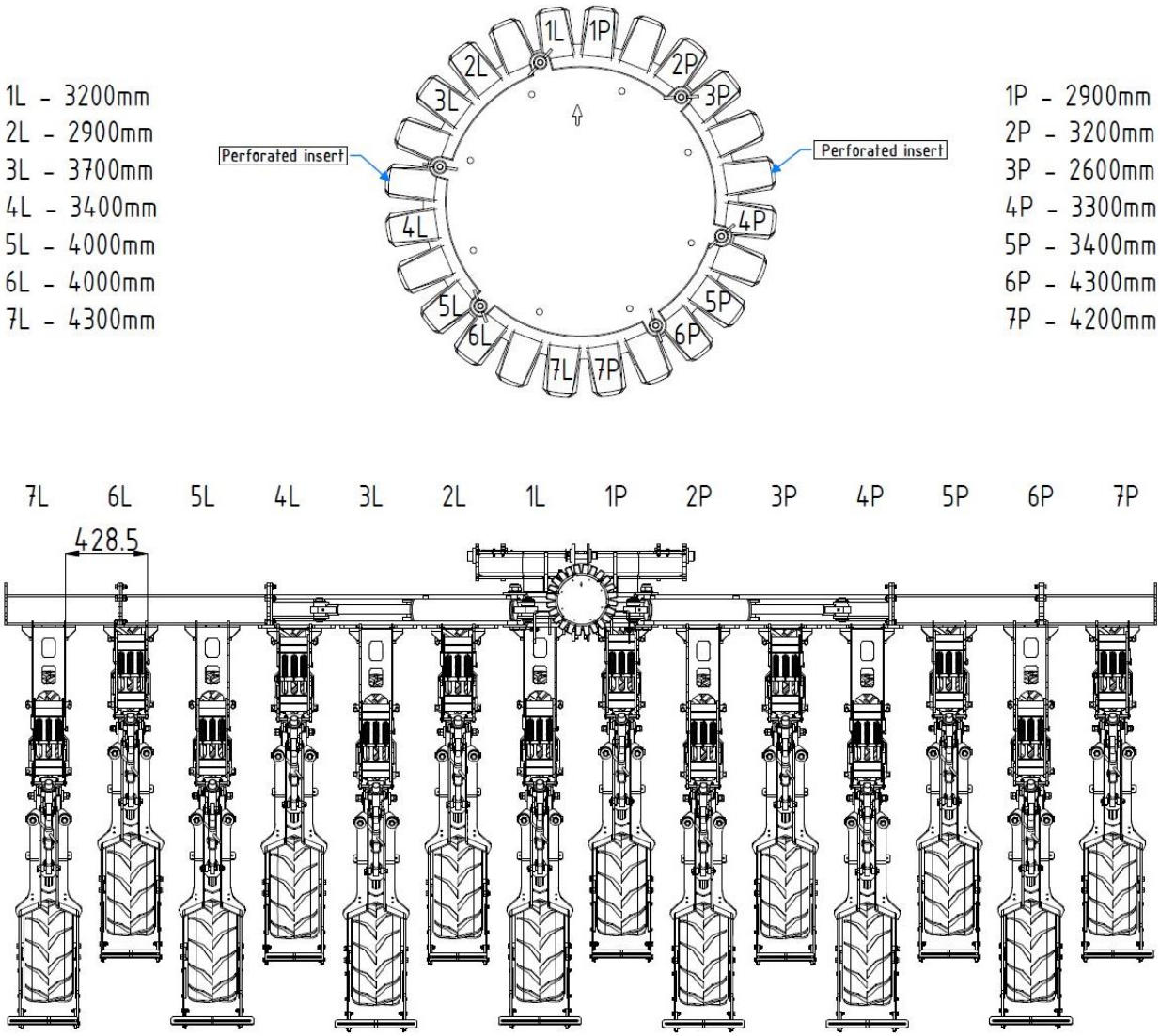

Fig.19. Spacing 14 x 42,8

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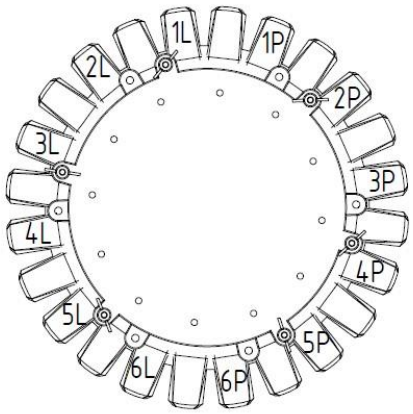
1L - 3000mm
2L - 2600mm
3L - 3000mm
4L - 3150mm
5L - 3800mm
6L - 4000mm



1P - 2900mm
2P - 2900mm
3P - 2600mm
4P - 3300mm
5P - 3400mm
6P - 4300mm

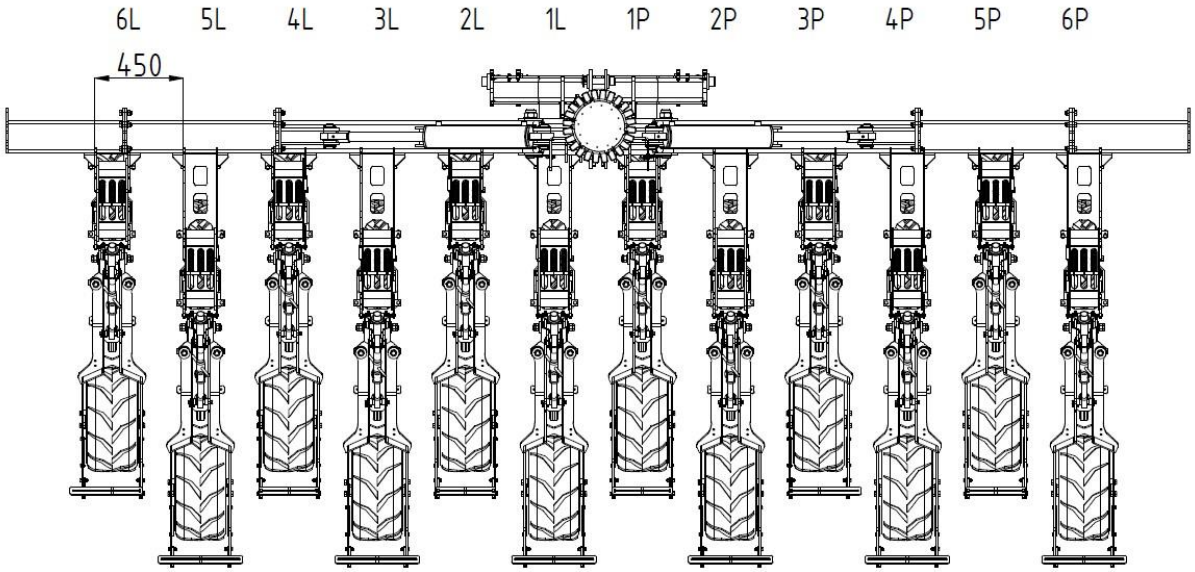


Fig.20. Spacing 12 x 45

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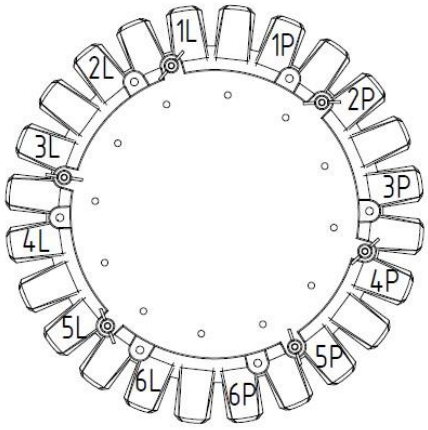
1L - 3000
2L - 2800
3L - 3200
4L - 2900
5L - 3700
6L - 3400



1P - 2700
2P - 3000
3P - 2750
4P - 3300
5P - 3250
6P - 3700

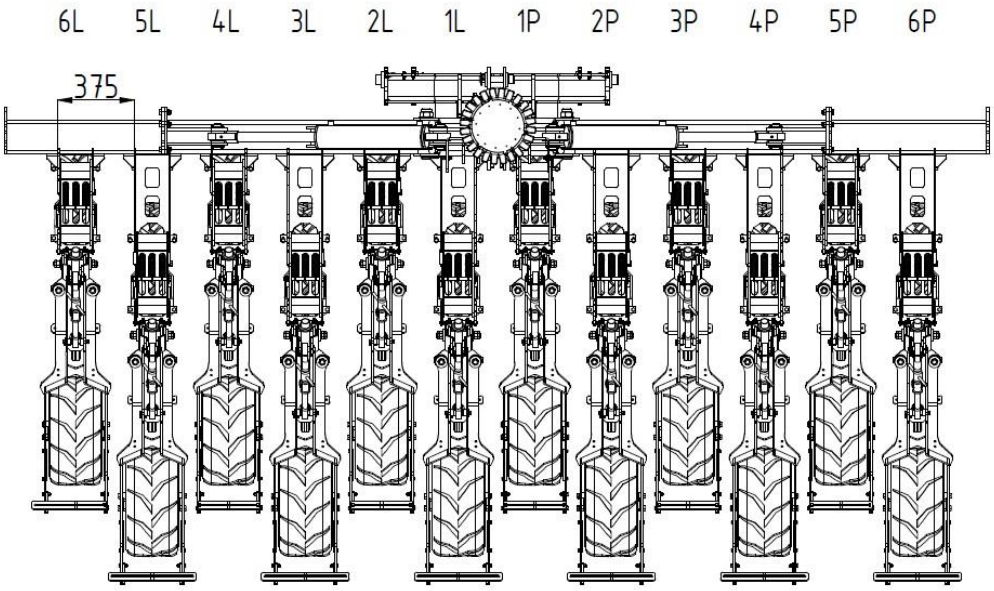


Fig.21. Spacing 12 x 37,5

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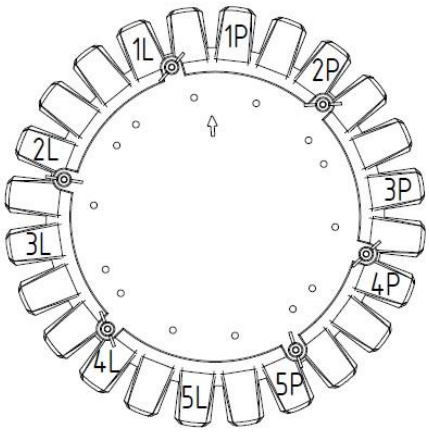
1L - 2900
2L - 2650
3L - 2750
4L - 3050
5L - 3600



1P - 2900
2P - 2850
3P - 2700
4P - 3200
5P - 3750

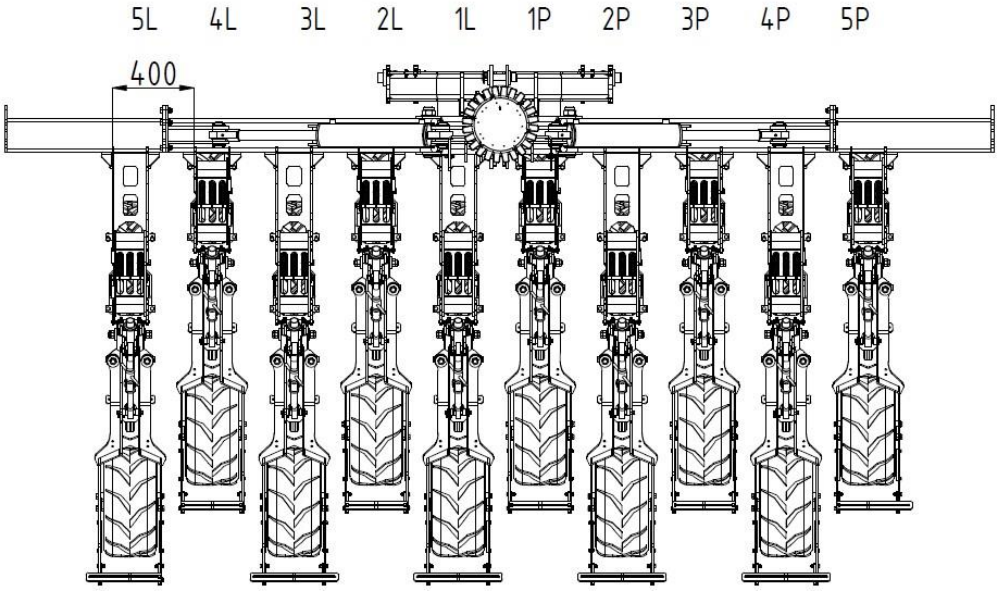


Fig.22. Spacing 10 x 40

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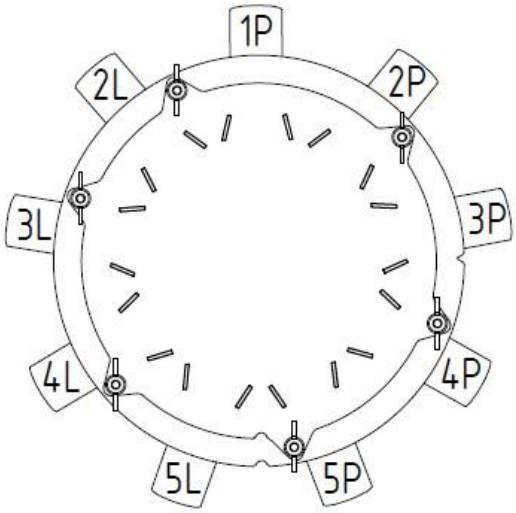
1P - 2500
2P/2L - 2650
3P/3L - 2250
4P/4L - 2750
5P/5L - 3000



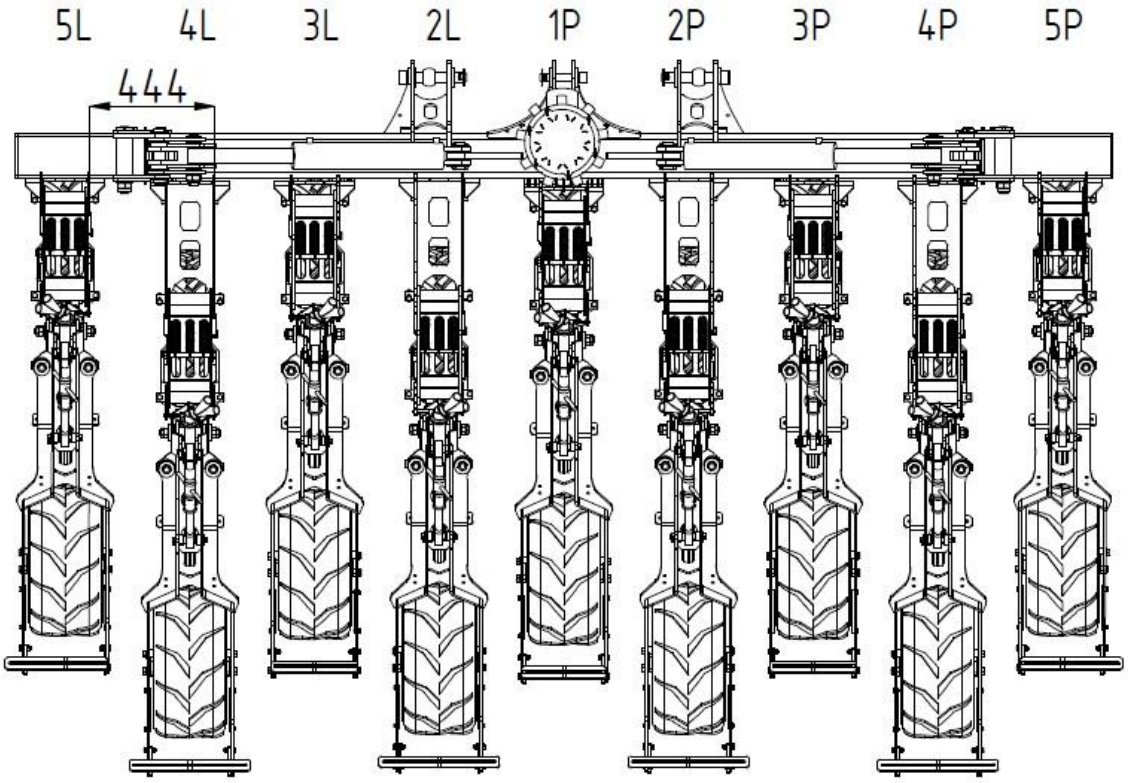


Fig.23. Spacing 9 x 44,4

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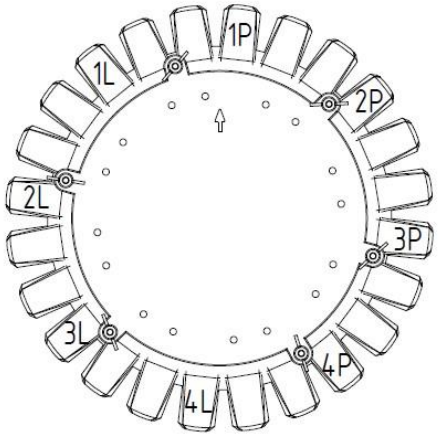
1L - 2650
2L - 2500
3L - 2700
4L - 2600



1P - 2500
2P - 2700
3P - 2550
4P - 2750

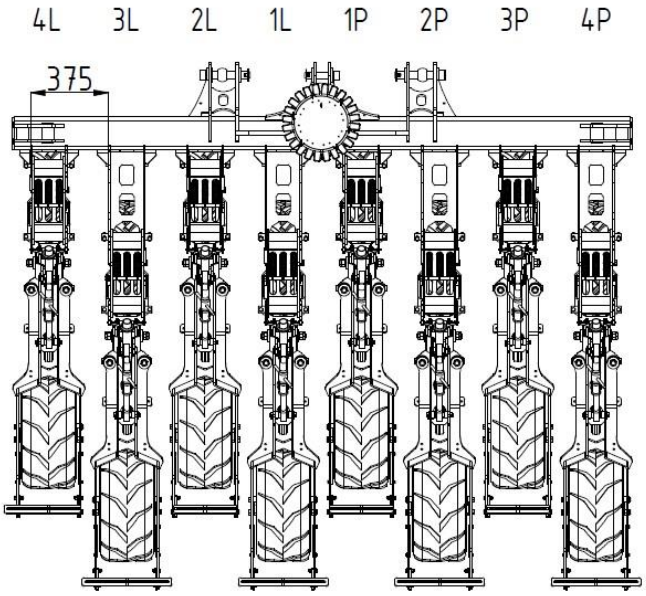


Fig.24. Spacing 8 x 37,5

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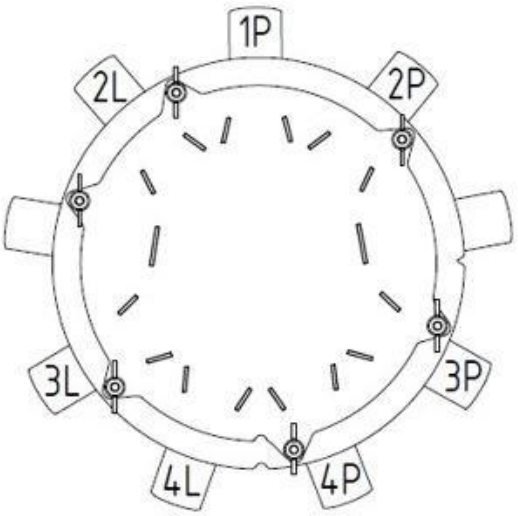
1P - 2500
2P/2L - 2650
3P/3L - 2250
4P/4L - 2750



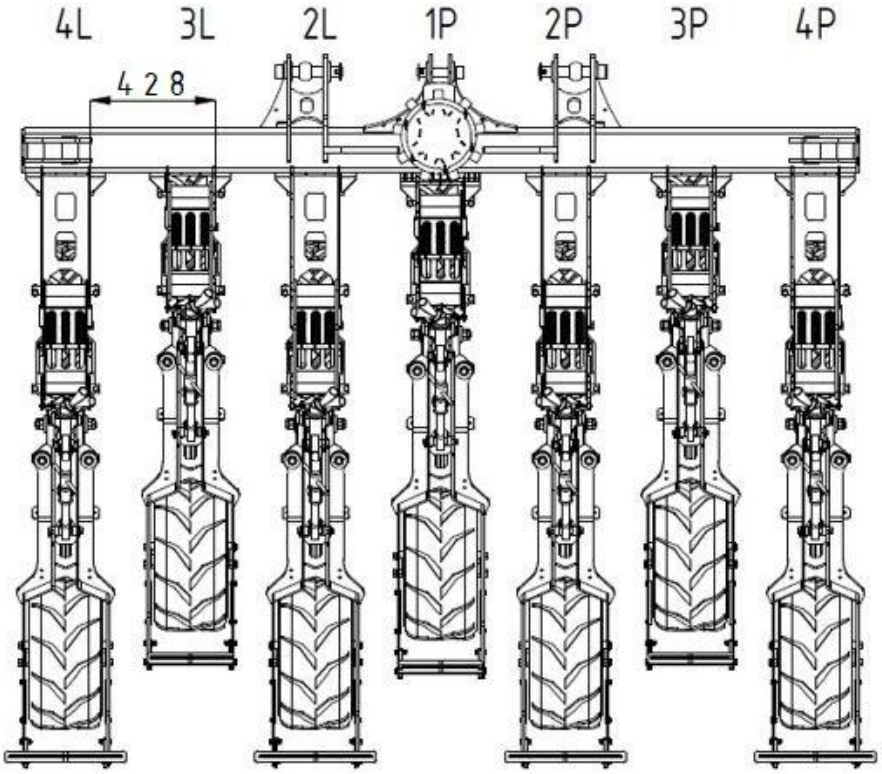


Fig.25. Spacing 7 x 42,8

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24. Maintenance

1. Before performing any maintenance, cleaning or repair work on the machine, turn off the PTO relay, the tractor engine and remove the key from the ignition.
2. You should regularly check the tightness of screws and nuts and tighten them if necessary (including wheels, mounting of working frames). These activities should be performed before each machine start-up.
3. Tighten the clamps securing the working sections after the first 50 ha of work and each time after 50 ha from the moment of changing the width of working sections.
4. Before starting maintenance work on the lifted machine, it is recommended to use appropriate supports or clips on the cylinders to prevent the machine from lowering itself.
5. Always wear protective gloves and use proper tool when replacing working parts of the machine.
6. Always disconnect the machine's power supply before working on the electrical installation.

ATTENTION ⚠ The electrical box may only be opened by Czajkowski Service or authorized persons!

7. Spare parts must meet the technical requirements of the machine manufacturer. This is ensured only by original spare parts.
8. Before starting any welding work, disconnect the clamps from the alternator and tractor battery. The manufacturer recommends disconnecting the machine from the tractor.
9. Protective devices exposed to damage should be checked regularly, and damaged ones should be replaced immediately.
10. Don’t exceed the temperature of 60°C when washing the machine. In addition, it is recommended to:
    - empty the tank and dosing devices,
    - unfold and lower the machine,
    - use recommended and certified cleaning agents,
    - avoid places exposed to damage caused by a strong water stream, such as: the fan, electrical system, lamps, diodes, solenoid valves, electrical and electronic boxes, machine controller, transmitter, electrical sensors, various types of warning stickers, logo and wrapping.
11. The stroke limiter of the coulter beam cylinder should be cleaned every 200 ha or 100 hours of operation.
12. Coulter beam should be protected against corrosion between seasons to avoid problems with folding/unfolding.
13. Regularly check protective devices prone to damage, damaged ones must be replaced immediately.
14. The axle manufacturer recommends checking every 500h of work the tightness of the wheel nuts, brake linings, brake lever stroke and its eventual possible regulation. Then every 1500h, check the bearing play and its possible regulation.

15. Size and pressure of working section wheels:
    - Size: 6.8/80-12
    - Pressure: 2.5 bar

24.1. Maintenance of the hydraulic system

Maintenance of the hydraulic system may only be performed by trained persons. Read and follow the contents of the "Safety" chapter.

Before each start-up of the machine, you should:

- visually check the tightness of the entire hydraulic system,
- check the hydraulic lines for visible damage to the hoses (abrasions, cracks, thickening, fractures, crushing),
- check the tightness of the screws and nuts,
- check the condition of the joints and mountings of the hydraulic cylinders.

ATTENTION ⚠ Hydraulic hoses should be replaced at least every 6 years.

24.2. Maintenance and adjustment of the distributor head

Cleaning should be carried out as follows:

- apply the tractor's parking brake, turn off the engine and remove ignition key,
- loosen the wing nuts and remove the cover from the distributor head,
- remove dirt with a brush and then with compressed air,
- install the distributor head cover and tighten the wing nuts

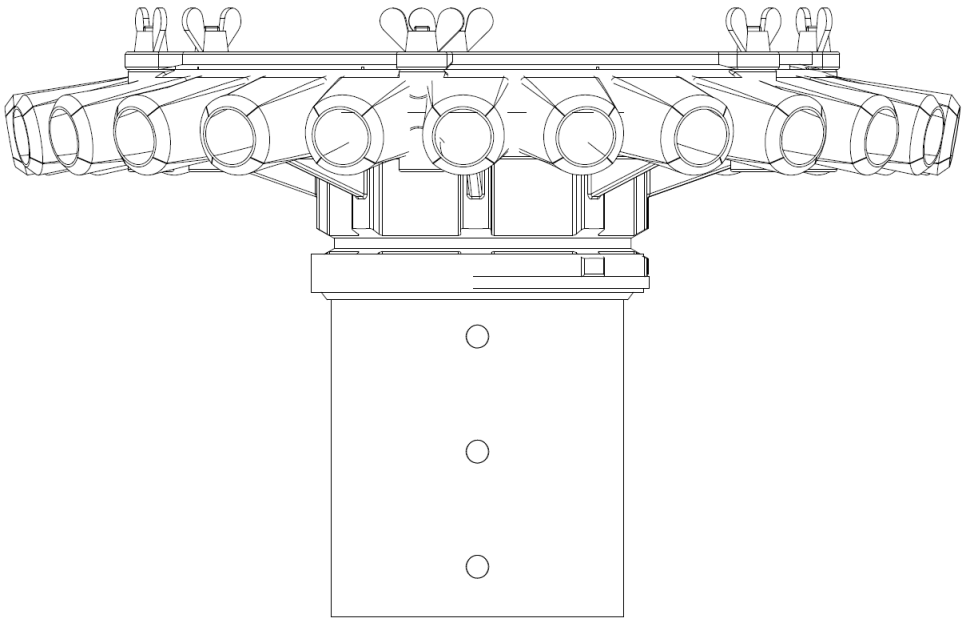
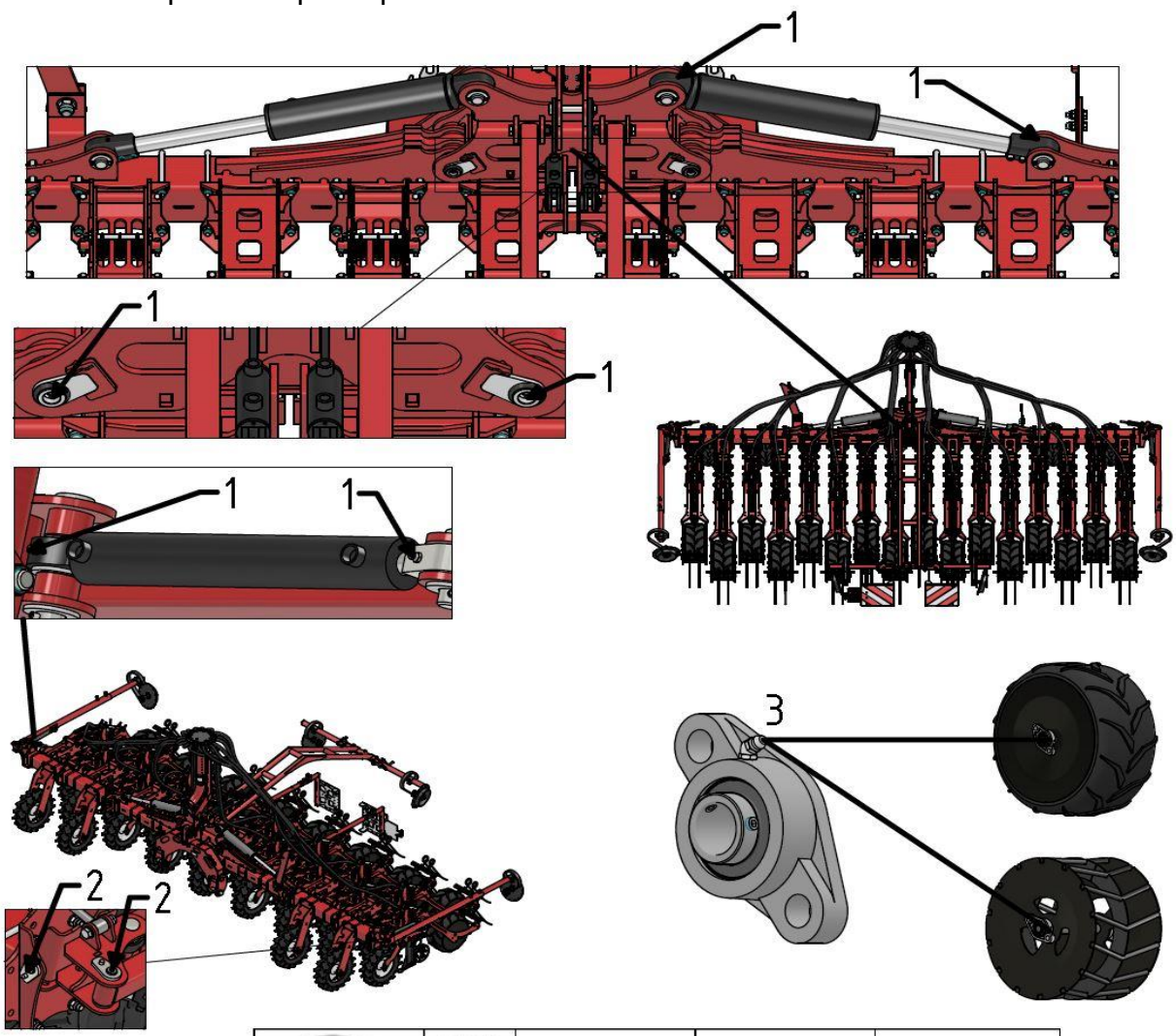


Fig. 26. Head of the seed distributor

25. Greasing points

Before lubrication, clean the grease gun tip and grease nipples in the machine. Lubrication of individual machine elements should be completed when fresh, clean grease appears on the given element. Recommended grease and used on the machine for the first time is L2-EP. Replaced oils, greases and filters should be returned to special disposal points.



		1	2	3
		48H	100H	500H * /365 days

Fig. 27. Greasing points PS

* To lubricate the bearings of the press wheels, use only a manual grease gun, not a pneumatic one; introducing grease at too high a pressure may damage the seal.

The above drawing shows the lubrication points for the 16R version of the seeding attachment. The rigid frame versions of the seeding attachments do not have main frame lubrication points.

26. Attaching the PS seeder or a precision seeder to the Czajkowski ST/STK unit

When connecting the seeder/attachment, perform the following steps:

- reverse the machine to a seeder or a precision seeder so the linkage openings overlap the fixing points,
- stop the tractor and pull the brake – set the P position (parking),
- attach the machine linkage hooks to the fixing points of the seeder or the precision seeder and secure them against loosening using the original pin,
- attach the machine using the central bottle screw,
- connect the hydraulic system connectors to the machine sockets,
- connect the plug of the electrical system of the PS attachment or the precision seeder to the electrical socket of the machine,
- check lifting, lowering, folding, unfolding operations of the PS/precision seeder,
- check tightness of the hydraulic system,
- level the seeder (attachment) by shortening or lengthening the central connecting screw.

Detach in opposite order

Fig. 28. Pictogram NP002

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27. Description and design of the machine

27.1. Scheme of the working section

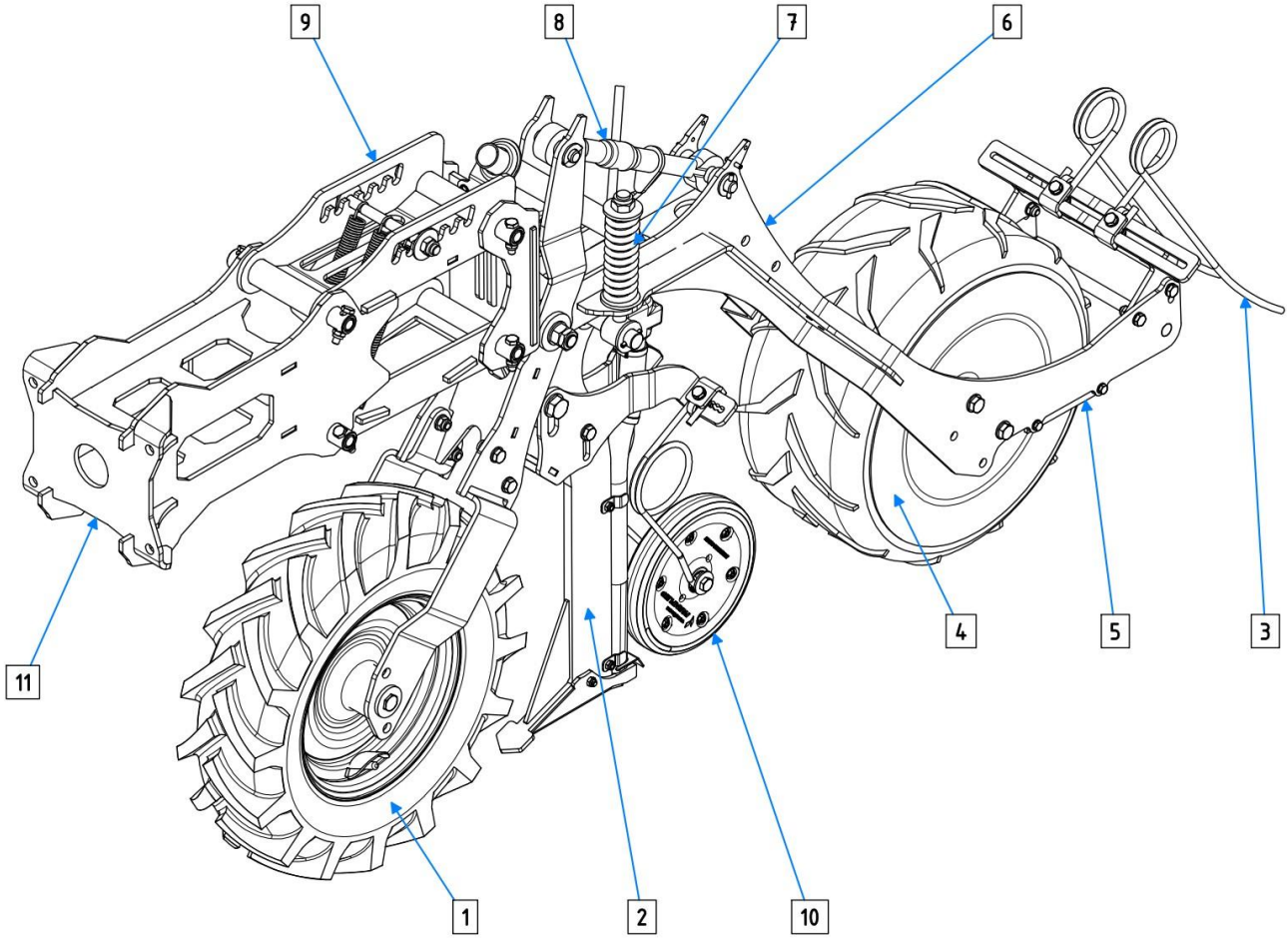

Fig. 29. Working section of PS with long fixing
(example with compaction rubber wheel).

1. Frame gauge wheel
2. Coulter
3. Spring tines
4. Compaction rubber wheel
5. Scraper
6. Compaction wheel frame
7. Compaction wheel spring
8. Depth adjustment screw
9. Parallelogram
10. Rapeseed wheel
11. Fixing of the PS section - long

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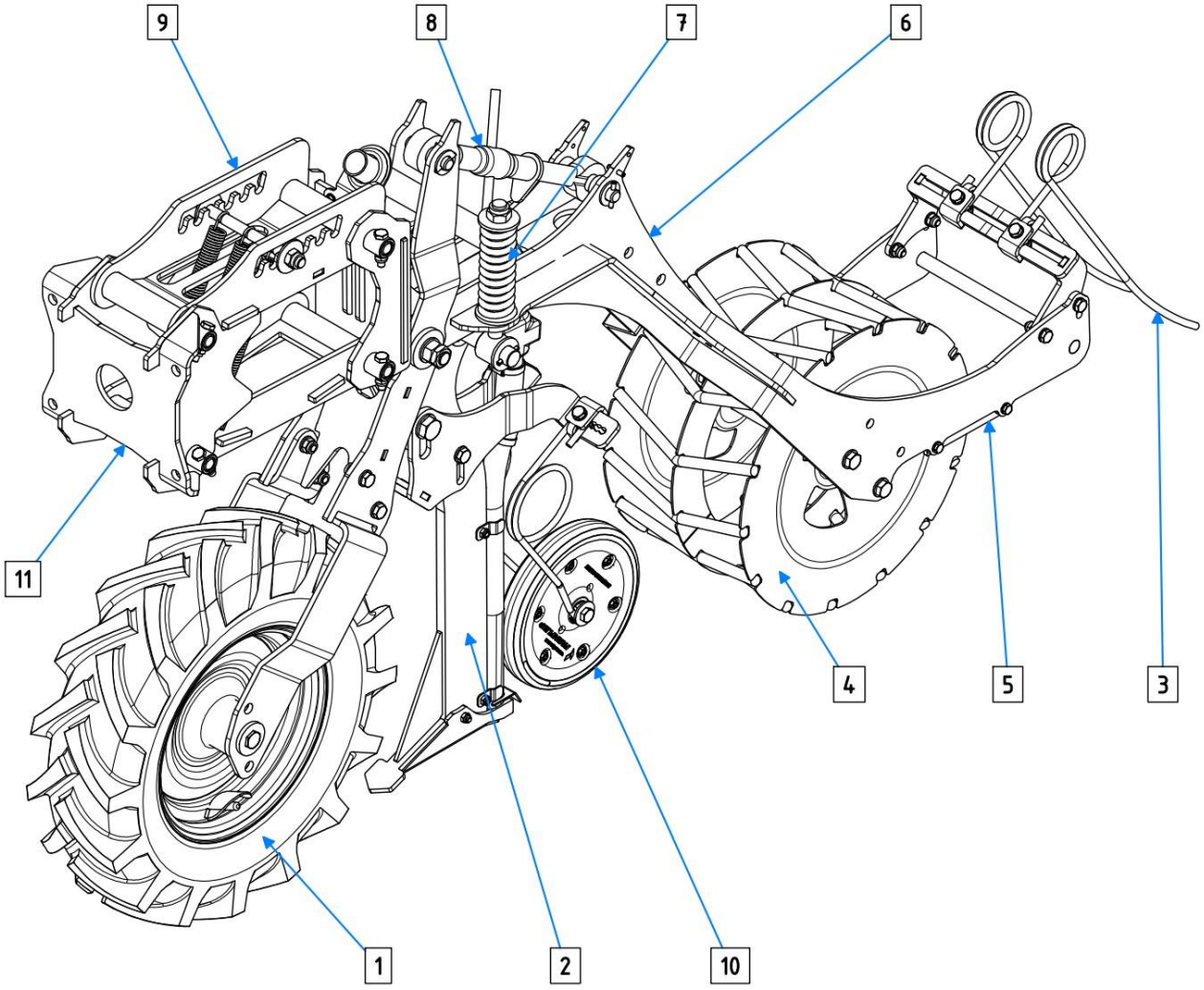

Fig. 30. Working section of PS with short fixing
(example with compaction cage wheel).

1. Frame gauge wheel
2. Coulter
3. Spring tines
4. Compaction cage wheel
5. Scraper
6. Compaction wheel frame
7. Compaction wheel spring
8. Depth adjustment screw
9. Parallelogram
10. Rapeseed wheel
11. Fixing of the PS section - short

27.2. Coulter

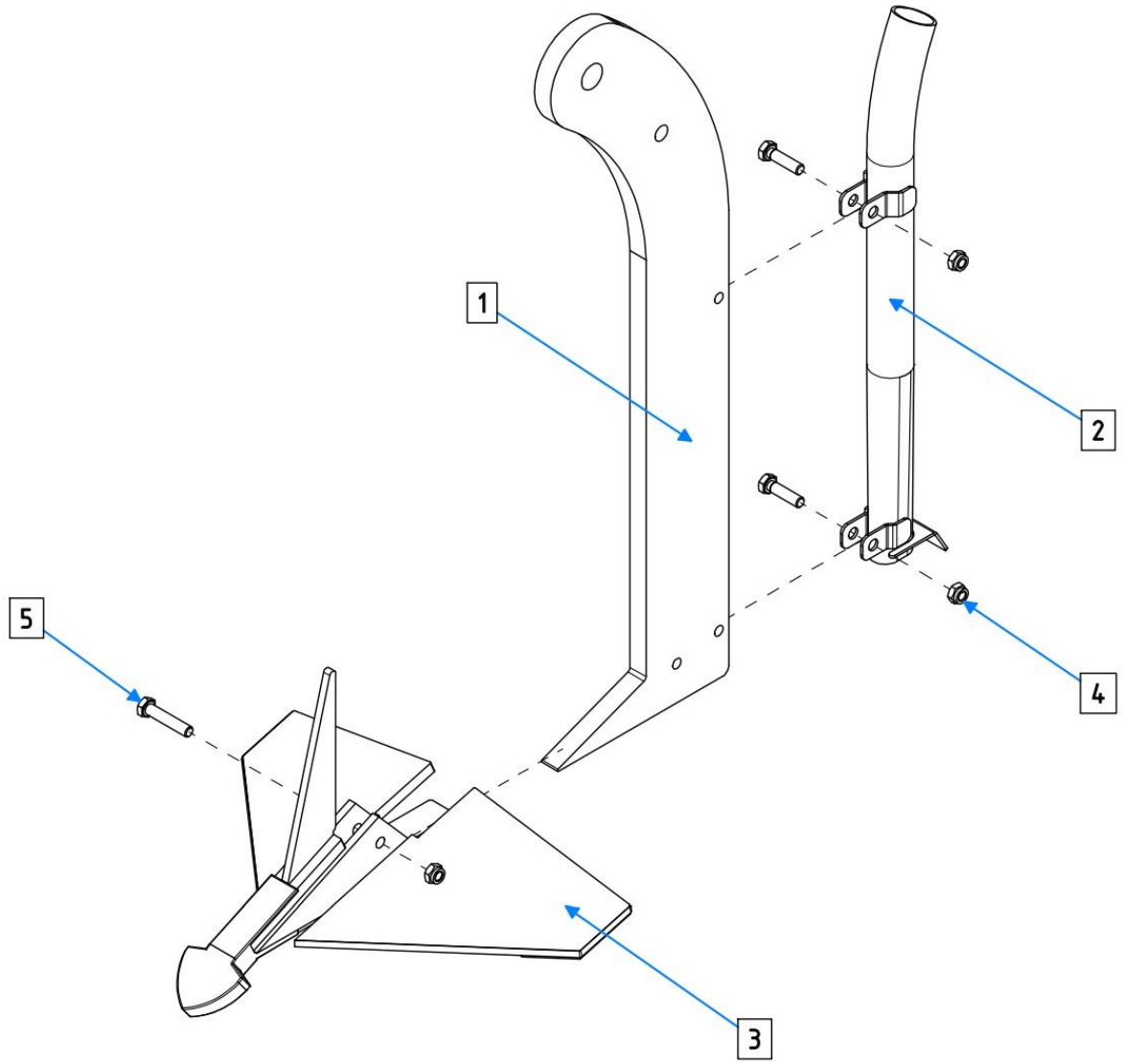

Fig. 31. PS Coulter

1. Coulter beam (irreplaceable element, doesn't wear out)
2. Seed pipe (irreplaceable element, doesn't wear out)
3. Chisel fixed with bolt (replaceable element, wears out)
4. M8 nut (replaceable element, wears out)
5. M8 x 40 bolt (replaceable element, wears out)

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27.3. Chisels of the attachment

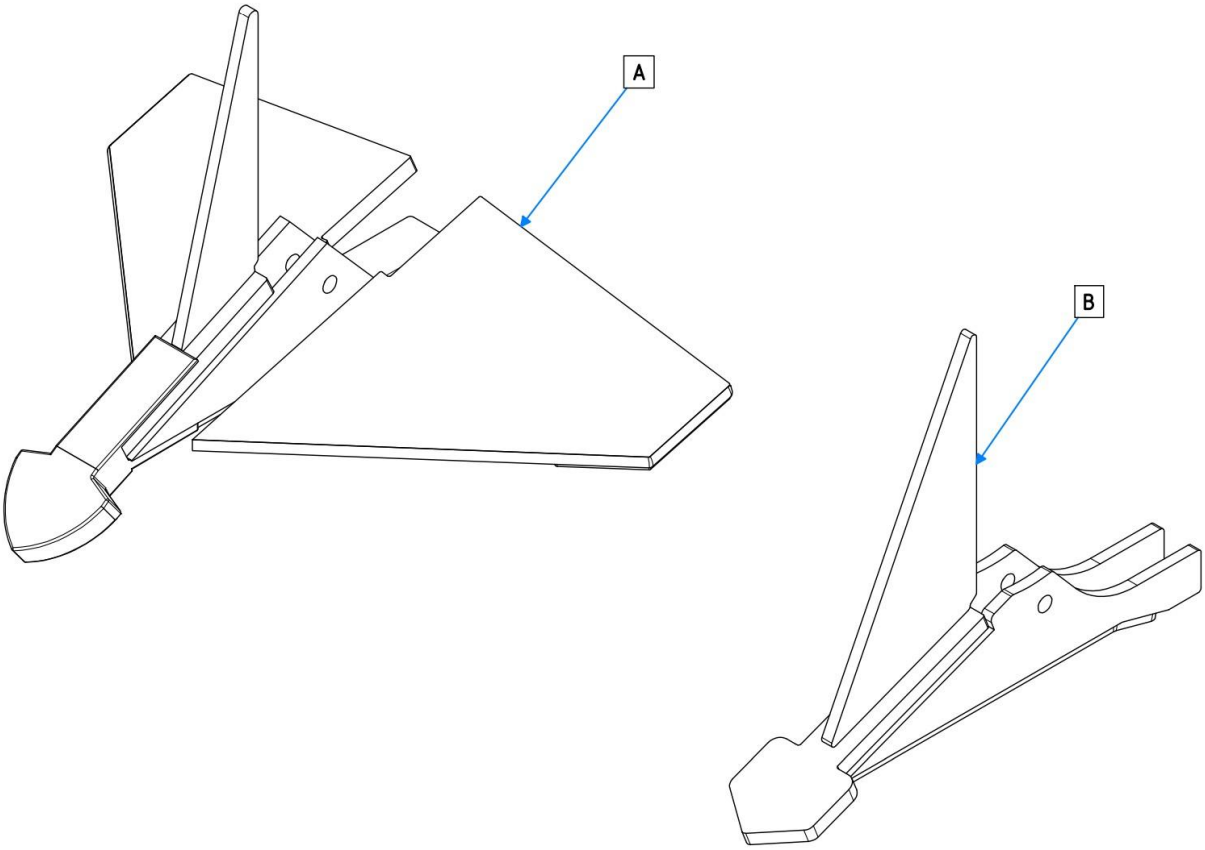

Fig. 32. types of available chisels

The manufacturer recommends using different types of chisels dedicated for specified plants:

A. in grain cultivation, it is recommended to use chisels with special side wings enabling sowing over the entire width of the chisel,
B. for rapeseed cultivation it is recommended to use narrow chisels with an widened front; when using narrow chisels it is necessary to additionally mount a pressing wheel right on it;

28. Attaching working sections

The assembly of the working frame to the frame is carried out using yokes. The frames can work in a linear or Off-Set system, to obtain a shift in the frame work line, short and long sections should be mounted alternately.

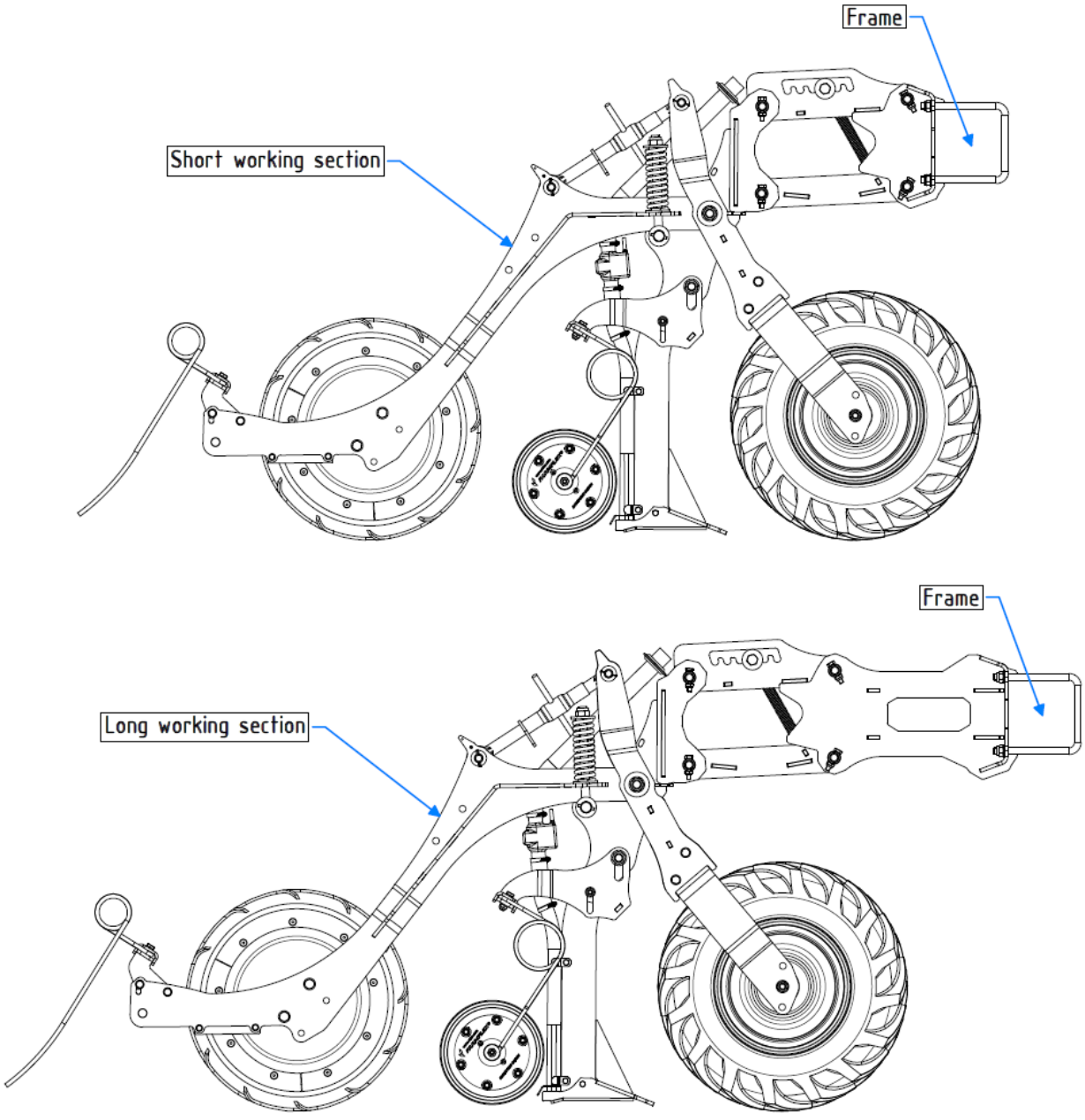

Fig. 33. PS working section

29. Spacing configurations of PS in individual seeding operations

29.1. 8x37,5 cm spacing for PS 300

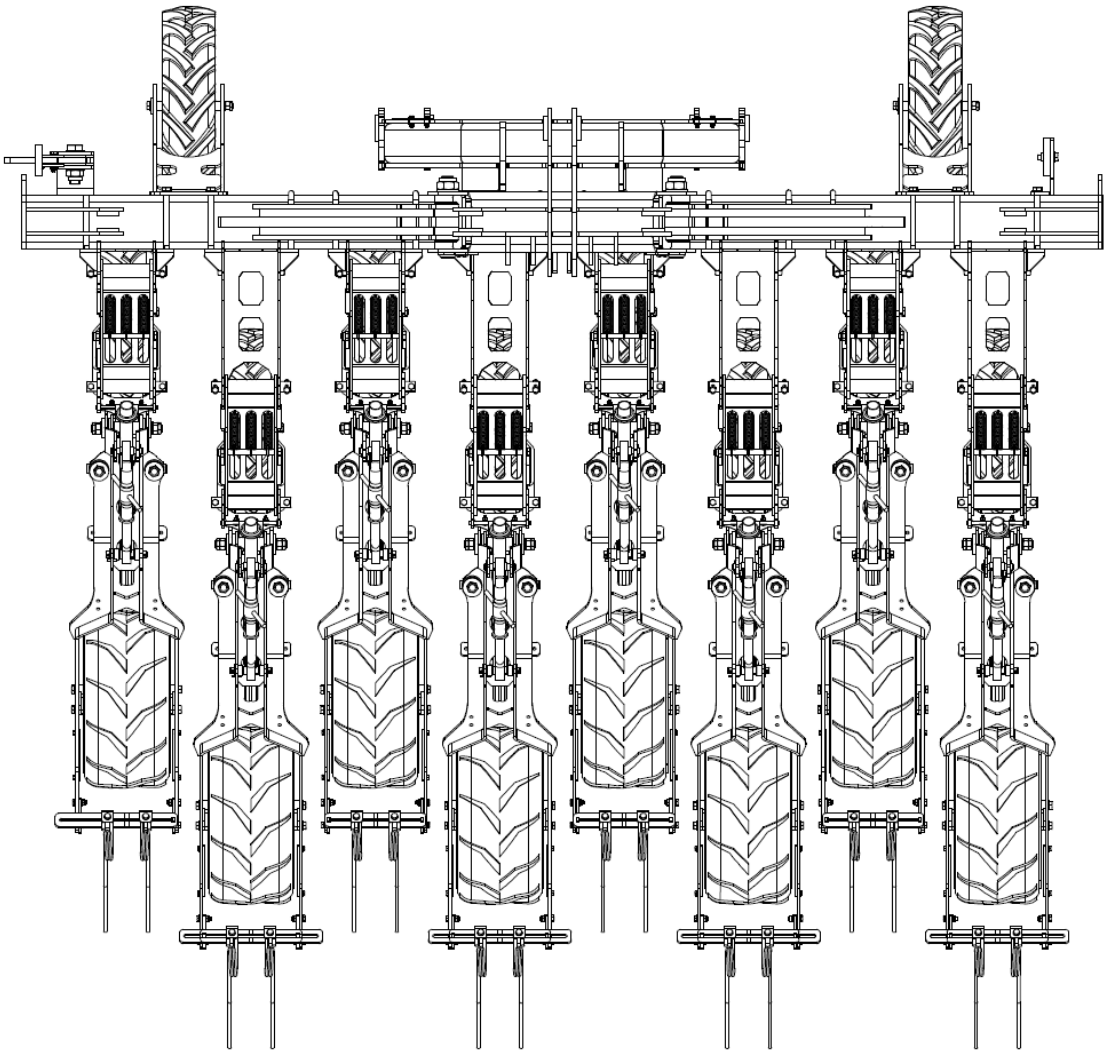

Fig. 34. 8x37,5 cm spacing for PS 300

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29.2. 8x37,5 cm spacing for PS 300S

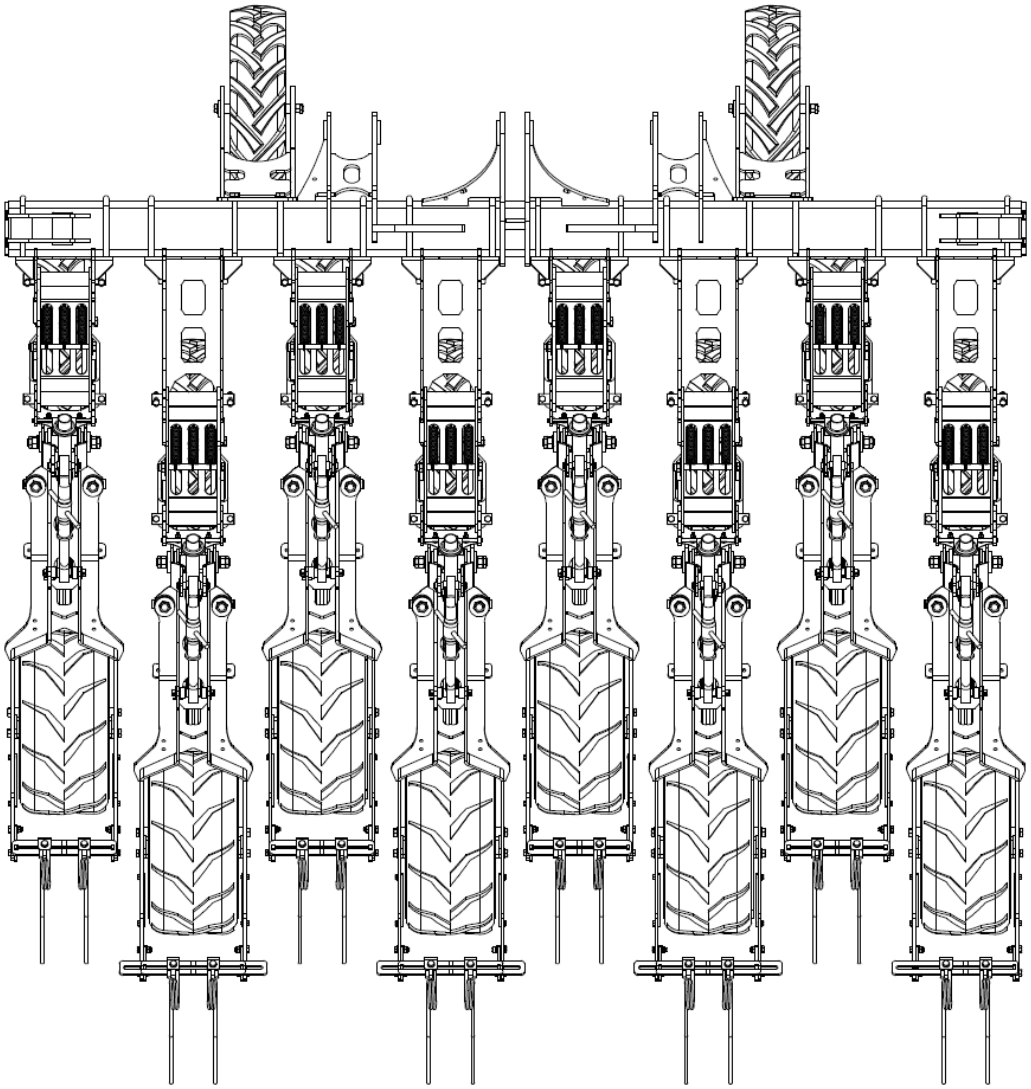

Fig. 35. 8x37,5 cm spacing for PS 300S

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29.3. 7x42,8 cm spacing for PS 300S

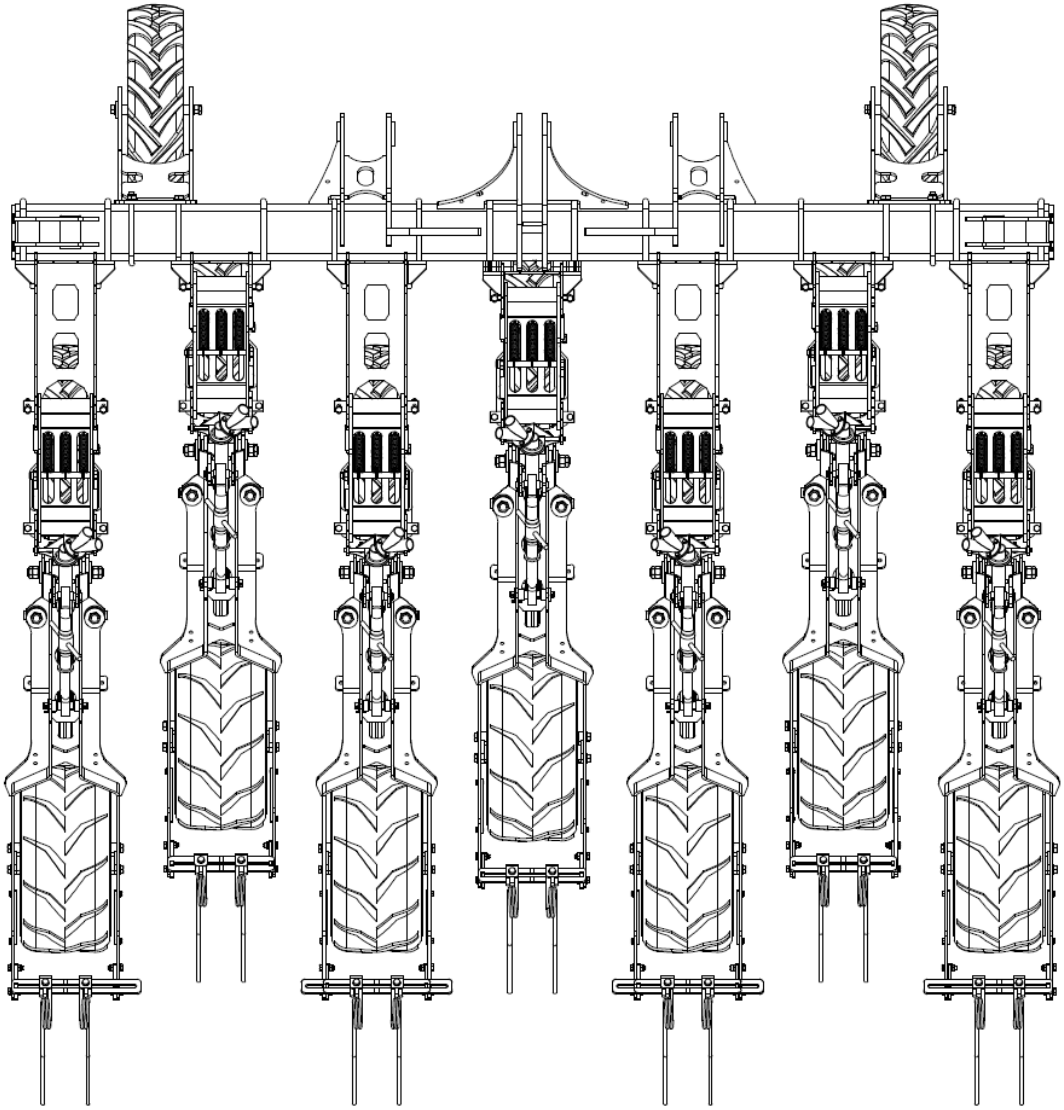

Fig. 36. 7x42,8 cm spacing for PS 300S

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29.4. 9x44,4 cm spacing for PS 400SH

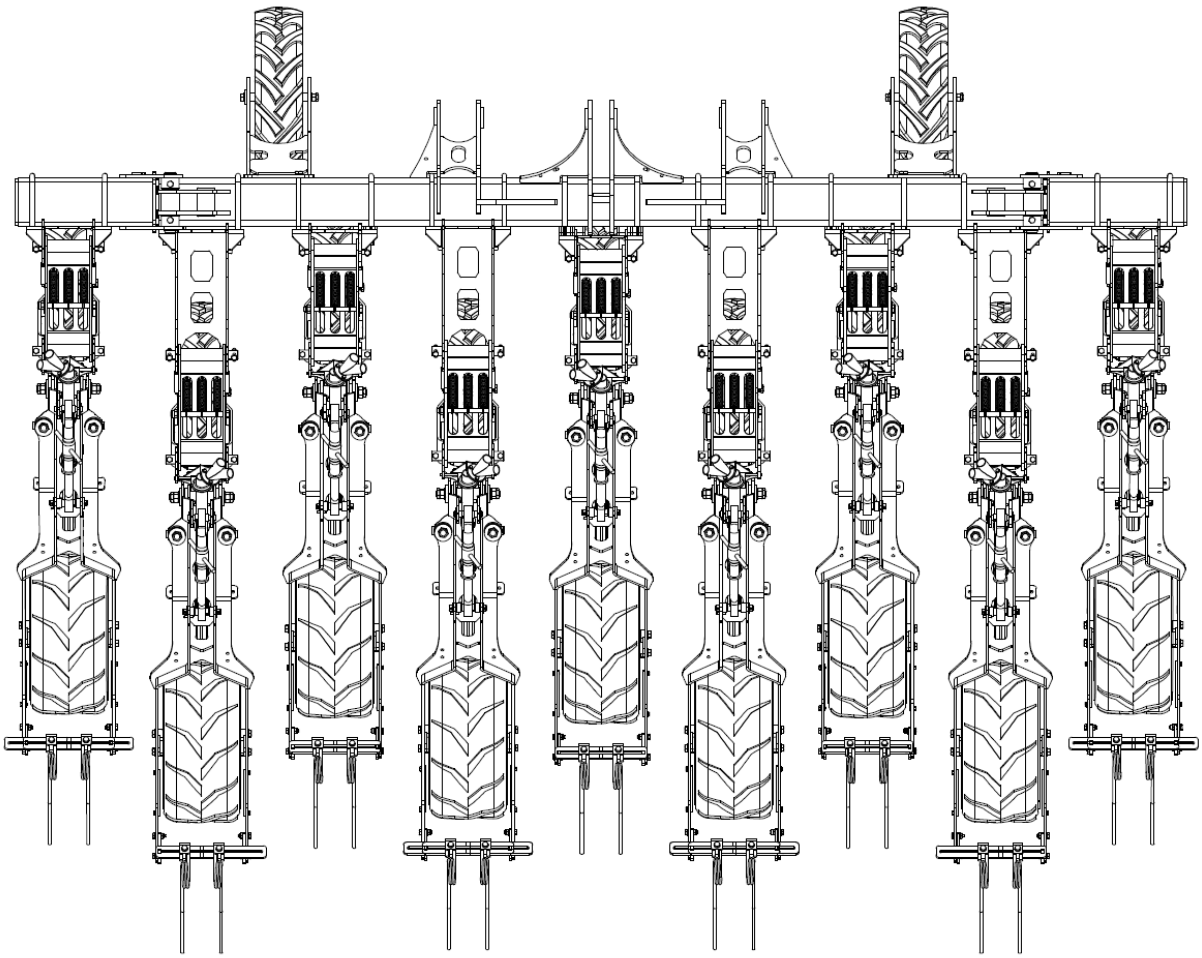

Fig. 37. 9x44,4 cm spacing for PS 400SH

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29.5. 7x42,8 cm spacing for PS 400SH

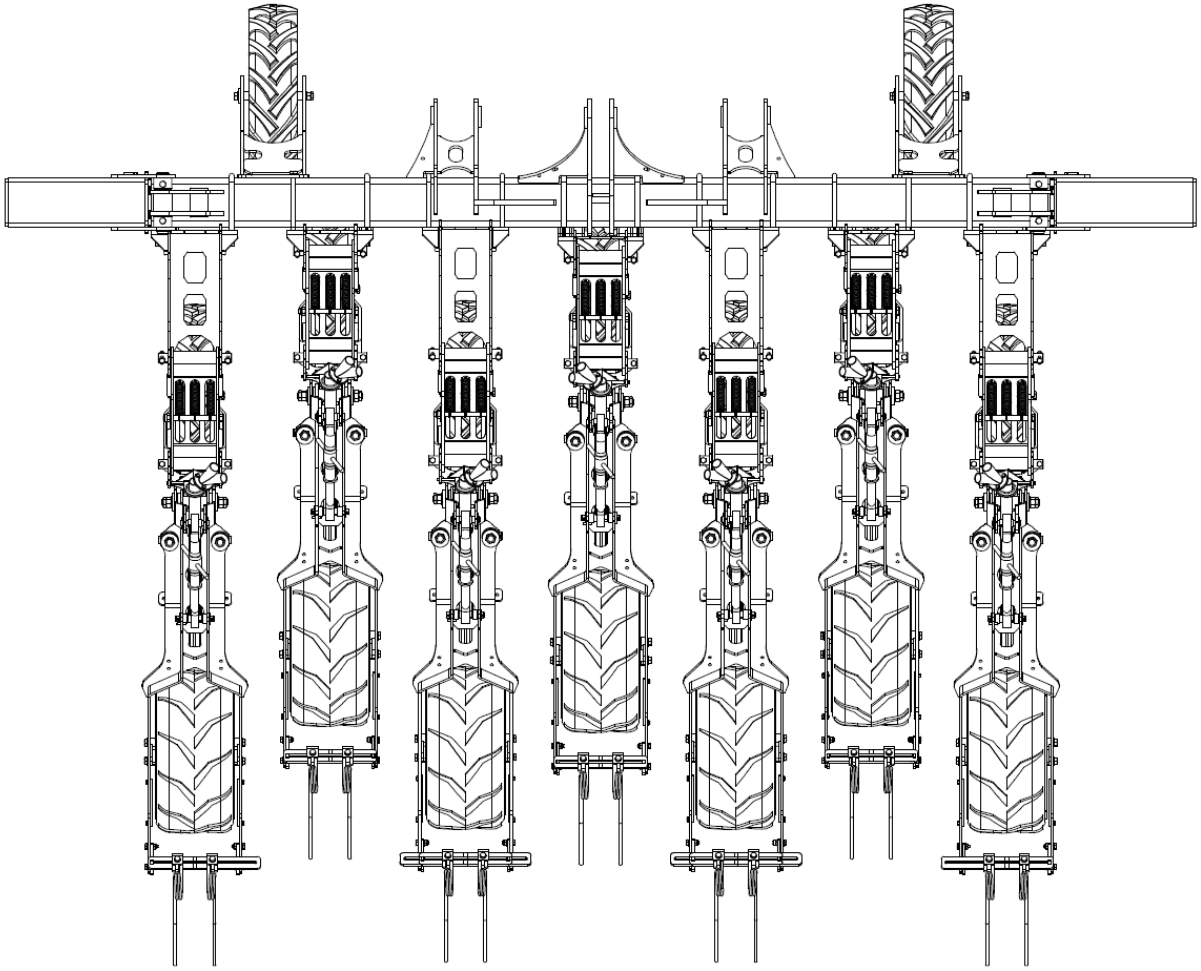

Fig. 38. 7x42,8 cm spacing for PS 400SH

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29.6. 10x40 cm spacing for PS 400

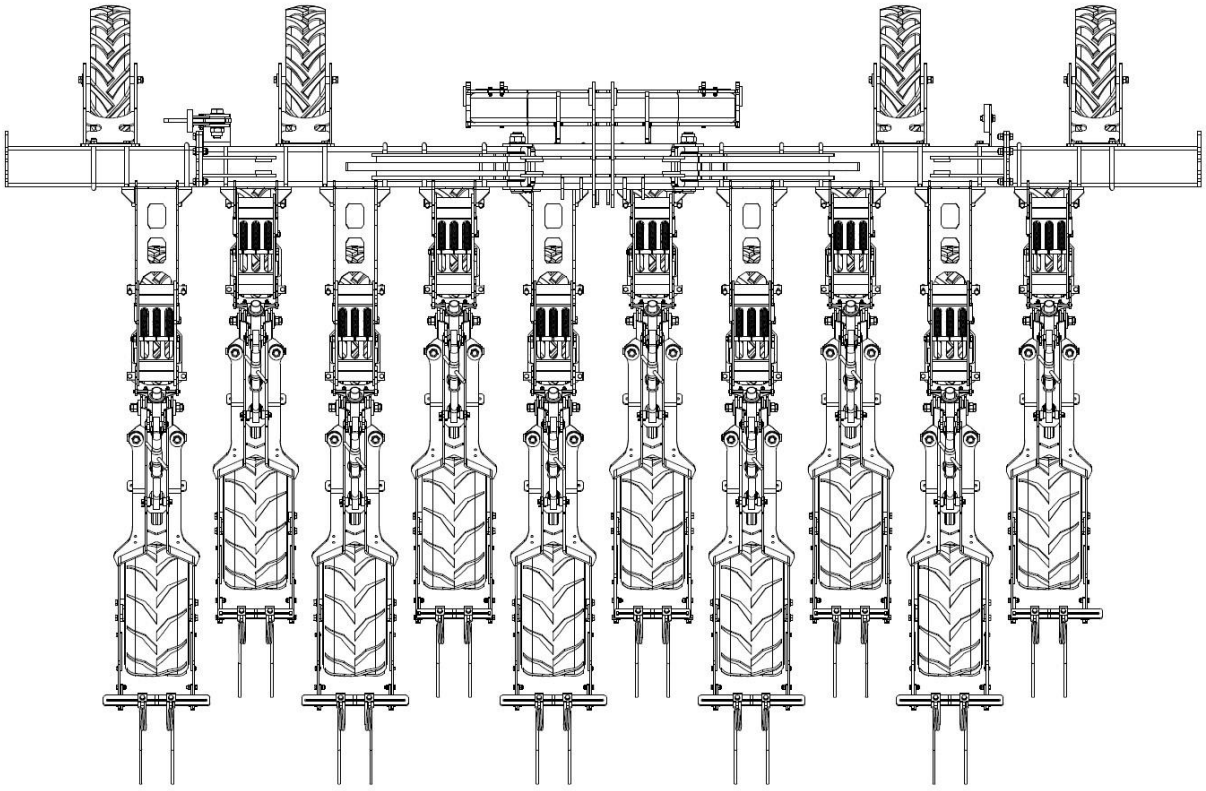

Fig. 39. 10x40 cm spacing for PS 400

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29.7. 12x37,5 cm spacing for PS 450

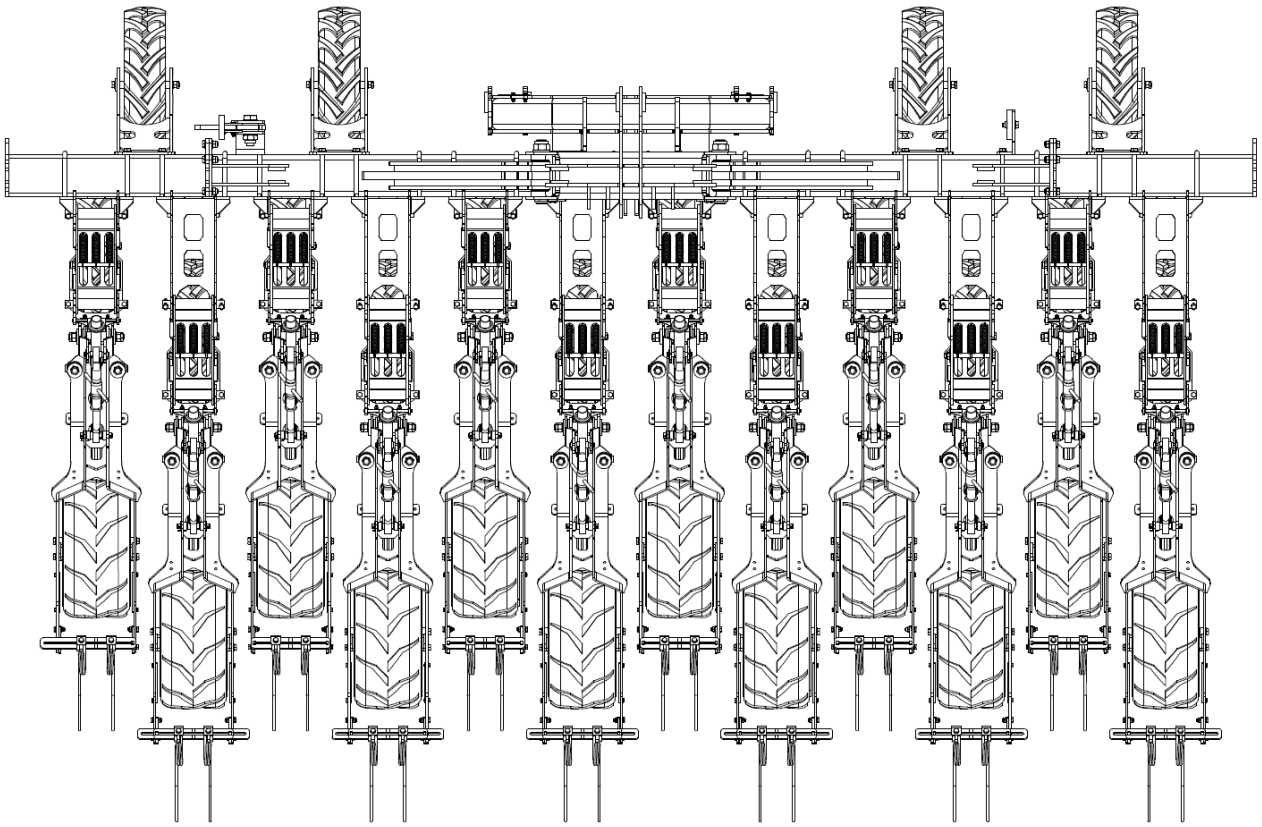

Fig. 40. 12x37,5 cm spacing for PS 450

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29.8. 16x37,5 cm spacing for PS 600

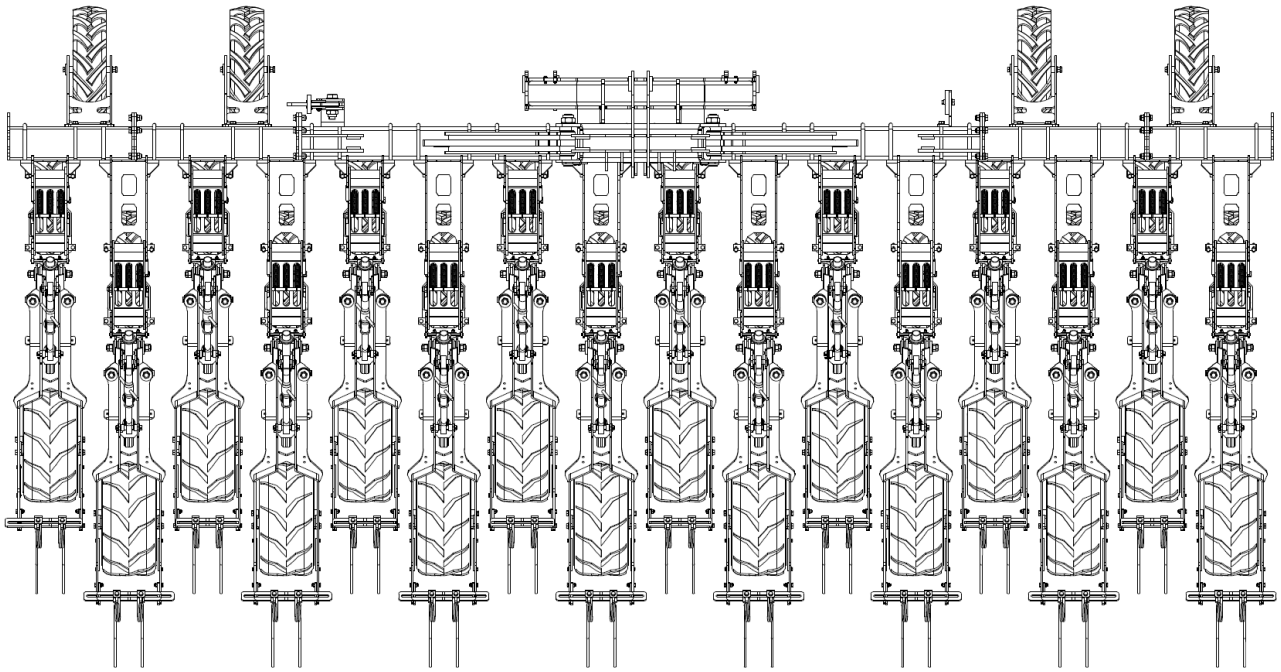

Fig. 41. 16x37,5 cm spacing for PS 600

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29.9. 14x42,85 cm spacing for PS 600

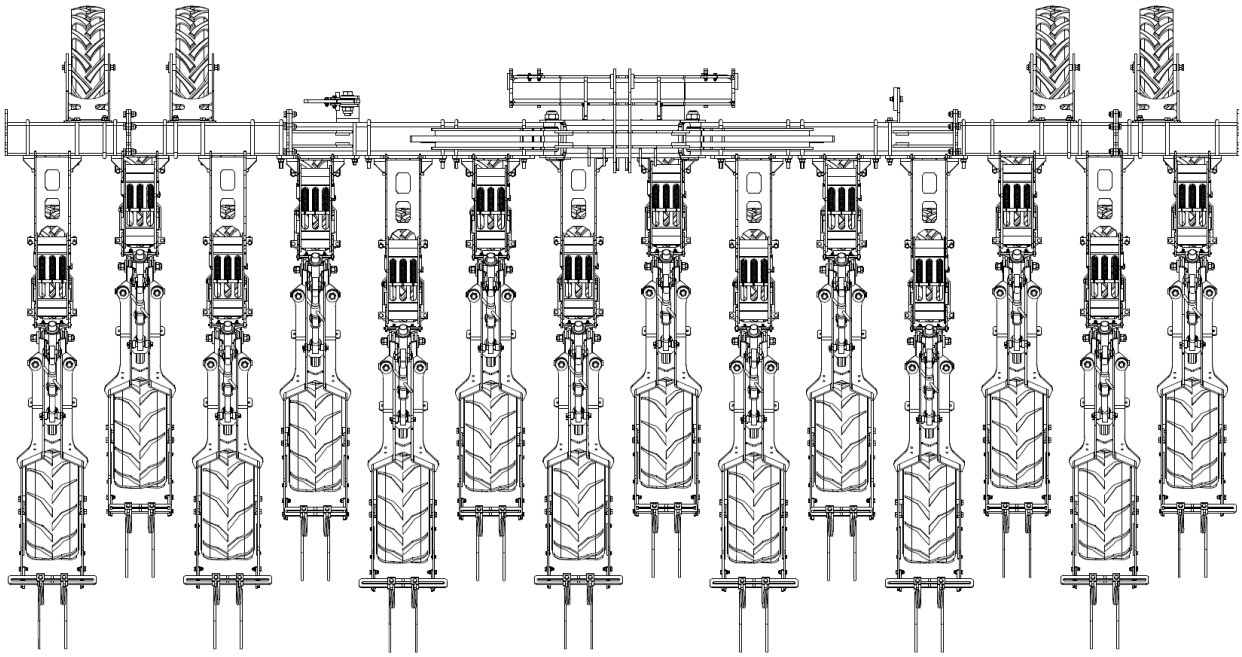

Fig. 42. 14x42,85 cm spacing for PS 600

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29.10. 12x45 cm spacing for PS 600

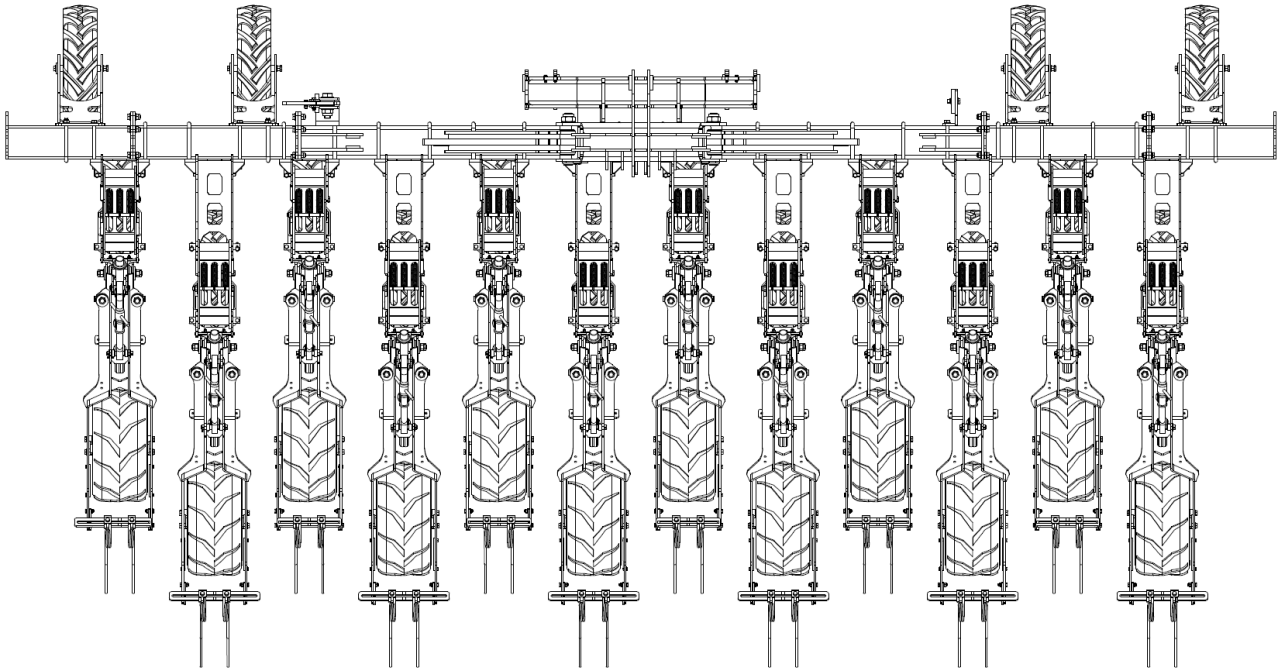

Fig. 43. 12x45 cm spacing for PS 600

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30. Handling and adjustment

30.1. Adjusting the support wheel

To adjust the sowing depth, first loosen the safety lock located at the bottom of the adjustment screw (item 1). Then, by turning the adjustment screw (item 2) in the appropriate direction, raise or lower the wheel. The working depth is read from the scale using the PS working section ruler (item 3), which should be applied to the upper (item 4) and lower (item 5) indicators. For further adjustment, remove the PS working section ruler and repeat the above-described steps.

ATTENTION The working depth is set using the letter scale. The letter A corresponds to the shallowest working depth, the letter I corresponds to the deepest working depth.

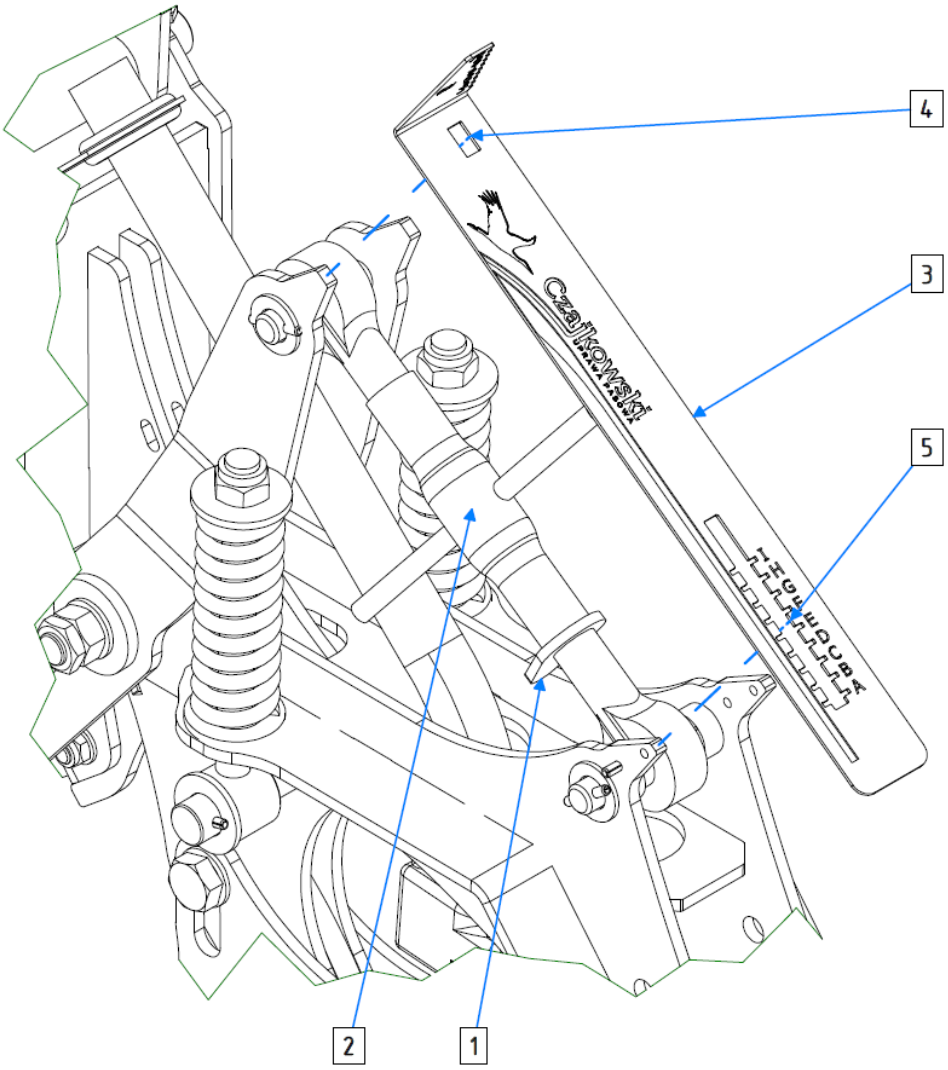

Fig. 44. Depth adjustment

30.2. Adjusting the pressing force of the working section

The pressing strength of the working section can be adjusted by moving the spring tine shaft (item 1) using the adjustment lever (item 2).

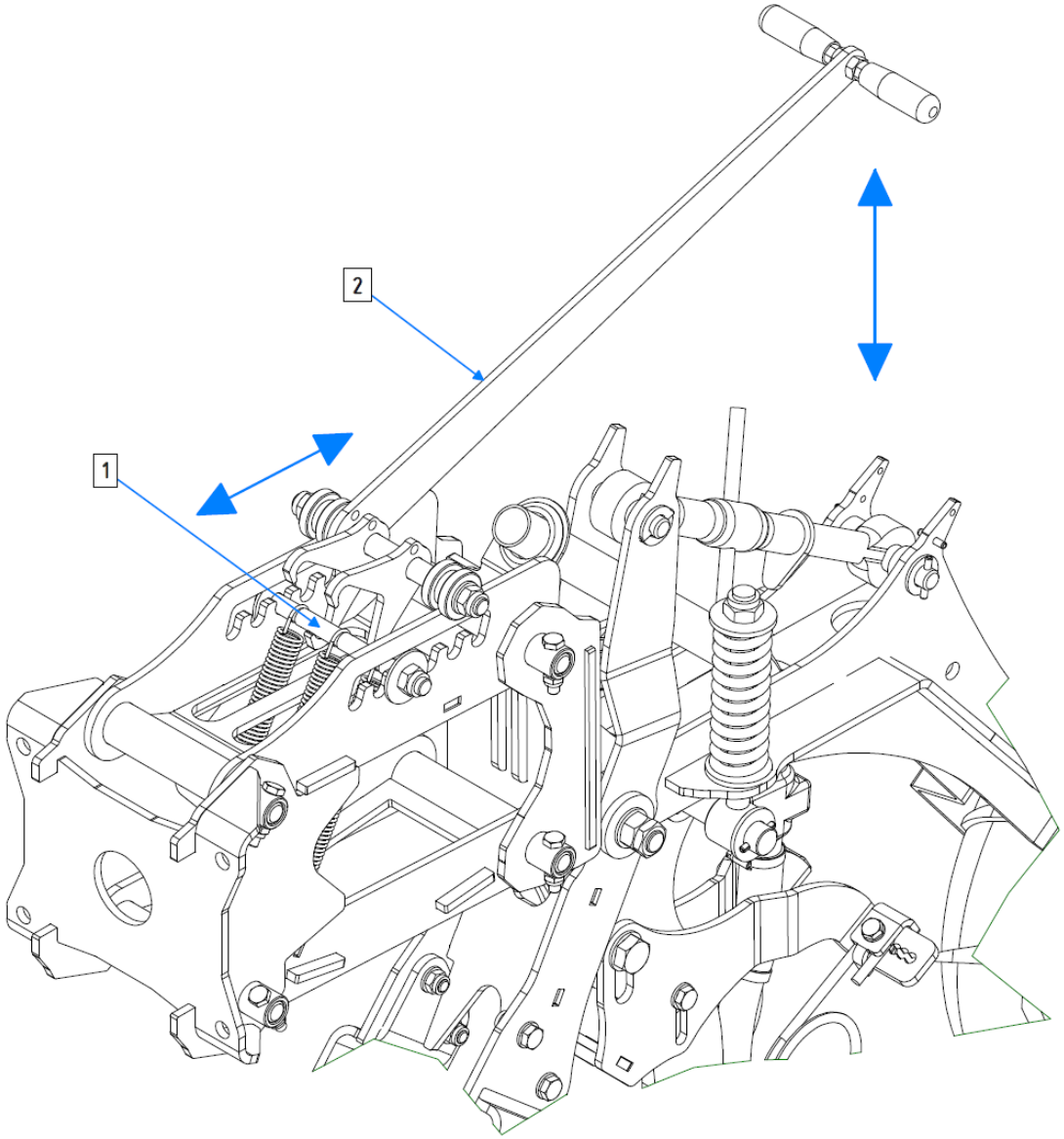

Fig. 45. Pressing strength of the working section

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30.3. Adjustment of the rapeseed wheel

Adjusting the rapeseed wheel involves changing the height of the wheel mounting. After unscrewing the two bolts (item 1. and 2.) it is possible to perform the adjustment.

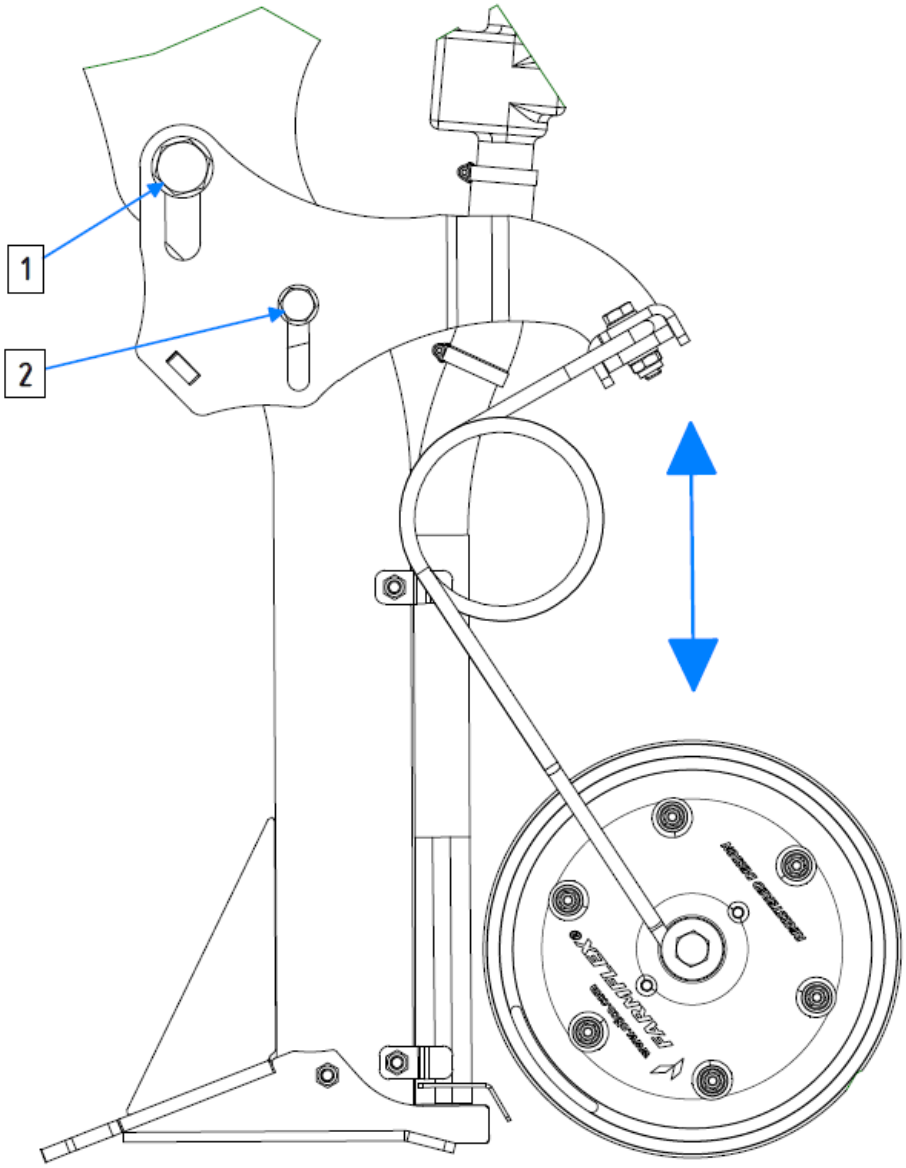

Fig. 46. Rapeseed wheel

30.4. Adjustment of the spring tines

Spring tines can be adjusted by changing the height within a specified range. To do this, loosen the M10 bolts (item 1) and then change the position of the spring tine (item 2). After obtaining the desired position of the spring tines, tighten the bolts (items 1 and 2).

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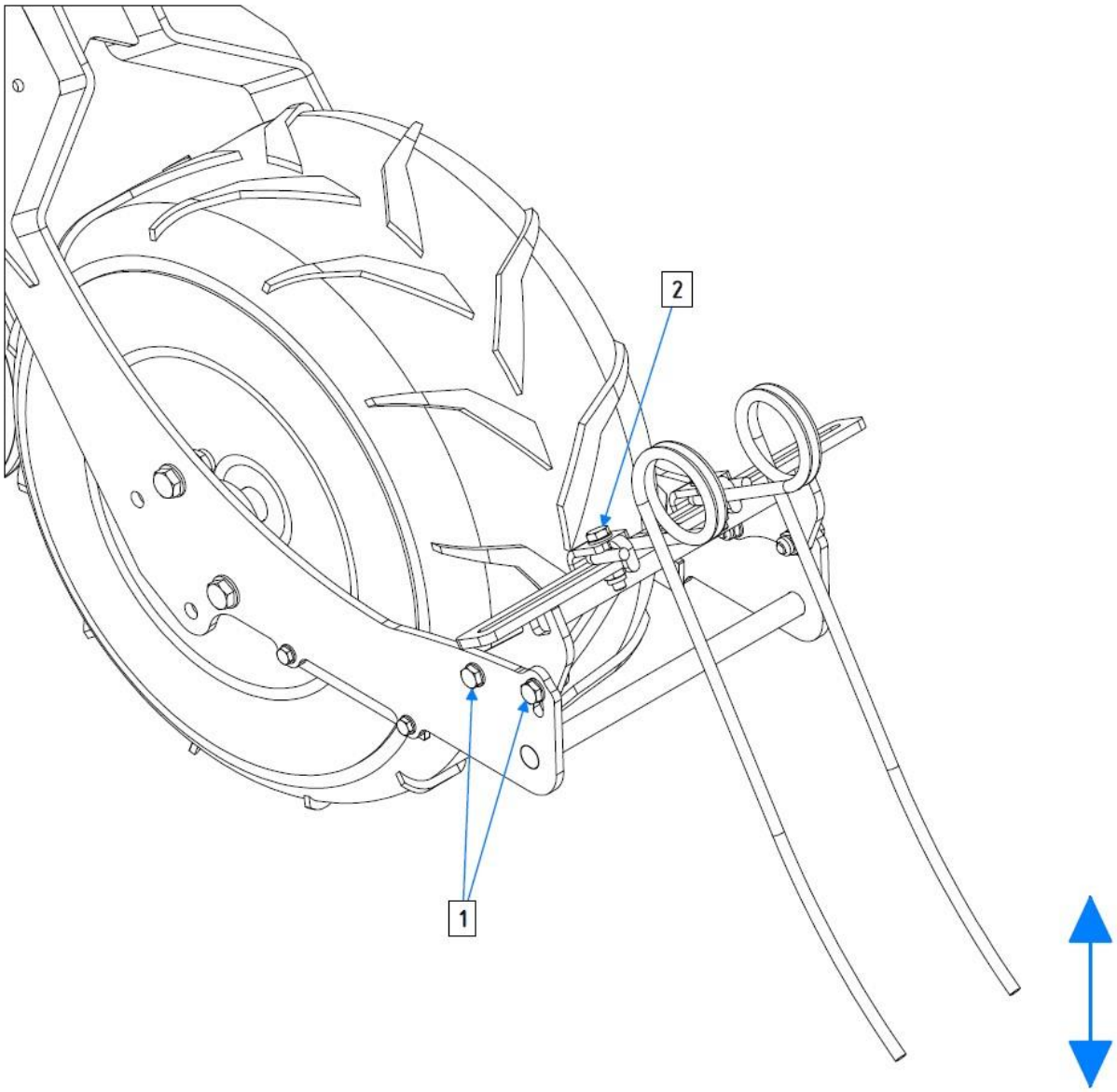

Fig. 47. Spring tines

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30.5. Compaction wheel scraper

Position 1. Scraper mounted in holes. Compaction wheel scraper used for cage wheel and rubber wheel.

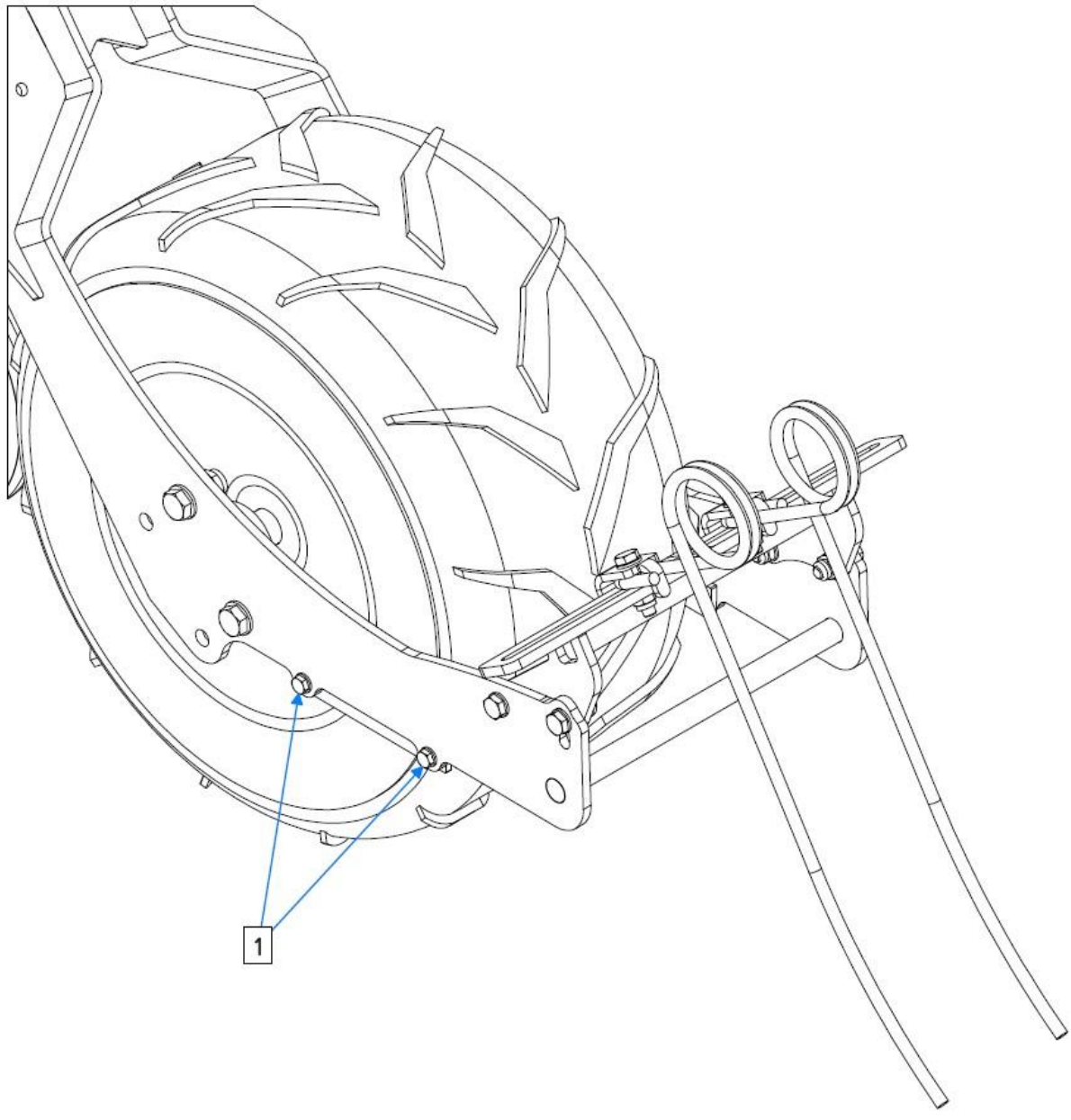

Fig. 48. Scraper

30.6. Replacement of the compaction wheel

Depending on the type of soil, it is recommended to use one of the two types of compaction wheels of the PS section - cage or rubber. The compaction wheel should be adapted to the soil conditions on which the machine is most often operated.
If it is necessary to change the compaction wheel from a cage to a rubber one or vice versa, it should be placed in the appropriate holes of the PS working section frame, as shown in the figure below.

- The cage wheel is mounted in the lower holes (blue)
- The rubber wheel is mounted in the upper holes (red)

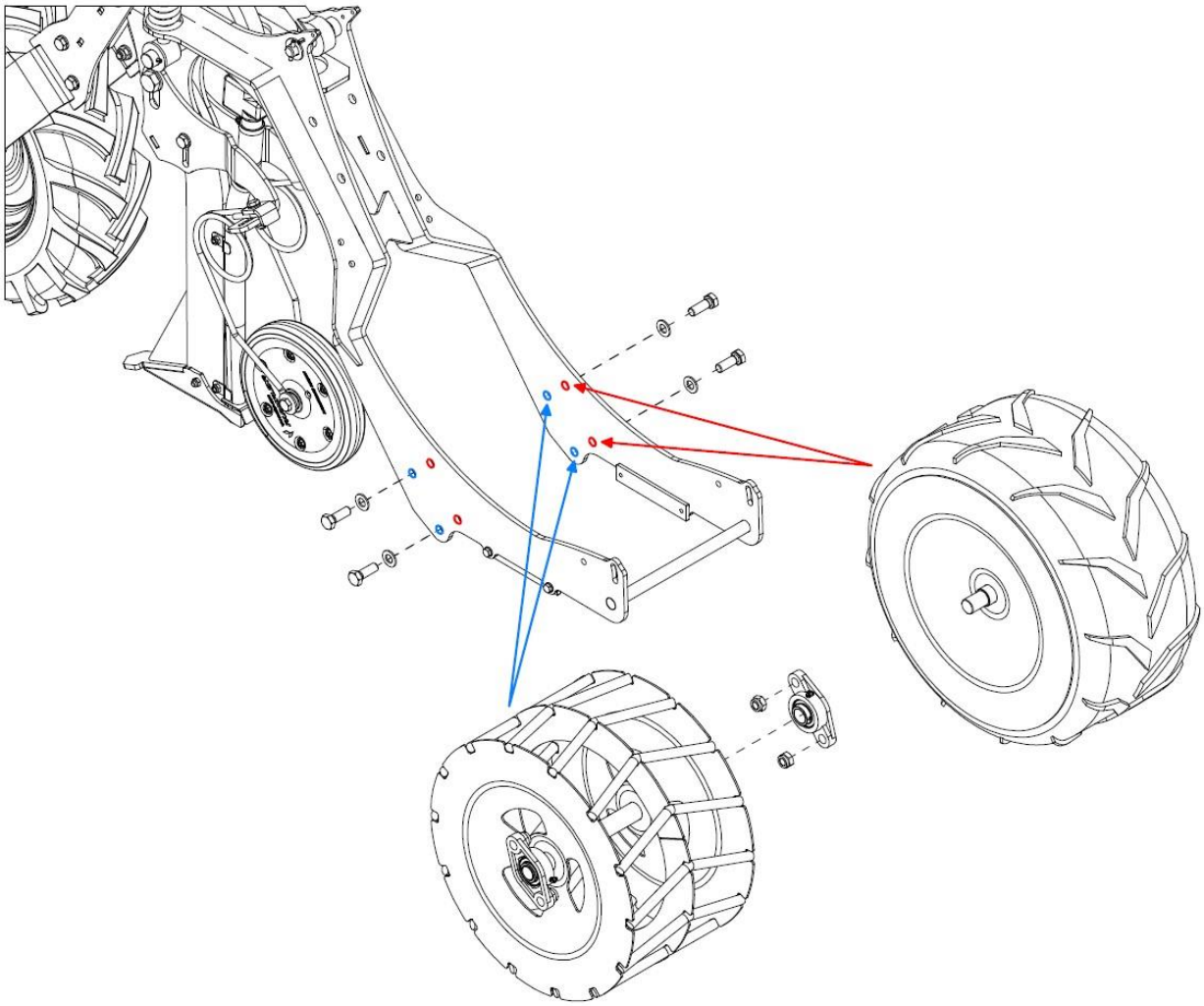

Fig. 49. Replacing compaction wheel

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30.7. PS vent settings

The seed distributor pipe has a PS vent, which is used to set the appropriate air flow to the distributor. The values given below will depend on the type/structure of the soil, weather conditions (air humidity), the weight of 1000 seeds, and the number of sowing coulters (machine width). It is also important to remember to set the air flow appropriately, using the "air guide" for this purpose. Pre-set the setting ensuring a greater air flow in the fertilizer apparatus - correcting the air stream depending on the amount of fertilizer sown

- Sowing rapeseed – set the PS vent in the range from 0 to 3. Initially set the fan speed to 3200 rpm for STK, and 4100 rpm for ST. The vents in the STK/ST unit remain closed – only in the event of problems with fertilizer retention in the hoses, open the vent in the fertilizer tank by 1-2 cm.

- Sowing heavy seeds - set the PS vent in the range from 3 to 7. Initially set the fan speed to 4000 rpm for STK, and 4600 rpm for ST. The vents in the STK/ST unit remain closed.

- Sowing light seeds - set the PS air vent in the range from 7 to 10. Initially set the fan speed to 3800 rpm for STK, and 4400 rpm for ST. The air vents in the STK/ST unit remain closed.

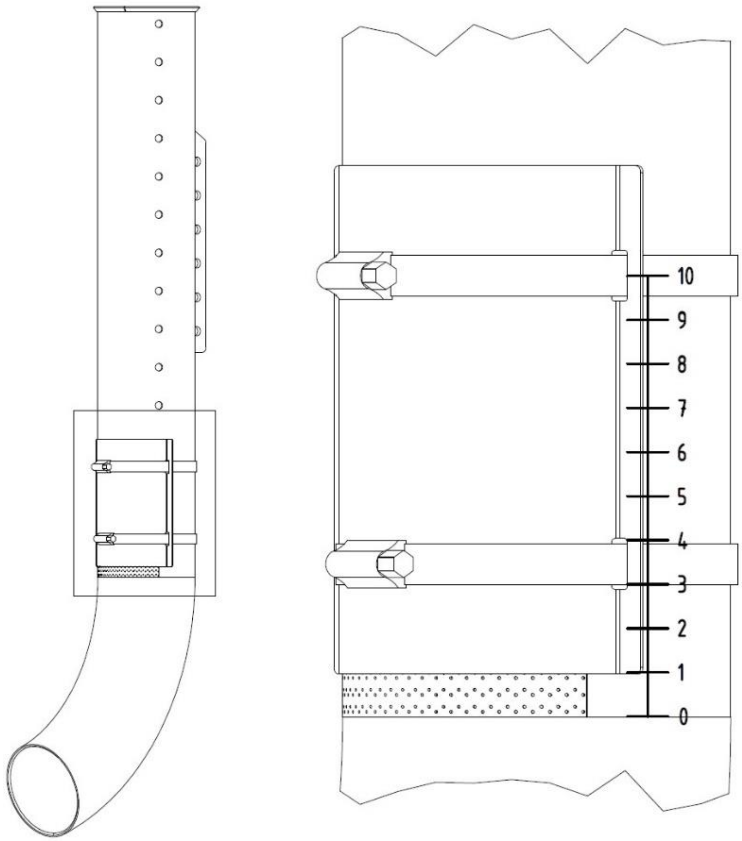


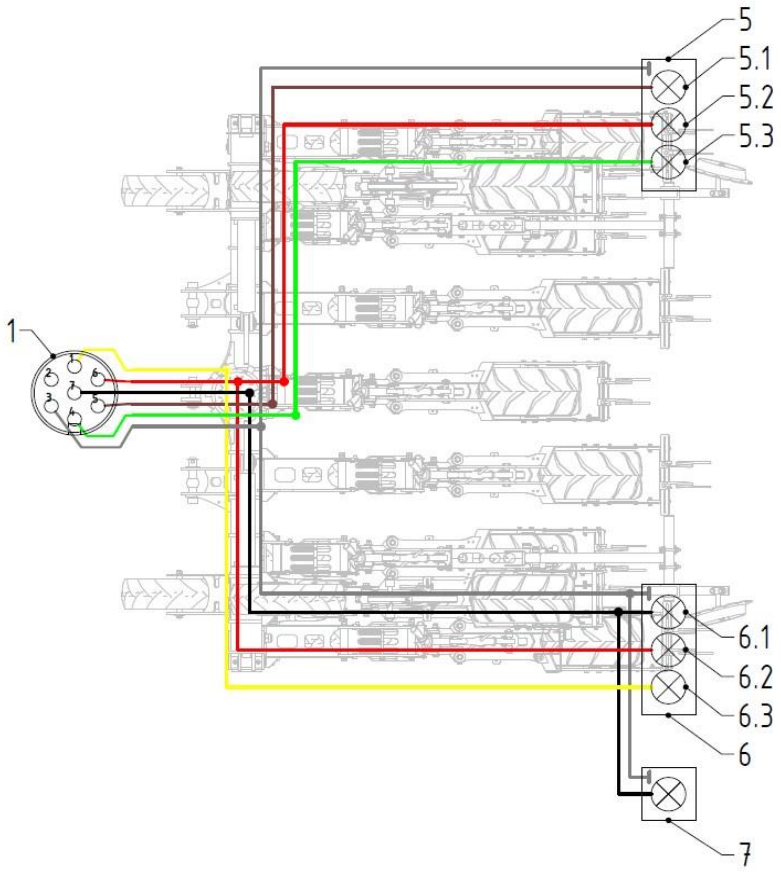
Fig. 50. PS Vent

30.8. Sowing half the width of the PS

In the case of sowing with half the width of the PS attachment, a dedicated net should be used, which is mounted in the seed distributor. To do this, unscrew the distributor cover and mount the net on the right or left side - depending on which half you want to exclude from sowing. Remember to reduce the sown dose by 50% on the main screen of the machine control monitor (this is how much the sowing of seeds on PS will be reduced using a dedicated net).

If there is a problem with seed output, change the rotor to a smaller one (lower output) and perform a new calibration/calibration test.

31. Lightning



Lightning installation
1. 7-PIN male connector
2. Right front lamp
3. Left front lamp
4. 7-PIN female connector
5. Right rear lamp 5.1. Right tail light 5.2. Stop 5.3. Right indicator
6. Lampa lewa tylna 6.1. Left tail light 6.2. Stop 6.3. Left indicator
7. License plate lamp

Connectors and wires markings			
No	Symbol	Color	Function
1.	L	Yellow	Left indicator
2.	-	-	-
3.	31	White/Grey	Ground
4.	R	Green	Right indicator
5.	58R	Brown	Right tail light
6.	54	Red	Stop
7.	58L	Black	Left tail light

Fig. 51. PS lightning system

*Position 2,3,4 in the "lighting installation" table are present only in ST and STK machines.

ATTENTION ⚠ Electrical repairs can only be performed by a person with electrical qualifications!
Damaged lighting may lead to an accident!
Regularly check the lights for proper operation, cleanliness, and cleanliness of the marker boards.

32. Long-term storage of the machine

- Before storage, the machine should be thoroughly cleaned,
- The machine must be stored in closed, roofed space.
- Working parts must be secured using an anti-corrosion agent.
- The machine should be stored with the tractor and seeder disconnected
- Lubricate necessary parts and add oil.

Long-term storage of the machine should take place under a roof due to the presence of electronic units. Despite the very good quality of these components, this criterion should be met. Cylinder piston rods, working elements and other glossy parts should be protected with an anti-corrosion agent. The manufacturer recommends that the cylinder piston rods be hidden.

The machine should be folded into the transport position:

- side frames folded;
- cylinders retracted.

During long-term machine downtime, disconnect the machine's electrical power supply.

33. Transportation

Before transporting a machine aggregated with a tractor or ST/STK unit, fold the side frames and markers (if any) to the transport position and make sure that the automatic mechanical lock has been effectively locked. Then, switch the lever of the hydraulic valves located on each cylinder to the "closed" position. The markers must be secured against accidental unfolding.

If it is necessary to transport the machine on a flatbed truck or other means of transport, the unit must be secured using transport belts or other types of security that have the appropriate certificates All fastening elements must be connected to the machine in the places indicated on it, which are marked with a given symbol. All moving and protruding elements of the machine must be immobilized and secured so that they do not pose a threat to other road users..

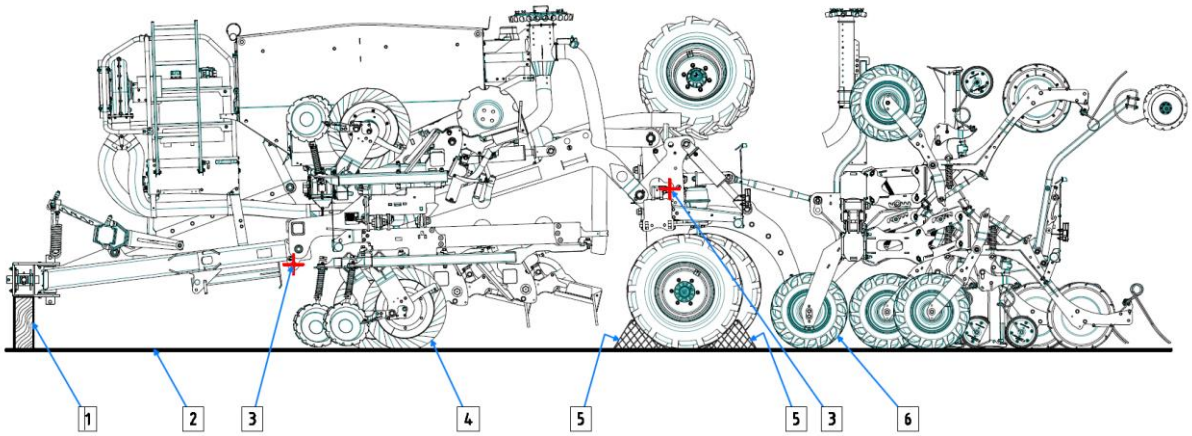


Fig. 52. Machine securing points on the means of transportation

1. Drawbar support
2. Flat surface of the means of transportation
3. Machine hitching points
4. Working sections lowered on the plates
5. Tire roller support chocks
6. Seeding attachment lowered on the three-point linkage

34. Machine lifting points

If it is necessary to lift the PS seeding attachment, use the points indicated in the drawings below. Attach the belts between the yokes of the last two outer working sections and in its central part (behind the center of the "tower"). The drawing below shows the PS in version 16R. In other versions of the seeding attachment, the same method of attaching the belts should be used.

ATTENTION ⚠

- lift only using certified belts with appropriate load-bearing capacity,
- the machine must be lifted on its own (not coupled to other machines),
- before lifting, close hydraulic locks (if any),
- special attention should be paid to selecting the appropriate length of belts for lifting locations. This is particularly important because the machine's center of gravity is variable - it depends on the machine's equipment and the number of working sections. Try to select the belt lengths so that each of them has a similar mass to lift,
- before lifting, remove the spring tines and markers if present, as well as warning signs and their mountings,

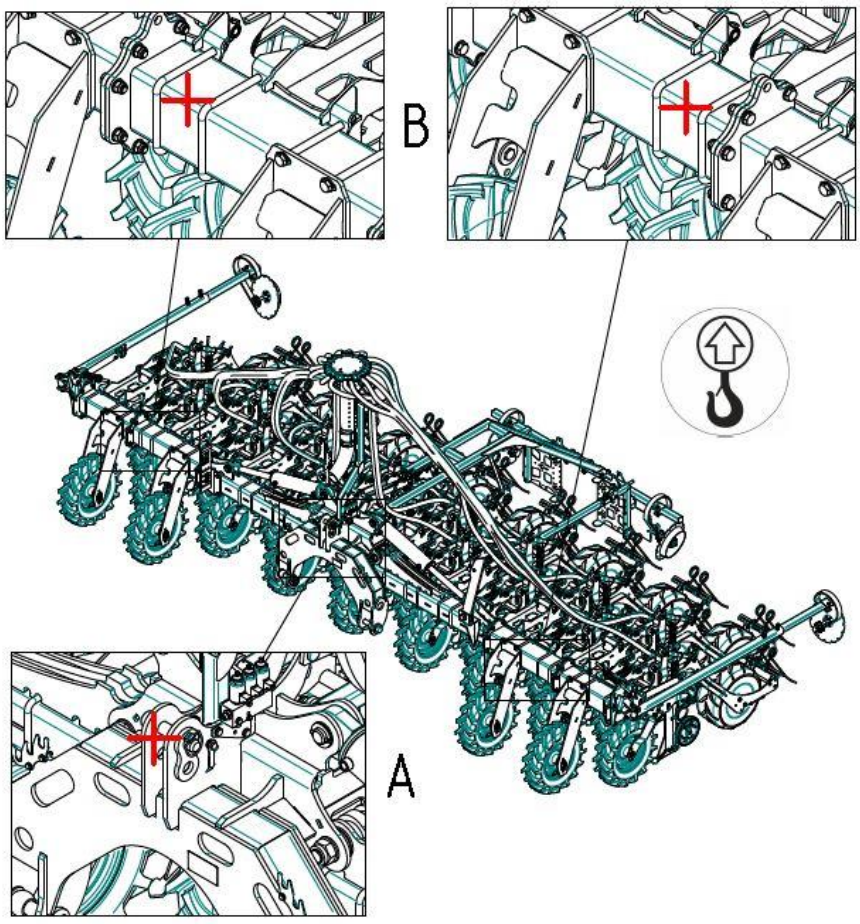


Fig. 53. Machine lifting points

35. Disassembly and disposal

Oils, lubricants and parts for disposal covered in them pose serious threat to the environment and should be disposed according to the law and in an eco-friendly manner that's also safe for people. If necessary, consult with local authorities. While using and maintaining the machine different substances are created, which must be properly disposed of. In the case of excipients, consumable substances and other chemical agents, always follow instructions of the safety data sheets of those substances.

Decommissioning.

If the machine can no longer be used and should be utilized, it must be decommissioned. Machine parts should be segregated according to materials, and then handed over for eco-friendly disposal or recycling. While doing that you must obey the applicable regulations. Contact a disposal company if necessary.

36. Responsibility of the manufacturer

The manufacturer does not bear responsibility for using the machine in a manner inconsistent with the provisions of the law, safety regulations or instructions of this user manual. Due to the fact that events unforeseen in this manual may occur, it's crucial to always follow general safety regulations. Responsibility of the manufacturer is excluded when the user willingly uses spare parts other than original ones or parts approved by the manufacturer, or if elements of the machine have been modified. The manufacturer is not responsible for indirect damages, including damages to other machines or devices. The manufacturer is not responsible for the wrong choice of seeds, their type and quantity. If the experience of the user is not sufficient, it's recommended to ask for help of specialists or contact the Czajkowski Maszyny company**.** Responsibility of the manufacturer does not cover incorrect (or deviating from the expected) results of work. In every case, the user must control and supervise seeding and make sure that the dosage is correct for the given conditions. The user should also constantly monitor the correctness of sowing the seeds. Responsibility for use and maintenance lies in the hands of the owner. The owner of the machine is responsible for making sure that operators have proper qualifications and know how to use the machine. You must remember that incorrect use of the machine poses danger to people, animals, bodies of water and cultivation fields. Always follow the instructions provided by manufacturers of machinery and equipment, seeds, plant protection products and fertilizers contained in specialist instructions.

37. Warranty

The warranty period is 12 months and is counted from the day of the first start-up of the machine at the customer's by the Czajkowski Maszyny sp. z o.o. service. However, the warranty is also limited to a maximum of 400 ha worked per meter of the machine's working width. An additional condition for the warranty to be valid is the use of the machine with a tractor whose power does not exceed 100 HP (horsepower) per meter of the machine's working width.

The warranty covers defects and irregularities inherent in the machine at the time of its issue, resulting from material or manufacturing defects.
Artificial elements such as rubber or plastic are covered by the warranty only in the event of obvious material defects.

The warranty does not cover wear and tear of the machine's working elements that wear out during normal use, such as:

- Elements of the furrow opener (chisel, sword, beam cover, sleeves),
- Spreading and breaking disc,
- Wavey cutting disc,
- Toothed closing discs,
- Pre-emergence marker discs,
- Bearings in discs and road/field wheels,
- Rubber compaction tires,
- Cage compaction wheels,
- Fasteners (bolts, nuts, washers etc.),

ATTENTION The manufacturer will not accept a complaint under the warranty when:

- Non-original spare parts were used,
- The machine, its individual components and accessories were not used, stored or maintained properly,
- Any repairs or technical changes were made without the manufacturer's consent,
- The contents of this instruction manual were not followed,
- The warranty card was not completed or was completed incompletely,
- The defects or faults that occurred are not related to a material or manufacturing defect,
- The defects or faults were caused by damage to the machine during transport,
- The defects or faults were caused by force majeure, the action of the elements or third parties,

38. Useful tools

While working with the cultivation unit for strip till Czajkowski ST, you should have the following tools in your toolbox. They might come in handy when operating the unit.

- hammer,
- striker (7 mm),
- wrench set: 1x7mm, 2x10mm, 2x13mm, 2x17mm, 2x19mm, 2x22mm, 2x24mm, 2x27mm, 2x30mm, 1x36mm, 1x46mm, 1x55mm,
- hex key set: 2,5mm, 4mm, 6mm, 8mm.

The above-mentioned tools are not included when buying Czajkowski machines.

39. Bolts tightening torque values

Table 2. Tightening torque values

Tightening torque values in **Nm**		
Diameter	**8.8**	**10.9**
M4	3.3	4.8
M5	6.5	9.5
M6	10	15
M8	25	35
M10	50	75
M12	90	130
M14	150	210
M16	220	330
M18	330	470
M20	460	660
M22	630	900
M24	800	1200
M27	1100	1700
M30	1600	2300
M33	2100	3100
M36	2800	4000
M39	3600	5100
M42	4400	6200

- The above-mentioned bolt tightening torques are approximate values,
- When tightening wheel bolts, the values given in the section on changing wheels should be used.

40. Troubleshooting

Tabela 3. Fault detection

1.Device 2.Action 3.Problem	Main issue	Failure	Cause	Removal
Attaching the machine	Tractor	**The tractor should be equipped with quick release connector for free oil flow**	oil should return to the tractor freely	Fix the quick release connector for free oil flow directly to the oil tank
Attaching the machine	Tractor	**The cabin should have at least two 3-pin 12v sockets**	Power supply for the camera display and extension cord for the seeder	Install the sockets
Attaching the machine	Connecting hydraulic hoses	**Machine works incorrectly**	Connecting hydraulic hoses incorrectly will cause failure	Connect hoses according to colours and pairs.
Attaching the machine	Seeder	**Signal cable is too short**	Use a 10m extension cord between the tractor and the seeder	Use dedicated seeder extension cord
Attaching the machine	Attachment	**Connect: -pneumatic hose -hydraulic system (blue hoses) -power cord**	- hose to transport seeds from the apparatus to the distributor -blue sockets to control markers -electrical system to control seeding and paths	Connect according to the user manual
PS section	Gauge wheels	**Coulters don't reach the required depth**	Gauge wheels are too low, the working section cannot work	Fix gauge wheels on higher openings

1.Device 2.Action 3.Problem	Main issue	Failure	Cause	Removal
PS section	Coulter	**Coulter does not maintain the required depth on hard, compact soil**	There's pressure adjustment on each section	Increase the pressure on the section
PS section	Coulter	**PS section has two types of coulters**	When sowing tiny seeds, e.g. rapeseed, use the press wheel	Remove the small press wheel when sowing grains
PS section	Spring tines	**When sowing e.g. rapeseed, set the tines on the inner side of the sections**	Seeds are in rows directly behind the coulter beam	In case of large amount of hey, lift the springs so you don't cover the rows with
PS section	Spring tines	**When sowing e.g. grains, set the tines on outer sides, i.e. between sections**	Seeds are scattered in plots on the whole width of the coulter	In this case seeds are between rows, we've got the flat field effect
PS section	Depth adjustment	**Different depth of seeds**	There's a bottle screw on each section for proper adjustment	Check each section using the depth meter. Set all to the specified depth
PS section	Copying wheels	**Different depth of seeds**	Copying wheels should have the same pressure in each section	Check wheel pressure.
Seed distribution	Device	**Rotor does not rotate**	Mechanically blocked	Remove the rotor and clean it
Seed distribution	Device	**Rotor rotates too slowly**	Rotor is too large	Replace with a smaller one

1.Device 2.Action 3.Problem	Main issue	Failure	Cause	Removal
Seed distribution	Device	**The device is blocked**	Rotor tightening metal strip is too low	Adjust the device tightening metal strip. Leave a gap of around 1 mm
Seed distribution	Device	**Blown fuse**	Check rotor width	If it's too tight, remove the distance strip
Seed distribution	Device	**Rotors are wearing away**	Check rotor width	If it's too tight, remove the distance strip
Seed distribution	Device	**Leaking device, seeds are falling out**	Check tightness of the device, the gap between the rotor and the tightening rubber is too big	Make the gap between the rotor and the tightening rubber smaller
Seed distribution	Seed applicator	**Seeds come out from coulters too slowly or stay in the hose that connects the applicator and the unit**	There are three bleed valves on the machine, which must be closed when the applicator is connected	Close all three bleed valves
Seed distribution	Seed applicator	**Rapeseed seeds are blown out from under the press wheel**	Too much air is directed to the applicator	Decrease the amount of air using the airstream valve
Seed distribution	Seed distributor	**Seeds don't come out of the seeding hoses**	Clogging seed distributor	Clean the distributor
Seed distribution	Flow sensors	**No flow is indicated**	Seeds stay in the flow sensor or the coulter of the applicator	Clean the blocked system

1.Equipment 2.Action 3.Issue	Main issue	Failure	Failure cause	Failure removal
Seed distribution	tank	**Seeds stay in the tank**	Leaking apparatus	Check the tightening rubber under the rotor
Hydraulic system	Rear three-point linkage	**Uncovered seeds on elevations**	The three-point linkage is not copying the ground	The rear three-point linkage should work in„swim" mode. Set the mode on the tractor.
Hydraulic system	Air blower	**Oil is flowing out due to tightened engine**	Oil is not flowing back to the tractor freely	Check the free flow connection
Hydraulic system	Unfolding	**The machine is folding and unfolding very slowly**	There's a pressure reduction valve at the rear section of the machine	Close the valve
Electrical system	Radar	**Computer does not show speed**	Dusted radar	Clean the radar
Electrical system	Radar	**Computer does not show speed**	There's protective film on the radar	Remove the film
Electrical system	Radar	**Computer does not show speed**	Torn wire	Check the system
Electrical system	Radar	**Computer does not show speed**	No signal	Check if the sensor is not covered
Electrical system	Display screen	**Displays screen isn't turning**	No power	Check the power cord between the tractor and the machine
Electrical system	Seeds	**The device is not distributing the specified amount of seeds**	Incorrect settings	Check settings for working width of the unit
Electrical system	Seeds	**Rotor is rotating at maximum speed**	Incorrect rotor size	Replace the rotor with a bigger one

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42. Notes

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