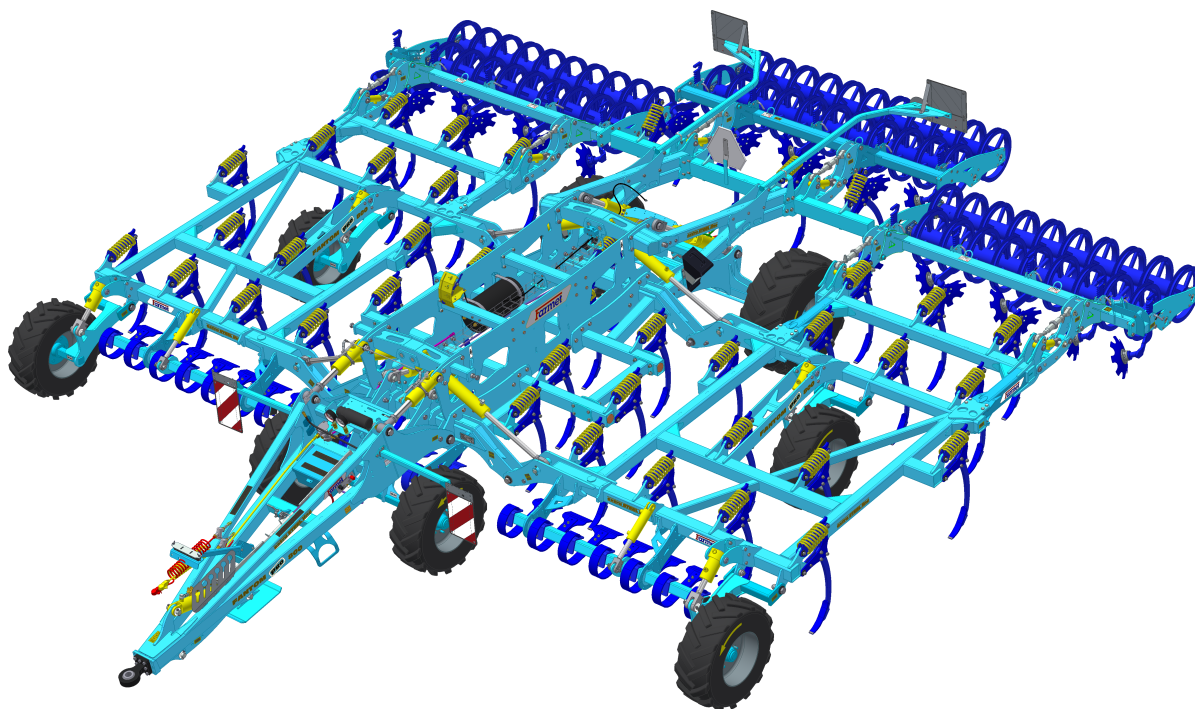


OPERATING MANUAL

FANTOM

650 PRO | 800 PRO | 850 PRO



Edition: **2** Effective from: **01.01.2022**

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PREFACE

Dear customer,

The agricultural machine you have purchased is a high-quality product of Farmet a.s. Česká Skalice.

You can fully utilise the advantages of your machine after thoroughly studying the operating manual.

The serial number of the machine is punched on the production label and written in the operating manual (Your Machine Characteristics). This machine serial number must be stated whenever ordering spare parts for possible repairs. The production label is located on the frame.

Use only spare parts for these machines according to the **Spare parts catalogue** officially issued by the manufacturer, Farmet a.s. Česká Skalice.

Possibilities of Use of the Cultivator

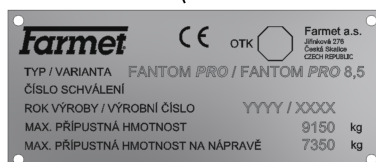
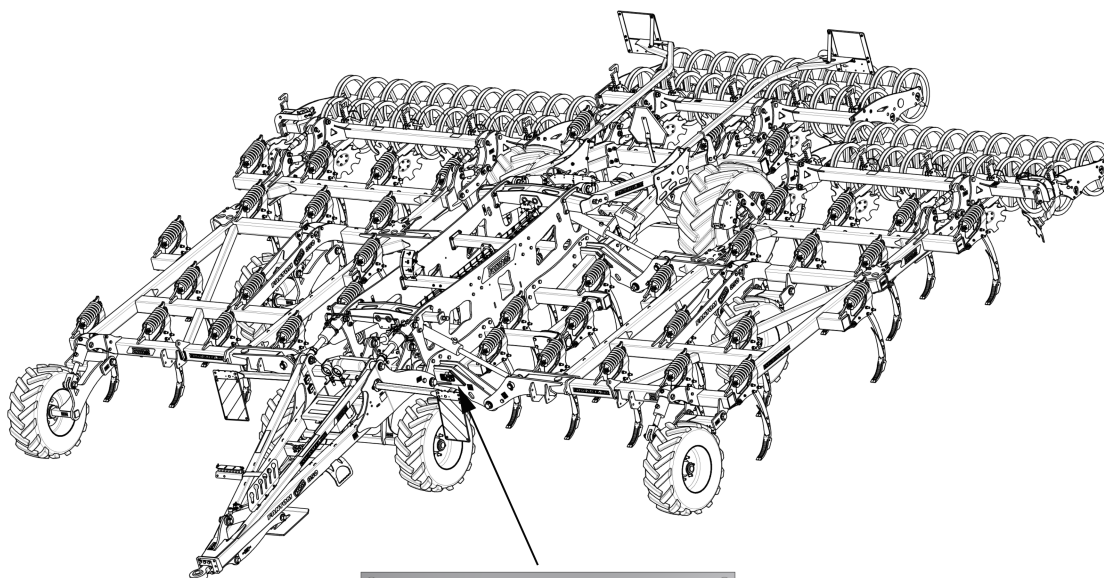
The **FANTOM PRO** cultivator is designed for cultivation of all types of soils up to a processing depth of 15 cm.

Your Machine Characteristics :

MACHINE TYPE :

MACHINE SERIAL NUMBER :

SPECIAL DESIGN OR ACCESSORIES :



IMPORTANT

READ CAREFULLY BEFORE USE

KEEP FOR FUTURE REFERENCE

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1 MACHINE LIMIT PARAMETERS

- The machine is designed for soil ploughing up to a depth of 15 cm when agricultural soil cultivation. Another type of use exceeding the determined purpose is forbidden.
- The machine is only operated by one person – the tractor operator.
- Machine operator must not use the machine in a different way, especially:
 - Transport of persons and animals on the machine structure,
 - Transport of burdens on the machine structure,
 - Aggregation of the machine with another towing equipment than stated in Chapter „8.1“.

1.1 Technical parameters

PARAMETERS	FANTOM 650 PRO	FANTOM 800 PRO	FANTOM 850 PRO
Working width	6,5 m	8 m	8,5m
Transport width	3 m ***		
Transport height	3,53 m	4 m	4,275 m
Machine total length	9,64 m		
Working depth	4 – 15 cm		
Number of shares	35	43	45
Working performance	5,2 – 7,8 ha/h	6,4 – 9,6 ha/h	6,8 – 10,2 ha/h
Towing means	200 - 300 kW*	230 - 350 kW*	235 - 370 kW*
Working speed	8 - 12 km/h	9 - 12 km/h	
Maximum transport speed	20 km/h		
Maximum slope grade (°)	6		
Tyre dimensions - transport Tyre pressure	504/70-20 480 kPa		
Machine weight	7 850 kg**	8 950 kg**	9 150 kg**

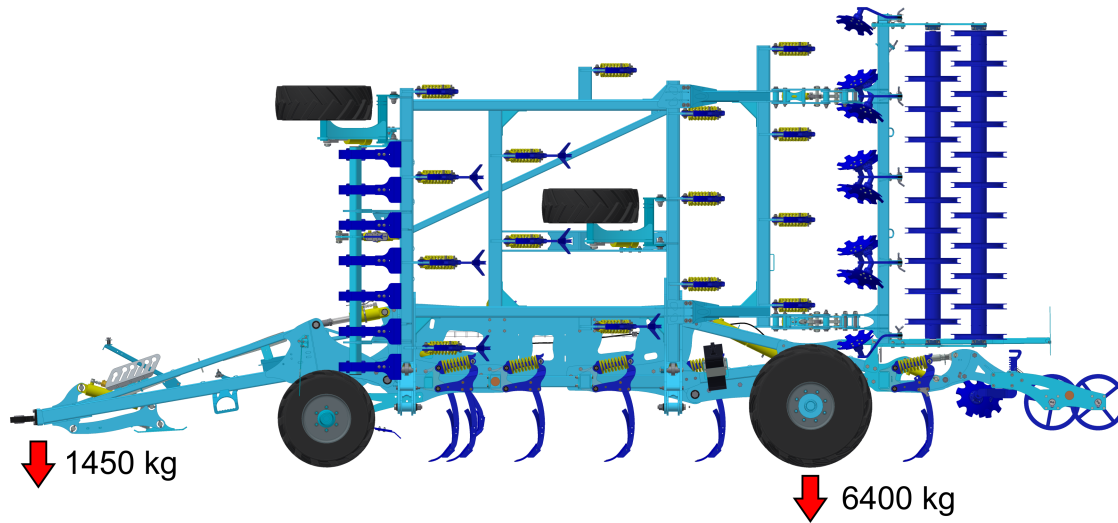
* Recommended towing means, the real towing force may significantly vary according to the processing depth, soil conditions, land slope, working body wear and adjustment.

** Weight of the machine with SD rollers and front flexi-board

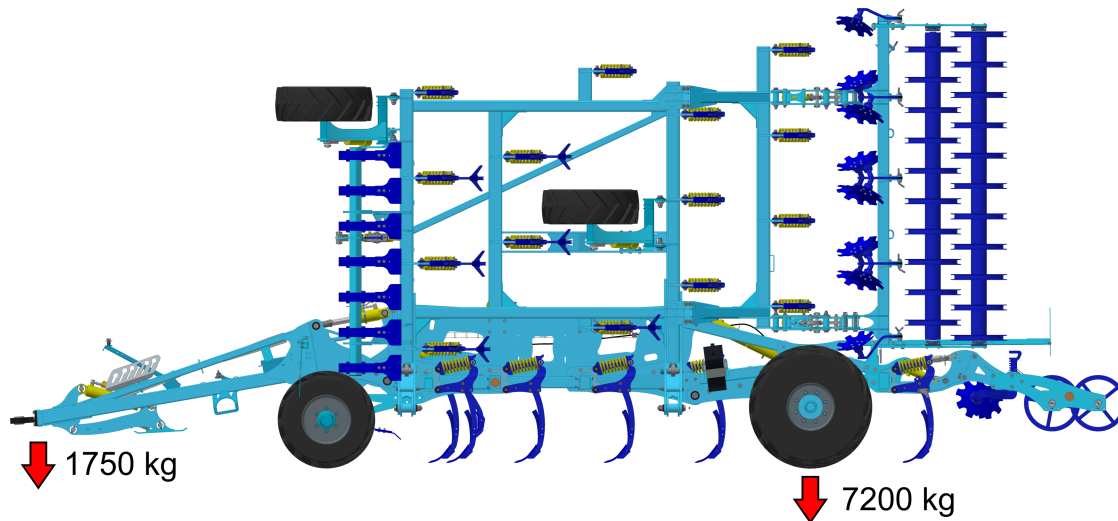
*** Only applies to the version with standard tines length; the width of the machine is higher when the extended version of tines is used!!!

1.2 Machine weight distribution during transport

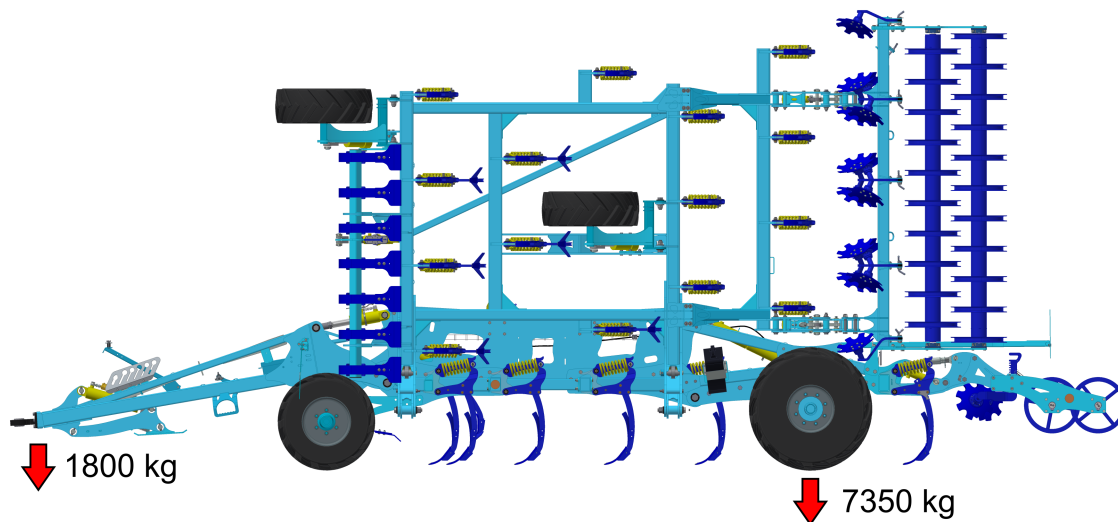
FANTOM 650 PRO



FANTOM 800 PRO



FANTOM 850 PRO



1.3 Safety statement



This warning sign warns about an immediate dangerous situation ending with death or severe injury.







This warning sign warns about a dangerous situation ending with death or severe injury.



This warning sign warns about a situation that may end with a smaller or slight injury. It also warns about dangerous actions related to the activity that could lead to an injury.

2 GENERAL INSTRUCTIONS FOR USE

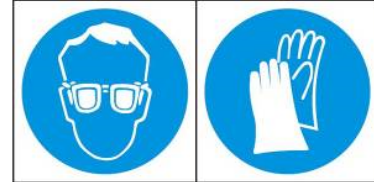
- The machine is made in accordance with the latest equipment state and approved safety regulations. However, dangers of user or third person injury or machine damage or creation of other material damage may arise during use.
- Use the machine only in a technically sound condition, in accordance with its purpose, aware of possible dangers, and while adhering to the safety instructions of this operating manual! The manufacturer is not liable for damages caused by the use of the machine that is in contradiction with the limit parameters of the machine and with the instructions for the use of the machine. The user bears the risk.
Immediately remove especially the failures that may negatively affect safety!
- Machine operation may be performed by a person authorised by the operator under these conditions :
 - It must own a valid driver's licence of the corresponding category,
 - It must be demonstrably familiarised with the safety regulations for work with the machine and must practically master the machine operation,
 - The machine may not be operated by juveniles,
 - It must know the meaning of the safety signs located on the machine. Their respecting is important for safe and reliable machine operation.
- Maintenance and servicing repairs on the machine may only be performed by a person :
 - Authorised by the operator,
 - Educated in the machinery field with knowledge of repairs of similar machines,
 - Demonstrably familiarised with safety regulations for work with the machine,
 - During a repair of a machine connected to a tractor, it must own a driver's licence of the corresponding category.
- Machine operator must secure the safety of other persons when working with the machine or transporting the machine.
- During machine work in the field or during transport, the operator must control the machine from the tractor's cabin.
-  The operator may enter the machine structure only with the machine at rest and blocked against movement, namely only for these reasons :
 - Adjustment of the machine working parts,
 - Repair and maintenance of the machine,
 - Adjustment of the working parts of the machine after unfolding the side frames.
-  When stepping on the machine, do not step on roller tyres or other rotary parts. Those may turn and you can cause very serious injuries by the subsequent fall.
-  Any changes or modifications of machine may be performed only with written consent of the manufacturer.
For possible damage arisen due to ignoring this instruction, the producer bears no responsibility.
The machine must be maintained equipped with prescribed accessories and equipment including safety marking.
All warning and safety signs must be legible and in their places. In case of damage or loss, these signs must be immediately renewed.
-  The operator must have the Operating Manual with the work safety requirements available at any time when working with the machine.

- The operator must not consume alcohol, medicines, narcotic and hallucinogenic substances that decrease his attention and coordination capabilities while using the machine.
If the operator must use medicines prescribed by a physician or uses freely sold medicines, he must be informed by a physician, whether he is capable of responsible and safe operation of the machine under these circumstances.


Protective equipment

For operation and maintenance use:



- tight clothes
- protective gloves and goggles against dust and sharp parts of the machine.



3 MACHINE TRANSPORT USING TRANSPORT MEANS

- The transport means designed for machine transport must have the load capacity minimally identical with the weight of the transported machine. The total weight of the machine is stated on the production label.
- The dimensions of the transported machine including the transport means must comply with the valid regulations for road traffic (decrees, laws).
-  • The transported machine must be always fastened to the transport means so that its spontaneous loosening could not happen.
- The carrier is responsible for damage caused by the loosening of incorrectly or insufficiently fastened machine to the transport means.

4 MACHINE HANDLING USING LIFTING EQUIPMENT

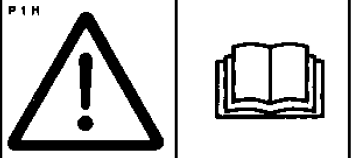

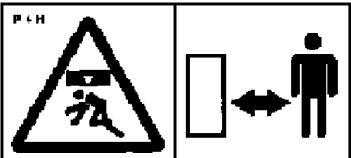

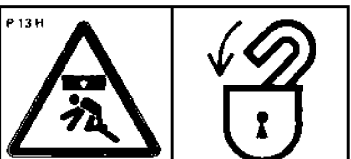
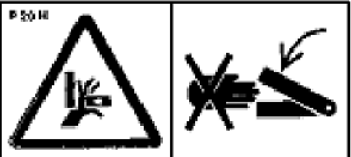
- The lifting equipment and tying means designed for handling of the machine must have their load capacity at least identical with the weight of the handled machine.
-  • Machine fastening for handling may only be performed in places designed for that and marked with self-adhesive labels showing the "chain" symbol. 
- After fastening (suspending) at designated points, it is forbidden to move in the space of possible reach of the handled machine.

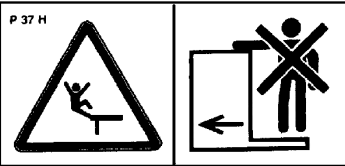

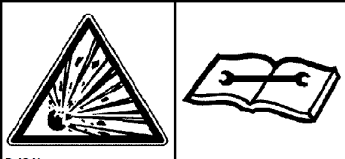

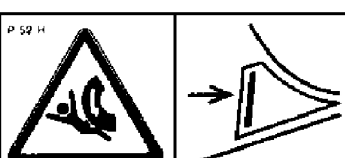
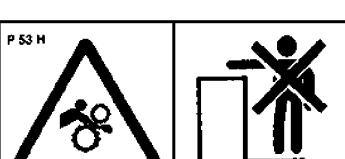

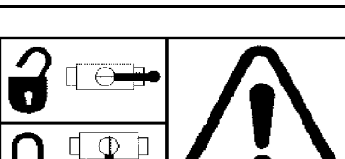
5 WORK SAFETY LABELS

Warning safety labels serve for operator protection.

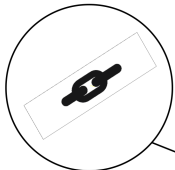
General:

- Strictly observe the warning safety labels.
- All safety instructions also apply to other users.
- Upon damage or destruction of the aforementioned "SAFETY LABEL" located on the machine, THE OPERATOR IS OBLIGED TO REPLACE IT WITH A NEW ONE!!!
- The position, appearance and the precise meaning of the work safety labels on the machine are defined in the following tables and the figure .

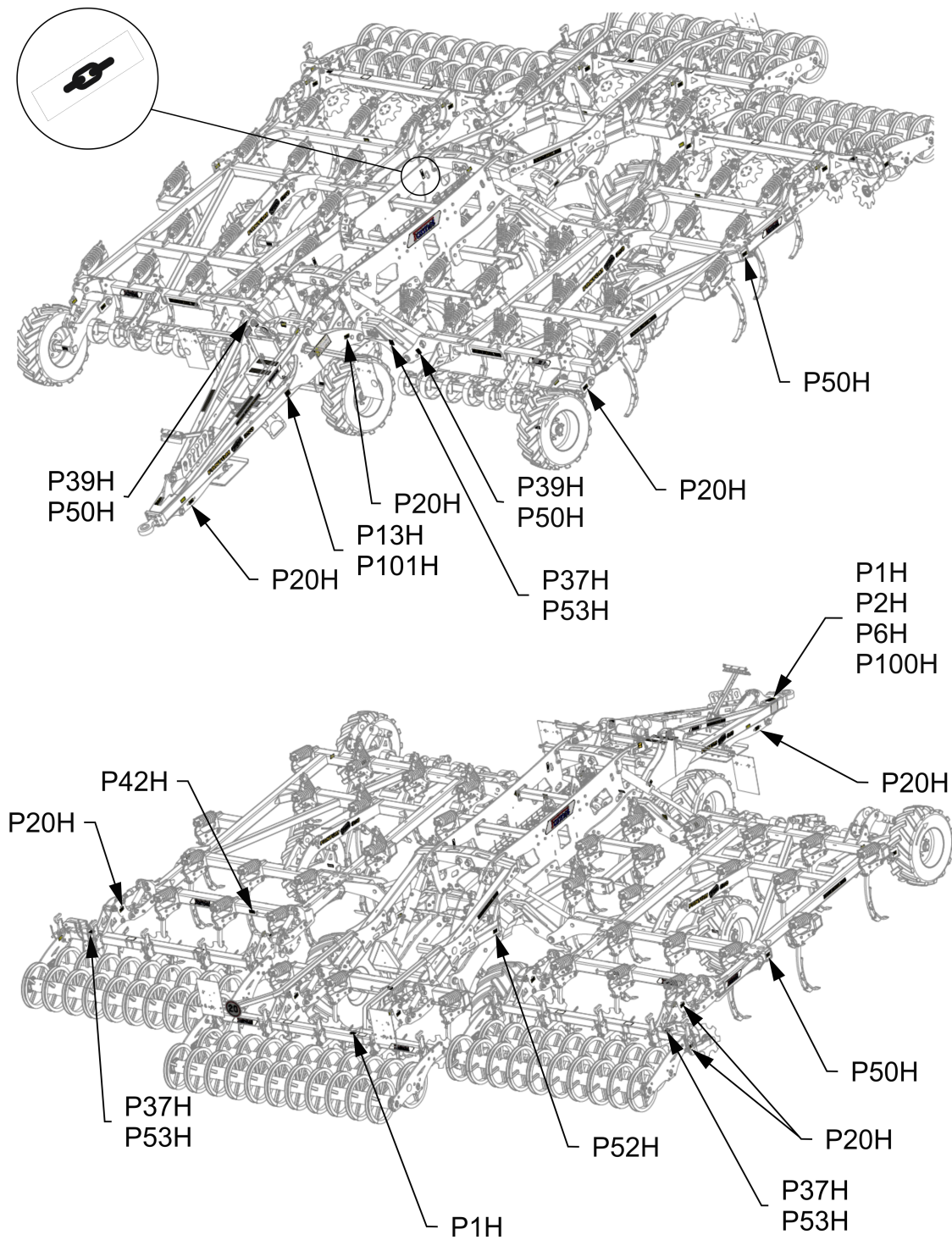
WARNING SAFETY LABEL	LABEL TEXT	MACHINE POSITION
	<p>Before handling the machine, carefully read the operating manual.</p> <p>Observe the instructions and safety regulations for machine operation during use.</p>	P 1 H
	<p>When connecting or disconnecting, do not step between the tractor and the machine, also do not enter this space, if the tractor and the machine are not at rest and the engine is not turned off.</p>	P 2 H
	<p>Stay out of reach of the drawn-up machine.</p>	P 4 H
	<p>Stay outside the reach of the tractor - agricultural machine set, if the tractor engine is in operation.</p>	P 6 H
	<p>The side extensible disc must be secured with the stopper for transport and during work.</p> <p>The rear twin roller must be secured with the stopper for transport.</p> <p>Before commencing the machine transport, secure the axle with spherical valves against unexpected drop.</p>	P 13 H
	<p>When folding the side frames, do not reach into the space of the machine folding joints.</p> <p>There is a danger of cutting when setting the depth of the machine.</p>	P 20 H

	<p>Travelling and transport on the machine structure is strictly forbidden.</p>	<p>P 37 H</p>
	<p>When working and transporting the machine, maintain safe distance from the electric appliances</p>	<p>P 39 H</p>
	<p>The pressure vessel is under gas and oil pressure. Execute disassembly and repairs only according to the instructions in the manual.</p>	<p>P 42 H</p>
	<p>When folding and unfolding the side frames, stay outside their reach.</p>	<p>P 50 H</p>
	<p>Secure the machine against unwanted movement by positioning on its working bodies (shares).</p>	<p>P 52 H</p>
	<p>Stay outside the reach of the tractor - agricultural machine set, if the tractor engine is in operation.</p>	<p>P 53 H</p>
	<p>It is strictly folding and unfolding the side frames on slopes or inclined surfaces.</p>	<p>P 100 H</p>
	<p>The shown positions of the lever and the function of the hydraulic spherical valve located on the piston rod.</p>	<p>P 101 H</p>

FANTOM 650 PRO



FANTOM 800 PRO, FANTOM 850 PRO



6 DESCRIPTION

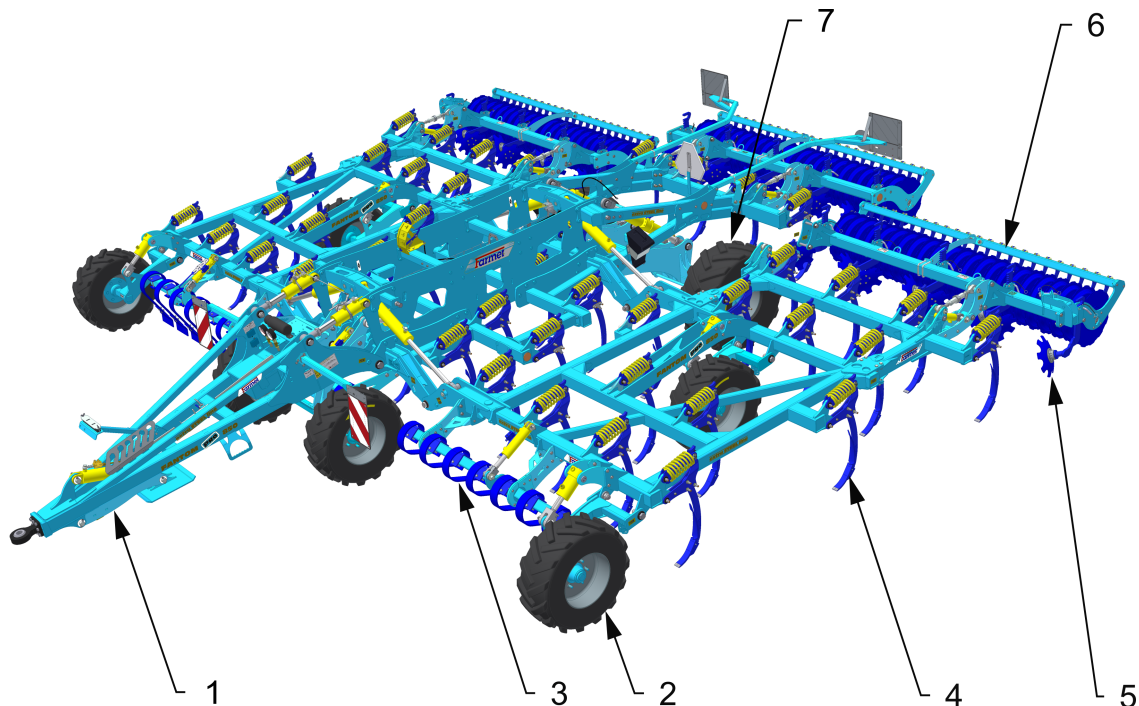
FANTOM 650 PRO, FANTOM 800 PRO, FANTOM 850 PRO is structurally designed as a semi-mounted folding machine. The basic version consists of a drawbar and a working section. The chassis is aggregated with the pulling vehicle using a height-adjustable loop for guide pin $\varnothing 50\text{mm}$ ($\varnothing 70\text{mm}$ or K80 hitch). The chassis includes a supporting leg to support the machine after it is disconnected from the tractor.

The working section consists of a central frame with the transport axle and of two side frames. There are five rows of working shares and tracing wheels on the central and side frames. Furthermore, there are rollers in the rear part of the machine that compact the aerated soil. The machine is designed for work with or without rollers. The roller hitches are equipped with a quick-coupling system for fast disassembly. It is possible to install a front flexi-board in front of the first row of ploughshares on request to increase the levelling effect during work. The axle is located inside the machine in front of the rear roller. The tracing wheels are used for setting the working depth.



The machine must not be operated with lifted rear rollers for a long time, the rollers can be quickly removed using the quick-coupling system, see Chapter 9.1 !!!

6.1 Working parts of the machine



1. Tractive pole with a folding leg
2. Tracing wheel
3. Flexi-board / Coulters
4. Five rows of shares
5. Rear levelling discs
6. Roller
7. Transportation axle

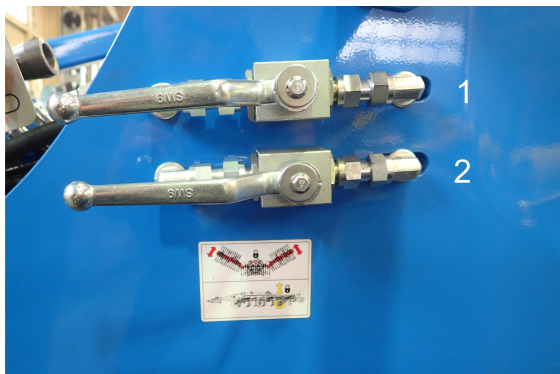
6.2 Function of the closing (ball) valves

- The machine is equipped with two closing (ball) valves and two switching (three-way) valves inside the drawbar, see Fig. 2 and 3.
- The external upper ball valve is used for closing the circuit for side frame unfolding (red circuit); its use is further described in Chapter 8.3.
- The external lower ball valve is used for closing the circuit controlling the piston-rods of the transport axle (yellow circuit), its use is further described in Chapter 8.3.
- The two ball switching (three-way) valves in the front part of the drawbar are used for switching the function of the blue circuit. During operation, the blue circuit controls the flexi-board (if installed) and the folding supporting leg of the drawbar.



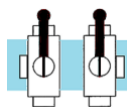
- **It is important to close the ball valves for transport !!!**

Fig. 2 - closing (ball) valves

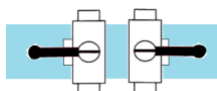


1. Unfolding machine frames
2. Locking/unlocking transport axle
3. Switching (three-way) valves

Fig. 3 - Switching (three-way) valves

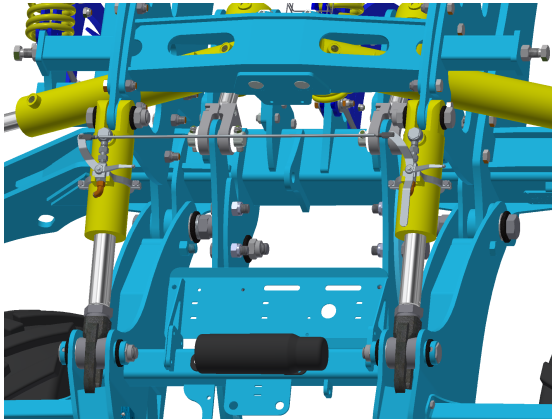


The switching valves in this position control the flexi-board.

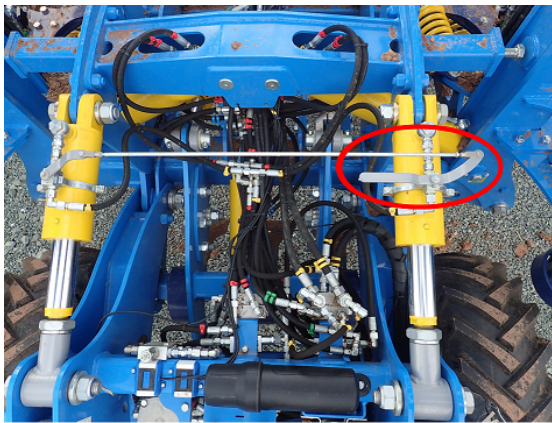


The switching valves in this position control the supporting leg of the drawbar.

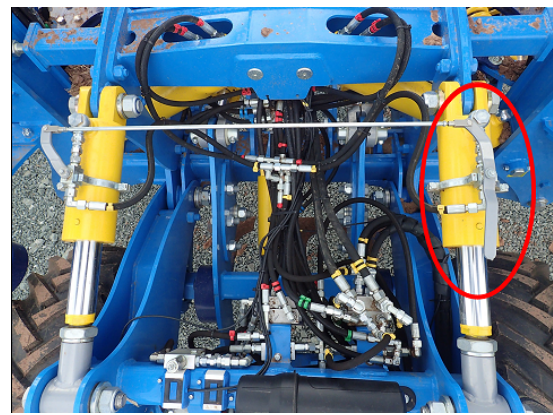
Fig. 4 - Pole piston-rod valves



Used for manual closure of the piston-rods prior to transportation – a safety element.



- CLOSED



- OPEN

7 MACHINE ASSEMBLY AT THE CUSTOMER

- The operator must perform the assembly according to the instructions of the producer, best in cooperation with the expert servicing technician determined by the producer.



- The operator must secure a functional test of all assembled parts after the completion of the machine assembly.
- The operator must secure that the handling of the machine using lifting equipment during its assembly is in accordance with chapter „4“.

8 COMMISSIONING

- Before taking over the machine, test and check, whether damage occurred during transport and whether all parts contained in the bill of delivery were supplied.



- Before commissioning the machine, carefully read this operating manual, especially Chapters 1–5. Before the first use of the machine, familiarise yourselves with its controls and overall function.
- During work with the machine, observe not only the instructions of this operating manual but also generally valid regulations of work safety, health protection, fire and transport safety, and environmental protection.
- The operator must check the machine before every use (commissioning) from the standpoint of completeness, work safety, work hygiene, fire safety, transport safety, and environmental protection. A machine showing signs of damage must not be commissioned.
- Aggregation of the machine with the tractor is to be performed on a flat and hardened surface.
- When working on slopes, observe the lowest allowable slope grade of the set **TRACTOR - MACHINE**.
- Before starting the tractor motor, check whether no person or animal is in the working space of the set and push the warning sound signal.
- The operator is responsible for the safety and all damage caused by the operation of the tractor and the connected machine.
- The operator is obliged to adhere to the technical and safety regulations of the machine determined by the producer when working.
- The operator is obliged to retract the working bodies of the machine from the ground when turning at the headland.
- The operator is obliged to observe the prescribed working depths and speeds stated in the manual in. chap.1.
- The operator is obliged to lower the machine to the ground and secure the set against movement before leaving the tractor cabin.

DECREASE OF SOIL PRESSURE TO A VALUE LOWER THAN 200 KPA (29 PSI)

To decrease the specific pressure on soil (lower than 200 kPa / 29 Psi) at the turns on the headland, raise the machine on the pole by using the hydraulic tractor shoulders and rear rollers. Turn around when the machine is unfolded and resting on rollers.

8.1 Agregation to a tractor

- The machine can be connected only to a tractor, whose curb weight is identical or higher than the overall weight of the connected machine.
- The machine operator must observe all generally valid regulations of work safety, health protection, fire safety, and environmental protection.
- The operator may connect the machine exclusively to a tractor that is equipped with a rear three-point suspension and a functional undamaged hydraulic system.
- The table of requirements for the towing means for work with the machine:

Requirement for the tractor engine power	FANTOM 650 PRO	200 – 300 kW (270 – 405 HP)
	FANTOM 800 PRO	230 – 350 kW (310 – 470 HP)
	FANTOM 850 PRO	235 – 370 kW (315 – 497 HP)
Requirement for the bottom hitch	Loop for the bottom hitch	ø50 mm
	Loop for the bottom hitch	ø70 mm
	Hitch K80	ø80 mm
Requirement for the tractor's TPS	ø of the pin of the bottom hitch	ø36 mm
	Height of the bottom fixed hitch	300 mm
Requirement for the tractor's hydraulic system	Side frame folding circuit	Circuit pressure 200bar (2900 Psi), 2 pcs of quick-coupler sockets ISO 12,5
	Axle lifting circuit	Circuit pressure 200bar (2900 Psi), 2 pcs of quick-coupler sockets ISO 12,5
	Rollers lifting circuit	Circuit pressure 200bar (2900 Psi), 2 pcs of quick-coupler sockets ISO 12,5
	Circuit for controlling flexi-boards and the support leg of the drawbar	Circuit pressure 200bar (2900 Psi), 2 pcs of quick-coupler sockets ISO 12,5
	Circuit for setting the working depth	Circuit pressure 200bar (2900 Psi), 2 pcs of quick-coupler sockets ISO 12,5



When connecting, no persons may stay in the space between the tractor and the machine.

8.2 Hydraulics











- Connect the hydraulics only when the hydraulic circuits of the machine and the tractor (aggregate) are in a pressure-less condition.
- The hydraulic system is under high pressure. Regularly check for leaks and immediately remove obvious damage of all lines, hoses, and pipe unions.
- When seeking and removing leaks, use only the suitable tools.
- For connecting the hydraulic system of the machine to the tractor, use the plug (on the machine) and the socket (on the tractor) of the quick-couplers of the same type. Connect the quick-couplers of the machine to the hydraulic circuits of the tractor so that the (RED DUST CAPS) for folding side frames is on one control circuit, the (YELLOW DUST CAPS) for lifting the machine on the axle is on the second control circuit that must be switched to the floating position during work!!! and the setting of the working depth (GREEN DUST CAPS) on the third control circuit, control of flexi-boards and supporting leg (BLUE DUST CAPS) on the fourth control circuit and control of the setting of rollers (WHITE DUST CAPS) on the fifth circuit.



In order to prevent accidental or foreign person (children, passengers) caused movement of the hydraulics, the control switchboards on the tractor must be secured or blocked in the transport position.

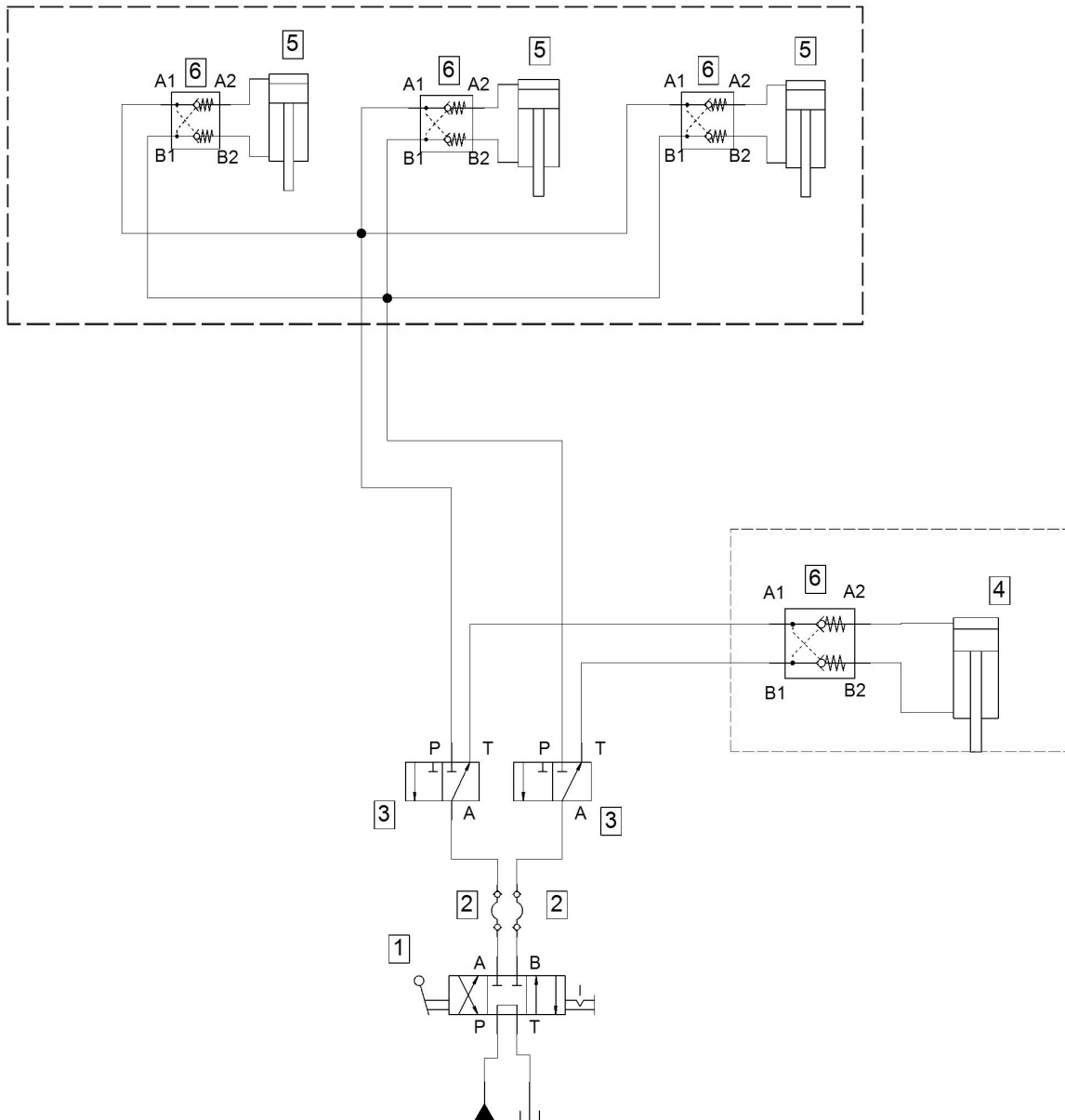


Parts of the hydraulic system of the machine, which are under pressure, are forbidden to disassemble. Hydraulic oil that penetrates the skin under high pressure causes severe injuries. In case of injury, seek a physician immediately.

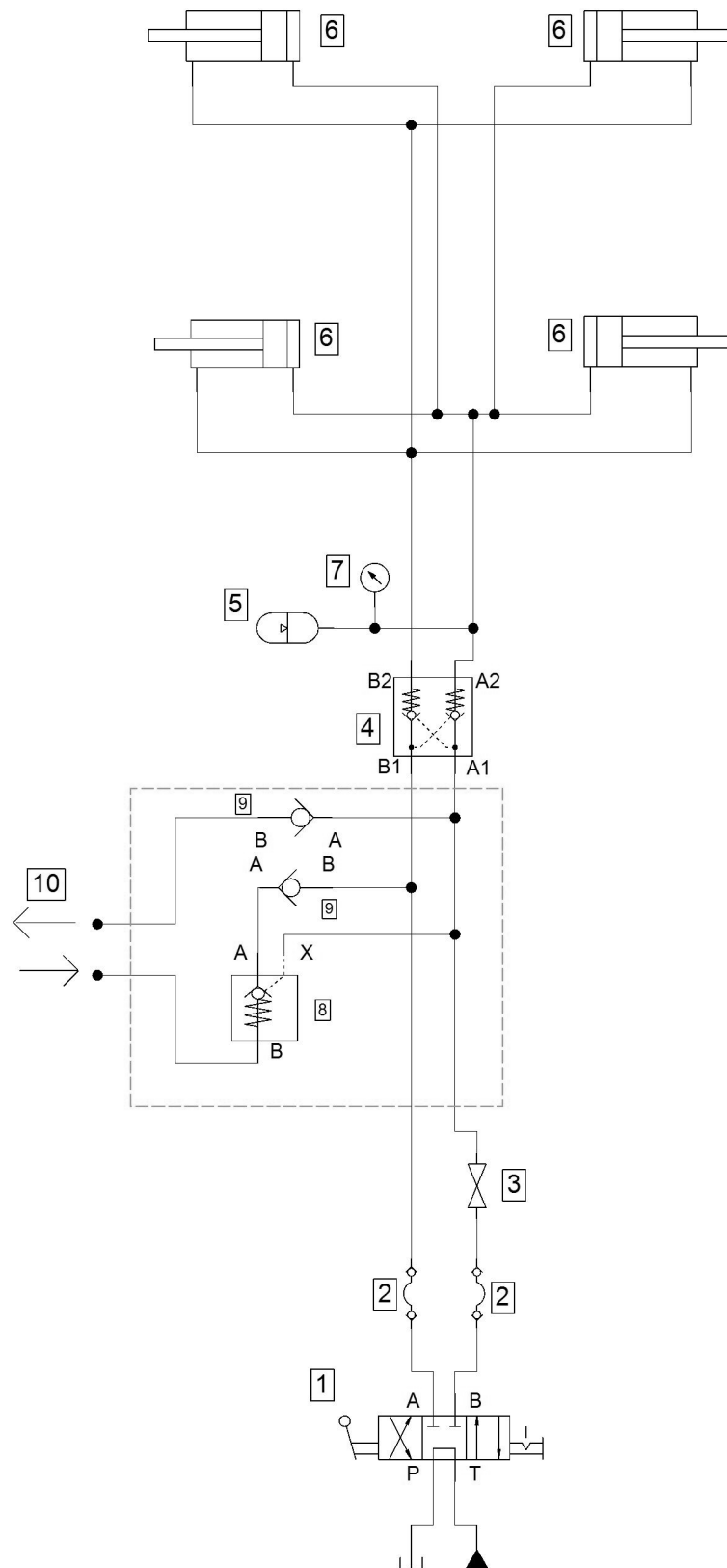
	HYDRAULIC CIRCUIT FOR FOLDING SIDE AND OUTSIDE FRAMES - ONE RED RING The side frames are folded into the transport position when this circuit branch is pressurized.
	HYDRAULIC CIRCUIT FOR FOLDING SIDE AND OUTSIDE FRAMES - TWO RED RINGS The side frames are unfolded into the working position when this circuit branch is pressurized.
	HYDRAULIC CIRCUIT FOR CONTROLLING THE TRANSPORT AXLE - ONE YELLOW RING The transport axle is lifted into the transport position, i.e. the working parts are in the highest position against the axle, when this circuit branch is pressurized.
	HYDRAULIC CIRCUIT FOR CONTROLLING THE TRANSPORT AXLE - two yellow rings The transport axle is put into position where the working parts are in the set working depth against the wheels of the machine when this circuit branch is pressurized.
	HYDRAULIC CIRCUIT FOR CONTROLLING THE WORKING DEPTH OF PLOUGHSHARES - one green ring Ploughshares are taken out of the processed profile when this circuit branch is pressurized.
	HYDRAULIC CIRCUIT FOR CONTROLLING THE WORKING DEPTH OF PLOUGHSHARES - two green rings Ploughshares are recessed into the processed profile when this circuit branch is pressurized.
	HYDRAULIC CIRCUIT FOR CONTROLLING THE POSITION OF THE FLEXI-BOARD AND THE SUPPORTING LEG OF THE DRAWBAR - one blue ring The levelling bar is lifted from the ground and the supporting leg of the drawbar is lifted when this circuit branch is pressurized.
	HYDRAULIC CIRCUIT FOR CONTROLLING THE POSITION OF THE FLEXI-BOARD AND THE SUPPORTING LEG OF THE DRAWBAR - two blue rings The levelling bar is recessed to the ground and the supporting leg of the drawbar is laid down when this circuit branch is pressurized.
	HYDRAULIC CIRCUIT FOR CONTROLLING ROLLERS - one white ring Rollers are lifted up when this circuit branch is pressurized.
	HYDRAULIC CIRCUIT FOR CONTROLLING ROLLERS - two white rings Rollers are pushed to the ground when this circuit branch is pressurized.

8.2.1 Hydraulic diagram FANTOM 650 PRO, 800 PRO, 850 PRO

Control of the flexi-board and supporting leg (blue circuit) :

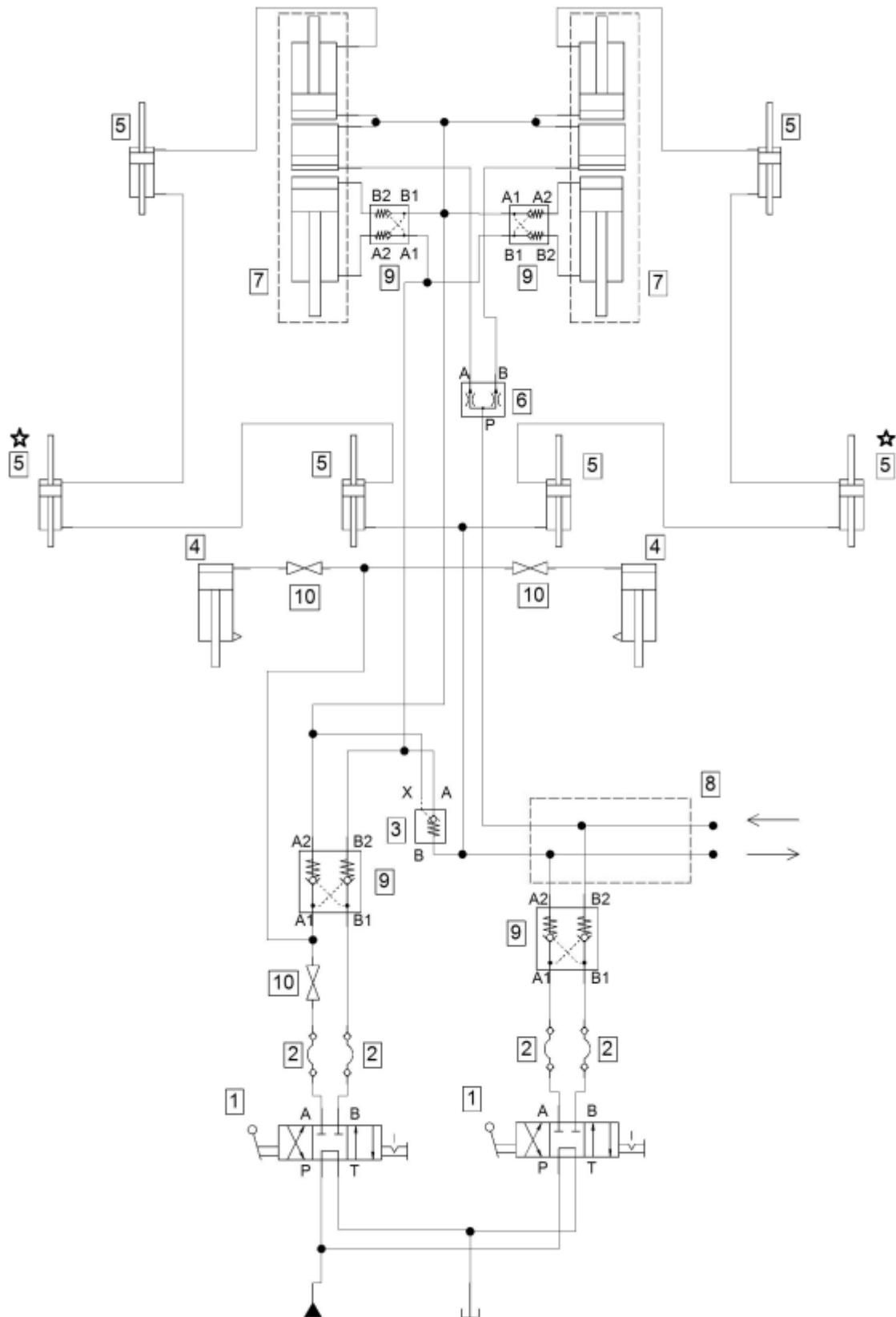


- 1 – Control distributor in the tractor
- 2 – Hydraulic quick-couplers
- 3 – Three-way valve
- 4 – Hydraulic cylinder of the supporting leg
- 5 – Hydraulic cylinder of the flexi-board , Bypass inlet before folding
- 6 –Hydraulic lock

Folding side and outside frames (red circuit) :


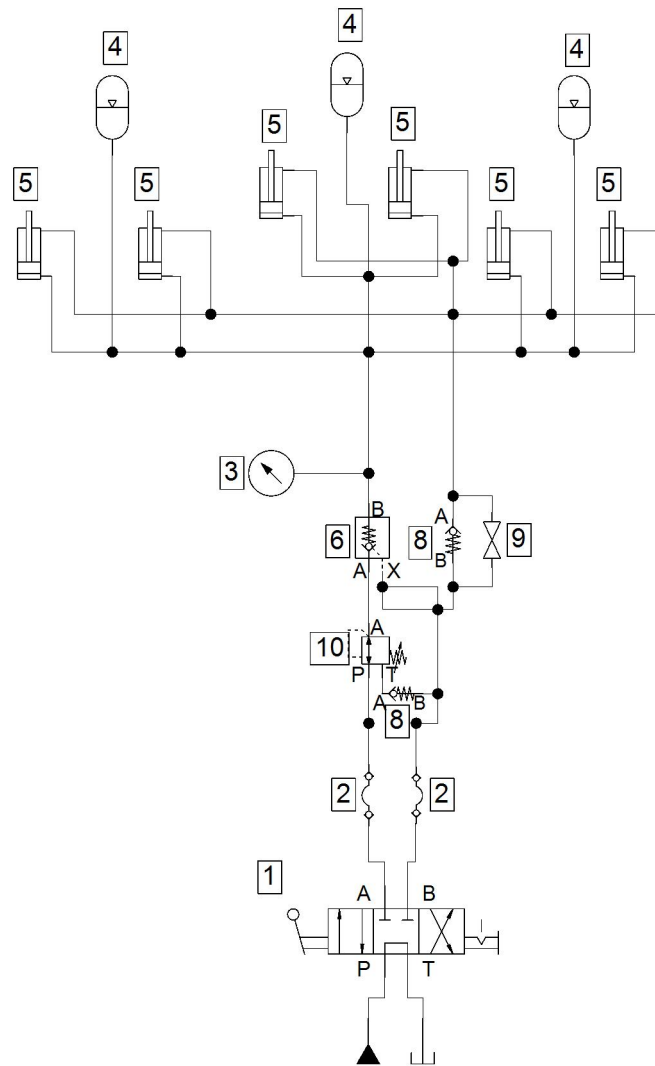
- | | |
|--|---|
| 1 – Control distributor in the tractor | 6 – Hydraulic cylinder for folding side frames |
| 2 – Hydraulic quick-couplers | 7 – Manometer |
| 3 – Ball valve | 8 – One-sided hydraulic lock |
| 4 – Hydraulic lock | 9 – Non-return valve |
| 5 – Hydraulic pressure accumulator | 10 – Branch for connection with the depth setting circuit |

Setting working depth and controlling transport axle (green and yellow circuit) :



- * – only for FX 800 PRO and FX 850 PRO
- 1 – Control distributor in the tractor
- 2 – Hydraulic quick-couplers
- 3 – One-sided hydraulic lock
- 4 – Hydraulic cylinder of the drawbar
- 5 – Hydraulic cylinder of the tracing wheel

- 6 – Flow divider
- 7 – Combined hydraulic cylinder – setting working depth + transport axle
- 8 – Branch for connection with the folding circuit
- 9 – Hydraulic lock
- 10 – Ball valve

Roller setting (white circuit) :


- 1 – Control distributor in the tractor
- 2 – Hydraulic quick-couplers
- 3 – Manometer
- 4 – Hydraulic pressure accumulator
- 5 – Hydraulic cylinders
- 6 – One-sided hydraulic lock
- 8 – Non-return valve
- 9 – Ball valve
- 10 – Control valve

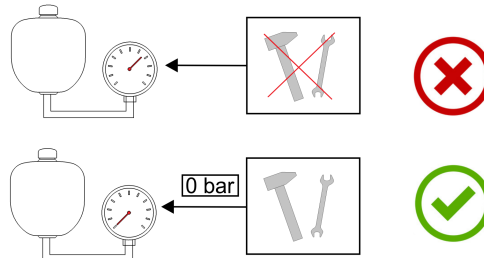
8.2.2 Pressure vessel



Never open or adjust (welding, drilling etc.) the pressure vessel (pressure accumulator). The pressure vessel is still under gas pressure even after it has been emptied.

Empty the pressure vessel in case of any work on the hydraulics of the machine. The manometer must not show any pressure, or the pressure on the manometer must decrease to 0 bars. Only then it is permitted to work on the hydraulic circuit.

Work on the hydraulic circuit



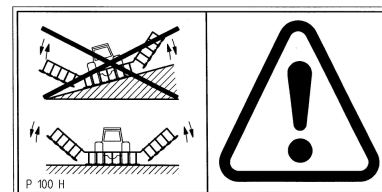
8.3 Folding and unfolding of the machine



- The hydraulics for the folding and unfolding must be connected to the double-action control unit.
- The operator must ensure that during folding and unfolding of the side frames, no person or animal is within their reach (i.e. at the place of their impact) or vicinity.



- Perform folding and unfolding on flat and solid surfaces or laterally to the slope with the fully open control unit.
- Execute the folding or unfolding only with a machine that is raised on the axle with the side rollers in the recessed position, i.e. their piston-rods should be drawn in.

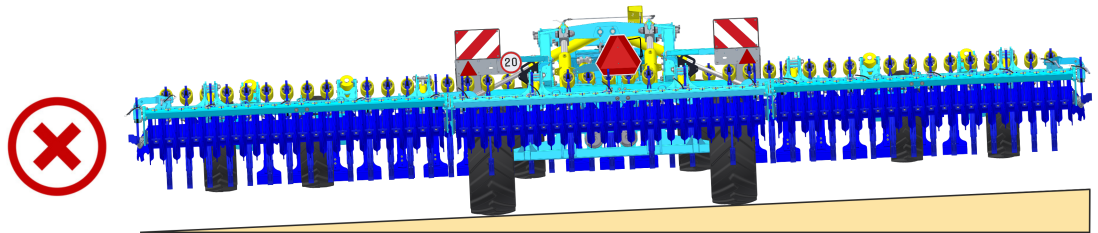
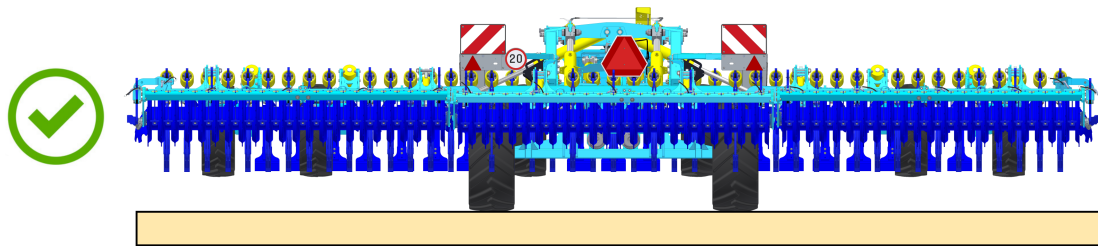


- Remove stuck soil from folding points, soil may impair function and cause damage to the mechanics.
- During folding or unfolding, check the side frames and have them continuously fold into the end position to the stoppers.

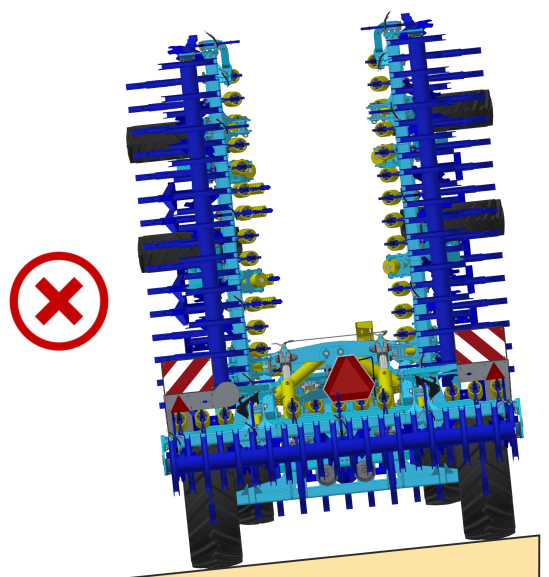
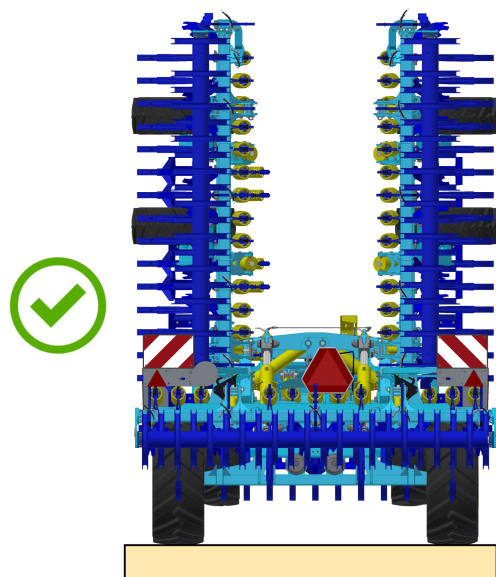


CAUTION!!! The machine must be lifted on the axle, when the machine is folded and unfolded. Otherwise, the rollers may get damaged.

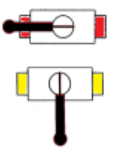

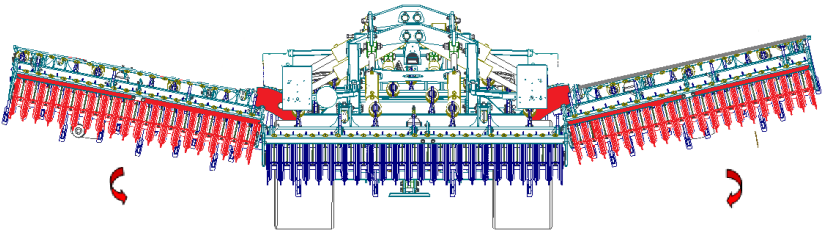
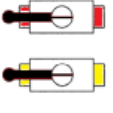

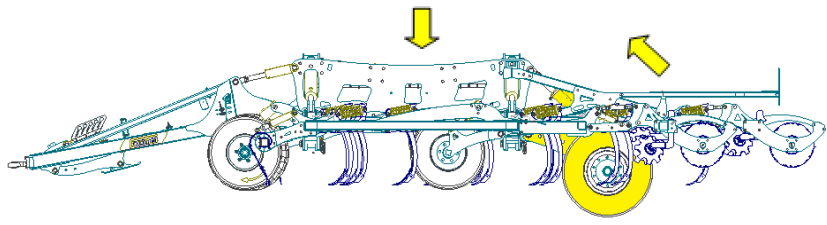
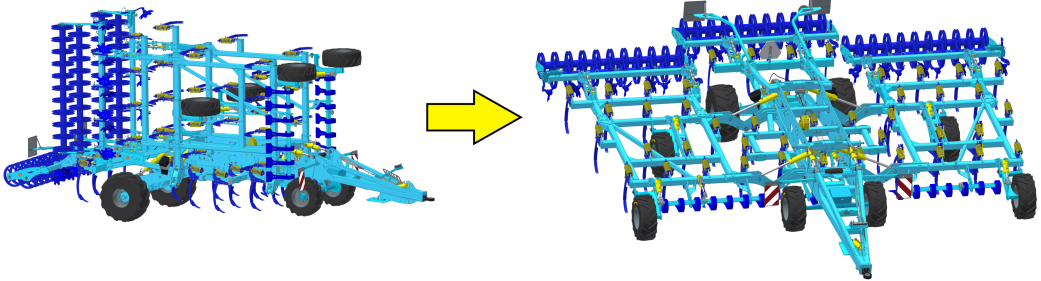


Machine position for folding



Machine position for unfolding



8.3.1 Machine unfolding procedure

Machine unfolding procedure – work position			
Initial position: The machine is lifted on the axle and red valve is open.			
1			
Unfold the machine using the red circuit and open yellow valve.			
2			
Draw in the piston-rods of the axle using the yellow circuit into the marginal position, i.e. maximum insertion. The machine is evenly placed on all tracing wheels.			
			
			SETTING THE DOWN PRESSURE OF SIDE FRAMES <ul style="list-style-type: none"> When the machine has been unfolded, the down pressure of the side frames must be adjusted to ensure optimal terrain tracing. Set the value of 100 bar (1450 Psi) on the pressure gauge using the circuit for unfolding.

8.3.2 Machine folding procedure

Machine Folding Procedure – Transport Position

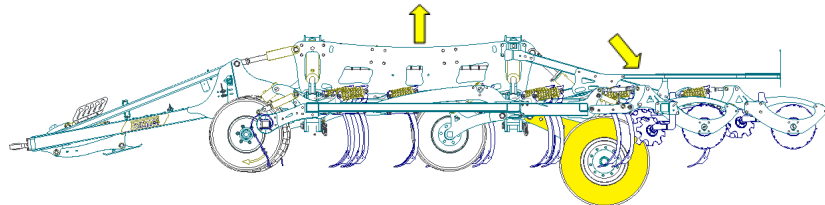
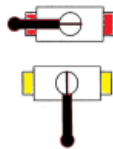
Initial position: The machine is unfolded and recessed, both ball valves outside are opened.

Conditions that must be observed prior to the commencement of folding:



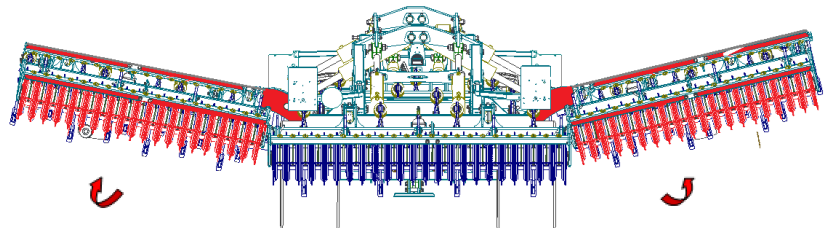
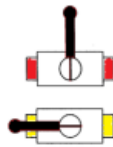
- the rear section of rollers must be lifted in the maximum position
- the machine must be lifted up to zero position

1

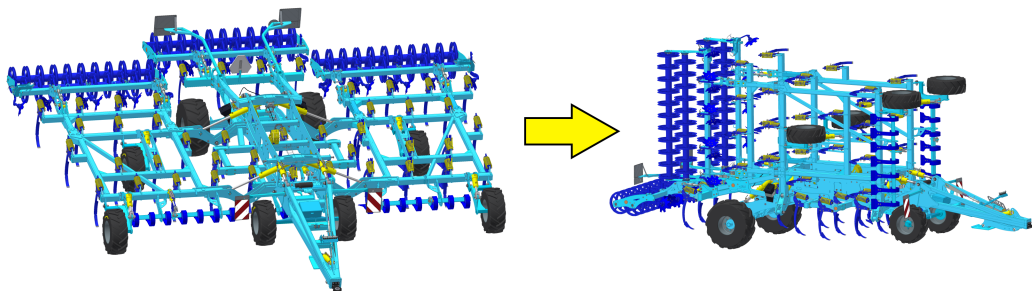


Lift the machine on the axle, i.e. draw out the piston-rods of the axle using the yellow circuits into the marginal position, i.e. maximum release.
Close the ball valve of the yellow circuit.

2

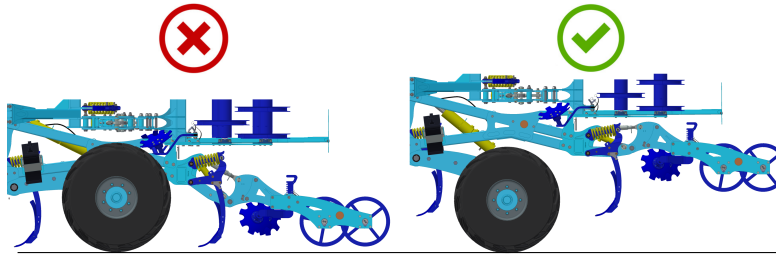


Fold the machine using the red circuit.
Close the ball valve of the red circuit.
The machine is ready for transport.





Warning!!! The machine must only be transported by the axle, not rollers.



8.3.3 Securing the frames against unfolding during transport



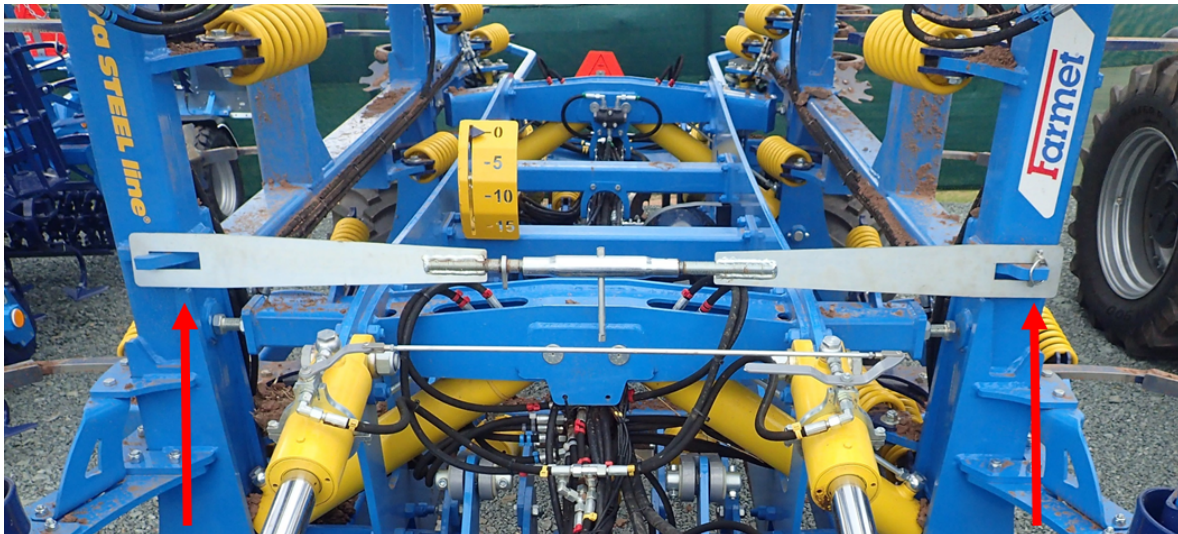
- The machine is equipped with mechanical protection against unfolding – it connects both frames.
- The operator must use this protection!!!

MECHANICAL PROTECTION



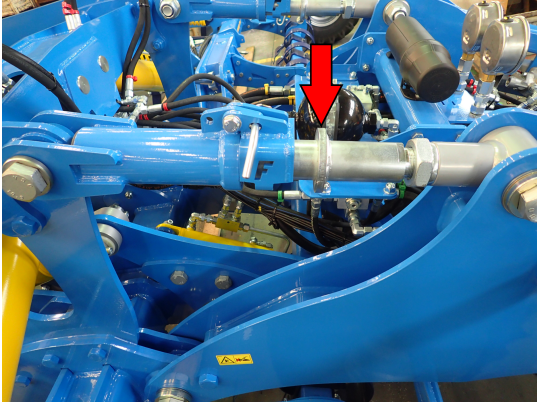
- The drawbar installed on the frame shaft is used.
- Remember to secure the safety pin!

DRAWBAR LOCATION

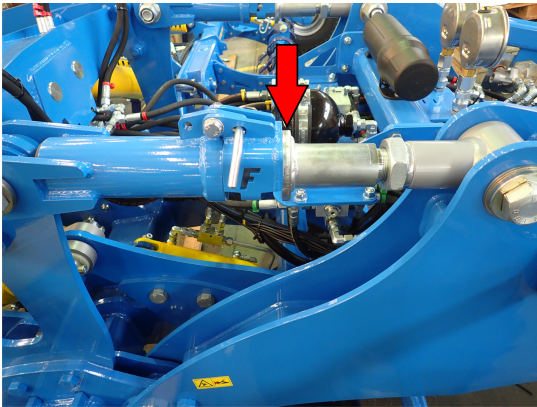


8.3.4 Agregation to the tractor using the three-point hitch – Transport

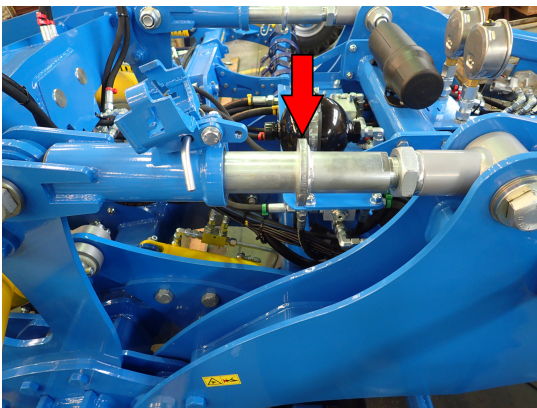
- If the machine is aggregated into the rear arms of the TBZ (TBZ3), the telescopes of the front tow bar must be secured before transport.



The machine is disconnected.



Transport position.

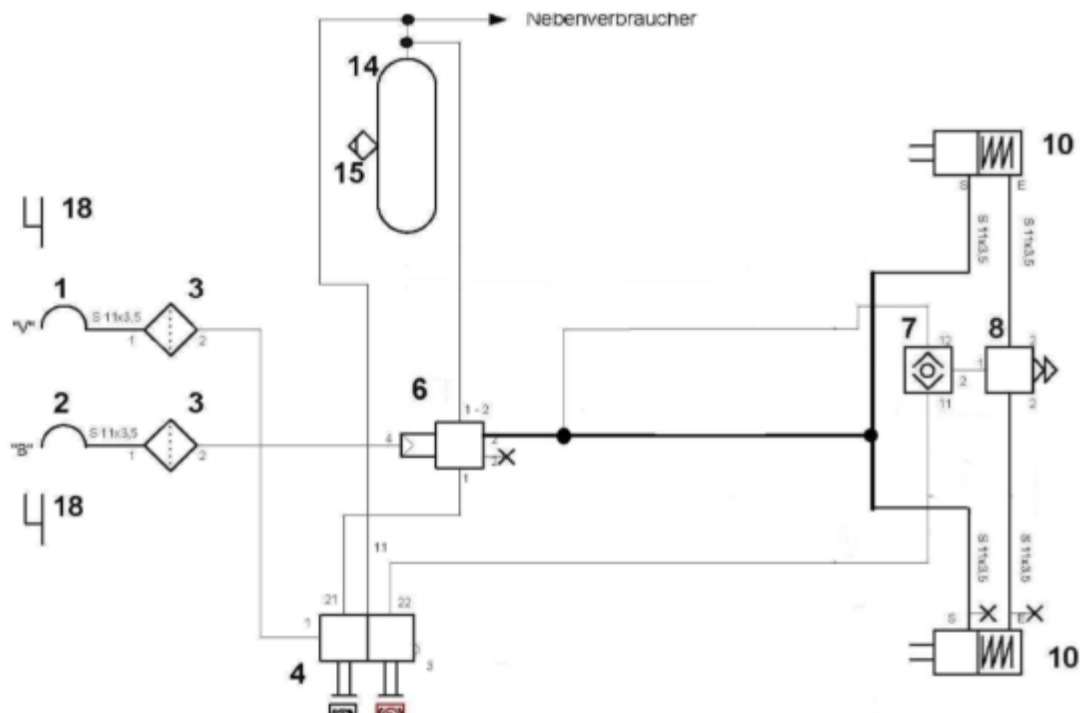


Operating position.

8.4 Brake distribution of the machine

- The standard version of the machine includes a single-circuit two-line braking system by KNORR BREMSE.
- Braking is provided by spring brake cylinders – the parking brake is implemented inside and it is automatic (controlled by a button, see below).
- **ATTENTION !!!** The parking brake is activated automatically when there is a leak of air from the system and physical brake release is only possible mechanically, see below.

Brake distribution diagram



- | | |
|--------------------------------------|---|
| 1. Quick-coupler – red line | 8. Jettisoning valve |
| 2. Quick-coupler – yellow line | 10. Combined membrane brake cylinder Type 24/30 |
| 3. Air filter | 14. Air tank 40 l |
| 4. Control valve of the manual brake | 15. Bleeding valve |
| 6. Brake valve | 18. Quick-coupler holder |
| 7. Two-way valve | |

8.4.1 Hand brake control valve

- The rear axle brakes are equipped with an automatic manual brake, the function of which is described below.

CONTROL BUTTON OF THE MANUAL BRAKE



Description of the manual brake

RED BUTTON PRESSED
= MANUAL BRAKE IS NOT ACTIVE (THE MACHINE IS RELEASED)

RED BUTTON EXTRACTED
= MANUAL BRAKE IS ACTIVE (THE MACHINE IS BRAKED)

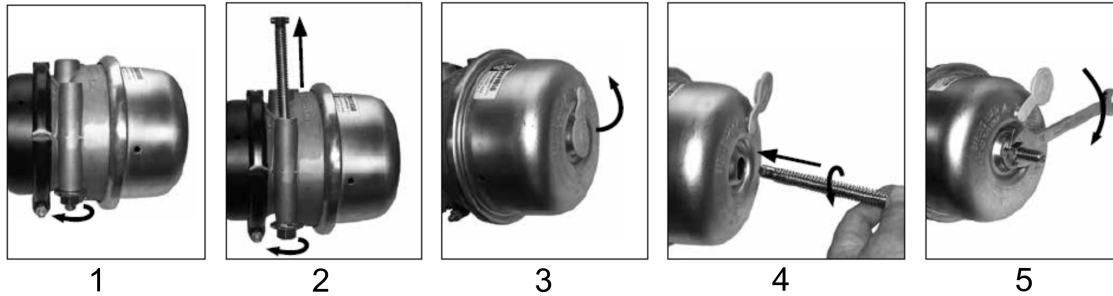


8.4.2 Emergency brake release in case of air leak



- It is possible to release the brakes of the machine using special brake release bolts in case of a leak of air from the brake system.
- The bolts are included in the installation unit of the brake cylinder.

Emergency brake release procedure in case of air leak



- Remove the bolts from the holders of the brake cylinder (Fig. 1 and 2).
- Release the cap on the back side of the brake cylinder (Fig. 3).
- Insert the bolt by its flat end (T-shape) into the opening in the cylinder and turn the bolt by 90° at the end of the opening so that the screw is arrested and cannot be pulled out (Fig. 4).
- Turn the nut (19 mm spanner) clockwise (Fig. 5). ATTENTION: Maximum torque is limited to 68Nm.

8.5 Description of the share/chisel replacement

- If the ploughshare / chisel wear is high, this working tool must be replaced
- Tools required for replacement:
 - **HAMMER**
 - **DRIVER - 12 mm**
- The installation is the same for all types of working parts



The machine is sufficiently lifted so that the working part can be removed from the shoe.



Using the prepared tools, drive the spring pin out and remove the ploughshare from the shoe.

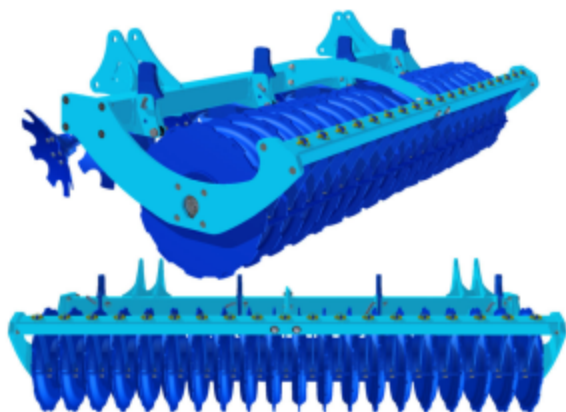


Drive a new working part in the shoe and secure it with the spring pin 12x50mm.

9 REAR ACCESSORIES

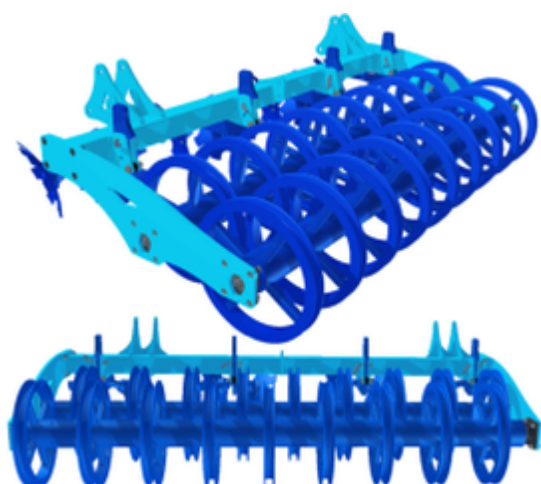
It is possible to install various types of rollers and accessories into the rear parallelogram of the machine:

- Segmented roller SDR:



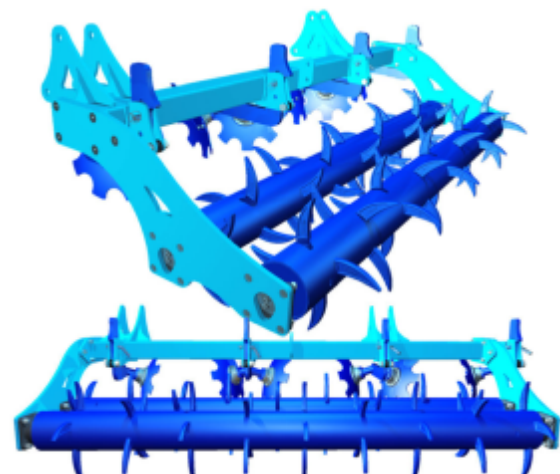
Diameter 530 mm
Weight 237 kg/m

- Double ring roller DRR:



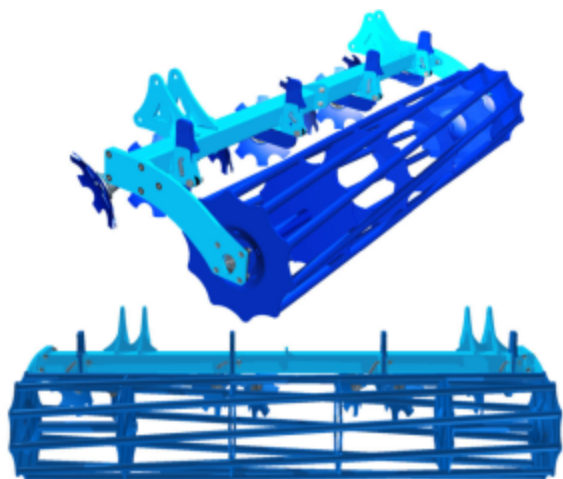
Diameter 500 mm
Weight 191 kg/m

- Double spiked roller DSR:



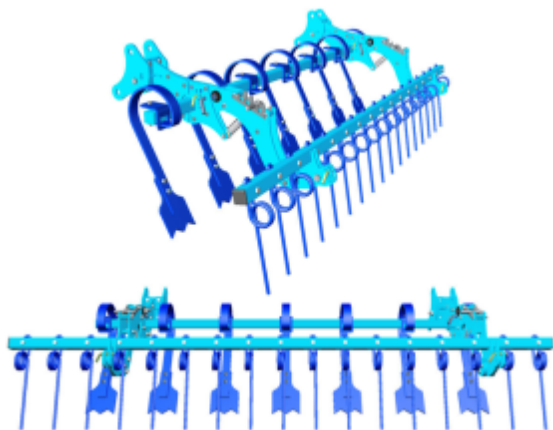
Diameter 420 mm
Weight 159 kg/m

- Tube roller TR:



Diameter 500 mm
Weight 143 kg/m

- Flexi-board + levelling bar :



Weight 63 kg/m


Roller	SDR	DRR	DSR	TR
Crumbling	●●○○	●●●○	●●○○	●●○○
Compacting	●●●○	●●●●	●●●○	●●●○
Depth guiding	●●●●	●●●●	●●●●	●●●○
Resistance to clogging	●●●●	●●●●	●●●●	●○○○
Suitable for rocky soils	●●●○	●●●○	●●●○	●●●○
Suitable for wet soils	●●●●	●●●●	●●●●	●○○○
Heavy soils	●●●●	●●●●	●●●●	●●○○
Medium soils	●●●●	●●●●	●●●●	●●●○
Light soils	●●○○	●●●●	●●●○	●●●●

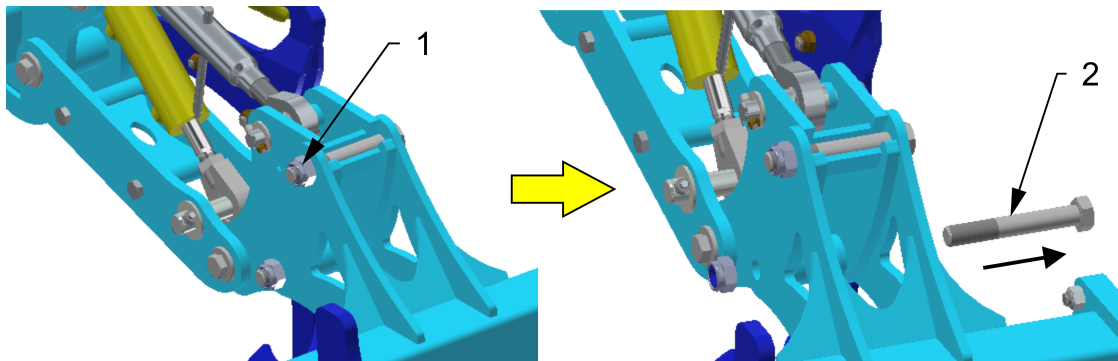
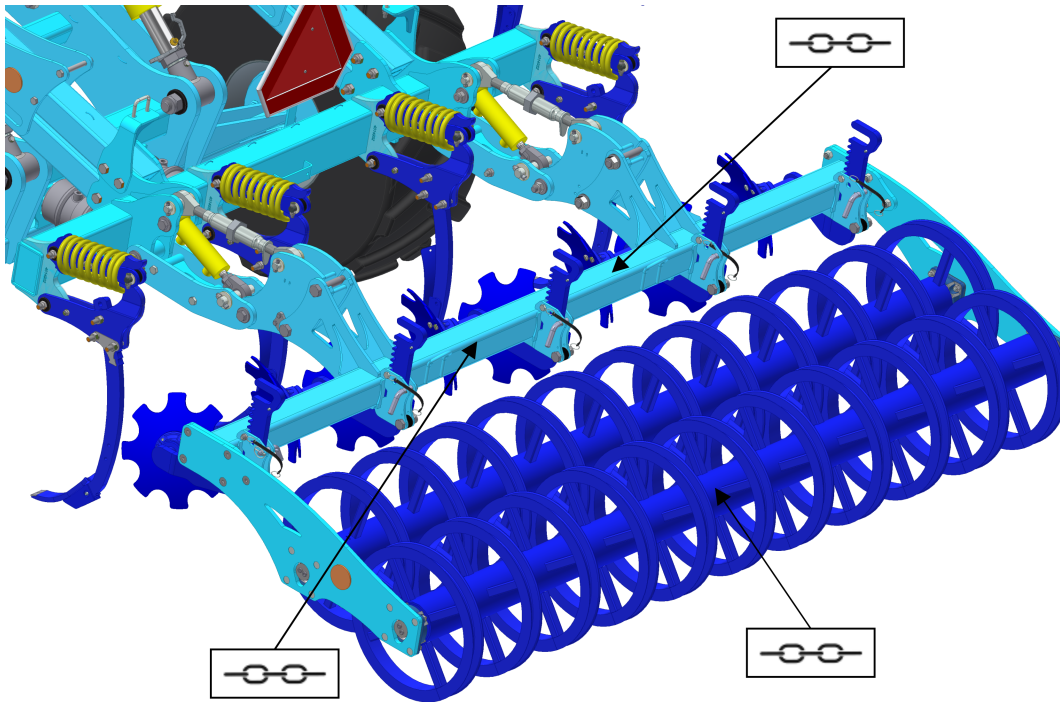


The machine must not be operated with lifted rear rollers for a long time, the rollers can be easily removed using the quick-coupling system.

9.1 Quick-change roller system

- The machine can be used with or without rollers.
- The rollers are attached using a quick-coupling system that provides a fast assembly or disassembly of the rollers.
- When replacing rollers, it is recommended to use lifting devices.
- The first bolt must be released and removed, the second bolt is only released and the roller is removed from its bearing. Perform on all rollers along the entire length.

Attachment of the roller frame in two marked points .



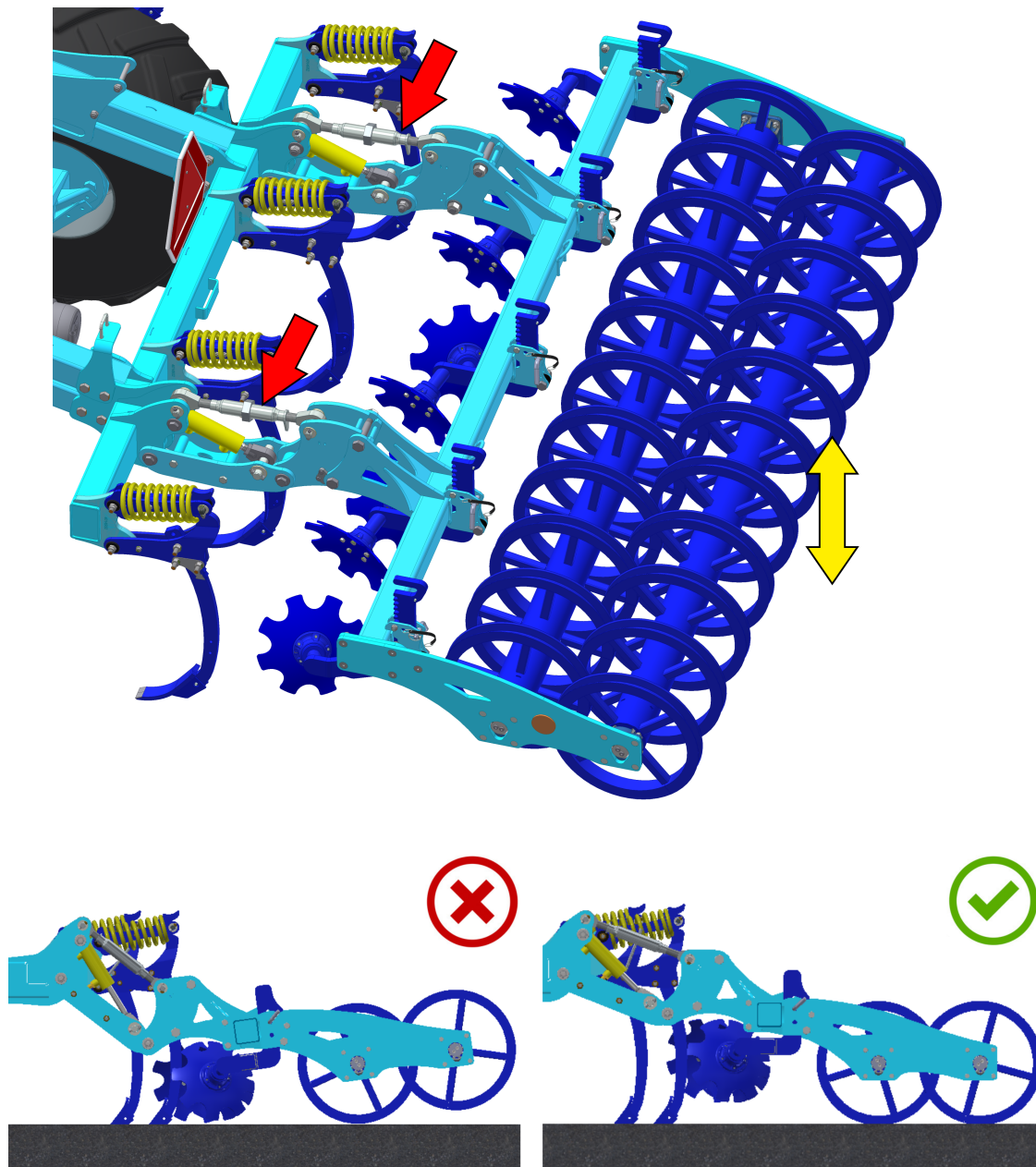
- 1 – Only release the nut
2 – Release and remove the bolt

9.2 Setting the parallelogram

The working position of the roller must be parallel to the ground surface. To adjust the position of the roller, proceed as shown in the figure below.

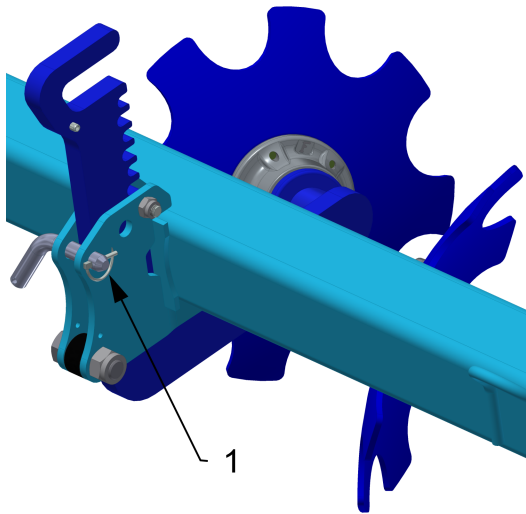
1. Release the securing nut
2. Shortening/extending the nut

- Shortening – the rear roller moves up
- Extending – the rear roller moves down

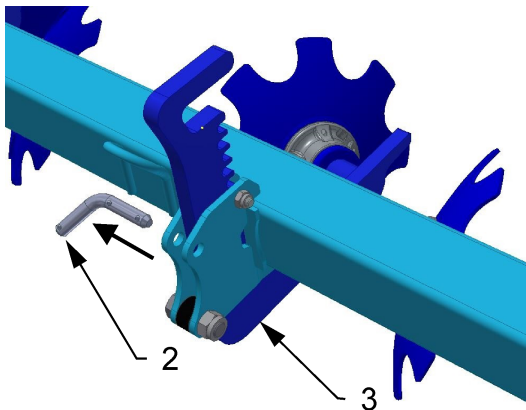


9.3 Setting the levelling disc

The height of the disc can be set by adjusting from the ground. The surface of the soil must be level when the discs pass. Setting the disc levelling is done as follows:

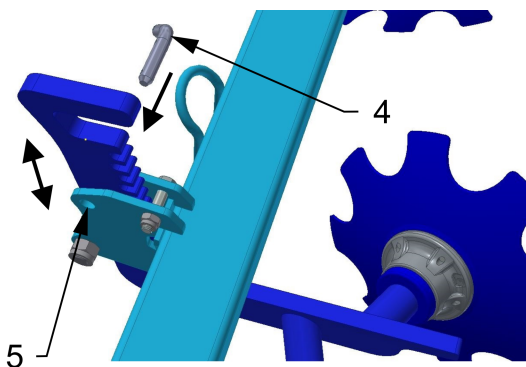


1 – Pull out the pin with ring



2 – Pull the pin out

3 – Grab the disc holder by hand



4 – Set the required height of the disc and insert the pin back

5 – Securing the pin with a spring pin with ring

9.4 Setting levelling

9.4.1 Levelling pressure

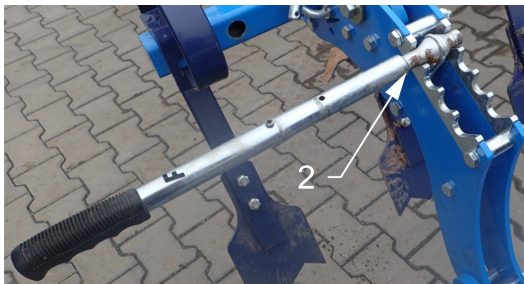
The rear levelling row can be adjusted in the following areas:

- **DOWN PRESSURE OF LEVELLING**
- **SETTING OF FLEXI-BOARDS**
- **ANGLE OF LEVELLING**

The process of changing the down-pressure of rear levelling:



1 – Remove the spring pin and move the lever out of the bearing



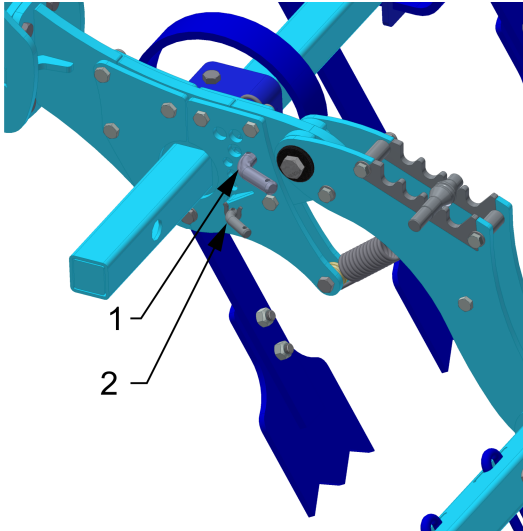
2 – Place the lever along the longer side of the handle



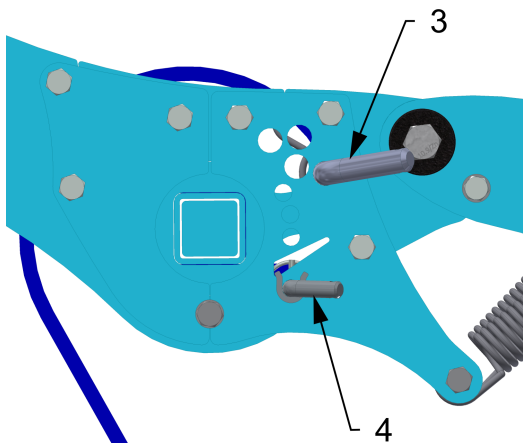
3 – Moving the lever :

- **BACKWARD** - increasing pressure
- **FORWARD** - reducing pressure

9.4.2 Setting the rear flexiboard

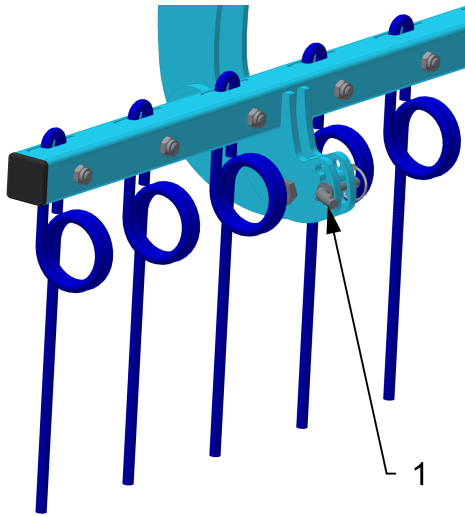


- 1 – Remove the pin with ring and remove the pin for setting the top stop
- 2 – Remove the pin with ring and remove the pin for setting the bottom stop

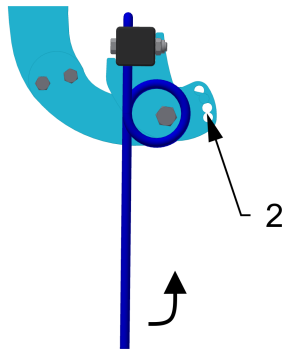


- 3 – Location of TOP pin
- 4 – Location of BOTTOM pin

9.4.3 Setting the angle of rear levelling



1 – Remove the pin with ring and remove the pin



2 - Four setting positions

10 MACHINE TRANSPORT ON ROADS

Transport position of FANTOM 650 PRO, 800 PRO, 850 PRO



- Connect the machine by attaching it to the tractor using the hitch device.
- Bring the machine into the transport position chap.8.3.3.
- The machine must be equipped with removable shields with marking of contours, functional lighting, and the board of the rear marking for slow vehicles (according to EHK No. 69).
- The lighting must be activated during travelling on roads.
- The tractor must be equipped with a special light device of an orange colour, which must be activated during travelling on roads.
- The maximum transport speed during travelling on roads is **20 kph**.



Ban of transport with decreased visibility !!!

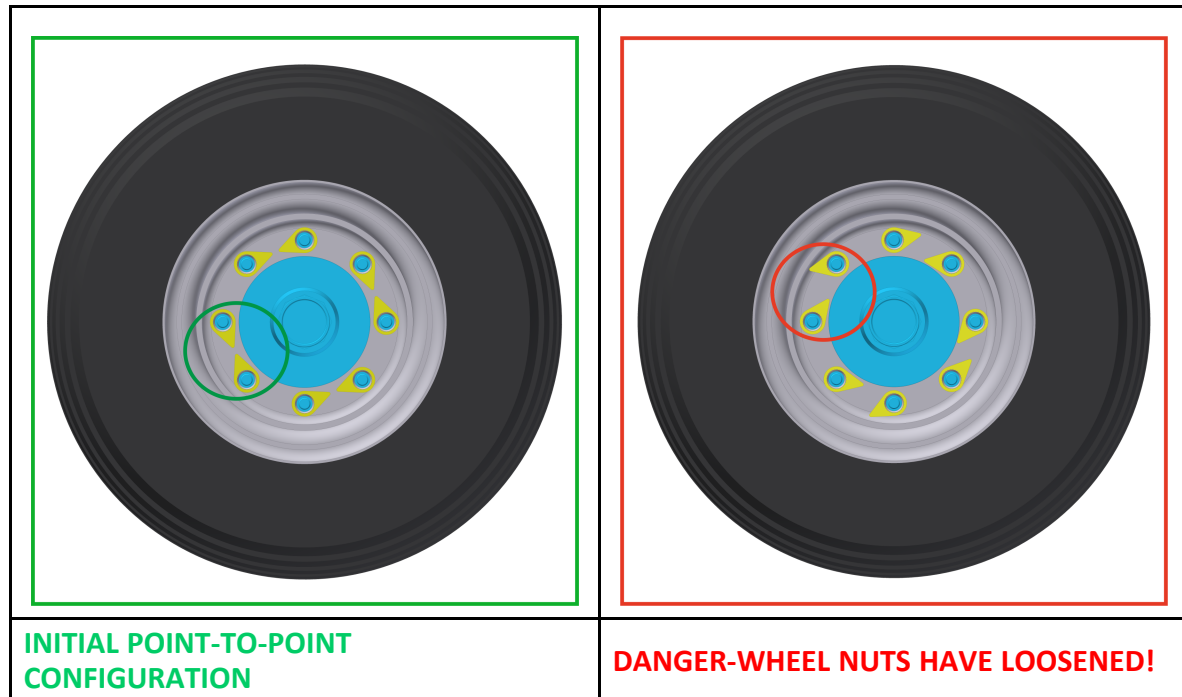
- The operator is obliged to pay increased attention during transport on roads, due to the transport dimensions of the machine.
- The operator must observe the valid regulations for transport on roads (laws, decrees) after connecting the machine to the tractor, for reason of a change of the axle load. The driving properties of the set also change depending on the terrain nature, adapt the manner of driving to these conditions.
- Only machines with a valid technical certificate issued in accordance with the valid regulation on the approval of technical qualification and operation on public communications as amended may be transported on public communications. Machines without a valid technical certificate may only be transported on public communications when carried by a towed trailer or other approved means of transport in accordance with the valid regulation.
- The operator is obliged to secure sufficient outlook during reversing from his position of the tractor driver. In case of insufficient outlook, the operator is obliged to call a competent and informed person.
- The operator must fold the side frames for transport and secure them against unwanted unfolding by disconnecting the hydraulic circuit of the machine and the tractor.
- The operator must secure the arms of the rear TPS of the tractor in the transport position during road transport, i.e. prevent unexpected arm drop using the hydraulic arm control lever. At the same time, the arms of the rear TPS of the tractor must be secured against side swinging.
- During machine transport on roads, the operator must observe the valid laws and decrees that deal with this topic and which specify the relationships of the tractor axle load depending on transport speed.
- Clean the entire machine from any accumulated soil before the transportation on the road.

Checking the nuts on the transport axle

- Use the plastic arrow “Check Point” to check for loose nuts. It promptly shows the condition of the nuts, whether they are loose or not.
- Always check the Check Points before driving.
- When the arrows are not facing one another, the nuts have to be tightened to the required torque and the Check Point arrows have to point against one another as shown in the green picture.

Torque for the axle nuts:

- M18x1,5 - 265 Nm
- M20x1,5 - 343 Nm
- M22x1,5 - 440 Nm



10.1 Sharp machine projections



- The machine contains sharp structural projections
- It is **prohibited to operate and transport the machine on roads when visibility is reduced!!** - Persons or objects, or other road traffic participants could get caught.
- The machine operator must be extra cautious when driving on roads and consider the width of the machine and safe distance from persons, vehicles and objects, or other road traffic participants!!

Fig. 5 - Tine machines

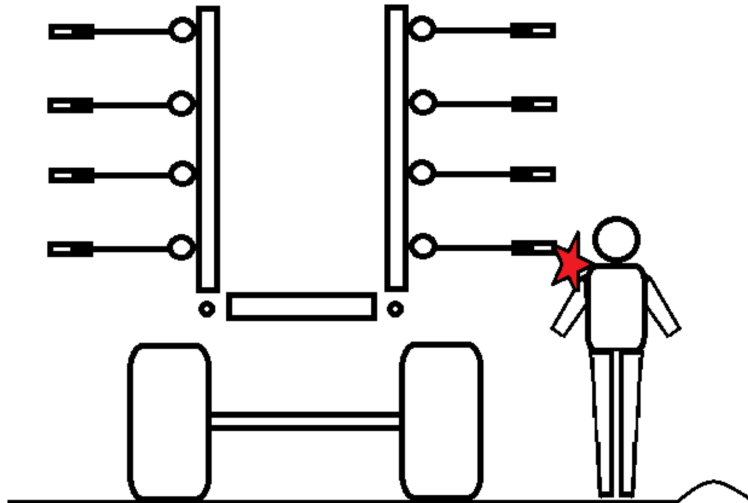
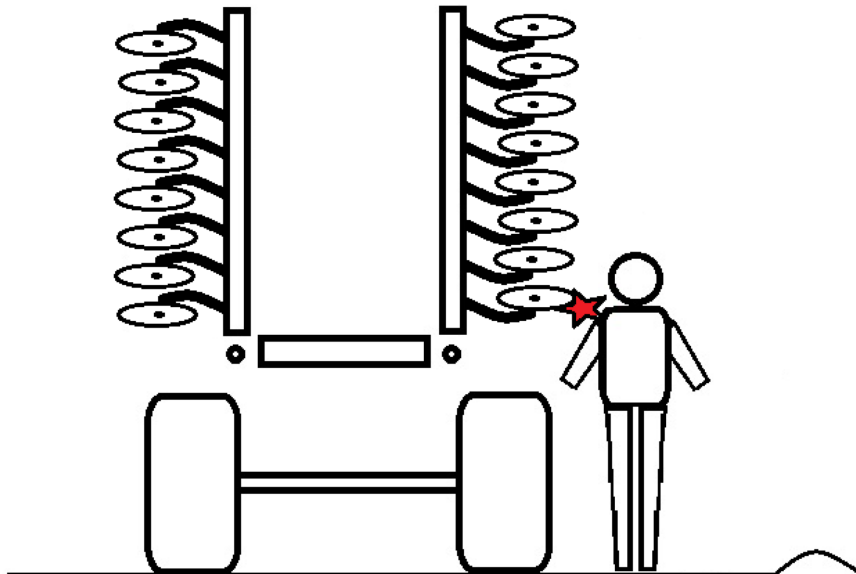
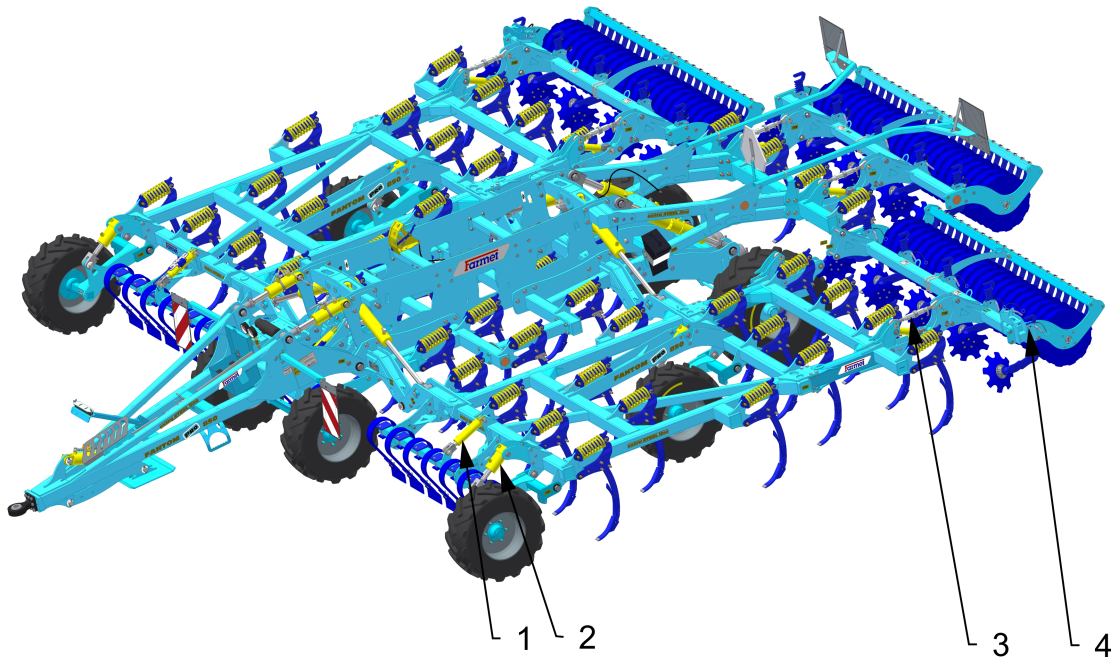


Fig. 6 - Disc machines



11 MACHINE ADJUSTMENT

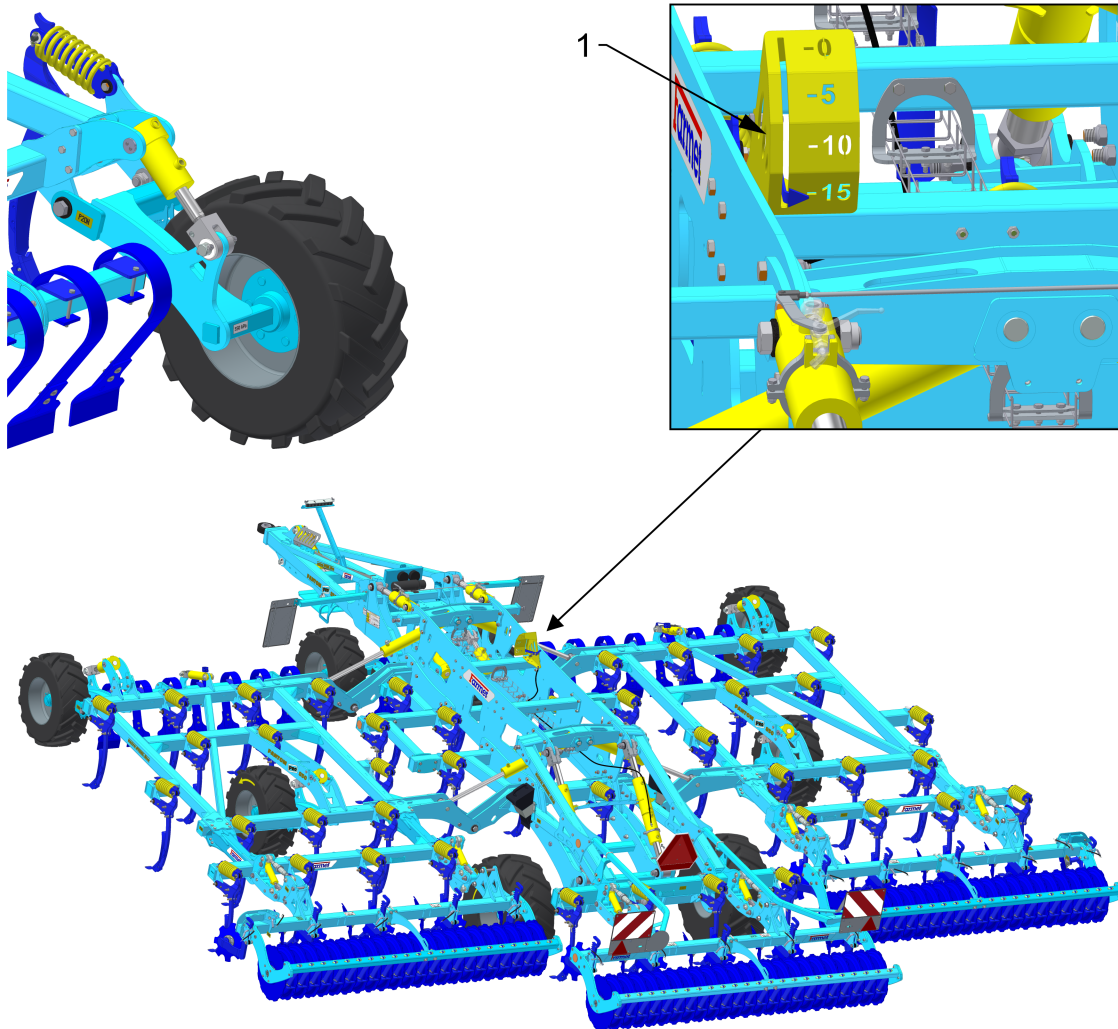


- 1 – Adjusting the front flexi-board
- 2 – Adjusting the working depth of tracing wheels
- 3 – Adjusting the rollers
- 4 – Adjusting the height of the working discs

11.1 Adjusting the working depth of the machine

- The soil processing depth is set hydraulically from the tractor cabin.
- The working depth is set by the **GREEN HYDRAULIC CIRCUIT**
- The soil processing depth is changed in relation to the value of the display unit

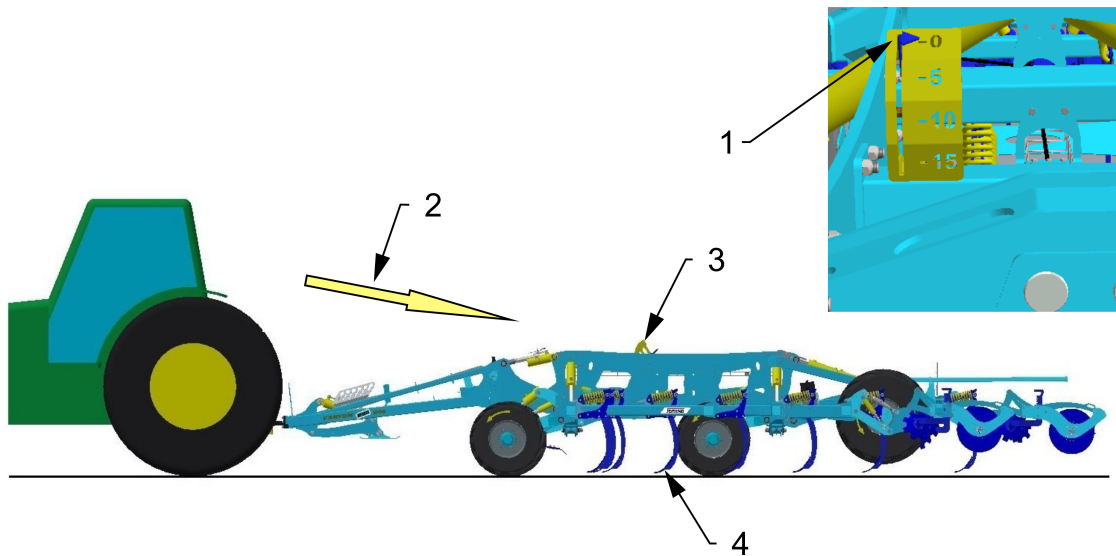
Working depth adjustment spots using tracing wheels



1 – Display unit

Setting the working depth

- The indicator is correctly adjusted when it shows position 0 from the view of the tractor driver and the working parts are touching the ground.



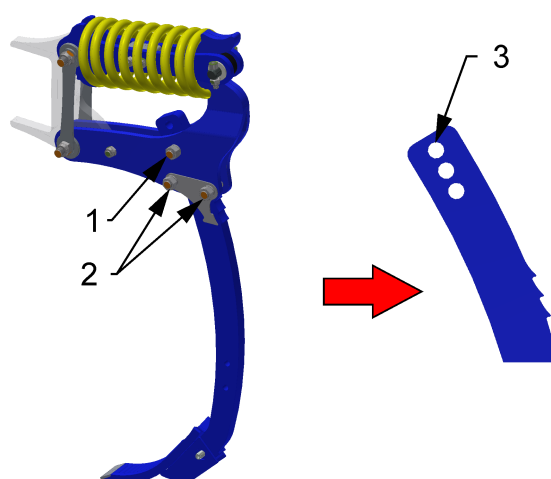
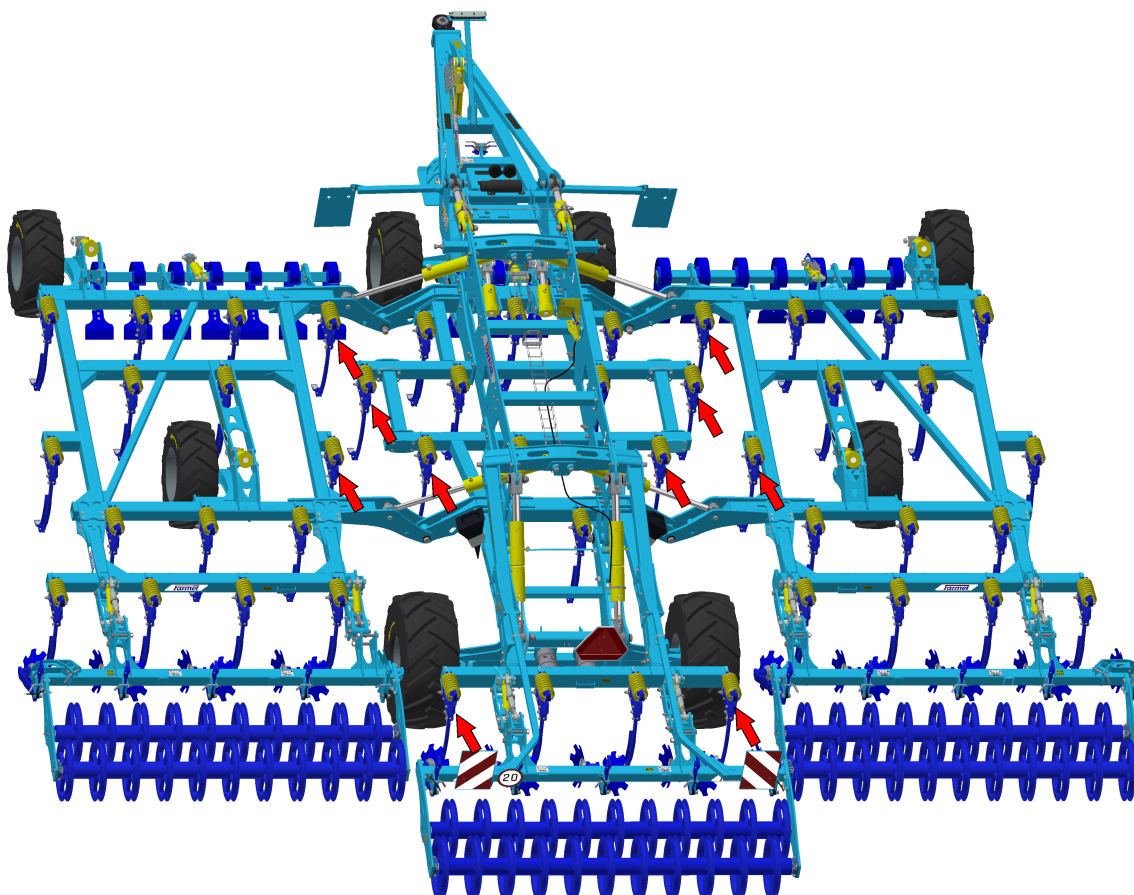
- 1 – Position 0
- 2 – View direction when adjusting the indicator
- 3 – Depth indicator
- 4 – The working parts are touching the ground

Resetting depth

- Lift the machine on to the axle, end-to-end, using the yellow circuit.
- Keep the machine under pressure for 2 seconds (oil circulation in piston rods).
- All piston rods will be reset when the machine is lowered down to the depth again.

11.2 Adjusting the height of tines behind the transport axle

- The machine is equipped with height-adjustable shoes that eliminated the track created by the belts of the pulling vehicle (the position of the shoes is shown in figure below).



- 1 – Remove this bolt
- 2 – Release these bolts
- 3 – Three possible setting positions

11.3 Adjusting the roller pressure

The pressure of rollers can be adjusted during work from the tractor cabin using the **WHITE** hydraulic circuit.

- The roller pressure should be set when setting the working depth.
- When the working depth is changed, the roller pressure must be set again.
- When the machine works without pressure – 0 bar on the manometer, the pressure on soil is only created by the weight of the rollers.

The ball valve on the connecting rod used for roller pressure must be in the closed position, see figure below



Ball valve in closed position

- Ball valve in closed position **IT IS** possible to set pressure
- Lifting rollers from the tractor **IS NOT** possible

Pressure setting is displayed on the manometer placed in the front on the connecting rod (grey frame).



If it is required to lift the rollers, the ball valve must be in the open position, see figure below – it is not possible to set the roller pressure in this position!!!

The chart below shows the converted weight per section from the pressure displayed on the manometer located in the front of the machine.

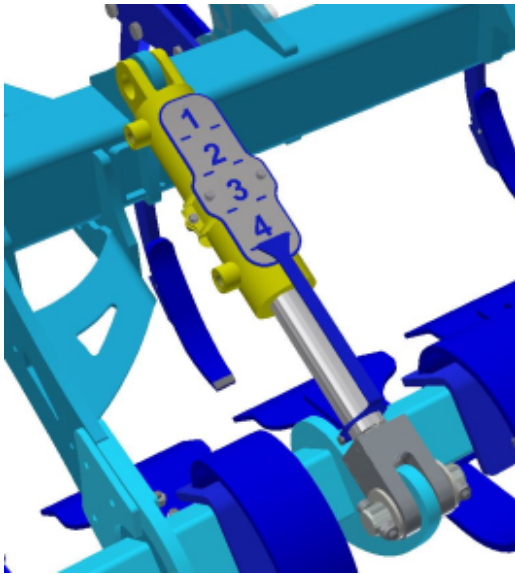
F [kg] — Roller pressure in kg					
F [kg]	+0	+200	+400	+600	+800
	Setting pressure visible on the machine manometer				
	0	12	24	36	48



The requirement for setting the value of the roller pressure agrees with the value in the manual. Setting the pressure beyond this value may damage the machine.

11.4 Adjusting the efficiency of the flexiboard

Flexi-board display device (located on the right side of the machine)




- The flexiboard efficiency is adjusted hydraulically, directly from the tractor cabin.
- The flexiboard efficiency is adjusted BY BLUE HYDRAULIC CIRCUIT.
- The flexiboard efficiency is displayed on the value of the display device (1-4).
- Position 1 on the display device shows the condition in which flexiboards are most efficient (most aggressive). On the contrary, Position 4 shows the condition in which flexiboards are inactive (out of operation).

12 MACHINE MAINTENANCE AND REPAIRS



Observe the safety instructions for treatment and maintenance.

- If it is necessary to weld during the repair and have the machine connected to the tractor, it must have disconnected supply cables from the alternator and the accumulator.
- Check the tightening of all screw and other assembly connections at the machine before every use of the machine, furthermore continuously as needed.
- Continuously check the wear of the working bodies of the machine, possibly replace these worn working bodies with new ones.
- Adjustment, cleaning, and lubrication of the machine may only be performed with the machine at rest (i.e. the machine is standing and not working).
- When working on a lifted machine, use suitable support equipment supported at marked points or at points suitable for that.
- When working on a lifted machine, use suitable support equipment supported at marked points or at points suitable for that.
- During adjustment, cleaning, maintenance, and repair of the machine, you must secure those parts of the machine that could endanger the operator by falling or another movement.
- For catching the machine during handling using lifting equipment, use only the places marked with self-adhesive labels with the chain sign .
- Upon a failure or damage of the machine, immediately turn off the tractor's engine and secure against restarting, secure the machine against movement only then you can remove the failure.
- During repairs of the machine, use exclusively the genuine spare parts, suitable tools and protective equipment.
- Regularly check the prescribed pressure in the machine tyres and the condition of the tyres. Perform possible repairs of the tyres in an expert workshop.



Do not clean hydraulic cylinders and bearings with a high-pressure cleaner or direct water stream. The seals and bearings are not watertight at high pressure.

- Tighten the nuts on the wheels after first 500 hectares. Then, tighten the nuts on the wheels every 6 months.
- Repeat the procedure after each replacement/disassembly of the wheels.

Nominal diameter x screw pitch – lead	Tightening torque
M18 x 1,5	270 Nm
M20 x 1,5	350 Nm

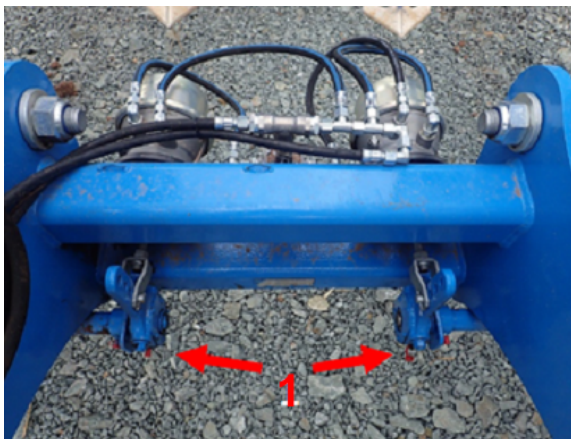
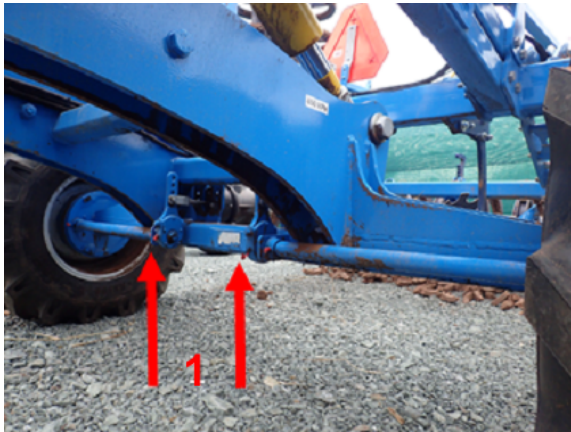
13 MACHINE STORAGE

Long-term machine shutdown :

- Store the machine under a roof if possible.
- Store the machine on a flat and solid surface with sufficient load capacity.
- Clean the machine before storing and conserve so that it is not damaged in any way during storage. Pay special attention to all marked lubrication points and properly lubricate them according to the lubrication plan.
- Store the machine in the position with folded frames in the transport position. Store the machine on the axle and the storage leg, secure the machine against spontaneous movement using scotches or another suitable tool.
- When storing, lower the machine into the lower position using hydraulics.
- The machine must not rest on the working parts. It could damage the working parts of the machine.
- Secure the machine against access of unauthorised persons.

14 MACHINE LUBRICATION SCHEDULE

- The machine is equipped with self-lubricating cases, therefore the machine does not require any lubrication.
- Lubrication points only on the brake arms of transport axle (1).
- Lubricate the wheel bearings (2).



15 ENVIROMENTAL PROTECTION

- Regularly check the tightness of the hydraulic system.
- Preventively replace or repair hydraulic hoses, possibly further parts of the hydraulic system showing signs of damage, before oil leaks occur.
- Check the condition of hydraulic hoses and perform their timely replacement. The service life of hydraulic hoses includes the time, when they were stored.
- Handle oils and greases according to valid waste laws and regulations.

16 MACHINE DISPOSAL AFTER SERVICE LIFE EXPIRY

- The operator must secure during machine disposal that steel parts and parts, in which hydraulic oil or lubricating grease moves are differentiated.
- Steel parts must be cut by the operator while observing safety regulations and handed over to the secondary raw material collection point. He must proceed with other parts according to valid laws about waste.

17 SERVICING AND WARRANTY CONDITIONS

17.1 Servicing

Servicing is secured by the dealer after consulting with the manufacturer, possibly directly by the manufacturer. Spare parts then using the sales network by individual sellers in the entire country. Use only the spare parts according to the spare parts catalogue officially issued by the manufacturer.

17.2 Warranty

1. The manufacturer provides a warranty of 24 months for these machine parts: main frame, axle, and machine tow bar. For other parts of the machine, the manufacturer provides a warranty of 12 months. The warranty is provided from the date of sale of the new machine to the end user (consumer).
2. The warranty applies to hidden defects that will show in the warranty period with proper use of the machine and while fulfilling the conditions stated in the operating manual.
3. The warranty does not apply to wearable spare parts, i. e. regular mechanical wear and tear of replaceable parts of the working sections (shares, edges, etc.).
4. The warranty does not apply to indirect consequences of possible damage, such as service life decrease etc.
5. The warranty is bound to the machine and is not void upon an owner change.
6. The warranty is limited to the disassembly and assembly, possibly replacement or repair of the defective part. The decision, whether to replace or repair the defective part, is up to the contractual workshop of Farmet.
7. During the warranty period, only the authorised servicing technician of the manufacturer may perform repairs or other interventions into the machine. In the opposite case, the warranty will not be acknowledged. This provision does not apply to the replacement of wearable spare parts (see point 3).
8. The warranty is conditioned by using the genuine spare parts of the manufacturer.

2017/002/01

☒ **ES PROHLÁŠENÍ O SHODĚ**
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☐ **DÉCLARATION CE DE CONFORMITÉ**
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☐ **DEKLARACJA ZGODNOŚCI WE**

1. ☒ My ☐ We ☐ Wir ☐ Nous ☐ Мы ☐ My: **Farmet a.s.**
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2. ☒ Strojní zařízení: - název : **Dlátový kypřič**
☐ Machine: - name : **Chisel cultivator**
☐ Fabrikat: - Bezeichnung : **Meißelgrubber**
☐ Machinerie: - dénomination : **Cultivateur à siceaux**
☐ Сельскохозяйственная машина: - наименование : **Чизельный культиватор**
☐ Urządzenie maszynowe: - nazwa : **Spulchniarka dłutowa**
- typ, type : **FANTOM PRO**
 - model, modèle : **FANTOM 650 PRO, FANTOM 800 PRO, FANTOM 850PRO**
☒ výrobní číslo :
☐ serial number :
☐ Fabriknummer :
☐ n° de production :
☐ заводской номер :
☐ numer produkcyjny:
3. ☒ Příslušná nařízení vlády: č.176/2008 Sb. (směrnice 2006/42/ES). ☐ Applicable Governmental Decrees and Orders: No.176/2008 Sb. (Directive 2006/42/ES). ☐ Einschlägige Regierungsverordnungen (NV): Nr.176/2008 Slg. (Richtlinie 2006/42/ES). ☐ Décrets respectifs du gouvernement: n°.176/2008 du Code (directive 2006/42/CE). ☐ Соответствующие постановления правительства: № 176/2008 Сб. (инструкция 2006/42/ES). ☐ Odpowiednie rozporządzenia rządowe: nr 176/2008 Dz.U. (Dyrektywa 2006/42/WE).
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☒ Schválil ☐ Approve by dne: 01.06.2017
☐ Bewilligen ☐ Approuvé
☐ Утвердил ☐ Uchwalił

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