

BOMAR[®]

Operating Instructions for Band Saw

compact 360 A



**Before transporting and using the machine, please read
the instructions thoroughly!**

Serial number:



Service and Information

In case of technical difficulties or spare parts order, please contact your dealer:



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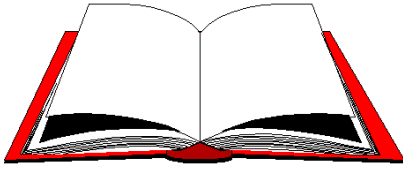
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1. Introduction



The operating instructions must be read by the person, who keeps in touch with the machine before transportation, installation, using, servicing, reparation, stocking or removal!

The operating instructions include relevant information. The operator must familiarise himself with the install and operation, safety notes and machine servicing, because reliability and service life must be reached. The operating instructions must avoid risks, which are linked to work on the machine. Before transporting and using the machine, please read the instructions thoroughly!



The operating instructions must be available at the machine! Keep the operating instructions in good condition!



Attention! The exclamation mark in the yellow triangle signifies a safety warning. The meaning is described next to the symbol.

2. Band saw using

The band saw compact 360 A is used for cutting and shortening of rolled bars and drawn bars and profiles from steels, stainless steels, non-ferrous metals and plastics.

Combustible materials are excepted for cutting! Any other usage and operation outside this range are unauthorised and the manufacturer/supplier does not accept any responsibility for any damages resulting from such misuse. **The operator has full responsibility!**

The roller conveyors can be connected with the band saw, which facilitates manipulation with the material. Recommended types and style of connecting are described in chapter „**Roller conveyors and accessories**“.

3. Technical data

Total weight of the machine

Weight	3100 kg
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Sizes of the machine:

Length	1800 mm
Width	2730 mm
Height	2060 mm

Electrical equipment of the machine:

Supply voltage	~3 x 400V, 50Hz, TN-C-S
Total input	5,4 kW
Protection degree	IP 54

Driving engine of the band saw:

Type	1LA7113-4AA12
Output	4 kW

Hydraulic equipment:

Type	870 – 1321
Output	1,1 kW

Cooling system:

Type	3 COA4 – 12H
Cooling-system capacity	130 l

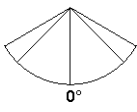



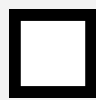
Size of the saw band:

5850 x 41 x 1,3 mm

Cutting speed:

15 - 120 m/min

Cutting angles:

 0°	 Ø360 mm	 360 x 360 mm	 360 x 360 mm	 360 x 360 mm
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4. Safety notes

4.1. General

The machine is equipped with safety and protective guarding for operator and machine protection. Nevertheless, this safety and protective guarding cannot prevent injury. Service personnel must read this chapter and comprehend it, before he starts to work on the machine. **Always keep instructions about work safety!** Service personnel must take into account other aspects of the risk, which refer to the ambient conditions and the material.

Consider the safety signs on the machine. Do not remove or damage them!

4.2. Protective suit and personal safety



Wear tight fitting overalls!
Loose fitting clothes can be caught with machine parts and cause serious injury.



Wear protective gloves!
Material cuts and saw band have sharp edges and may cause serious injuries.



Attention! Gloves you can use only at working material replacement (saw band)! The machine and accessories must be inactive!
If the machine is running, you must not wear gloves! It is dangerous, because some parts of the machine can catch gloves!



Wear protective shoes with non-skid soles!
The unsuitable shoes may cause balance loss and following injury. Falling work pieces may cause serious injuries too.



Wear protective goggles!
Chips and cooling liquid may damage your eyes.



Always wear ear protections!
Most of the machines emit up to 80 dB and may damage your hearing.



Do not wear jewellery and always tie back long hair!
Moving machine parts can catch jewellery or loose hair and may cause serious injuries.



Operate the machine only when you are fit enough to work. Illnesses or injuries diminish concentration. Avoid machine work, which may compromise the safety of you and your colleagues!

4.3. Safety notes for machine operator

Keep instructions and orders about work safety!



Read the operating instructions, before you start to work on the machine! Keep the operating instructions in good condition!

Close covers before the machine starting and check, if the covers are not damaged. Damaged covers must be repaired or changed. Do not start the machine, if the cover is removed! Check, if the electric cables are not damaged.

Attention! Do not connect the machine to electricity if the covers are removed. Do not touch the electrical equipment.



Do not hold the material for clamping to the vice and for cutting!

Do not operate with the buttons and the switches on the control panel, if you have gloves!

For machine starting take care, that there is nobody in the working area of the machine (it means in the working area of the vice, the saw band, the saw arm etc.).

In no circumstances touch the rotating elements.

Work on the machine only when the machine is in good condition!

Check at least once in a shift, if the machine is not damaged.

If the machine is damaged, you must bring the machine in order and you must inform your superior!

Keep your working area clean!

Ensure sufficient lighting in the working area.

Take off the spilt water or the oil from the floor and dry it!

Do not touch the cooling liquid with bare hands!

Do not set the nozzle of the cooling liquid, when the machine is started on!

Do not remove the chips from the working area of the machine, when the machine is started on!

Do not use the compressed air for the machine cleaning or for the chips removing!

Use the protective instruments for chips removal!

4.4. Safety notes for the servicing and repairs

Only a qualified professional can carry out servicing and repairs! Always keep notes about work safety!



ATTENTION! Only a qualified professional can carry out the servicing and repairs of the electric equipment! Take special care during the work with electrical equipment. High voltage shock can have fatal consequences! Always keep notes about work safety! Otherwise, there is possibility of heavy injury.

Switch off the main switch and lock it, before you start service work! Otherwise, there is possibility of hazardous machine starting.

Only qualified person can do the servicing and repairs. For parts changing, use only parts, which are identical with the originals. Otherwise, there is possibility of health hazard. Use only recommended type of the hydraulic oils and oils and lubricants.

Do not remove or do not lock the limit switches or safety equipments!

Any use of the saw, accessories or machine parts other than that intended by the BOMAR, spol. s r.o. company is not permitted. The guarantee on this product will be afterward lost and BOMAR, spol. s r.o. takes no responsibility for caused damages!

Do not start the machine, if the covers are not on their places!

4.5. Safety machine accessories

The machine is equipped with safety accessories. It protects the operator from injuries and the machine before damage. The safety accessories are blocking accessories, emergency switches and covers. Check once in a week the function of the safety accessories. If the safety accessories are functionless, you must stop work and repair or change the safety accessories.



Enhanced risk!

Do not come into or intervene in the cutting area. Otherwise, there is possibility of heavy injury.



TOTAL STOP button

TOTAL STOP button is used for emergency switching – off the machine in case defect or health hazard. By pressing TOTAL STOP button is interrupted the supply of the electrical power.

If any damages or fault appears, immediately press TOTAL STOP button!

Release the pressing button is possible by twisting of the upper part of the button.

Saw arm cover

If the cover is opened during operation, the limit switch is opened and the band saw is stopped. The band saw is not possible to start in set mode.

The band saw is started to the operation, when the cover is closed!

Saw band stretching and rupture inspection

This device checks the saw band tension and causes immediate machine stop if the band incidentally ruptures

The device includes a limit switch. Its adjustment is described in chapter „Servicing and adjusting“. Check the switch carefully and periodically – adjust it if necessary.

Saw band cover

This protective cover envelops the saw band in the area from guiding cube to the arm.

Never switch the saw band on if this cover is not mounted!

5. Transportation and stocking

5.1. Conditions for transportation and stocking

Keep recommendations for the manufacturers for transportation and stocking! If the recommendations are not kept, damage can occur to the machine.

Conditions for transportation and stocking:

Temperature of the air from -25°C to +55°C, for a short term (max. 24 hours) temperature of the air until +70°C.

Do not expose the machine to radiation (for example microwave radiation, ultra-violet radiation, laser radiation, X – ray radiation). Radiation can cause problems with the machine function and deteriorating condition of the isolation. Take measures, to prevent damage by dampness, by vibrations and by shakes.

5.2. Safety notes

Keep safety notes for the transport!



Always wear protective hardhat to avoid hard injuries during loading and transportation!



Wear protective gloves!
Sharp edges of the machine, pallets and means of transport can injure your hands.



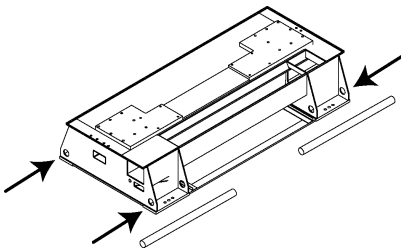
Wear safety boots!
Loose parts and packing materials can cause serious injuries.

Do not use a forklift truck for handling the machine, if you do not have licence for it!
Do not move under suspended loads! Fault in lifting device may cause serious injury.
Keep a safe distance from the machine during the transport.

5.3. Transport and stocking preparations

Close the vice and thoroughly oil all blank surfaces.
Lower the saw frame to the lowest position.
Make sure to empty the machine of all traces of the cooling agent.
Fasten all loose parts securely to the machine.
Pack and wrap the control desk securely to avoid damage during transport.
Fix the stickers stating the minimum approximate machine weight to at least five well visible places.
The machine has to be screwed to a pallet for the transport!

5.4. Transport and stocking



Handle the machine only with the hand pallet truck or the forklift truck! If the machine is equipped with the shackles in the pedestal, you can use the suspension cable and the crane.
Make sure that the hand pallet truck; the forklift truck or the crane had sufficient capacity.
Make sure that the van or the trailer had sufficient capacity.
The machine must be secured during transportation.
Screw on the palette to the floor of the van or the trailer.
Be careful that the machine is not damaged during transportation.

It is forbidden to handle the machine any other way (for example by, lifting by the saw frame of the band saw), than it is written in this operating instructions, the machine can be damaged!

6. Activation

6.1. Machine working conditions

Keep the conditions of the manufacturer for machine operating! If recommendations are not kept, damage can occur to the machine.

The manufacturer warrants the correct function of the machine for these conditions:

At temperature air from +5°C to +40°C, the temperature average during 24 hours must not exceed over +35°C.

At relative dampness of the air in the extend from 30% to 95% (not concentrate).

Altitude lower than 1000 metres.

Do not expose the machine to the radiation (for example microwave radiation, ultra-violet radiation, laser radiation, X – ray radiation). Radiation can cause problems with the machine function and deteriorating condition of the isolation.

6.2. Machine installing and levelling

Check the floor supporting capacity before machine installing. If the floor capacity does not agree with requirements, you must prepare the necessary base for the machine.

Minimal requirement:

machine weight (chapter **Technical data**)
+ weight of accessories
+ maximum weight of material

The machine must be levelled at the horizontal position. All feet of the machine must touch with the floor after levelling. The machine must be levelled by means of the calibrated spirit level. Spirit level is put on the vice area. Set the roller conveyors according to the spirit level.

For machine levelling, take care that there is sufficient available space for operation, repair work, servicing of the machine and handling the material.

The machine including appended parts and accessories must be visible from the place of operation.

6.3. Electrical connection



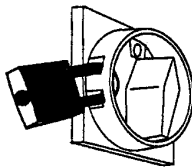
ATTENTION! Only a qualified professional must carry out the servicing and repairs of the electric equipment! Take special care during work with electrical equipment. High voltage shock can have fatal consequences! Always keep notes about work safety!

Electrical parameters of the machine:

Service voltage: ~ 3 x 400 V, 50 Hz, TN-C-S
Total input: see **Technical data**

Before connecting, switch off the main switch of the power supply circuit for the machine and ensure dry place when doing connecting works!

Service voltage must agree with the line voltage!
Crosscut of the supply line must respond with rated current for max. machine load. *Note:* The values of the crosscut of the conductor and the rated current are in the norms.
Connect the service cable of the machine on the clamps of the electric distribution. *Note:* The socket with the fork can be used only at the machines with the rated current less than 16A and total input less than 3 kW.



In case the machine is connected with a direct connection, an extra main switch must be added which can be locked in zero position.

Attention! In this case the extra main switch becomes primary and the main switch on the machine has only secondary function.

Check the direction of the saw band!

After the machine has been successfully connected, briefly switch on the machine and put the driving engine of the band in the running position. The direction must be in accordance with the arrow direction on the saw band cover. In case the direction of the saw band does not match, two phases at the terminal strip must be switched.

6.4. Filling of the cooling system

If handling cooling liquid, keep the notes about work safety and instructions of the cooling liquid manufacturer!



Wear protective gloves when working with cooling liquids!



Wear protective goggles!
The cooling liquid can get into your eyes and cause serious injury.

Prepare the mixture of the water and the cooling liquid. Keep the concentration specified by manufacturer.

Fill the mixture of the water and the cooling liquid to the tank of the cooling system. Area of the tank for the cooling liquid is discovered from the chapter „**Technical data**“.

Filling the tank with the cooling liquid, take care that the liquid does not drip out of the tank and the tank does not overflowed.

Keep by manufacturer specified recommendation for adding the anticorrosive agents, the antifreezes or other agents! For mixture of two different mixes can produce toxic and aggressive mixes, which can threaten your health or damage cooling system of the machine!

Note: If the machine is equipped with Microniser (see **Special accessory**), fill the tank of the Microniser by specified cooling liquid. Microniser is ready for operation.

6.5. Check machine functions

Before starting the check machine functions, you must read the chapter „**Machine operation**“. Do not carry out check machine functions, if you do not comprehend meaning of all buttons and all machine functions.

Check, if the machine or some parts of the machine were not damaged during transport.

Check, if covers are installed and functional.

Check by means of the Tenzomat (see **Special accessory**), if the saw band is correctly stretched. If it is necessary, you can stretch the saw band according to chapter „**Selection and replacement of the saw band**“. Values of the saw band stretching are on the Tenzomat.

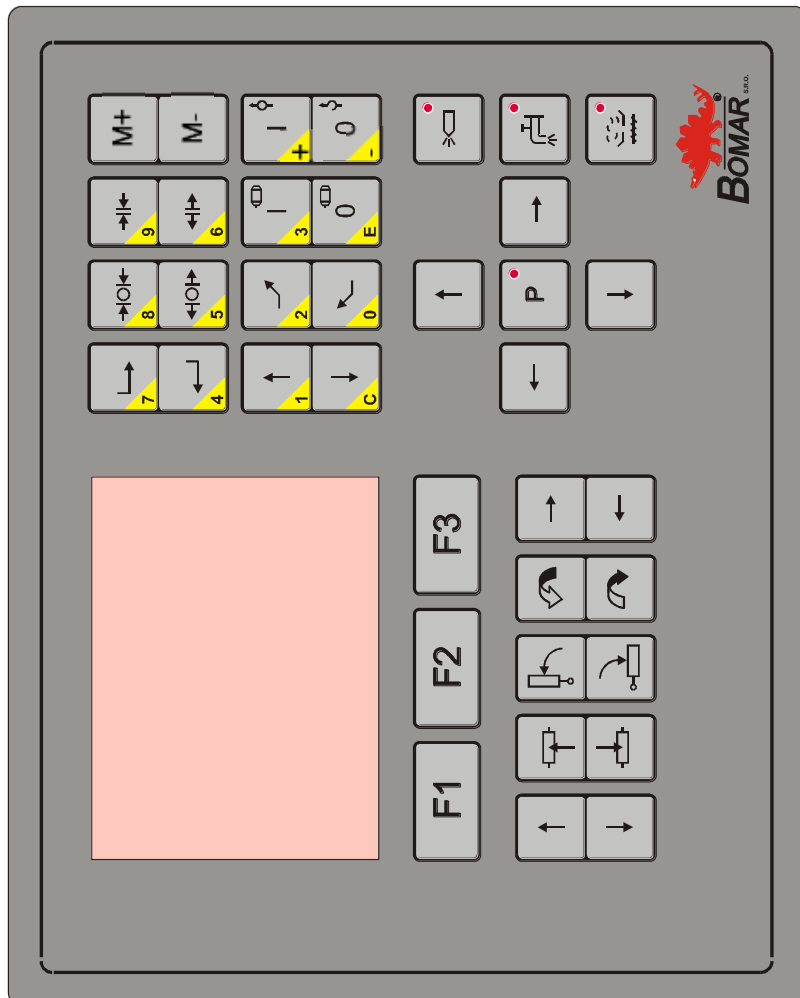
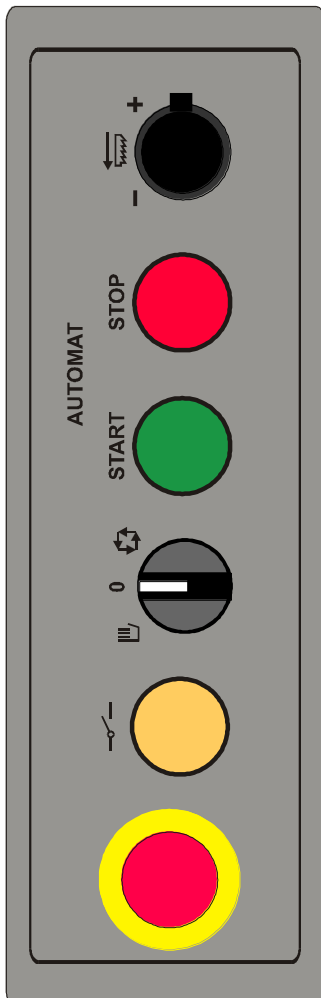
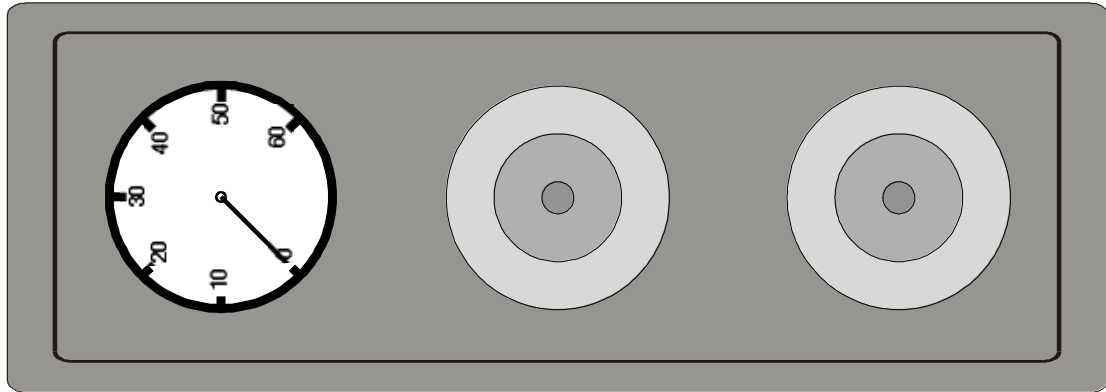
Switch on the main switch and check the motors and systems (saw band drive, hydraulic pump, cooling pump, chips conveyor).

Open and close the main vice and the feeding vice. Drive the front feeder from the front position – GA model only – to the rear position. Turn the saw frame of the band saw from one outer position to other outer position. Raise the saw frame to the top position and drop the saw frame to the lowest position.

Start the machine with the cooling pump and let it run without load until the cooling system will be filled with cooling liquid. As soon as the cooling liquid starts to escape from the nozzles of the cooling system, the cooling system is ready for the operation.

Carry one cycle of cutting without material. Check, if the machine runs with no irregularities. If all machine functions are right, the machine is ready for operation.

7. Control panel



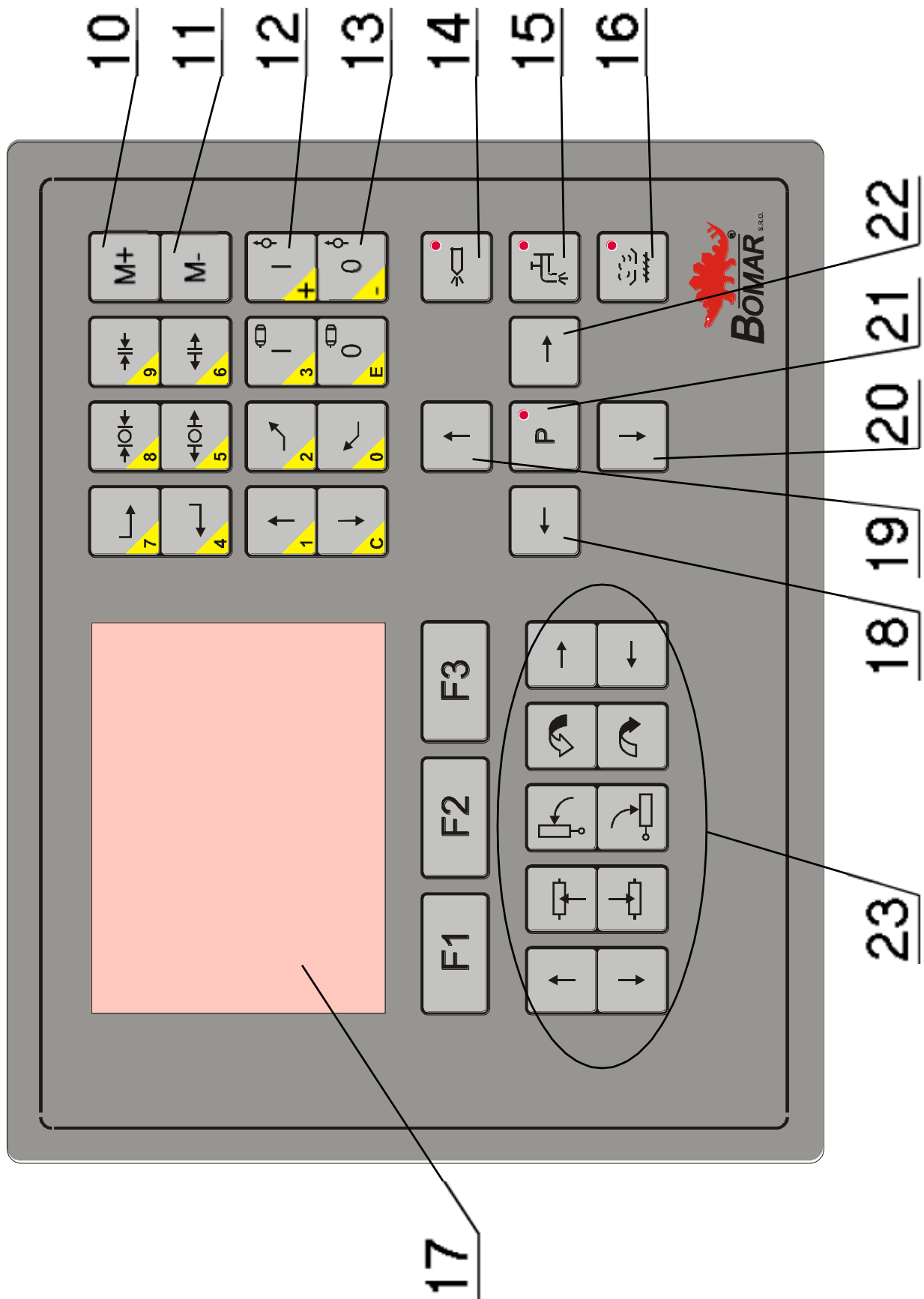
A Control panel – part A

B Control panel – part B

C Control panel – part C

Note: The detailed description of control is described in following chapters.

7.1. Control panel – part A



C **Lower the saw arm down**
If you press together buttons **C + F3**, saw arm sinks quickly.
ATTENTION! It is prohibited to drive with accelerated shift until the cut, because the saw band can be damaged.

E **Switch off the saw band drive**

F1 **F1 – Functional button**
Button function – see below.

F2 **F2 – Functional button**
Button function – see below.

F3 **F3 – Functional button**
Button function – see below.

0 **Without function**

1 **Lift the saw arm**

2 **Without function**

3 **Switch on the saw band drive**

4 **Feeder to the left**

5 **Open the feeding vice**

6 **Open the main vice**

7 **Feeder to the right**

8 **Close the feeding vice**

9 **Close the main vice**

10 **Without function**

11 **Without function**

12 **Switch on the hydraulic aggregate**

13 **Switch off the hydraulic aggregate**

14 **Microniser**
Press button, the cooling of the saw band with Microniser is started and stopped.
Microniser is active, red diode is lighting.
Note: Microniser is active only when the saw band is started.

15 **Saw band cooling with water**
Press button, the cooling of the saw band with water is started and stopped. Cooling of the saw band is active, red diode is lighting.
Note: Saw band cooling with water is active only when the saw band is started.

16 **Swarf conveyor**
Press button, swarf conveyor is started and stopped. The swarf conveyor is active, red diode is lighting.

17 **Display**
It appears the operating mode and it allows dialogue with service workers.

18 **Indicator – left**

19 **Indicator - up**

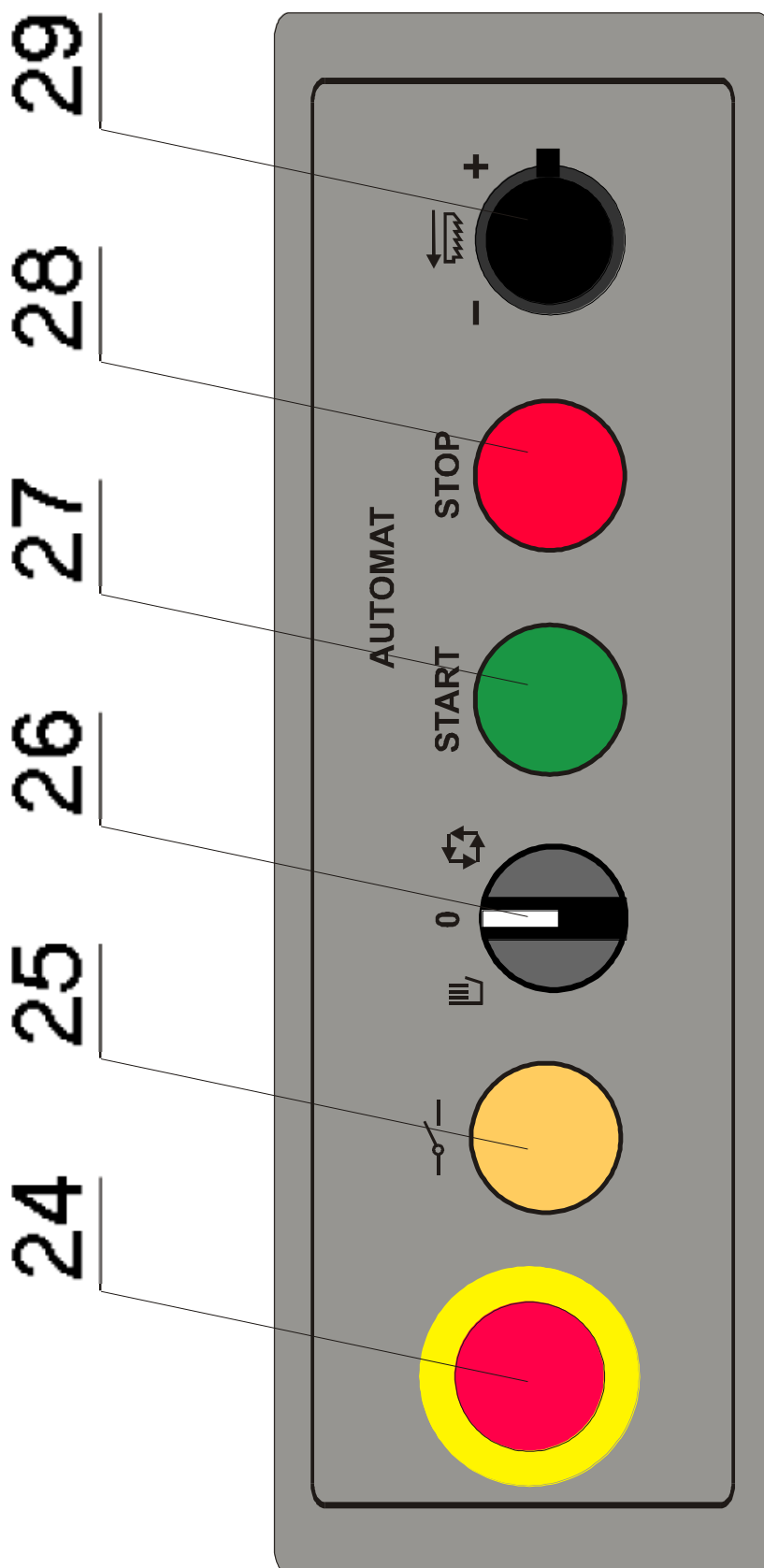
20 **Indicator - down**

21 **Without function**

22 **Indicator – right**

23 **Without function**



7.2. Control panel – part B



24 TOTAL STOP
Shutting the machine down in emergency!

25 Safety circuit switching on
Switch on the safety circuit by pressing the button.

26 Switch
Operating mode pre-selection.

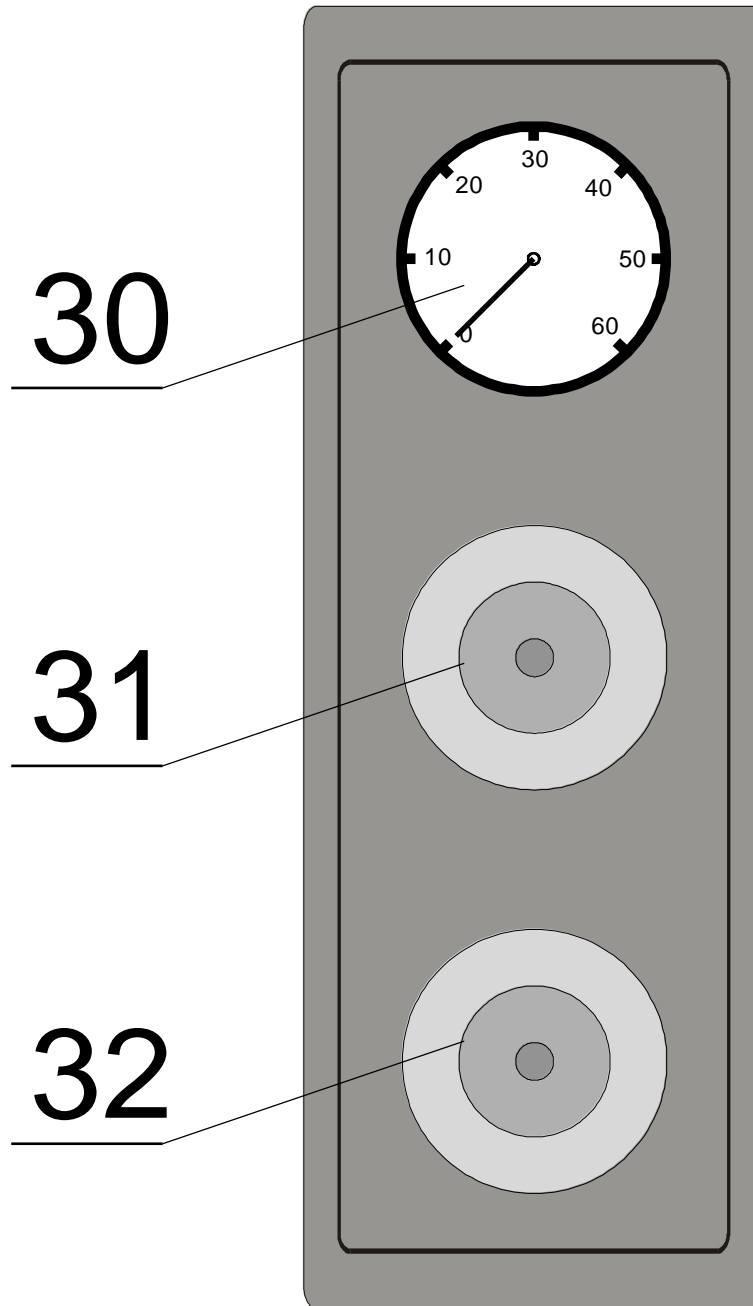
	Manual mode.
	Semi-automatic mode.
0	Adjust mode.

27 START button
It **starts** the automatic cycle by pressing button.

28 STOP button
It **stops** the automatic cycle by pressing button.

29 Saw band speed
Adjust the saw band speed from 15 m*min⁻¹ to 150 m*min⁻¹.

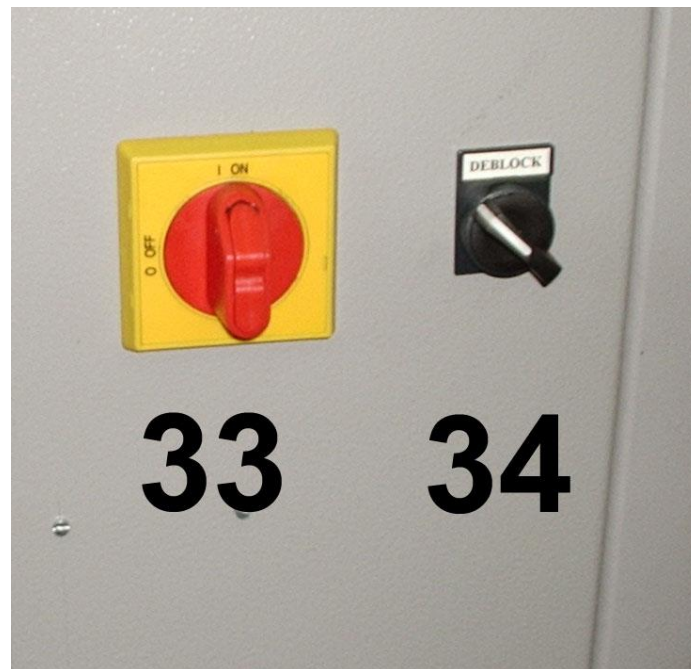
7.3. Control panel – part C



30 Manometer of cutting pressure

31 Regulation of the cutting pressure

32 Governing valve
Set the speed of saw arm lowering to the cut by governing valve.



33 Main switch

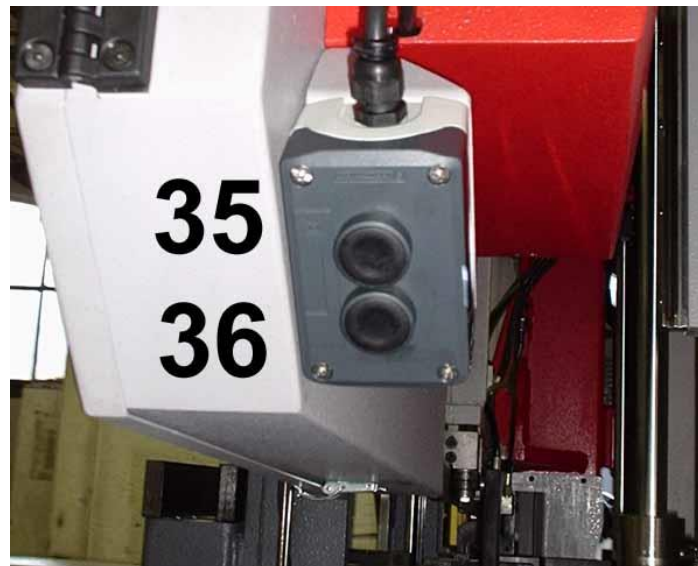
34 Deblock

At the saw band replacement.

34

0 position – operating mode. The switch must be in 0 position at current operation.

1 position – saw band replacement. Start the hydraulic aggregate and release the saw band tension, the covers can be opened. The other functions are blocked.



35 Saw band tension

At saw band replacement. It **stretches** the saw band.

Note: This button is functional only when the switch of deblock **34** is in position **1**.

36 Saw band releasing

At saw band replacement. It releases the saw band.

Note: This button is functional only when the switch of deblock **34** is in position **1**.

8. Starting the band saw

8.1. Switch on the band saw



1) Switch on the main switch of the band saw. The main switch is situated on the side of the switchboard.

2) Switch on the safety circuit of the band saw (button 15 – control panel of the band saw).

8.2. Feeder and saw arm reference position

1) Press button **F1**, enter to menu: Reference.

2) Press button **START**. Feeder and saw arm drives to the reference position.

3) As soon as the notice “Feeder reference position is set correctly” appears on the display, press button **F2**. Reference position is set.

9. Material insertion

9.1. Safety notes

Keep safety notes!



Wear protective gloves!
Material may have sharp edges and may cause cuts.



Wear protective boots!
Falling cut pieces can cause serious injuries.



Wear protective hardhat!
Falling work pieces can cause severe head injuries.

Never walk under a suspended load!
Never climb onto the gravity-roller conveyor!
Do not hold the material for clamping material to the vice!
The vice can cause injury!

9.2. Handling agent selection

Use the strong handling agents to lift and transfer the material!



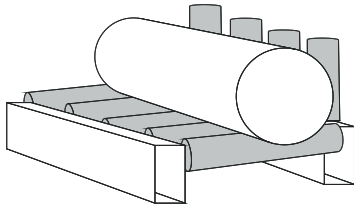
Handle with the material only with the lift truck or use the suspension strands and the crane!
Do not use the lift truck or crane in case that you do not have the licence to handle with it!

9.3. Material insertion

Insert material to the vice and ensure that the material cannot move in the vice or fall from the vice after the clamping.

If you cut long pieces of the material (for example rod, tube), you must use the roller conveyors for material shifting to the band saw. The roller conveyors are described in the chapter „**Roller conveyors and accessories**“.

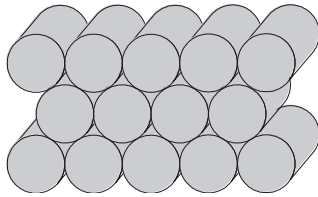
Make sure the conveyor is long enough and the material cannot tip off the conveyor.



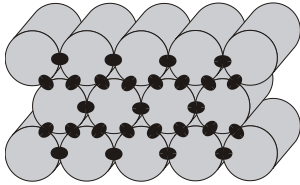
Be especially careful with round materials that it always stays on two vertical rollers and that it cannot fall off the conveyor!

9.4. Bundle material cutting

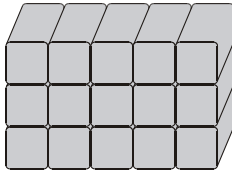
If you want to cut the material in the bundle, there are suggestions for the positioning of bundles



Round material bundle. Take care especially with round material that the bars are put according to the picture. If the bars are put differently, you may have problems with movement.



Always weld the material at the rear end of the bundle to secure it from moving. **ATTENTION! Before welding always, switch the machine off at the main switch! The magnetic fields, which often occur during welding, may damage the controls!**



Square material bundle.



Angled material bundle.

ATTENTION! Not all material shapes are suitable for bundle cuts. Keep the recommendation of your supplier of the saw bands for material insertion to the bundle.

10. Band saw adjusting

10.1. Safety notes

Keep the safety notes! Work the machine with the highest safety!



Wear protective boots!
Falling cut pieces can cause serious injuries.



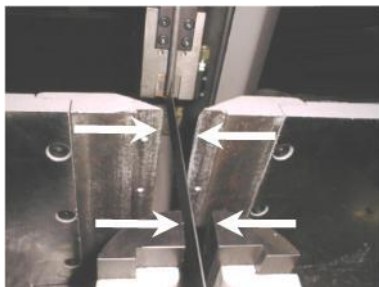
Wear protective hardhat!
Falling work pieces can cause severe head injuries.

10.2. Guiding cubes adjustment

The guiding cubes are set from the manufacturer. Guiding cubes are not set during whole lifetime.



1) Release screws on both guiding cubes.



2) Set the guiding cubes so, that the band runs between vice jaws. Tighten screws on the guiding cubes again.

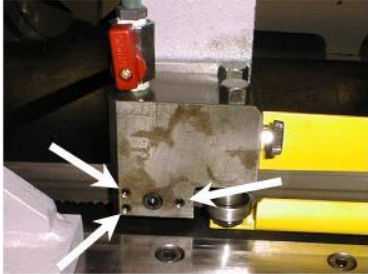
3) The guiding cubes are set.

10.3. Hard metal guides adjustment

Hard metal guides adjustment is one of the most important criterions which influences cutting accuracy and saw band life. Therefore, it is essential to check regularly that hard metal guides adjustment is correct.



1) Release the screw. The screw holds the guide in the guiding cube. Make sure, that the guide of the hard metal does not falls.



2) Press the guide on the saw band by tighten three screws. Check, if the hard metal guide does not put up to much resistance against the movement of the band. As soon as it is possible to move the band without resistance (and between saw band and the guide is not width) the hard metal guides are adjusted.




3) Tighten the screw. The screw holds the guide in the guiding cube. Make sure, that the guide did not damaged.

4) Be sure that the hard metal guides do not put up to much resistance otherwise the lifetime of the saw band and drive decreases.

10.4. Cutting speed adjustment

The saw band speed is possible to change from 15 to 120 $\text{m}\cdot\text{min}^{-1}$. See following:

- 1) Turn switch **26** to position .
- 2) Start the saw band drive by pressing button **3**.
- 3) Adjust the desired speed of the saw band by turned knob **29**.

Speeds of turned knob are only orientation! The saw band speed appears on display (position 17 – control panel).

10.5. Speed adjustment of the arm lowering

Set the speed of the arm lowering to the cut by control valve (position **32** – control panel).

Set the **lower** speed of the arm lowering to the cut by turning the switch **clockwise**.

Set the **higher** speed of the arm lowering to the cut by turning the switch **anti-clockwise**.

10.6. Cutting pressure adjustment

Set the cutting pressure by means of control valve (position **31** – control panel).

Manometer appears the adjusted cutting pressure (position **30** – control panel)

Set the **lower** cutting pressure by turning the switch **anti-clockwise**.

Set the **higher** cutting pressure by turning the switch **clockwise**.

10.7. Swarf conveyor – manual operation

Note: The swarf conveyor is supplied to the band saw only by request.

In semi-automatic cycle

The swarf conveyor starts and stops by pressing button **16**.

In automatic cycle

The swarf conveyor operation is adjusted according to chapter Service menu.

10.8. Saw band cooling

In semi-automatic cycle

Water cooling – start and stop it by pressing button **15**.

Microniser cooling – start and stop it by pressing button **14**.

In automatic cycle

The operation of the cooling with Microniser or water is adjusted according to chapter Service menu.

10.9. Adjustment of the vice clamping pressure


Note: The clamping pressure regulation is added to the band saw only for customer's request.

It allows to change the clamping pressure of the vice according to the kind and size of the cutting material. The recommended value of the clamping pressure is **20 – 30 bar** (see Barometer).

Attention! The adjustment of the low clamping pressure can cause insufficient material clamping and problems during cutting. The adjustment of the high clamping pressure can cause the damage of the material.

Adjustment of the vice clamping pressure



- 1) Switch on the machine and turn switch **26** to position „“ (manual mode).
- 2) Close vices and the upper clamping by pressing buttons **9** and **8**.
- 3) Release the securing nut of the adjusting screw (see Picture).
- 4) Adjust the desired pressure with adjusting screw (see Picture). Barometer displays the adjusted pressure.
- 5) Tighten the securing nut of the adjusting screw. Pressure is adjusted.

11. Service menu

Service menu – adjust the cutting parameters.

11.1. Entrance to service menu

Press button **F3** to enter to service menu.

Service menu has three parts:

- 1) Service parameters
- 2) Manufacturing parameters – parameters are adjusted of manufacturer, is impossible to change them.
- 3) Off-set adjustment of the saw band.

11.2. Service parameters adjustment

Service parameters are adjusted according to display's reports.

Entrance to menu "Service parameters" by pressing button **1**.

Select the parameters of adjustment by pressing buttons **19** and **20**.

Adjust selected parameters by pressing buttons **18** and **22**.

Confirm selected parameters by pressing button **E**.

11.2.1. Vice parameters

By setting the time opening of both vices you can set, distance of the movable jaw vices opening, it means, the vice is opened any more, when the time is set longer. This function is used in case of the cutting of the rough materials. Is necessary to set longer vice opening, that the material will be released. Smooth materials has set shorter vice opening. Shorten the time of the cycle. Time of the vices opening is 1 second.

- 1) Select row "Time of main vice opening" by pressing buttons **19** and **20**.
- 2) Adjust the time, press button **E**.
- 3) Select row "Time of feeding vice opening" by pressing buttons **19** and **20**.
- 4) Adjust the time, press button **E**.

11.2.2. Feeding vice pressure

Adjust, if you want to use the upper pressure on the feeding vice.

YES – upper pressure of the feeding vice is active.

NO – upper pressure of the feeding vice is not active.

11.2.3. Off-set measuring of the saw band

Note: The off-set measuring of the saw band is added to the band saw only by request.

The band saw can be equipped with off-set measuring of the saw band from the ideal cutting surface. It allows to adjust the maximum off-set of the saw band.

- 1) Select row "Off-set measuring of the saw band" by pressing buttons **19** and **20**.
- 2) Adjust the maximum off-set of the saw band [mm] by means of the numerical buttons.

- 3) Select row "Display the off-set" by pressing buttons **19** and **20**.
- 4) Select "**YES**" or "**NO**" by pressing buttons **18** and **22**.

YES – off-set of the saw band is displayed on the display.

NO – off-set of the saw band is not displayed on the display.

- 5) Select row "Switch off, if the off-set is exceeded" by pressing buttons **19** and **20**.
- 6) Select "**YES**" or "**NO**" by pressing buttons **18** and **22**.

YES – if allowable off-set of the saw band is exceeded, the band saw is stopped.

NO – the band saw cuts, the off-set of the saw band exceeds allowable value.

11.2.4. Glide measuring

Note: The glide measuring is added to the band saw only by request.

The band saw can be equipped with the glide measuring. The saw band can glide on the driving wheel during cutting, for example: unsuitable cutting conditions. Program allows to adjust the maximum off-set of the saw band.

- 1) Select row "Glide measuring" by pressing buttons **19** and **20**.
- 2) Select the maximum value of the glide by means of the numerical buttons [%].
- 3) Select row "Display the glide" by pressing buttons **19** and **20**.
- 4) Select "**YES**" or "**NO**" by pressing buttons **18** and **22**.

YES – the glide of the saw band is displayed on the display.

NO – the glide of the saw band is not displayed on the display.

- 5) Select row "Switch off, if the gliding value is exceeded" by pressing buttons **19** and **20**.
- 6) Select "**YES**" or "**NO**" by pressing buttons **18** and **22**.

YES – if allowable gliding value is exceeded, the band saw is stopped.

NO – the band saw cuts, the gliding value of the saw band exceeds allowable value.

11.2.5. Flowing measuring of the cooling liquid

Note: The flowing measuring of the cooling liquid is added to the band saw only by request.

The band saw can be equipped with flowing measuring of the cooling liquid. The cooling nozzle can be clogged during cutting and the saw band can be overheated and damaged. Program checks the minimum flowing of the cooling liquid.

- 1) Select row "Flowing measuring of the cooling liquid" by pressing buttons **19** and **20**.
- 2) Select "**YES**" or "**NO**" by pressing buttons **18** and **22**.

YES – The flowing of the cooling liquid is checked.

NO – The flowing of the cooling liquid is not checked.

- 3) Select row "Display flowing of the cooling liquid " by pressing buttons **19** and **20**.
- 4) Select "**YES**" or "**NO**" by pressing buttons **18** and **22**.

YES – Flowing of the cooling liquid is displayed on the display.

NO – Flowing of the cooling liquid is not displayed on the display.

5) Select row "Switch off, when the flowing is critical" by pressing buttons **19** and **20**.

6) Select "**YES**" or "**NO**" by pressing buttons **18** and **22**.

YES – if the flowing of the cooling liquid is less than critical value, the band saw stops.

NO – the band saw cuts, the flowing of the cooling liquid is less than critical value.

11.2.6. Cooling type

You can select the cooling with the water, Microniser or without cooling.

1) Select parameter: Cooling type by pressing buttons **19** and **20**.

2) Select the desired cooling type by pressing buttons **18** and **22**.

- a) saw band cooling with the water.
- b) saw band cooling with Microniser.
- c) without cooling of the saw band.

11.2.7. Cooling mode

You can select, if you want to stop the cooling in upper or lower position or do not stop the cooling.

1) Select parameter: Cooling mode by pressing buttons **19** and **20**.

2) Select the desired cooling mode by pressing buttons **18** and **22**.

- Without stopping
- Stop the cooling in the upper position
- Stop the cooling in the lower position
- Stop the cooling together with saw band
- Manual control

11.2.8. Mode of the saw band stopping

You can select, if you want to stop the saw band drive in upper or lower position or do not stop the drive.

1) Select parameter: Mode of the saw band stopping by pressing buttons **19** and **20**.

2) Select the desired mode of the saw band stopping by pressing buttons **18** and **22**.

- Without stopping
- Stop the saw band in the upper position
- Stop the saw band in the lower position
- Stop the drive together with the saw band
- Manual control

11.2.9. Swarf conveyor operation

You can select from five possibilities of swarf conveyor operation in automatic cycle.

1) Select parameter: Swarf conveyor operation by pressing buttons **19** and **20**.

2) Select the desired way of swarf conveyor operation by pressing buttons **18** and **22**.

- Without stopping
- Stop the conveyor in the upper position
- Stop the conveyor in the lower position
- Stop it together with the saw band
- Manual control

11.2.10. Saw band correction

The cut width is possible to adjust according to the selected saw band.

1) Select parameter: Saw band correction by pressing buttons **19** and **20**.

2) Adjust the cut width by means of numerical buttons.

11.2.11. Language selection

You can adjust the language.

1) Select parameter: Language selection by pressing buttons **19** and **20**.

2) Select the desired language by pressing buttons **18** and **22**.

11.3. Service menu closing

Press button **F3**. Service menu is closed.

12. Cutting data editing

Adjust the cutting data for cutting in automatic cycle.

1) Turn switch **26** to position „0“, to pre-set and perform the automatic cycle.

2) Press **F2** button.

Definition explain:

Preselection is the part of program, includes the length of blank and pieces number of the set length.

Program is table of the cutting date (preselections).

12.1. Preset

1) Adjust the blank length. Press button **E**.

2) Adjust pieces number. Press button **E**, to preset preselection number 1.

3) Preset other preselections by repeating points 1 and 2.

12.2. Program saving

1) Press button **F2** after preset stopping.

2) Press button **F2** – Work with memory.

3) Press button **F2** – Save table of cutting date to the memory.

4) Adjust the number of memory, where you want to save the program. Press button **E**. Program is saved.

12.3. Program selection

1) Press button **F2**.

2) Press button **F2** – Work with memory.

3) Press button **F1** – Open table of cutting date from the memory.

4) Adjust the number of memory, from which you want to select the program. Press button **E**. Program is opened.

12.4. Preselection editing

You can change the length of blank or pieces number in single preselections.

- 1) Open the number of program from memory, which you want to edit.
- 2) Select preselection, which you want to change by pressing buttons **19** and **20**.
- 3) Adjust cursor on the position: length of blank by pressing buttons **18** and **22**.
- 4) Adjust the new length of the blank. Press button **E**, to change the length of the blank.
- 5) Select the new pieces number. Press button **E**, to change pieces number.
- 6) You can change the other preselections by repeating points 2, 3 and 4.
- 7) You can save the program.

12.5. New preselection inserting

- 1) Open the number of program from memory, to insert new preselection.
- 2) Select preselection before which you want to insert new preselection by pressing buttons **19** and **20**.
- 3) Press button **F2 - MENU**.
- 4) Press button **F1** – Work with preselection.
- 5) Press button **F1** – Insert preselection.
- 6) Adjust new length of the blank. Press button **E**, to change length of the blank.
- 7) Adjust new pieces number. Press button **E**, to change pieces number.
- 8) You can change, insert the other preselections by repeating points 2, 3, 4, 5, 6 and 7.
- 9) You can save the program.

12.6. Preselection clearing

- 1) Open the number of program from memory, to clear the preselection.
- 2) Select preselection, which you want to clear by pressing buttons **19** and **20**.
- 3) Press button **F2 - MENU**.
- 4) Press button **F1** – Work with preselection.
- 5) Press button **F2** – Clear preselection.
- 6) Preselection is cleared.

13. Semi-automatic cycle

In semi-automatic cycle is possible to perform single cuts directly without next length adjustment or with automatic feeding to the desired material length.

Turn switch **26** to position „“ for working in semi-automatic cycle.

13.1. Safety notes

Keep the safety notes! Work the machine with the highest safety!




Wear protective boots!
Falling cut pieces can cause serious injuries.




Wear protective hardhat!
Falling work pieces can cause severe head injuries.

13.2. Cut without length adjustment

- 1) Insert material on the loading surface of the main vice to the position, in which you want to cut the material.
- 2) Turn switch **26** to position „“.
- 3) Press button START. The saw performs the cut.
- 4) The saw arm lifts up and button START starts to blink after cutting stopping. Now, you can open the vices and remove the blank.

13.3. Cut with automatic feeding of the desired material length

- 1) Turn switch **26** to position „“.
- 2) Open main and feeding vice by pressing buttons **6** and **5**.
- 3) Lift saw arm up – button **1**.
- 4) Insert the material to the feeding vice.
- 5) Press button **F2**.
- 6) Adjust the length of the blank. Press button **E**.
- 7) Adjust tubes number, which will be cut. Press button **E**.
- 8) If the tubes number is bigger than 1, adjust the difference between the shortest and the longest tube. Press button **E**.
- 9) Adjust the saw arm over the cutting material by pressing buttons **C** and **1**. Press button **F2**.
- 10) Select, if you want to drive the material automatically.
YES – press button **F1** and feeder drives the material on the desired length.
NO – press button **F3** and material stays in the momentary position.
- 11) Select, if you want to cut the end of the material.
YES – adjust the length of the cut (3 – 50 mm) and press button **F1**.
NO – press button **F3**.
- 12) Press button **START (27)**. The saw performs the cut.
- 13) The saw arm lifts up and button **START** starts to blink after cutting stopping. Now, you can open the vices and remove the blank.

13.4. Cycle breaking

13.4.1. STOP button

Press button **STOP** (button **28** – control panel) or button **1** (lift saw arm up) – saw interrupts the cut, arm lifts to the starting position.

Start the cycle by pressing button „**27**“ (**START** of semi-automatic cycle). You can start the cycle again.

13.4.2. TOTAL STOP

Press emergency button **TOTAL STOP** (button **24** – control panel) in emergency causes! Safety circuit is broken and the saw band drive is stopped too.

Reactivation:

- 1) Turn button **TOTAL STOP** according to the arrows (on the button).
- 2) Switch on the safety circuit by button **25**.
- 3) Press button **F2** <OK>.
- 4) Lift the saw arm up by pressing button **1**.
- 5) Press button „**27**“ (**START** of semi-automatic cycle).

14. Automatic cycle

14.1. Safety notes

Keep the safety notes! Work the machine with the highest safety!




Wear protective boots!
Falling cut pieces can cause serious injuries.




Wear protective hardhat!
Falling work pieces can cause severe head injuries.

14.2. Cycle preparation

- 1) Turn switch **26** to position „“.
- 2) Open the main and feeding vice by means of buttons **6** and **5**.
- 3) Lift the saw arm up – button **1**.
- 4) Insert material to the feeding vice.

14.3. Automatic cycle

- 1) Turn switch **26** to position „“, to perform the automatic cycle.
- 2) Open program from memory or pre-set new program, according to which you want to perform the automatic cycle.
- 3) Press button **F3**.
- 4) Adjust tubes number, which will be cut. Press button **E**.
- 5) If the tubes number is bigger than 1, adjust the difference between the shortest and the longest tube. Press button **E**.
- 6) Adjust the saw arm over the cutting material by pressing buttons **C** and **1**. Press button **F2**.

Setup of the
RETURN POSITION
OF SAW-ARM
after the cut
The Arm 404.7 mm

OK

7) Select, if you want to drive the material automatically.

Press **OK**.

AUTOMATIC MATERIAL
FEEDING

YES NO

YES – press button **F1** and feeder drives the material on the desired length.

NO – press button **F3** and material stays in the momentary position.

AUTOMATIC TRIM CUT
Valid range <3..50> mm
Length = 10 mm

YES NO

Press **NO**. Button **START** begins twinkle.

AUTOMATIC CYCLE

Push START Button.

Press button **START**. The feeder is prepared to work.

AUTOMATIC MATERIAL
FEEDING

Insert Material into Feeder
and push START Button.

Insert material into the half of the feeder so that laser can touch the material (see photo). Then press button **START** to continue the automatic cycle.



8) Select, if you want to cut the end of the material.

YES – adjust the length of the cut (3 – 50 mm) and press button **F1**.

NO – press button **F3**.

9) Press button **START (27)**. The saw performs the cut.

10) The saw arm lifts up and button **START** starts to blink after cutting stopping. Now, you can open the vices and remove the blank.

14.4. Cycle breaking

14.4.1. STOP button

Press button **STOP** (button **28** – control panel) or button **1** (lift the saw arm up) – saw interrupts the cut, arm lifts to the starting position.

Start the cycle by pressing button „27“ (**START** of semi-automatic cycle). You can start the cycle again.

14.4.2. TOTAL STOP

Press emergency button **TOTAL STOP** (button **24** – control panel) in emergency causes! Safety circuit is broken and the saw band drive is stopped too.

Reactivation:

- 6)** Turn button **TOTAL STOP** according to the arrows (on the button).
- 7)** Switch on the safety circuit by button **25**.
- 8)** Press button **F2 <OK>**.
- 9)** Lift the saw arm up by pressing button **1**.
- 10)** Press button „27“ (**START** of semi-automatic cycle).

15. Blanks removing from the band saw

15.1. Safety notes

Keep the safety notes! Work the machine with the highest safety!



Wear protective gloves!
Material may have sharp edges and may cause cuts.



Wear protective boots!
Falling cut pieces can cause serious injuries.



Wear protective hardhat!
Falling work pieces can cause severe head injuries.

Take care, that there is nobody in the working area of the band saw! The moving material can cause the serious injuries!

15.2. Handling agent selection



Use the strong handling agents to lift and transfer the material!

Handle with the material only with the lift truck or use the suspension strands and the crane!
Do not use the lift truck or crane in case that you do not have the licence to the handle with it!

15.3. Blanks removing

Remove the blanks from the band saw.

16. Selection and replacement of the saw band

16.1. Safety notes



Wear protective gloves!

The saw band has sharp teeth and can cause serious injuries to your hands.



Wear protective goggles!

The saw band can snap during assembly and seriously injure your eyes.



Refit the saw band cover only after you have installed and tightened the saw band.

16.2. Saw band size

5850 x 41 x 1,3 mm

16.3. Selection of the saw band tooth system:

The manufacturers provide the saw bands with constant and variable tooth system. The important factor for selection of the saw band tooth system is length of the cutting canal with respect to the size of the product.

1) *Constant tooth system* – the saw band has parallel tooth pitch all over length. This way is suitable for cutting of solid material.

2) *Variable tooth system* – tooth pitch is variable. Variable tooth system is used for profiled materials and bundle cutting. Variable tooth pitch lowers vibration of the saw band, increases service life of the saw band and quality of the cutting area.

In tables, there are advised type of the tooth system depending on sizes and form of the cutting material.

Footnotes:

ZpZ – teeth number on one inch.

S – tooth with zero angle of the teeth.

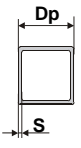

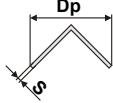
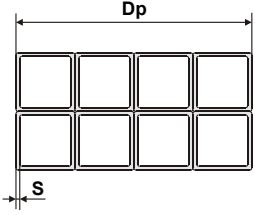
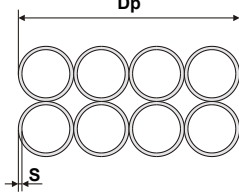
K – tooth with positive angle of the teeth.

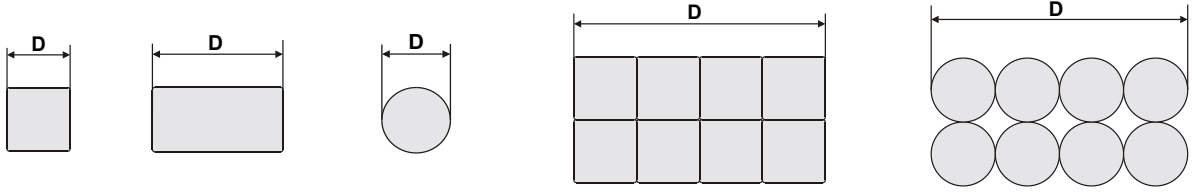
Examples of the tooth system marking:

32 S – number „32“ means 32 teeth on one inch (that means constant tooth system), letter „S“ marks teeth with zero angle of the tooth.

4-6 K – number „4-6“ means 4 till 6 teeth on one inch (that means variable tooth system); letter „K“ marks teeth with positive angle of the teeth.

Tables for teeth selection:

SHAPED MATERIAL (Dp, S = mm)						
						
<p>Note: Table shows tooth system selection for cutting one piece of the profile. For cutting of more pieces of the profiles (bundle), you must think of the size of the wall as double size of the wall of one profile (that means, size „S“ equates to 2 x S). In table, there are tooth systems constant and variable.</p>						
Size of the wall S [mm]	Tooth system (ZpZ) Outer diameter of the profile Dp [mm]					
	20	40	60	80	100	120
2	32 S	24 S	18 S	18 S	14 S	14 S
3	24 S	18 S	14 S	14 S	10 - 14 S	10 - 14 S
4	24 S	14 S	10 - 14 S	10 - 14 S	8 - 12 S	8 - 12 S
5	18 S	10 - 14 S	10 - 14 S	8 - 12 S	6 - 10 S	6 - 10 S
6	18 S	10 - 14 S	8 - 12 S	8 - 12 S	6 - 10 S	6 - 10 S
8	14 S	8 - 12 S	6 - 10 S	6 - 10 S	5 - 8 S	5 - 8 S
10	-	6 - 10 S	6 - 10 S	5 - 8 S	5 - 8 S	5 - 8 S
12	-	6 - 10 S	5 - 8 S	5 - 8 S	4 - 6 K	4 - 6 K
15	-	5 - 8 S	5 - 8 S	4 - 6 K	4 - 6 K	4 - 6 K
20	-	-	4 - 6 K	4 - 6 K	4 - 6 K	3 - 4 K
30	-	-	-	3 - 4 K	3 - 4 K	3 - 4 K
50	-	-	-	-	-	3 - 4 K
Size of the wall S [mm]	Tooth system (ZpZ) Outer diameter of the profile Dp [mm]					
	150	200	300	500	750	1000
2	10 - 14 S	10 - 14 S	8 - 12 S	6 - 10 S	5 - 8 S	5 - 8 S
3	8 - 12 S	8 - 12 S	6 - 10 S	5 - 8 S	4 - 6 K	4 - 6 K
4	6 - 10 S	6 - 10 S	5 - 8 S	4 - 6 K	4 - 6 K	4 - 6 K
5	6 - 10 S	5 - 8 S	4 - 6 K	4 - 6 K	4 - 6 K	3 - 4 K
6	5 - 8 S	5 - 8 S	4 - 6 K	4 - 6 K	3 - 4 K	3 - 4 K
8	5 - 8 S	4 - 6 K	4 - 6 K	3 - 4 K	3 - 4 K	3 - 4 K
10	4 - 6 K	4 - 6 K	4 - 6 K	3 - 4 K	3 - 4 K	2 - 3 K
12	4 - 6 K	4 - 6 K	3 - 4 K	3 - 4 K	2 - 3 K	2 - 3 K
15	4 - 6 K	3 - 4 K	3 - 4 K	2 - 3 K	2 - 3 K	2 - 3 K
20	3 - 4 K	3 - 4 K	2 - 3 K	2 - 3 K	2 - 3 K	2 - 3 K
30	3 - 4 K	2 - 3 K	2 - 3 K	2 - 3 K	1,4 - 2 K	1,4 - 2 K
50	2 - 3 K	2 - 3 K	2 - 3 K	1,4 - 2 K	1,4 - 2 K	1,4 - 2 K
75	-	2 - 3 K	1,4 - 2 K	1,4 - 2 K	1,4 - 2 K	0,75 - 1,25 K
100	-	-	1,4 - 2 K	0,75 - 1,25 K	0,75 - 1,25 K	0,75 - 1,25 K
150	-	-	-	0,75 - 1,25 K	0,75 - 1,25 K	0,75 - 1,25 K
200	-	-	-	0,75 - 1,25 K	0,75 - 1,25 K	0,75 - 1,25 K

SOLID MATERIAL (D = mm)			
			
Constant tooth system		Variable tooth system	
length of the cut D	tooth system (ZpZ)	length of the cut D	tooth system (ZpZ)
to 3 mm	32	to 30 mm	10 - 14
to 6 mm	24	20 - 50 mm	8 - 12
to 10 mm	18	25 - 60 mm	6 - 10
to 15 mm	14	35 - 80 mm	5 - 8
15 - 30 mm	10	50 - 100 mm	4 - 6
30 - 50 mm	8	70 - 120 mm	4 - 5
50 - 80 mm	6	80 - 150 mm	3 - 4
80 - 120 mm	4	120 - 350 mm	2 - 3
120 - 200 mm	3	250 - 600 mm	1,4 - 2
200 - 400 mm	2	500 - 3000 mm	0,75 - 1,25
300 - 800 mm	1,25		
700 - 3000 mm	0,75		

Despite the above recommendations, please follow your supplier's advice!

16.4. Saw band running - in

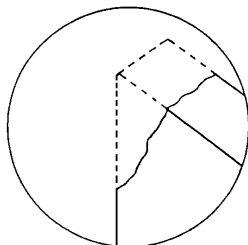
To ensure a full service life of the saw bands, we strongly recommend that you carry out the „RUN-IN“ process.

Running in: Cut the material with the frame lowering reduced to 50% only. When vibrations occur increase or decrease the band speed.

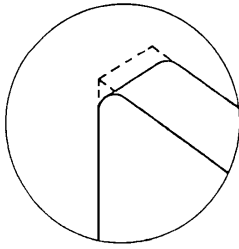
When cutting small pieces run the band until approximately 300 cm² of material has been cut.

When cutting large pieces run the band for 15 minutes approximately.

When the band has been run, increase the lowering-speed to normal speed.



The running in of the saw band avoids micro-breaks on the cutting edges of new saw band ensuing from first excessive stress. This would decrease service life substantially.



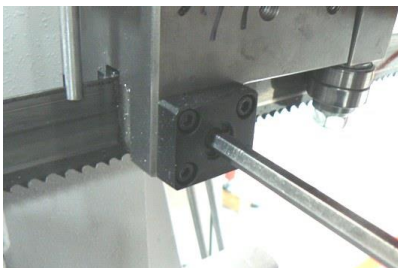
The optimal running in of the saw band produces ideal rounded cutting edges and therefore the conditions for an optimal service life.

16.5. Saw band dismantling

- 1) Turn switch **26** to position "III".
- 2) Lift the saw arm by pressing button **1** to the top position.
- 3) Turn switch of deblock **34** to position **1**.
- 4) Message depicted on a display " Deblock activated". Confirm by pressing **F2** button. Then is possible to handle with the band.
- 5) Open covers of the arm and saw band.
- 6) Dismantle yellow cover of the saw band.



- 7) Release the saw band by pressing button **36**.
- 8) Pull the saw band from blade wheels.
- 9) Pull up the saw band from the guiding cubes.



- 10) By turning a key M8 to right, the band is released.

16.6. Saw band installation

- 1) Prior to installation, clean all track wheels, guide cubes and inner side of the arm thoroughly of all traces of chips and dirt. Keep in mind the teeth direction when installing the saw band.
- 2) Insert new saw band in the guide cubes. Make sure the saw band runs between both guide rollers and it is pushed all the way to the top. By turning a key M8 to left, the band is stretched.
- 3) Put the saw band on both guide wheels. Make sure that the saw band ridge fits tightly to the wheel rim. Then push the saw band as far back as possible.
- 4) Stretch the saw band by pressing button **35**.
- 5) Install yellow cover of the saw band.



- 6) Close covers of the saw arm and saw band.
- 7) Turn switch of deblock **34** to position **0**.
- 8) The saw band installation is ended.

16.7. Saw band stretching and inspection

Right saw band stretching is one of the most important criteria's, which influents accuracy and saw band service life. Stretch the saw bands according to the selected saw band and the band saw. Keep the recommendation of your manufacturer.

16.7.1. Saw band stretching

- 1) The saw band must not fall from the wheels after setting.
- 2) Install the Tenzomat on the saw band and secure it with screws.
- 3) Stretch the saw band until it is stretched to the recommended value.

16.7.2. Saw band inspection

Check the saw band in the guiding cubes and on the wheels.

- 1) Check, if the saw band is right in the guiding cubes.
- 2) Switch on saw band drive and then after 10 seconds switch off saw band drive. If the saw band drive is not possible to switch on, set the limit switch of the saw band stretching according to the chapter „**Servicing and adjustment**“.
- 3) Switch off the main switch.
- 4) Open cover(s) of the wheels and check position of the saw band on the both wheels.
 - if the distance between backside of the saw band and the offset wheel is **5 – 8 mm**, setting is right.
 - - if the distance is bigger than **8 mm**, or the saw band is on the offset of the wheel, set the saw band according to chapter „**Servicing and adjustment**“.
- 5) Close covers of the saw band.

17. Cooling agents and chips disposal

17.1. Safety notes

Keep notes about work safety for handling cooling liquid!



When handling cooling agents always wear hazardous fluid-proof gloves!



Wear protective goggles!
Cooling liquid can get in contact with your eyes and may cause permanent severe injuries.

Instructions for first help

Pull off and safely remove polluted, soaked clothing.
For breathing, go out in the fresh air or look for first aid treatment.
Wash with water or use crèmes for contact with the skin.
Flush with water for eyes and look for first aid treatment.
For swallowing, drink a lot of water and induce vomiting.
Look for medical help.

17.2. Cooling liquid preparation

Prepare the mix of the water and cooling liquid. Conform the notes of the manufacturer and keep manufacturer-approved concentration.

All instructions are stated on the tank of the cooling liquid or in documents of the cooling liquid. For cooling liquid using and liquidation reads date of cooling liquid manufacturer, which it is necessary to keep.

Fill the mix of water and cooling liquid to the tank of the cooling system. The capacity of the tank for the cooling liquid is stated in chapter „**Technical data**“.

When filling tank with the cooling liquid take care that the liquid will not drip out of the tank and the tank will not overflow.

Keep manufacturer specified recommendations for adding the anticorrosive agents, the antifreeze or other agents! For mixture of two different mixes can produce toxic and aggressive mixes, which can peril your health or damage cooling system of the machine!

Note: If the machine is equipped with Microniser (see **Special accessory**), fill the tank of the Microniser by specified cooling liquid. Microniser is ready for the operation.

The quality of the cooling agent will deteriorate due to:

- use of contaminated water
- impurity
- outside oil contamination (hydraulics, gears)
- high operating temperatures
- lack of air circulation
- wrong concentration

If the solution is too weak:

- corrosion protection is diminished
- lubrication decreases
- microbial attack is more likely

If the solution is too strong:

- the cooling ability is decreased
- foam behaviour increases
- emulsions stability deteriorates
- sticky residue develops

17.3. Coolant device inspection

The state of the cooling agent has significant influence on the cutting quality and on the operational life of the machine. Lifetime of the cooling liquid is 1 year, after this time we recommend to change the cooling liquid. This time is dependent on the degree of pollution cooling liquid (especially with oils) and on the other factors. Check level of the cooling liquid and function of the pump periodically!

Check the state of the cooling agent according to the following table:

Testing	Interval	Method	Condition	Precaution
Liquid level	daily	visually	too low	after concentration check, refill with water or emulsion
Concentration	daily	refractometer densimeter	too high too low	refill water refill base emulsion
Smell	daily	by sense of smell	unpleasant smell	good ventilation, add biocides or renew coolant
Contamination	daily	by sense of smell	visible oil leaks, sludge fungi	surface cleaning, fix leaks, add biocides or fungicides, or coolant renewal after added system cleanser*
Corrosion- protection	when necessary	visually chip test Herbert-test	insufficient corrosion protection	test stability, if necessary – increase concentration or pH value
Stability	when necessary	refractometer	oiling	add concentrate, enquiries to supplier
Foam reaction	when necessary	shaking test	too much foam, foam disperses too slowly	avoid aeration, increase water hardness, ix with defoamer

* according to manufacturers' instructions.

Note: If the state of the cooling liquid is not satisfactory, the cooling liquid must be changed.

17.4. Chips disposal

Chips resulting from cutting operations must be disposed of in accordance with the relevant regulations.

- Let the chips drip excess fluid!
- Fill a watertight container with the chips! Be careful that the container does not leak, because even after a long dripping time, they still contain coolant residue.
- Place the container into the care of a disposal company equipped for the disposal of chips contaminated with cooling liquid. In case the machine is equipped with micro-spray installation, the chips must also be handed over to a disposal company.

18. Greases and oils

18.1. Gearbox oils

In gearboxes, oil is used for the whole lifetime of the gearbox. We recommend replacing of the filling oil in case of repair.

Use oils with specification DIN 51517 in the gearboxes. Select the viscosity grade ISO VG according to the original oil fill.

Note: When replacing, use oils recommended by BOMAR or oils, which has comparable parameters from the other manufacturers. Do not forget, that mineral and synthetic oils must not be mixed!

Recommended oils and quantity according to the type of the band saw

The band saw	Gearbox oil	Capacity
compact 360 A	Shell Tivela S 320	0,2 l
swarf conveyor	Shell Tivela S 320	0,075 l

Comparative table of the gearbox oils

Manufacturer	Viscosity grade		
	ISO VG 100	ISO VG 220	ISO VG 320
BP	Energol GR-XP 100	Energol GR-XP 220	Energol GR-XP 320
Castrol	Alpha SP 100 Alpha MW 100	Alpha SP 220 Alpha MW 220	
Elf	Reductelf SP 100	Reductelf SP 220 Reductelf Synthese 220	Reductelf SP 320
Esso	Spartan EP 100	Spartan EP 220	Spartan EP 320
Mobil	Mobilgear 627	Mobilgear SHC 220 Mobilgear 630	Mobilgear 632
ÖMV		PG 220	
Paramo	PP 7	Paramo CLP 220	Paramo CLP 320
Shell	Shell Omala 100	Shell Omala 220 Shell Tivela S 220	Shell Omala 320 Shell Tivela S 320
Total	Carter EP 100	Carter EP 220	Carter EP 320

18.2. Hydraulic oils

Note: This chapter is only for the band saws, which has hydraulic equipment.

Replace the hydraulic oil once in 2 years, because the oil can deteriorate its properties and cause problems the hydraulic equipment. If the hydraulic system is equipped with filter (2SF 56/48-0,063), replace the filter too.

Use oils with specification DIN 51524-HLP, ISO 6743-4 and viscosity grade ISO VG 46 in hydraulic aggregates. Hydraulic oils quantity – see chapter **Hydraulic oil level check**.

Note: When replacing, use oils recommended by BOMAR or oils, which has comparable parameters from the other manufacturers. Do not forget, that mineral and synthetic oils may not be mixed!

Comparative table of the hydraulic oils

Manufacturer	Type	Manufacturer	Type
Agip	Oso 46	Ina	Hidraol 46 HD
Aral	Vitam GF 46	Klüber	Lamora HLP 46
Avia	Avilub RSL 46	Hungary	Hidrokomol P 46
Benzina	OH-HM 46	Mobil	Mobil DTE 25
BP	Energol HLP 46	ÖMV	HLP 46
Bulgaria	MX-M/46	Poland	Hydrol 30
Castrol	Hyspin AWS 46	Rumania	H 46 EP
Čepro	Mogul HM 46	Russia	IGP 30
DEA	Astron HLP 46	Shell	Tellus Oil 46
Elf	Elfolna 46	Sun	Sunvis 846 WR
Esso	Nuto H 46	Texaco	Rando HD B 46
Fam	HD 5040	Valvoline	Ultramax AW 46
Fina	Hydran 46		

18.3. Lubricant greases

We recommend using lithium based saponified grease, class NGLI-2 for lubrication. Different greases are mixable, if their oil bases and consistence type are identical.

Comparative table of the lubricant greases

Manufacturer	Type of the lubricant grease
BP	Energrease LS - EP
DEA	Paragon EP1
Esso	FETT EGL 3144
	Beacon EP 1
	Beacon EP 2
FINA	FINA LICAL M12
Klüber	Microlube GB0
	Staburags NBU8EP
	Isoflex Spezial
Optimol	Optimol Longtime PD 0, PD1, PD2
Shell Aseol AG	ASEOL Litea EP 806-077
Texaco	Multifak EP1

19. Service

19.1. Machine cleaning

Clean the machine from the cooling liquid and impurities after every shift stopping. Conserve the guiding surfaces, mainly:

- Clamping jaws guiding of the main and feeding vice.
- The feeder guiding
- Loading surface of the main, feeding vice, and area under them

19.2. Lubrication

There are several placing on the machine, which are necessary to grease periodically. It secures the right function of the machine.



- The guiding cubes leading – grease with oil from both sides once a week.



- The linear guiding of the saw arm – lubricate with grease once a three months (see chapter **Lubricant greases**). Use 3-5g grease on the every carriage of the linear guiding. Use the grease gun to the lubrication. Drive 3-5 times whole line of the linear guiding during lubrication.

19.3. Cooling liquid inspection

Check the state of the cooling liquid periodically. Keep notes in chapter **Cooling agents and chips removal** for state checking and cooling liquid filling.

If the cooling liquid is little in the tank, it can cause the damage of the saw band influences insufficient cooling.

The excess liquid can overflow from the tank on the floor, the service worker can slide and he can injure.

19.4. Hydraulic oil level check

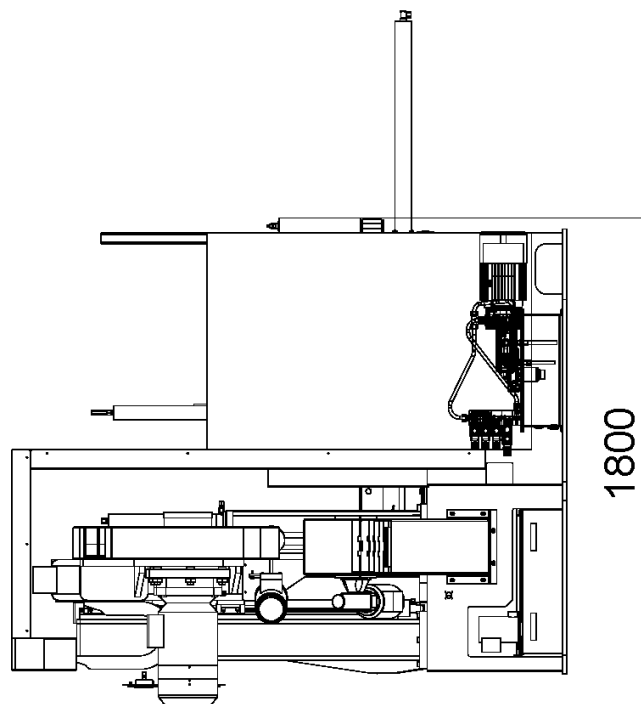
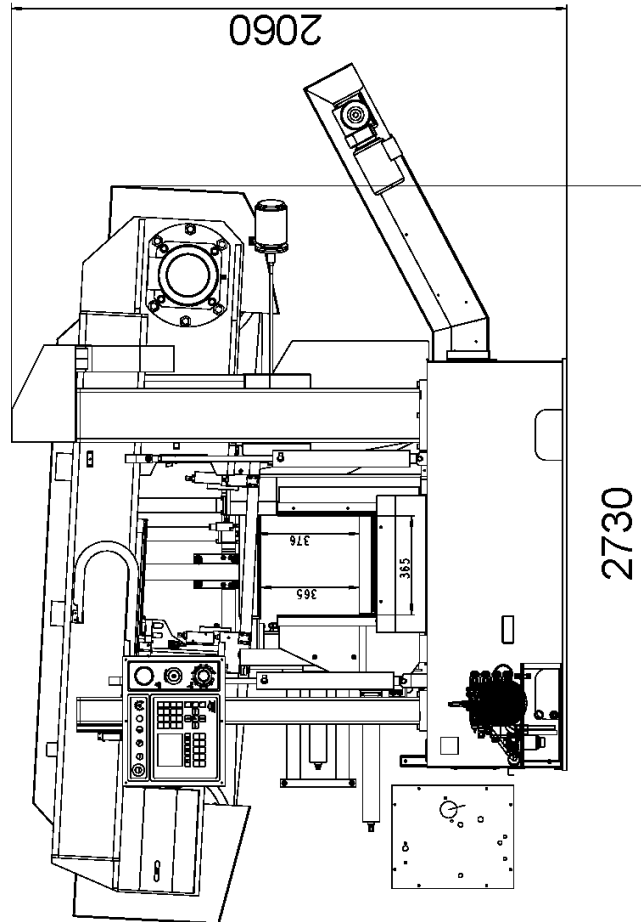
Recommended type of the hydraulic oil is placed in chapter **Hydraulic oils**.



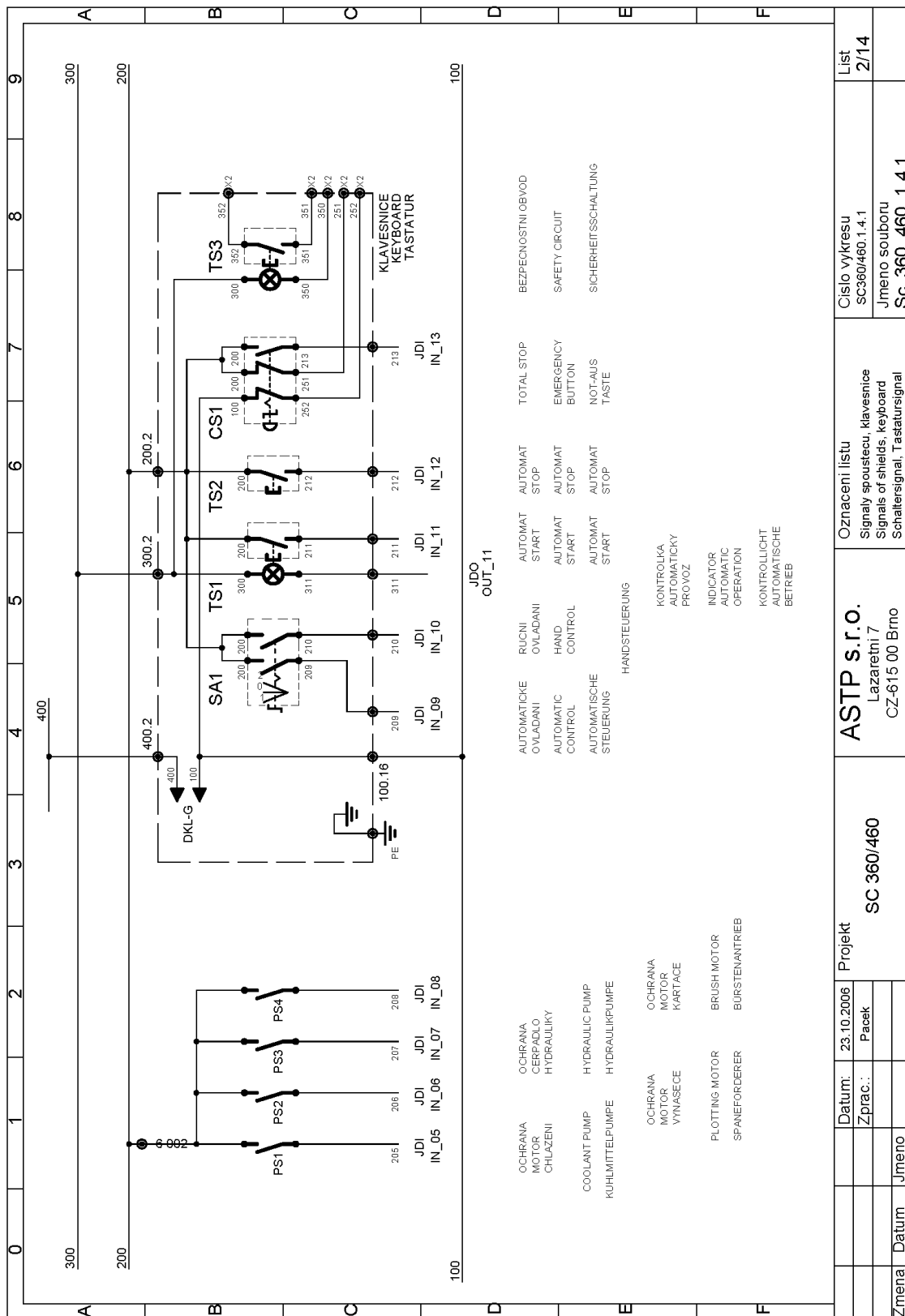
Pull up the gauge and check the state of the oil. The oil level must be situated between water-glas.

Fill the hydraulic oil, if it is necessary. Use always the filter (25 μm or better) when you fill the oil. You avoid impurities penetration to the hydraulic system and troubles in hydraulic system.

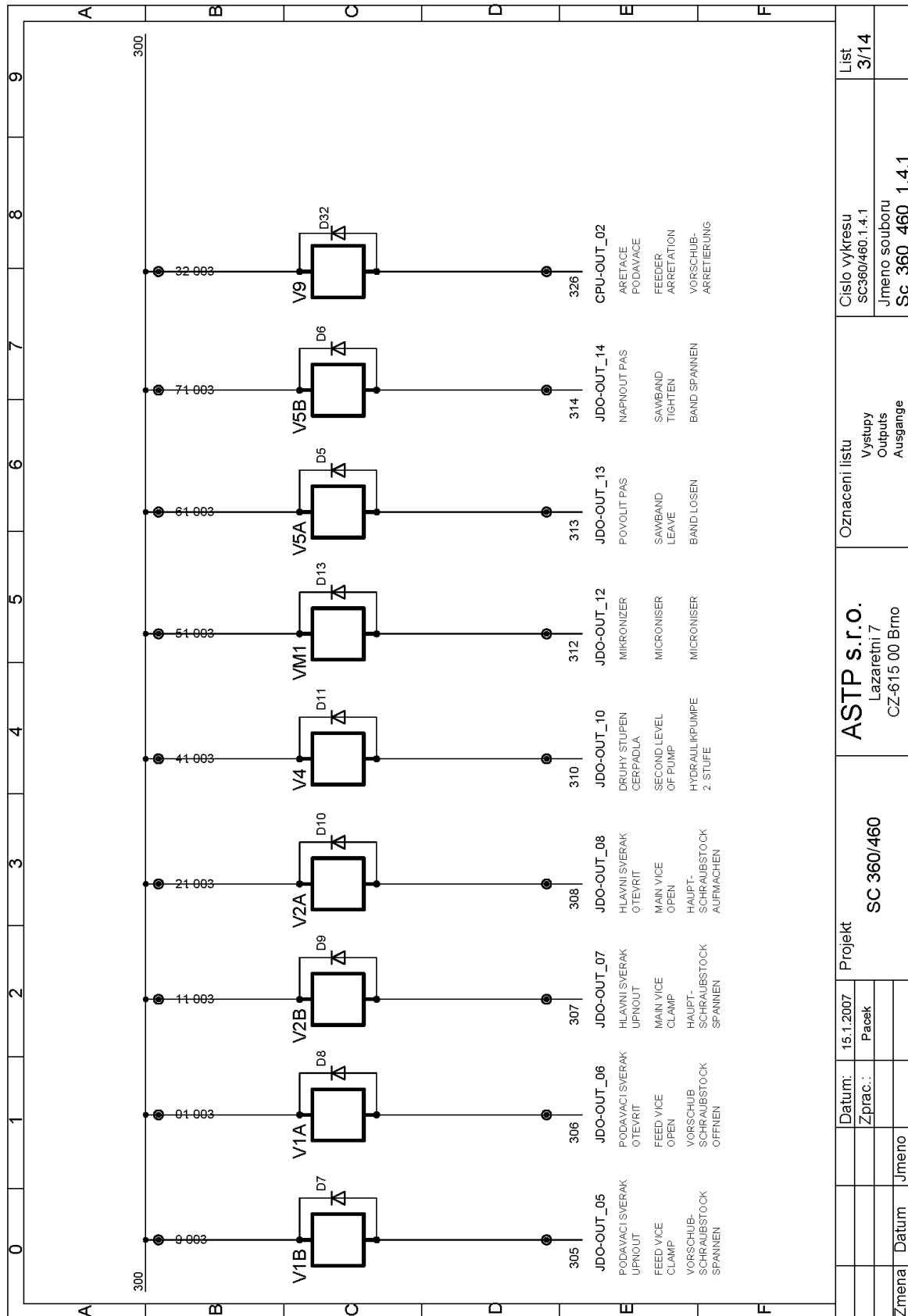
20. Rozměrové schéma / Aufstellzeichnung / Installation diagram



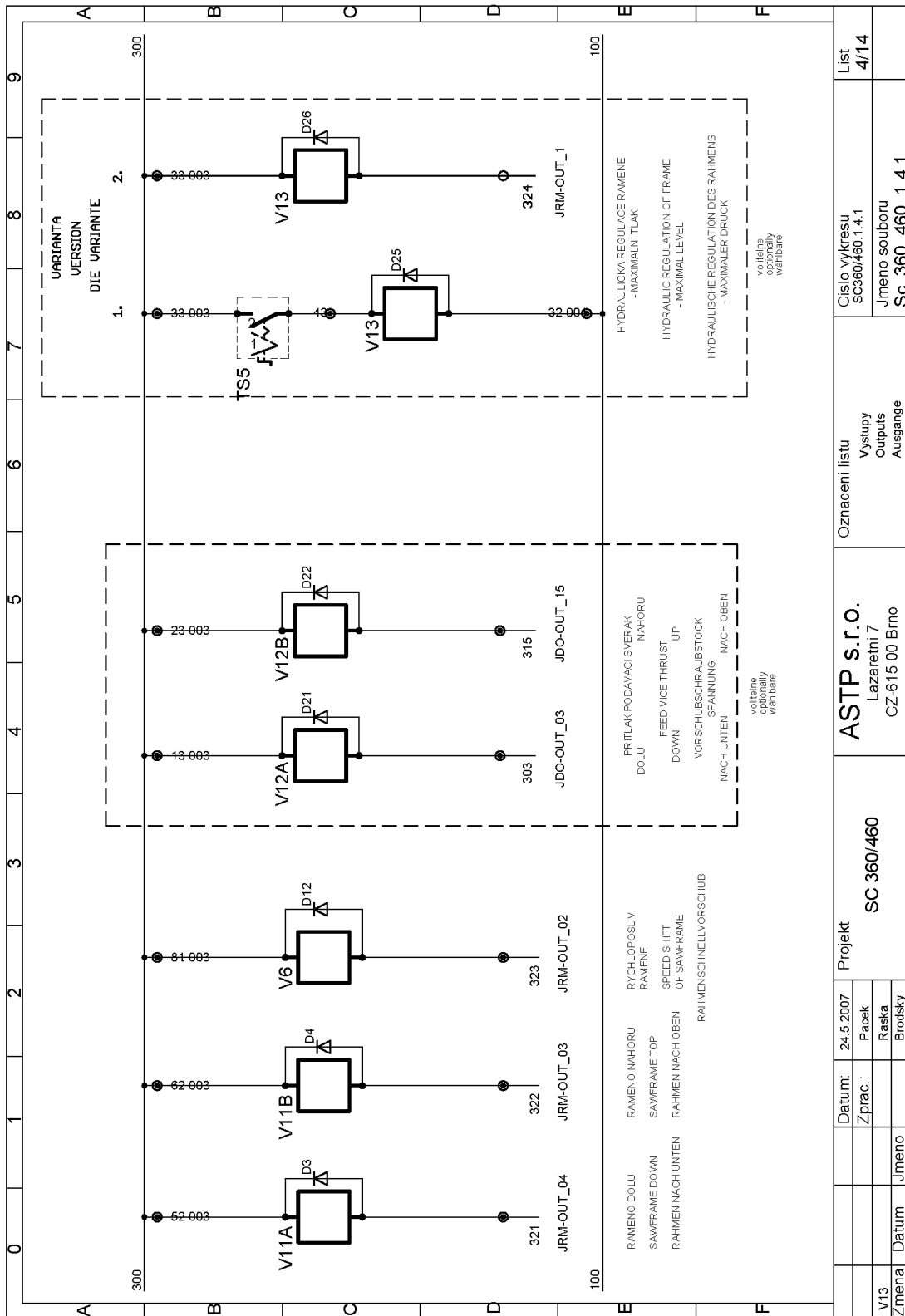
Rozměrové schéma / Aufstellzeichnung / Installation diagram



21.2. Elektrické schéma / Elektroschema / Wiring diagram

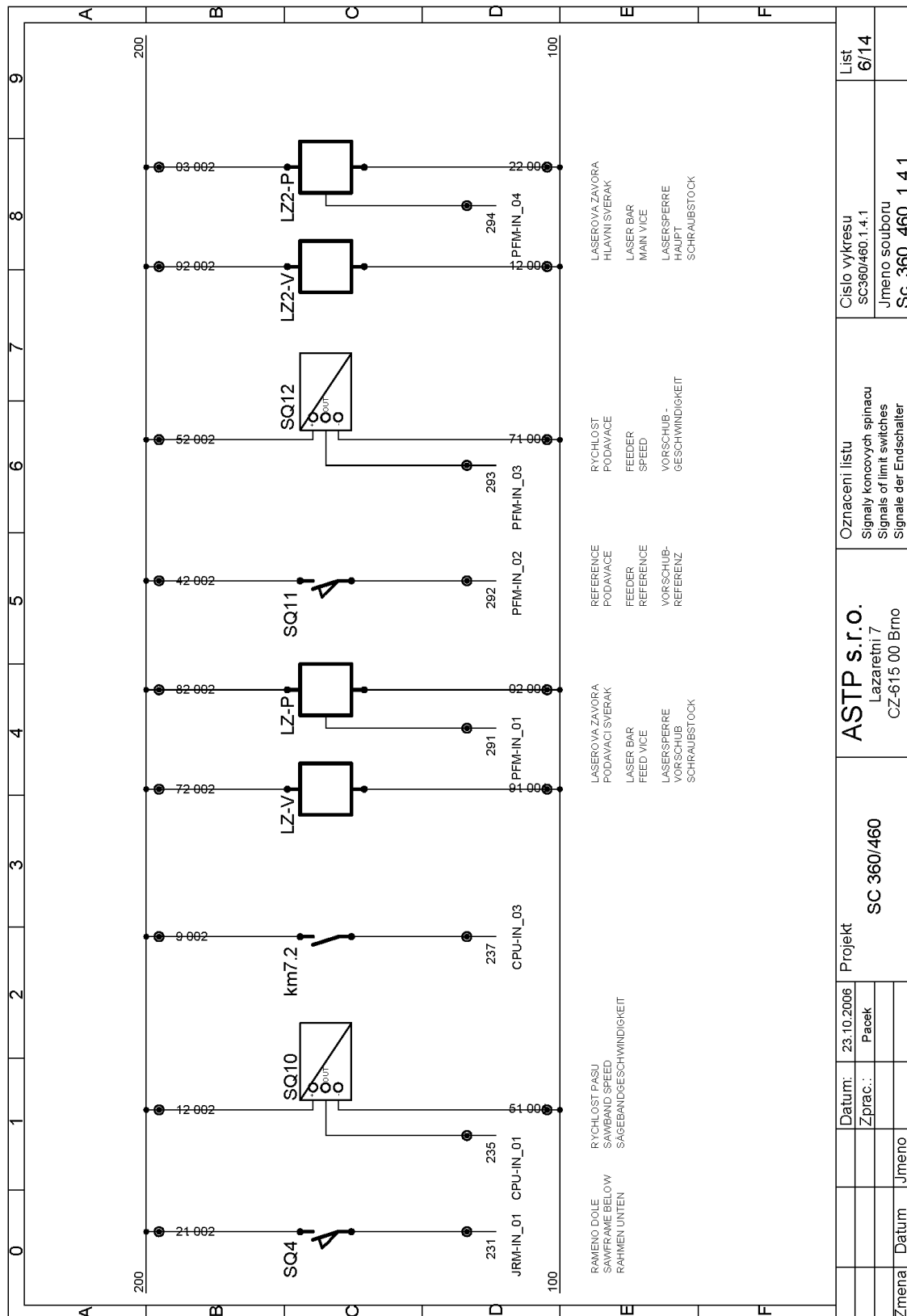


21.3. Elektrické schéma / Elektroschema / Wiring diagram

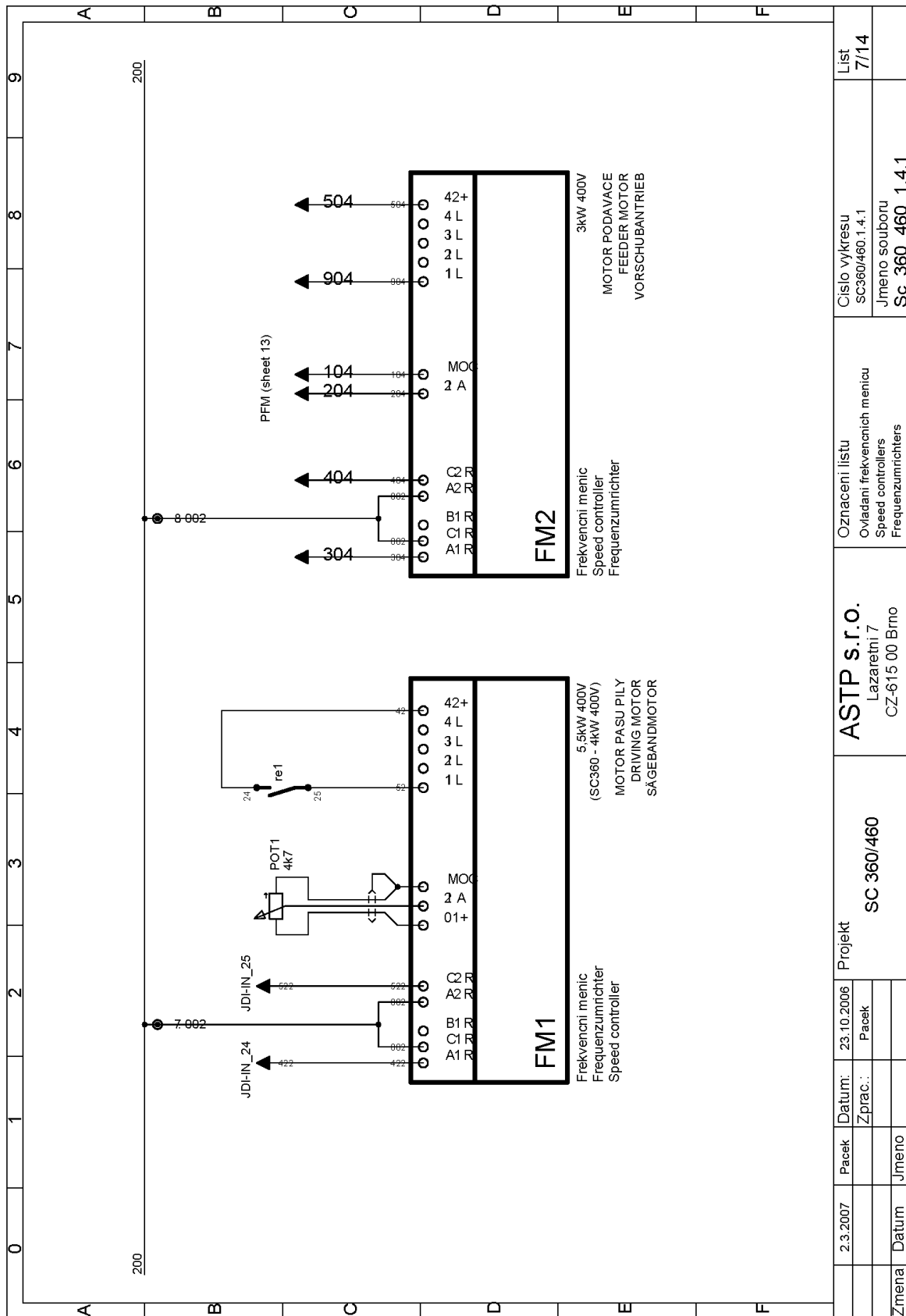


Změna		Datum	Jmeno	Projekt		ASTP s.r.o.		Oznaceni listu		Cislo vykresu		List	
V13		24.5.2007		SC 360/460		Lazaretni 7		Vystupy		SC360/460.1.4.1		4/14	
		Zprac.:				CZ-615 00 Brno		Outputs		Jmeno souboru			
		Raska						Ausgänge		SC 360 460 1.4.1			
		Brodsky											

21.4. Elektrické schéma / Elektroschema / Wiring diagram

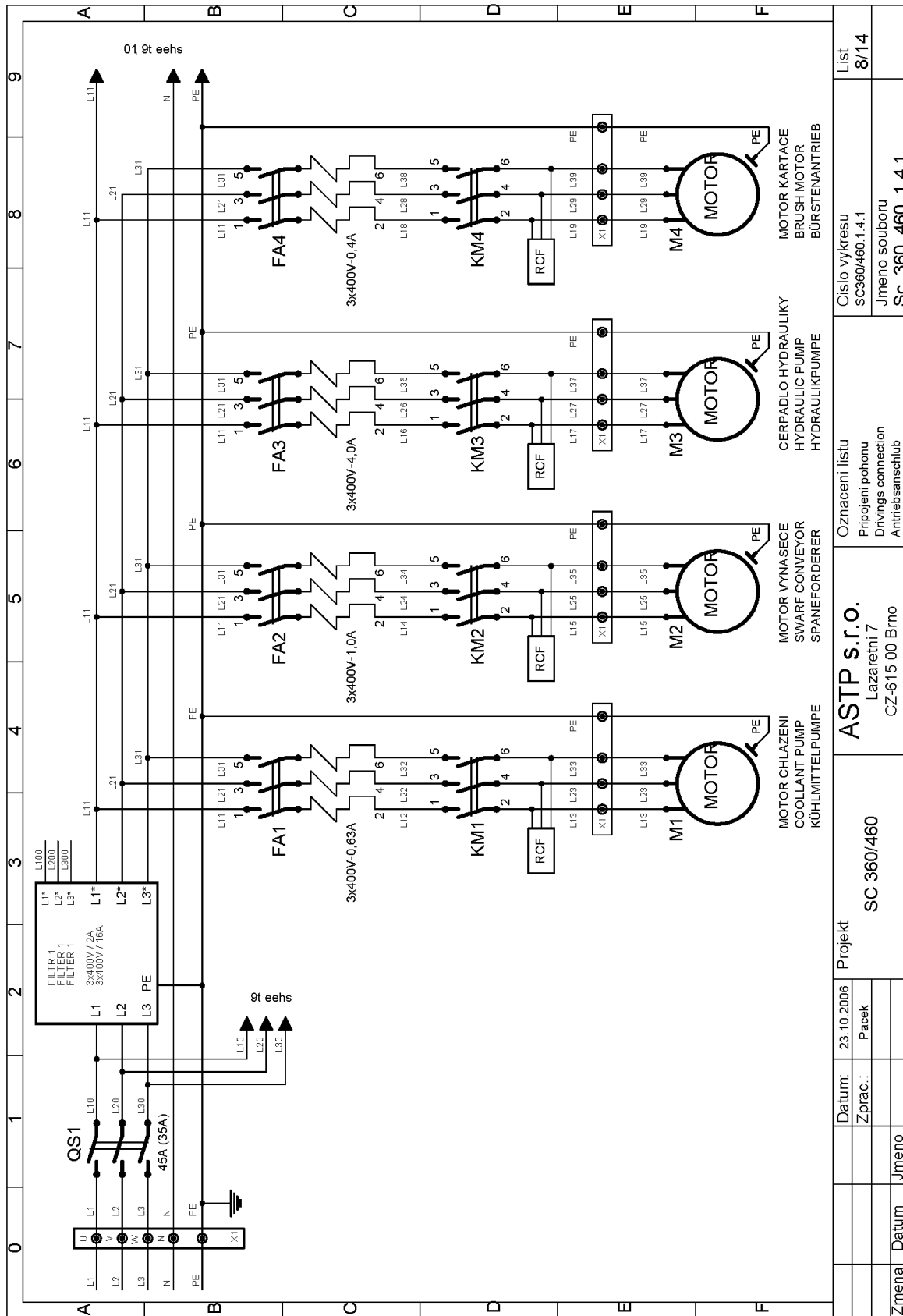


21.6. Elektrické schéma / Elektroschema / Wiring diagram

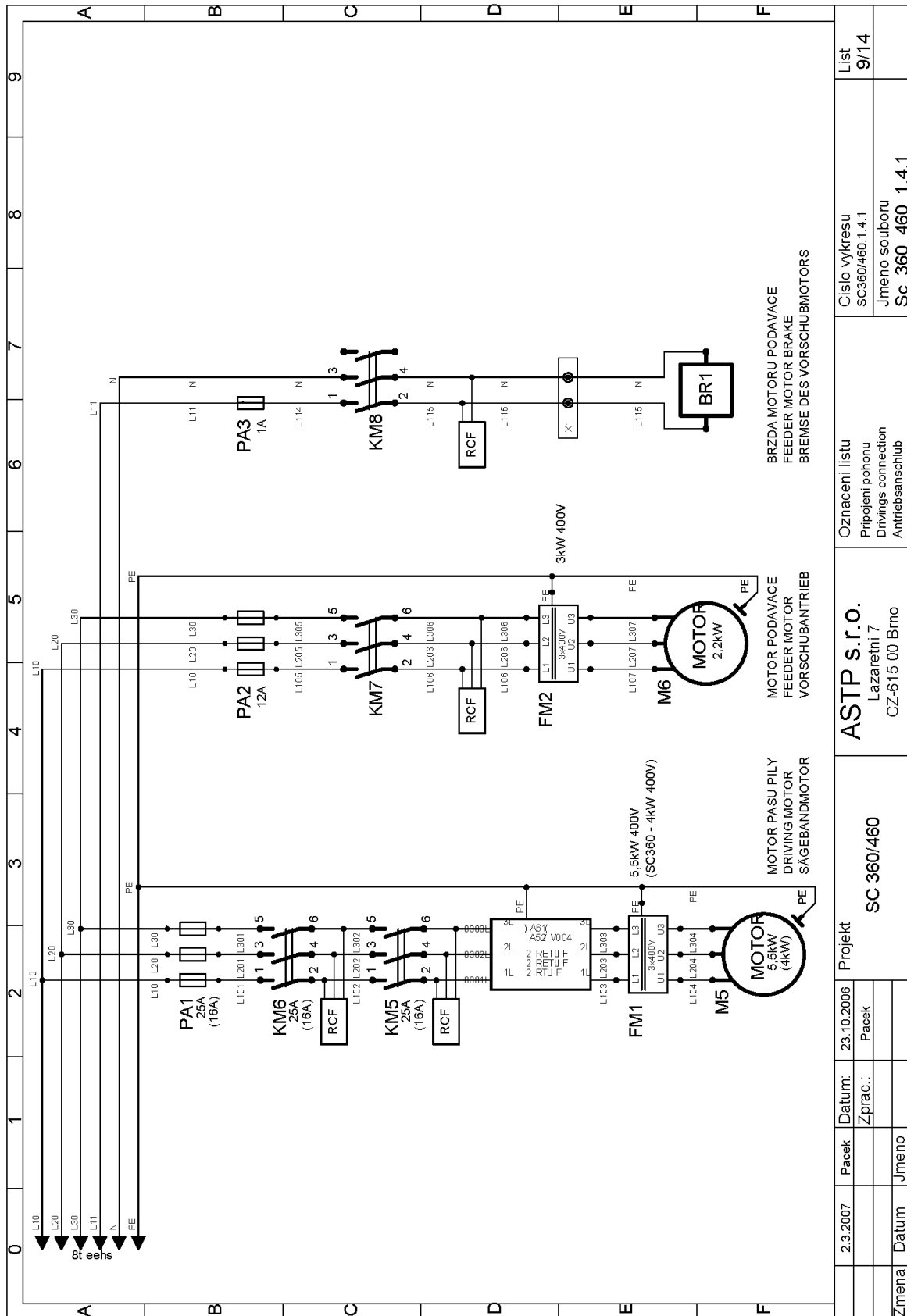


21.7. Elektrické schéma / Elektroschema / Wiring diagram

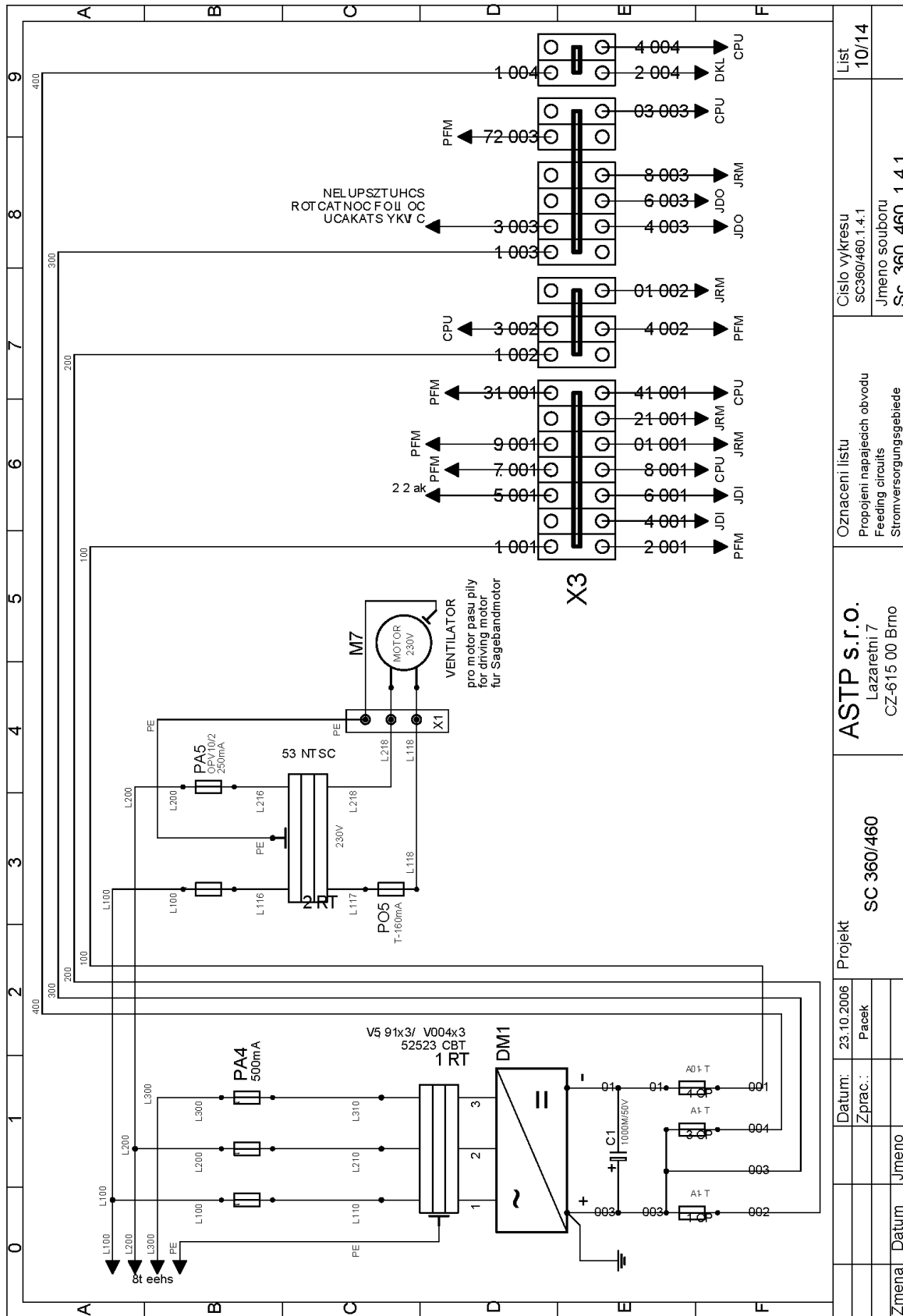
2.3.2007	Pacek	23.10.2006	Projekt	ASTP s.r.o. Lazaretní 7 CZ-615 00 Brno	Oznaceni listu Ovladani frekvencnich menicu Speed controllers Frekvenczumrichters	Cislo vykresu SC360/460.1.4.1 Jmeno souboru Sc_360_460_1.4.1	List 7/14
Zmena	Datum	Jmeno					



21.8. Elektrické schéma / Elektroschema / Wiring diagram

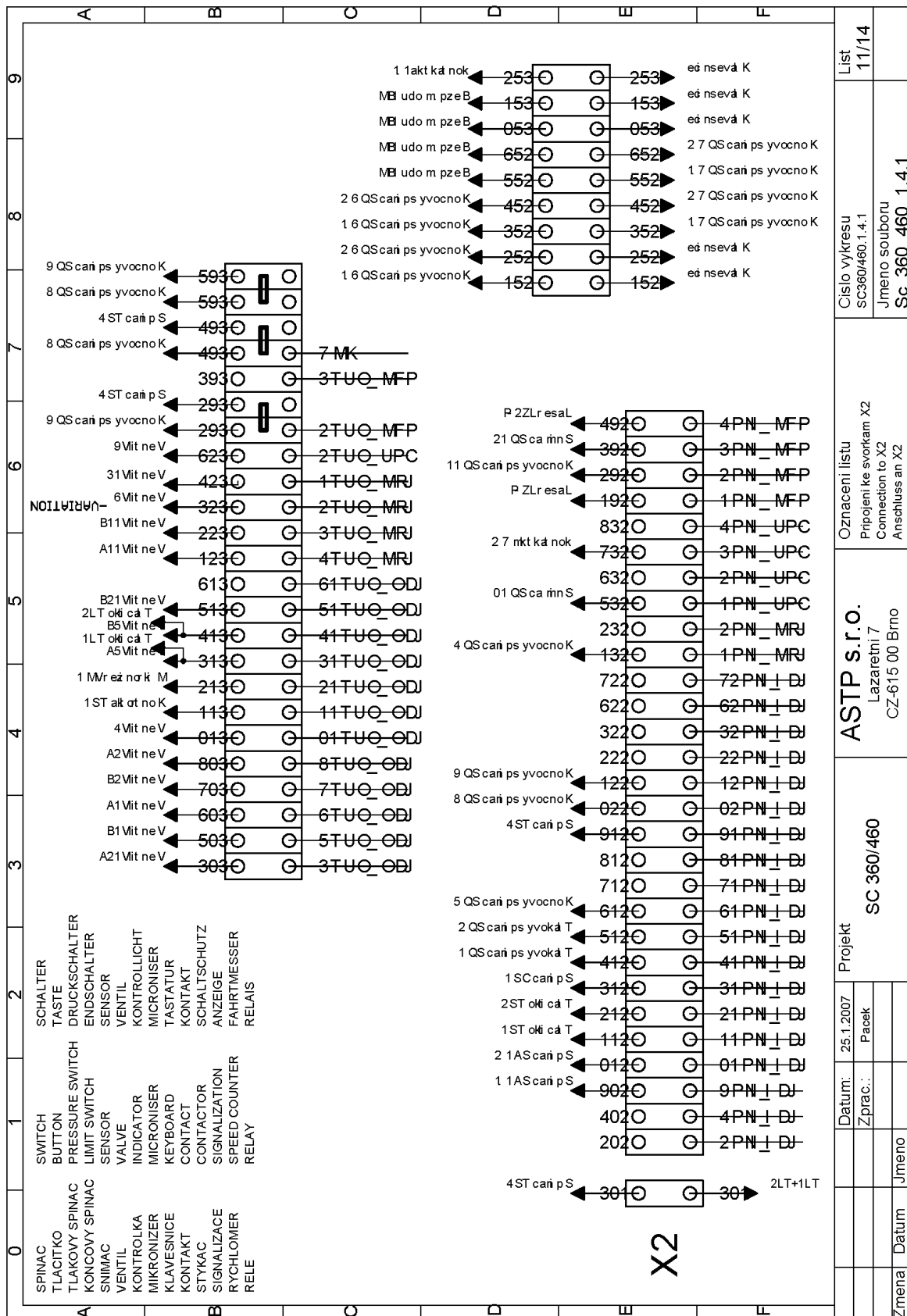


21.9. Elektrické schéma / Elektroschema / Wiring diagram



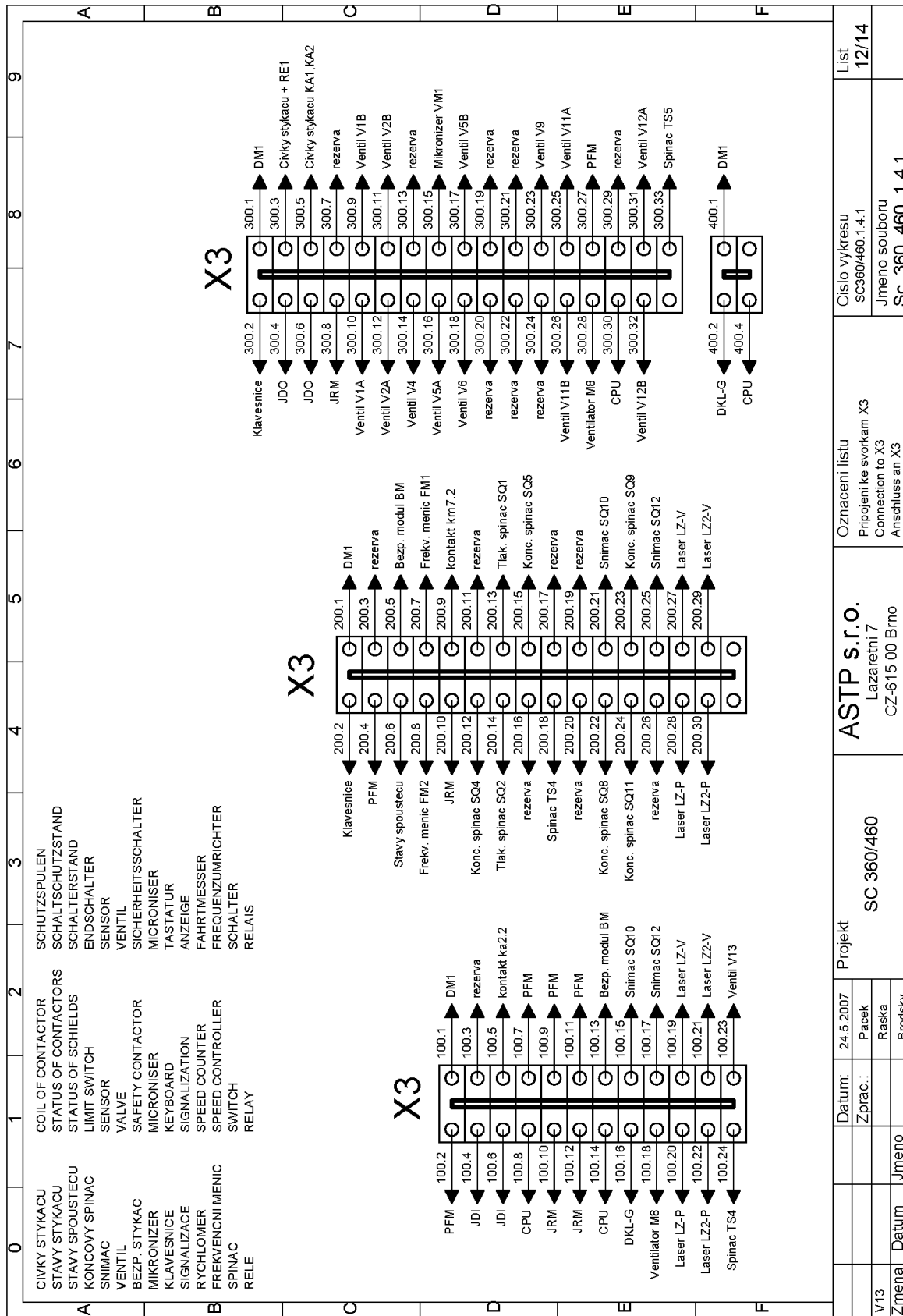
Datum: 23.10.2006		Projekt SC 360/460	ASTP s.r.o. Lazaretní 7 CZ-615 00 Brno	Označení listu Propojení napájecích obvodů Feeding circuits Stromversorgungsgebiete	Císlo vykresu SC360/460 1.4.1 Jméno souboru Sc_360_460_1.4.1	List 10/14
Zprac.: Pacek	Změna Datum					

21.10. Elektrické schéma / Elektroschema / Wiring diagram

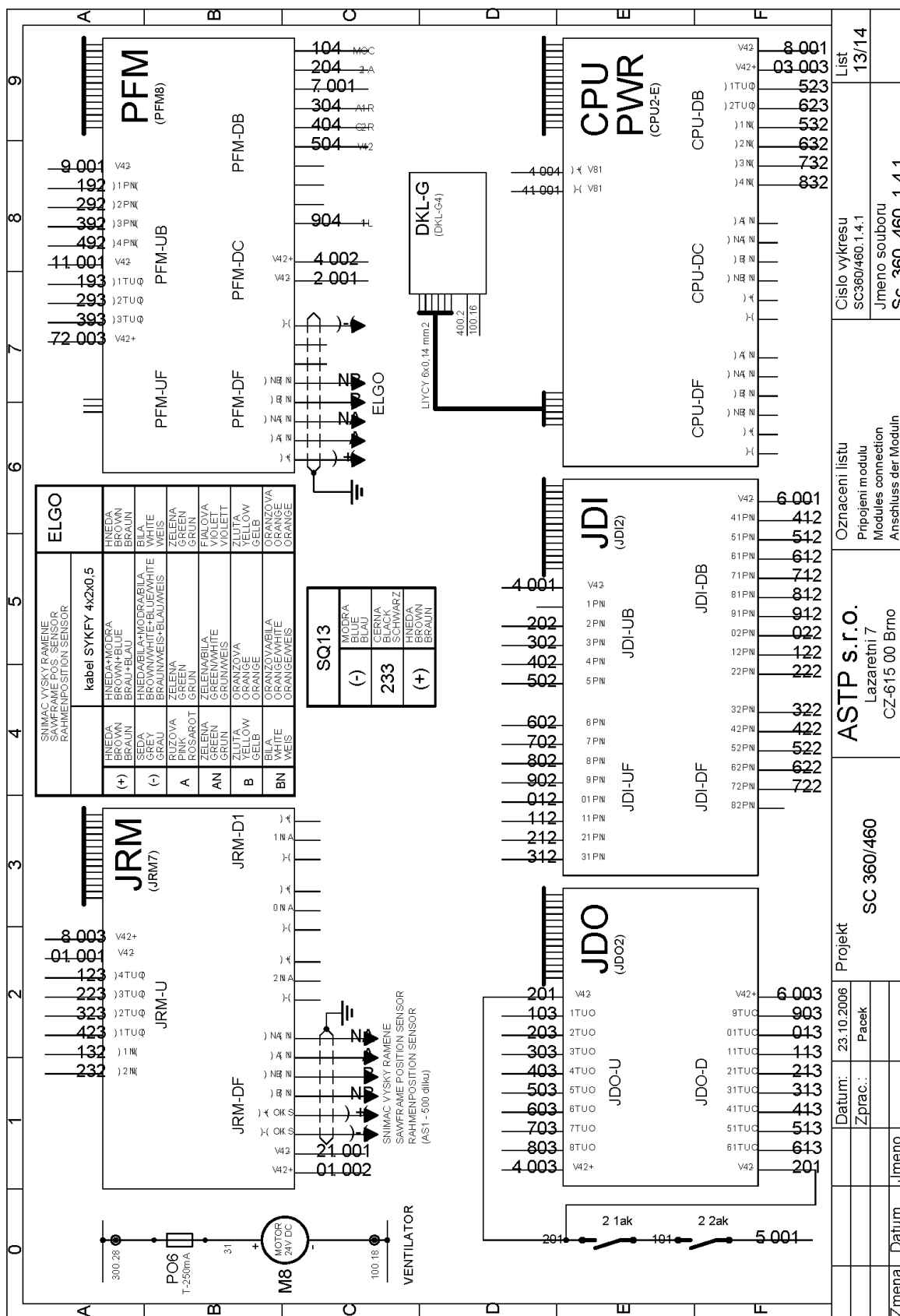


21.11. Elektrické schéma / Elektroschema / Wiring diagram

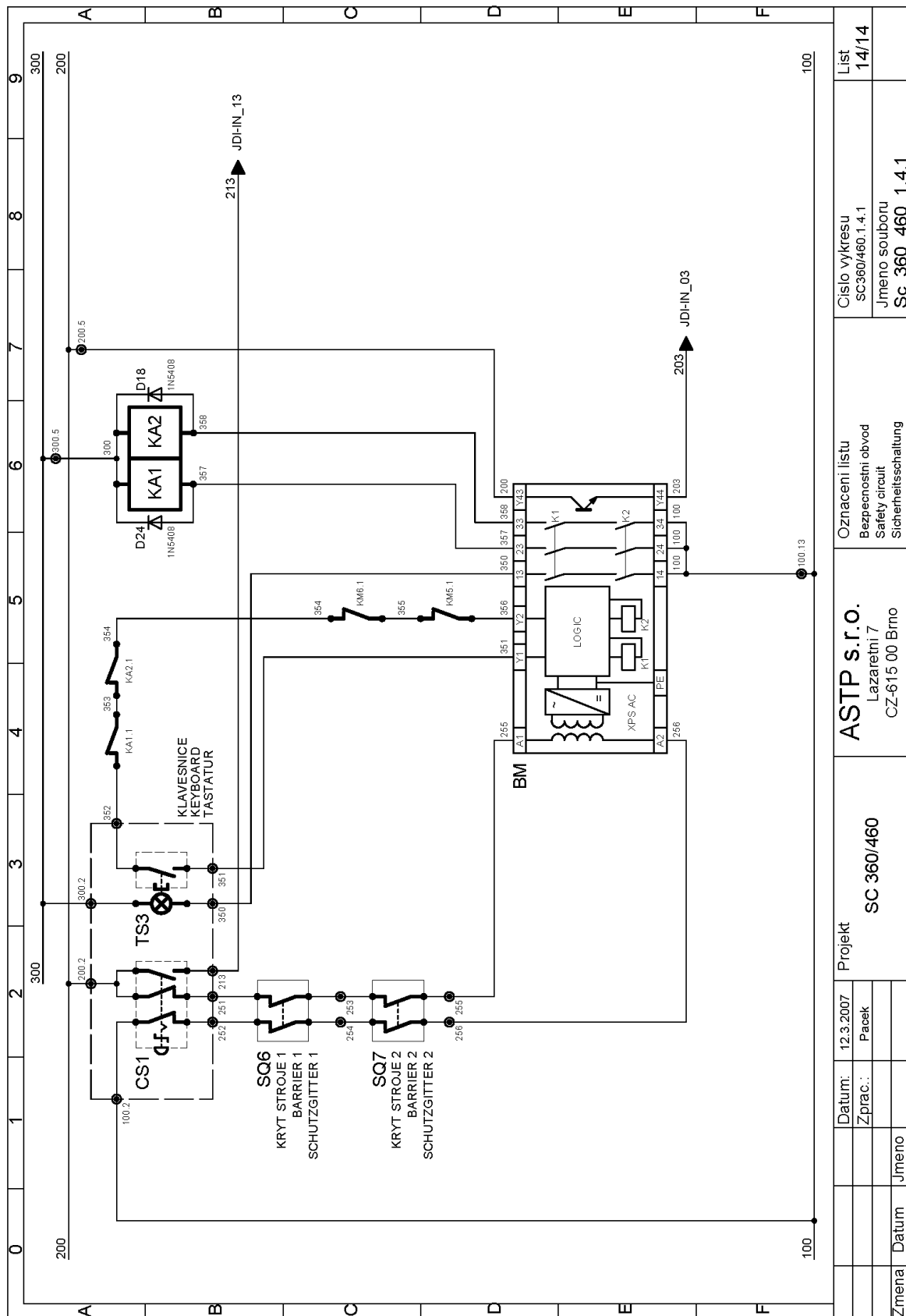
Císlo vykresu SC360/460.1.4.1 Jméno souboru SC_360_460_1.4.1	List 11/14
Oznacení listu Pripojení ke svorkám X2 Connection to X2 Anschluss an X2	
ASTP s.r.o. Lazaretní 7 CZ-615 00 Brno	
Projekt SC 360/460	
Datum: 25.1.2007 Zprac.: Jméno:	Pásek: Datum:



21.12. Elektrické schéma / Elektroschema / Wiring diagram



21.13. Elektrické schéma / Elektroschema / Wiring diagram



21.14. Elektrické schéma / Elektroschema / Wiring diagram

	0	1	2	3	4	5	6	7	8	9					
A	JDO - Signalizace stavu vystupu	16													
		15	Aktivovat pritikl podavacého sveraku nahoru												
		14	Napnout pas												
		13	Povolit pas												
		12	Aktivovat mikronizer												
		11	Aktivovat kontrolku aut. rezimu												
		10	Aktivovat druhy stufen cerpadla												
		9	Spustit frekvenci menic FM1 + motor kartace												
		8	Otevirit hlavni sverak												
		7	Upnout hlavni sverak												
		6	Otevirit podavaci sverak												
		5	Upnout podavaci sverak												
		4	Zapnout motor pasu												
		3	Aktivovat pritikl podavacého sveraku dolu												
		2	Zapnout motor vynasece												
		1	Zapnout motor chlazení												
B	JDI - Signalizace stavu vstupu		tlacitko uvolneno												
			tlacitko stisknuto												
		16	Pas pily je napnutý												
		15	Hlavni sverak upnut												
		14	Podavaci sverak upnut												
		13	Total stop aktivovan												
		12	Stop automatickeho rezimu												
		11	Start automatickeho rezimu												
		10	Aktivovano rucni ovladani												
		9	Aktivovano automaticke ovladani												
		8	Ochrana motoru kartace OK												
		7	Ochrana cerpadla hydrauliky OK												
		6	Ochrana motoru vynasece OK												
		5	Ochrana motoru chlazení OK												
		4	Podavac není vpředu												
		3	Bezpečnostní obvod uzavřen												
2															
1															
C	JRM - Signalizace stavu jednotky	12	Komunikace s CPU												
		11	Signal ze snimace vysky ramene												
		10	Komunikace s ATMEGA												
		9	Rameno je v klidu												
		8	Rameno je dole												
		7	Rameno bylo pri rezu dole												
		6	Rameno je nad materialem												
		5	Aktivace mereni vychylky pasu												
		4	Signal ze snimace vychylky pasu												
		3	Rychloposuv ramene												
		2	Rameno nahoru												
		1	Rameno dolu												
		D	PFM - Signalizace stavu jednotky	12											
				11	Zapnout motor podavace										
				10	Deaktivovat brzdu motoru podavace										
				9	Povel CPU - provadi se / chyba (blika)										
8	Komunikace s ATMEGA (blika)														
7	Komunikace s CPU (blika)														
6	Impuls snimace rychlosti podavace														
5	Laserova zavora zacionena														
4	Podavac je na spinaci reference														
3	FM2 zapnut														
2	Presnost polohovani														
1	Presnost polohovani														
E	CPU - Signalizace stavu jednotky			12	Napajeni 5V										
				11	Napajeni 5V-KOM										
				10	Interni CAN - TXD										
				9	Interni CAN - RXD										
		8	Externi CAN - TXD												
		7	Externi CAN - RXD												
		6	Chyba komunikace s LCD												
		5													
		4													
		3													
		2													
		1	Spojeni se vsemi jednotkami OK												
		F	ASTP s.r.o. Lazaretni 7 CZ-615 00 Brno	Oznaceni listu		Signalizace LED diod		Cislo vykresu		SC360/460.1.4.0		List			
												1/3			
				Projekt		SC 360/460		Oznaceni listu		Cislo vykresu		Jmeno souboru		Sc 360 460 1.4.0.indic	
				Datum: 25.1.2007		Pacek		Lazaretni 7		Cislo vykresu		Jmeno souboru		Sc 360 460 1.4.0.indic	
Zprac.:						CZ-615 00 Brno		Cislo vykresu		Jmeno souboru		Sc 360 460 1.4.0.indic			
Zmena				Datum		Jmeno		Cislo vykresu		Jmeno souboru		Sc 360 460 1.4.0.indic			

21.15. Elektrické schéma / Elektroschema / Wiring diagram

	0	1	2	3	4	5	6	7	8	9		
A	JDO - Output State Signalization											
	16											
	15	Activate the thrust of feeding gripper up										
	14	Tighten the sawband										
	13	Leave the sawband										
	12	Activate the microniser										
	11	Switch on the aut. cycle indicator										
	10	Shift the pump into second stage										
	9	Start up speed controller FM1 + brush motor										
	8	Open the main gripper										
	7	Close the main gripper										
	6	Open the feeding gripper										
	5	Close the feeding gripper										
	4	Turn on the band motor										
	3	Activate the thrust of feeding gripper down										
	2	Turn on the swarf-removal motor										
1	Turn on the cooling motor											
B	JDI - Input State Signalization											
		button released										
		button pushed										
	16	The sawband is tight										
	15	Main gripper is closed										
	14	Feeding gripper is closed										
	13	Total stop activated										
	12	Automatic mode stopped										
	11	Automatic mode started										
	10	Manual control activated										
	9	Automatic control activated										
	8	Brush motor protection is OK										
	7	Hydraulic pump protection is OK										
	6	Swarf-removal motor protection is OK										
	5	Cooling motor protection is OK										
	4	The feeder is not back										
3	The feeder is not front											
2	DEBLOCK activated											
1												
C	JRM - Unit State Signalization											
	12	Communication with CPU										
	11	Signal from arm-position sensor										
	10	Communication with ATMEGA										
	9	Arm is inactive										
	8	Arm is down										
	7	Arm was down during cutting										
	6	Arm is over the material										
	5	Band deflection metering activation										
	4	Signal from band deflection sensor										
	3	High speed move										
	2	Put the arm up										
	1	Put the arm down										
	D	PFM - Unit State Signalization										
		12										
		11	Turn on the feeder motor									
10		Deactivate the feeder motor brake										
9		CPU command - in progress / error (blink)										
8		Communication with ATMEGA (blink)										
7		Communication with CPU (blink)										
6		Feeder speed sensor impulse										
5		Laser beam is broken										
4		Feeder is on reference switch										
3		FM2 set on										
2		Position control accuracy										
1		Position control accuracy										
E		CPU - Unit State Signalization										
		12	Voltage 5V									
		11	Voltage 5V-KOM									
	10	Internal CAN - TXD										
	9	Internal CAN - RXD										
	8	External CAN - TXD										
	7	External CAN - RXD										
	6	Communication error with LCD										
	5											
	4											
	3											
	2											
	1	Connection with all units OK										
	F	JRM - Unit State Signalization										
		12	Communication with CPU									
		11	Signal from arm-position sensor									
10		Communication with ATMEGA										
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3		High speed move										
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Oznaceni listu Description of LED diodes signalization												
Cisto vykresu SC360/460.1.4.0												
Jmeno souboru Sc_360_460_1.4.0_indic												
List 2/3												
Projekt SC 360/460												
ASTP s.r.o. Lazaretni 7 CZ-615 00 Brno												
Zmena	Datum	Jmeno	Datum:	25.1.2007								
			Zprac.:	Pacek								

21.16. Elektrické schéma / Elektroschema / Wiring diagram

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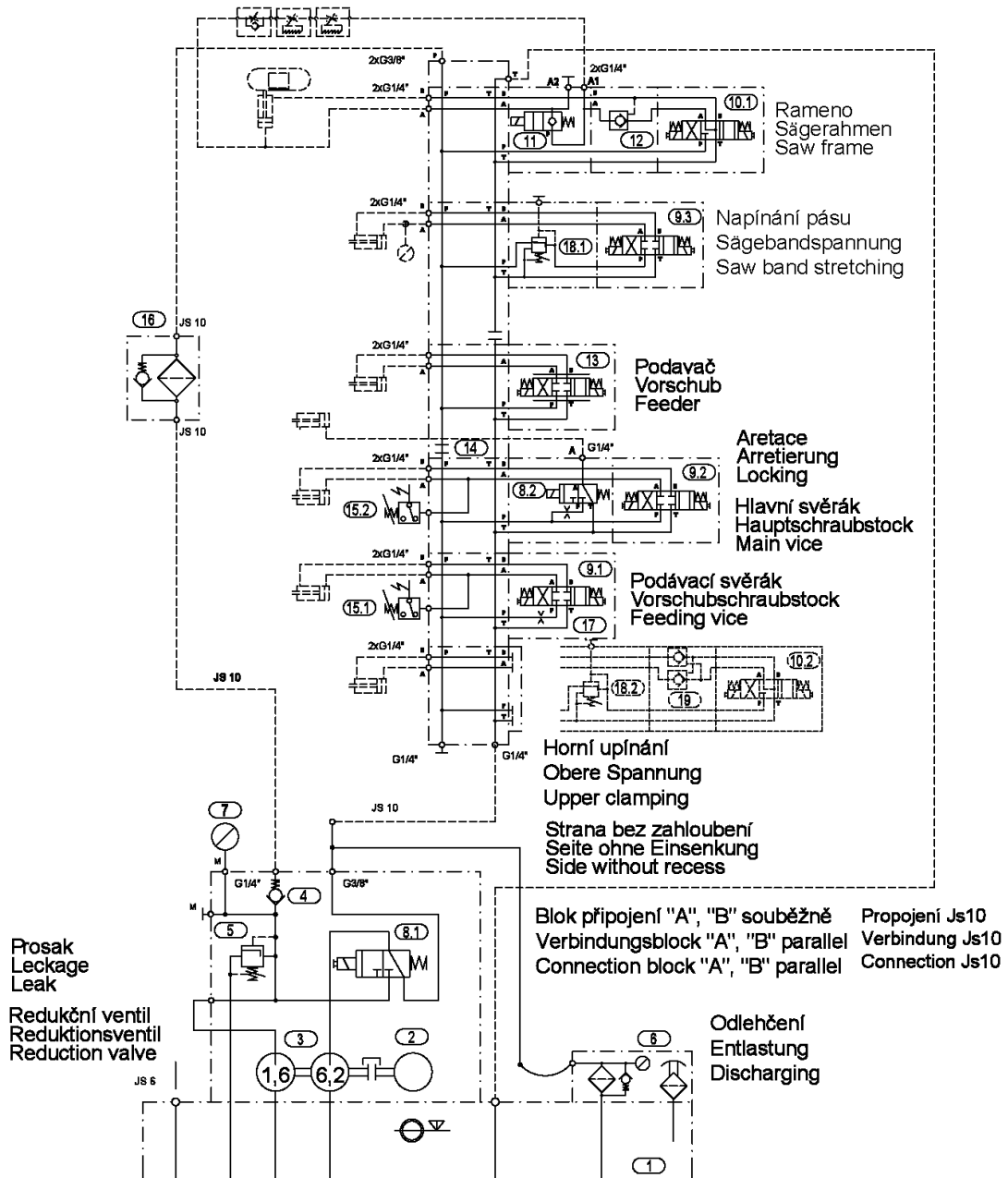
21.17. Elektrické schéma / Elektroschema / Wiring diagram

22. Kusovník elektrosoučástí / Stückliste der Elektroteilen / Piece list of electroparts

ATTENTION! Only qualified person can do the servicing and repairs. For parts changing, use only parts, which are identical with the originals.

Bestell - Nr.	Bezeichnung		Menge	Sign.
Objednací číslo	Název položky		ks	Ozn.
Reference No.	Item		Pcs.	Sign.
91.010.0007	Frekvenční měnič / Frequenzwandler / Frequency convertor	ATV-31HU30N4 (3kW/3x400V)	1	FM2
91.001.055	Elektromotor/ Elektromotor / Electromotor	1LA7113-4AA12 4kW	1	M1
91.280.002	Diodový můstek/ Diodenbrücke / Diode bridge	DB 25A 280V	1	DM1
91.080.022	Transformator / Transformator / Transformator	TBC-32525-019	1	TR
91.041.004	Filtr / Filter / Filter	FZ72460	8	RCF
	Stykač / Schütz / Contactor	LP1K0901BD 24Vss	8	KM
91.045.003	Motorový spouštěč / Motor Starter / Motor Starter	MS116-0,4A (ABB)	1	FA3
91.045.005	Motorový spouštěč / Motor Starter / Motor Starter	MS116-1,0A (ABB)	1	FA1
91.045.004	Motorový spouštěč / Motor Starter / Motor Starter	MS116- 0,63 (ABB) (u3x400V)	1	FA2
91.045.008	Motorový spouštěč / Motor Starter / Motor Starter	MS116 -4,0A (ABB) (u3x230V)	1	FA3
91.046.002	Motorový spouštěč / Motor Starter / Motor Starter	HK1-11(ABB)	4	FA1
91.995.039	Modul / Modul / Modul	JDI-2/2	1	JDI
91.995.040	Modul / Modul / Modul	JDO-2	1	JDO
91.995.042	Modul / Modul / Modul	JRM7	1	DKL
91.995.051	Modul / Modul / Modul	PFM8	1	PFM
91.995.060	Modul / Modul / Modul	CPU2-E	1	CPU

23. Hydraulické schéma / Hydraulikschemata / Hydraulic diagram



Základní technické parametry:
 Technische Spezifikation:
 Technical specification:

Q	8+2,1	dm ³ ·min ⁻¹	n	1410	min ⁻¹
P _{max}	4	MPa	P	1,1	kW

Hydraulické schéma:
 Hydraulikschemata:
 Hydraulic diagram:

731-0470

Schéma / Schema / Diagram: 7310470A.DWG
 Datum / Datum / Date: 6. 12. 2004

Hydraulické schéma / Hydraulikschemata / Hydraulic diagram

Poz.	Název položky		ks
Pos.	Bezeichnung		Menge
Pos.	Item		Pcs.
1	Nádrž / Behälter / Tank	N20 - BO	1
2	Elektromotor / Elektromotor / Electromotor	MA-AL90S-4	1
3	Hydrogenerátor / Hydraulikgenerator / Hydrogenerator	P2-6,2/1,6L.66313	1
4	Jednosměrný ventil / Einwegventil / One-way valve	VJO1-06/SG-1	1
5	Přepouštěcí ventil / Bypassventil / By pass valve	VPP2-04/S-6S	1
6	Filtr / Filter / Filter	FR 043-166/0 + DG200-06	1
	Vložka ve filtru / Filtereinsatz / Filter inset	V3.0510-56	1
7	Manometr / Manometer / Manometer	0-10 MPa	1
8	Rozváděč / Verteilung / Distributor	ROX1-042D21/02400E1K1	2
9	Rozváděč / Verteilung / Distributor	RPE3-043Z11/02400E1K1	3
10	Rozváděč / Verteilung / Distributor	RPE3-043Y11/02400E1K1	2
11	Blok rychloposuvu / Eilgangsblock / Speed shift block	729-0084	1
12	Hydraulický zámek / Hydraulisches Schloß / Hydraulic lock	VJR1-04/MA	1
13	Proporcionální rozváděč / Wege-Proportionalventil / Proportional distributor	PRM2-043Z11/04-24 MIKRO	1
14	Zátka / Stopfen / Stopper	M6	1
15	Tlakový spínač / Druckschalter / Pressure switch	SUCO 0166 411 031 043	2
16	Tlakový filtr / Druckfilter / Pressure filter	D 042-153	1
	Vložka ve filtru / Filtereinsatz / Filter inset	V3.0510-03	1
17	Tryska / Düse / Nozzle		1
18	Redukční ventil / Reduktionsventil / Control valve	VRP2-04-PS/6,3	2
19	Hydraulický zámek / Hydraulisches Schloß / Hydraulic lock	VJR1-04/MC	1

Indication of hydraulic hose:

Hydr. Hose	hose	forging	terminal A	B	C	D	E	F	G	piece
6BA6600	42.001.001	92.051.001	92.052.001	92.053.001	-	-	-	-	-	2
6BA2000	42.001.001	92.051.001	92.052.001	92.053.001	-	-	-	-	-	1
6FE2700	42.001.001	92.051.001	-	-	-	-	93.012.004	93.012.006	-	1
6AE7300	42.001.001	92.051.001	92.052.001	-	-	-	93.012.004	-	-	1
6AF8000	42.001.001	92.051.001	92.052.001	-	-	-	-	93.012.006	-	1
6AA2200	42.001.001	92.051.001	92.052.001	-	-	-	-	-	-	1
6BA1100	42.001.001	92.051.001	92.052.001	92.053.001	-	-	-	-	-	1
6BA970	42.001.001	92.051.001	92.052.001	92.053.001	-	-	-	-	-	1
10BA450	42.003.001	92.051.003	92.052.002	92.053.002	-	-	-	-	-	1
10BB700	42.003.001	92.051.003	-	92.053.002	-	-	-	-	-	1
10BA500	42.003.001	92.051.003	92.052.002	92.053.002	-	-	-	-	-	1
10BA600	42.003.001	92.051.003	92.052.002	92.053.002	-	-	-	-	-	1
10BA350	42.003.001	92.051.003	92.052.002	92.053.002	-	-	-	-	-	1
10BA350	42.003.001	92.051.003	92.052.002	92.053.002	-	-	-	-	-	1
3AA2100	42.004.001	92.051.004	92.052.003	-	-	-	-	-	-	1
3AA2300	42.004.001	92.051.004	92.052.003	-	-	-	-	-	-	1
3AA2500	42.004.001	92.051.004	92.052.003	-	-	-	-	-	-	2
3AA700	42.004.001	92.051.004	92.052.003	-	-	-	-	-	-	1
3AA900	42.004.001	92.051.004	92.052.003	-	-	-	-	-	-	1
3AA6050	42.004.001	92.051.004	92.052.003	-	-	-	-	-	-	1
3AA8000	42.004.001	92.051.004	92.052.003	-	-	-	-	-	-	1

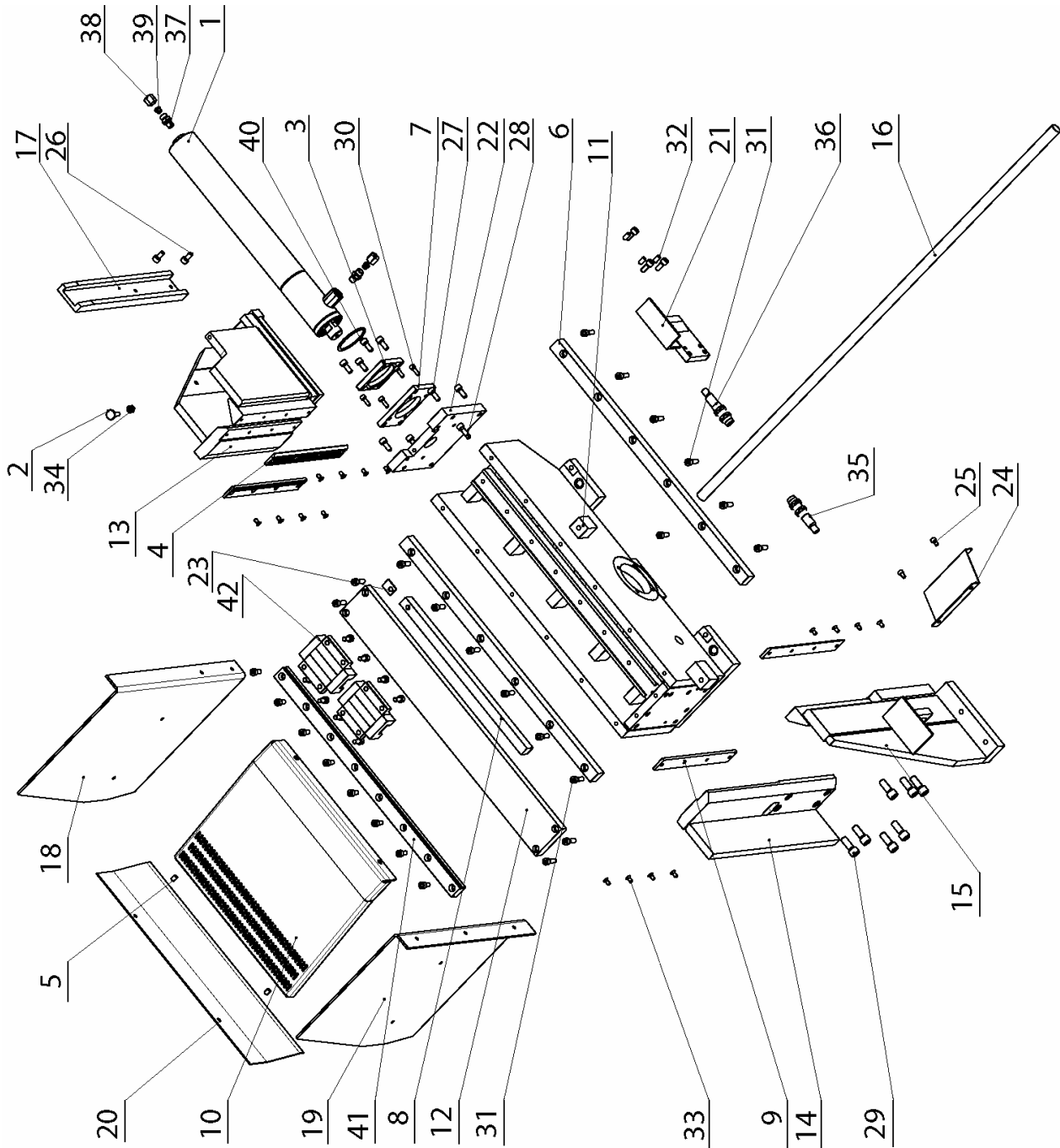
Horní přítlak / Obere Andruck / Top pressure									
6AA1650	42.001.001	92.051.001	92.052.001	-	-	-	-	-	2

24. Výkresy sestav pro objednání náhradních dílů / Zeichnungen für Bestellung der Ersatzteile / Drawing assemblies for spare parts order

Při objednávání náhradních dílů vždy uvádějte: typ stroje (např. STG 120), výrobní číslo (např. 125) a rok výroby (např. 1999).

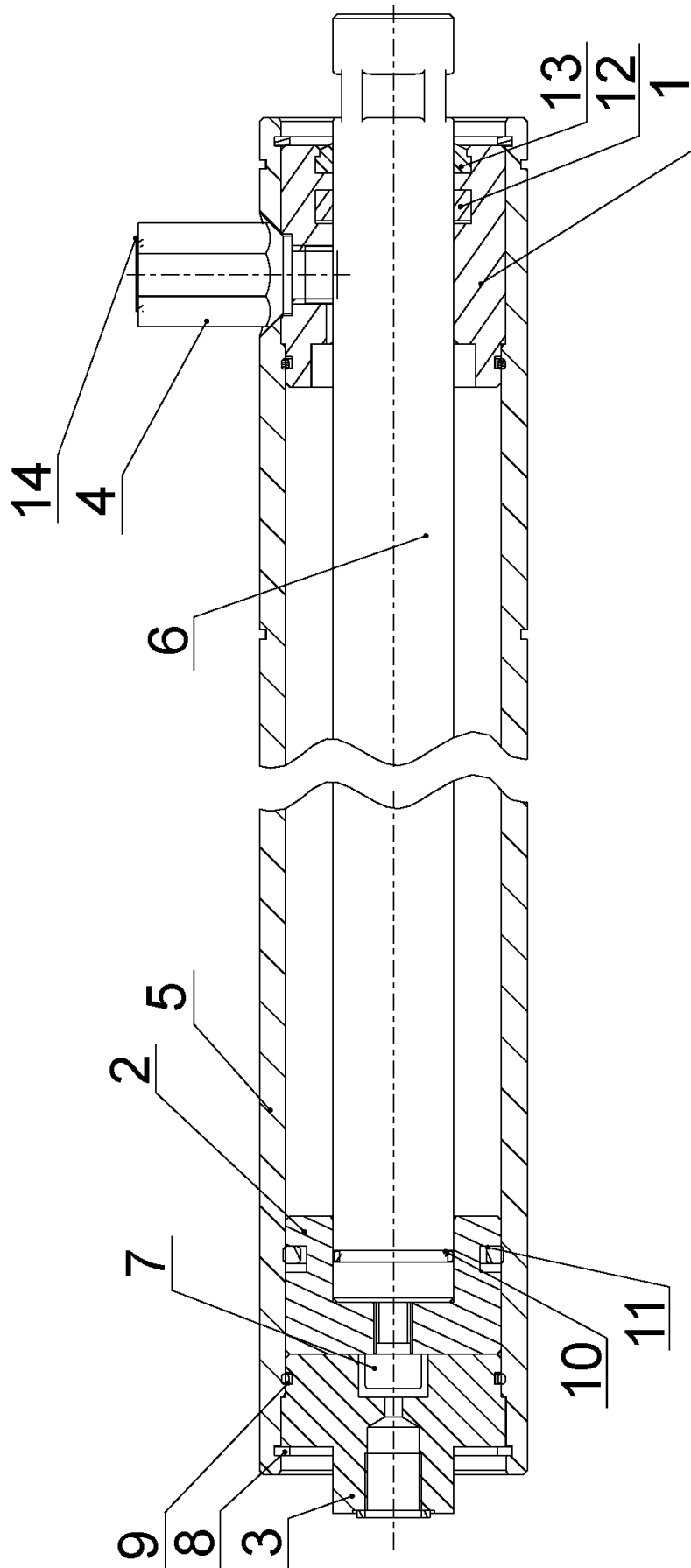
In die Bestellung der Ersatzteile führen Sie immer an:
Maschinentyp (z. B. STG 120), Serien Nr. (z. B. 125) und
Baujahr (z. B. 1999).

For spare parts order, you must always to allege: type of
machine (for example STG 120), serial number (for example 125)
and year of construction (for example 1999).



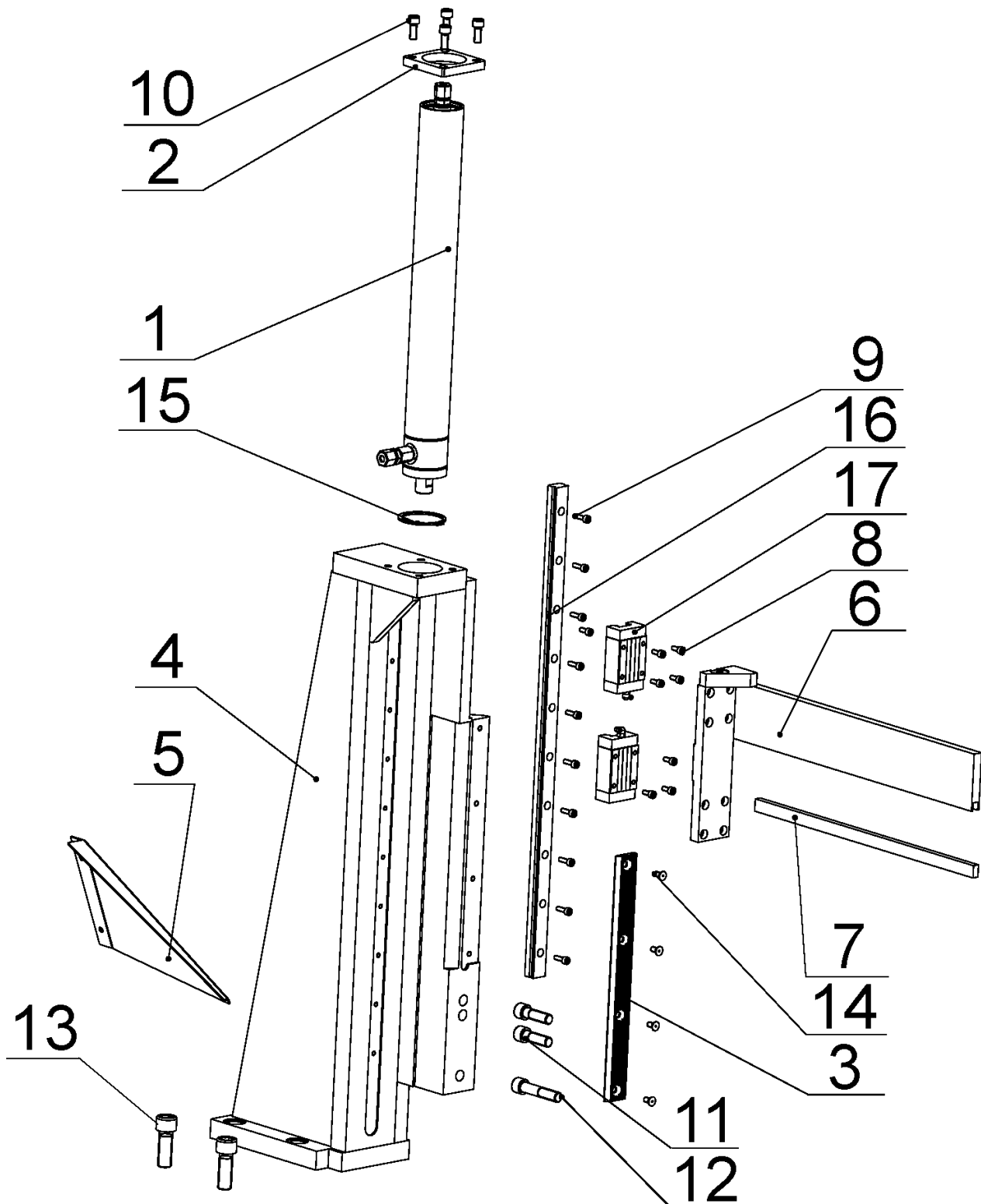
24.1. Hlavní svěrák / Hauptschraubstock / Main vice

Pos.	Obj. č.	Název položky		ks
Poz.	Bestell - Nr.	Bezeichnung		Menge
Pos.	Ref. No.	Item		Pcs.
1	201.6607-000	Válec svěráku / Schraubstockzylinder / Vice cylinder		1
2	30.0702-013	Šroub / Schraube / Screw		1
3	30.2011-010	Příložka / Lasche / Splice plate		1
4	30.2911-025	Lišta / Leiste / Listel		2
5	30.3509-015	Trubka distanční / Distanzrohr / Distance tube		2
6	30.6603-002	Lišta / Leiste / Listel		2
7	30.6603-007	Podložka / Scheibe / Washer		1
8	30.6603-008	Lišta / Leiste / Listel		1
9	30.6603-018	Lišta čelisti / Backenleiste / Jaw listel		2
10	30.6603-122	Rošt / Gitter / Hake		1
11	30.6603-301	Svěrák / Schraubstock / Vice		1
12	30.6603-303	Lišta / Leiste / Listel		1
13	30.6603-304	Čelist svěráku / Backe / Vice jaw		1
14	30.6603-305	Čelist pevná / Feste Backe / Fixed jaw		1
15	30.6603-307	Čelist pevná / Feste Backe / Fixed jaw		1
16	30.6603-311	Tyč odměřování / Abmessungsstange / Measuring bar		1
17	30.6603-312	Vodící lišta / Führungsleiste / Guiding listel		1
18	30.6603-314	Bočnice / Seitenteil / Side plate		1
19	30.6603-315	Bočnice / Seitenteil / Side plate		1
20	30.6603-316	Skluz / Rutsch / Glide		1
21	30.6603-319	Držák / Halter / Holder		1
22	30.6703-006	Deska / Platte / Plate		1
23	30.6703-009	Podložka / Scheibe / Washer		1
24	30.6703-305	Skluz / Rutsch / Glide		1
25	90.001.25.015	Šroub / Schraube / Screw	6x10 DIN 912 8,8	2
26	90.001.25.031	Šroub / Schraube / Screw	8x16 DIN 912 8,8	2
27	90.001.25.032	Šroub / Schraube / Screw	8x20 DIN 912 8,8	27
28	90.001.25.033	Šroub / Schraube / Screw	8x25 DIN 912 8,8	2
29	90.001.25.058	Šroub / Schraube / Screw	12x30 DIN 912 8,8	7
30	90.001.25.076	Šroub / Schraube / Screw	6x18 DIN 912 8,8	4
31	90.001.25.083	Šroub / Schraube / Screw	8x30 DIN 912 8,8	16
32	90.002.2D.012	Šroub stavěcí / Stellschraube / Setscrew	8x16 DIN 912 8,8	3
33	90.008.50.006	Šroub zápuštný / Countersunk screw / Senkschraube	6x12 DIN 965 4,8	16
34	90.100.55.005	Matice / Mutter / Nut	8 DIN 934	1
35	91.400.001	Snímač / Sensor / Sensor	BLE	1
36	91.400.002	Snímač / Sensor / Sensor	BLS	1
37	92.002.001	Šroubení přímé / Gerade Verschraubung / Straight screwing	GES 08LR	2
38	92.013.001	Matice / Mutter / Nut	M 08L	2
39	92.014.001	Těsnicí kroužek / Dichtungsring / Rubber O-ring	P-R 08L/S 3724	2
40	95.800.021	Kroužek pojistný vnější / Außen Sicherungsring / Outer Lock ring	d62 DIN 471	1
41	99.200.060	Lineární vedení / Führung / Guiding	HGR30R-584 e=12	1
42	99.201.007	Vozík / Wagen / Carriage	HGW30CC	2



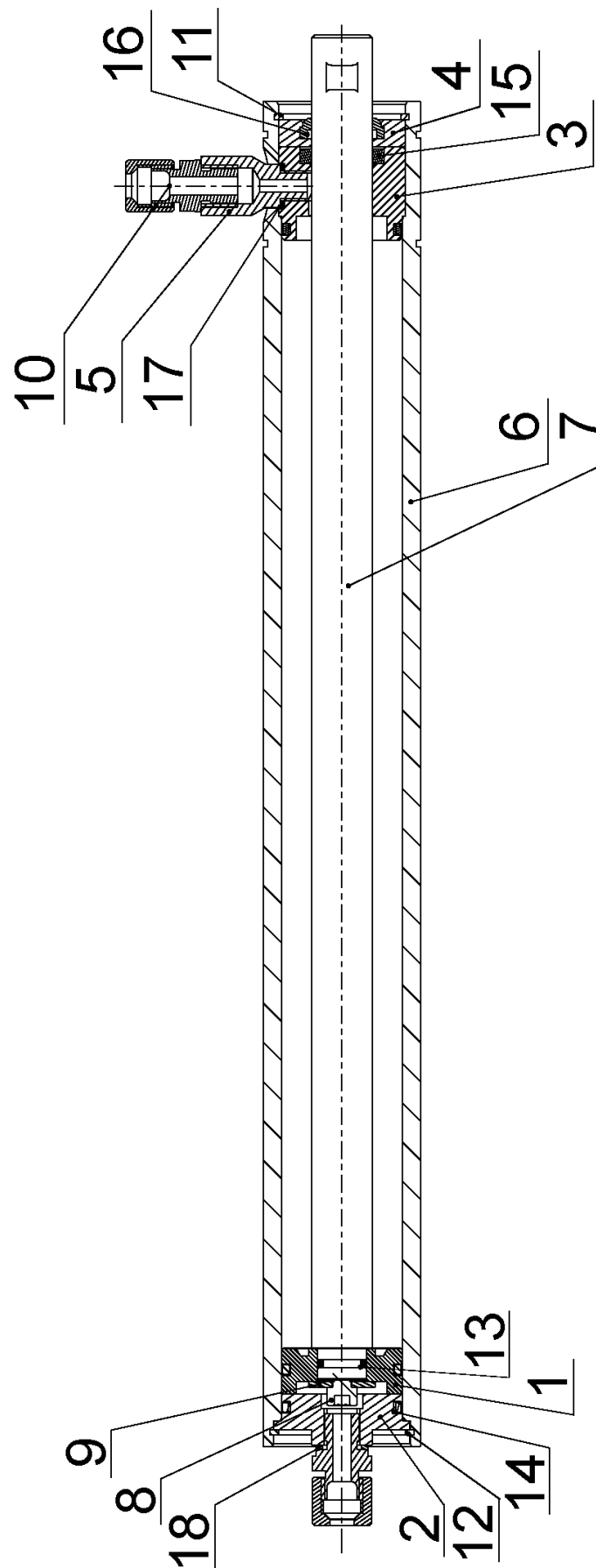
24.2. Upínací válec hlavního svěráku / Spannzyylinder des Hauptschraubstockes /
Main vice clamping cylinder

Poz.	Objednací číslo	Název položky	ks
Pos.	Bestell - Nr.	Bezeichnung	Menge
Pos.	Reference No.	Item	Pcs.
1	30.1807-104	Přívod / Zufuhr / Inflow	1
2	30.2007-302	Píst / Kolben / Piston	1
3	30.2007-304	Víko / Deckel / Cover	1
4	30.2011-011	Šroubení / Schraubung / Screwing	1
5	30.6607-001	Válec / Zylinder / Cylinder	1
6	30.6607-002	Pístnice / Kolbenstange / Piston rod	1
7	90.001.25.032	Šroub / Schraube / Screw M8x25 DIN 912	1
8	95.801.009	Pojistný kroužek / Sicherungsring / Retaining ring Ø52 DIN 472	2
9	96.001.013	O kroužek / O Ring / O Ring 45x2	2
10	96.002.011	O kroužek / O Ring / O Ring 24x2	1
11	96.020.005	Q kroužek / Q Ring / Q Ring QRAR N7004	1
12	96.041.003	Těsnící manžeta / Dichtungsmanschette / Gasket 28x36x7 UN	1
13	96.060.003	Stírací kroužek / Abstreifring / Wiping ring 28x36	1
14	96.082.002	Těsnící kroužek / Dichtungsring / Sealing ring Cu 13/17	2



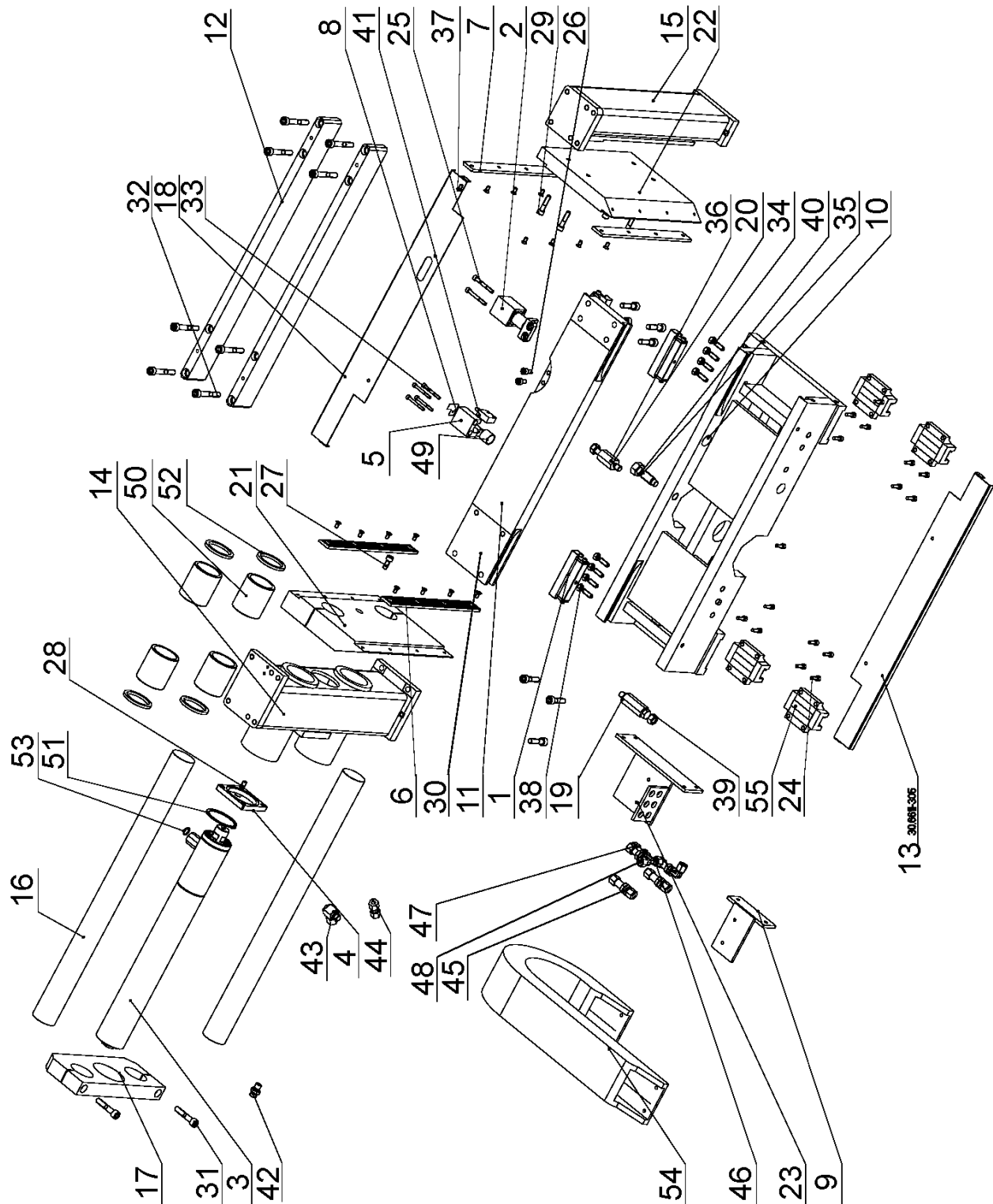
24.3. Horní upínání hlavního svěráku / Obere Spannung des Hauptschraubstockes / Main vice upper clamping

Poz.	Objednací číslo	Název položky	ks
Pos.	Bestell - Nr.	Bezeichnung	Menge
Pos.	Reference No.	Item	Pcs.
1	201.6607-700	Válec / Zylinder / Cylinder	1
2	30.3511-009	Příložka / Lasche / Splice plate	1
3	30.6603-017	Lišta / Leiste / Listel	1
4	30.6603-306	Čelist / Backe / Jaw	1
5	30.6603-313	Skluz / Rutsch / Slide	1
6	30.6612-401	Konzola / Konsole / Console	1
7	30.6612-402	Lišta / Leiste / Listel	1
8	90.001.25.008	Šroub / Schraube / Screw M5x12 DIN 912	8
9	90.001.25.009	Šroub / Schraube / Screw M5x16 DIN 912	10
10	90.001.25.032	Šroub / Schraube / Screw M8x20 DIN 912	4
11	90.001.25.060	Šroub / Schraube / Screw M12x40 DIN 912	2
12	90.001.25.063	Šroub / Schraube / Screw M12x60 DIN 912	1
13	90.001.25.074	Šroub / Schraube / Screw M16x45 DIN 912	2
14	90.011.27.005	Šroub / Schraube / Screw M6x12 DIN 7991	4
15	95.800.019	Pojistný kroužek / Sicherungsring / Retaining ring Ø52 DIN 471	1
16	99.200.019	Lineární vedení / Linearführung / Linear guiding LGR20R-0600	1
17	99.201.010	Vozík / Wagen / Trolley LGH20CA-Hiwin	2



24.4. Upínací válec horního upínání / Spannzylinder der oberen Spannung / Upper clamping cylinder

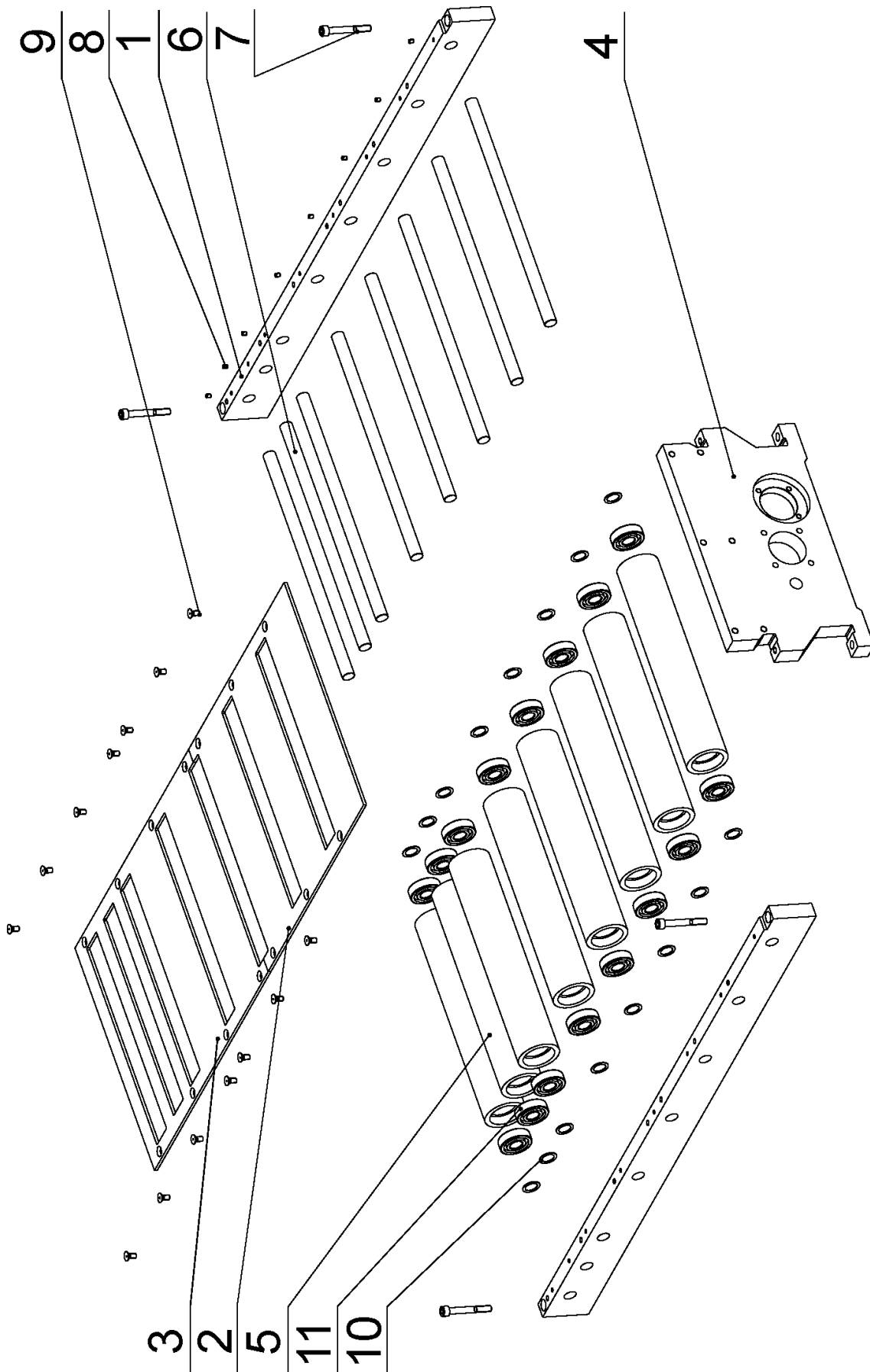
Poz.	Objednací číslo	Název položky	ks
Pos.	Bestell - Nr.	Bezeichnung	Menge
Pos.	Reference No.	Item	Pcs.
1	30.0305-202	Píst / Kolben / Piston	1
2	30.1707-104	Víko / Deckel / Cover	1
3	30.2107-002	Přívod / Zuleitung / Supply	1
4	30.2107-003	Víko / Deckel / Cover	1
5	30.3407-103	Redukce / Reduktion / Reduction	1
6	30.6607-701	Válec / Zylinder / Cylinder	1
7	30.6607-702	Pístnice / Kolbenstange / Piston rod	1
8	90.001.25.017	Šroub / Schraube / Screw M6x16 DIN 912 8.8	1
9	90.151.50.004	Podložka / Scheibe / Washer Ø6,6 DIN 440	1
10	92.002.101	Šroubení / Schraubung / Screwing	2
11	95.801.006	Pojistný kroužek / Sicherungsring / Retaining ring Ø42 DIN 472	1
12	95.801.007	Pojistný kroužek / Sicherungsring / Retaining ring Ø45 DIN 472	1
13	96.002.006	O kroužek / O Ring / O Ring 12x2	1
14	96.002.017	O kroužek / O Ring / O Ring 34x3	3
15	96.041.002	Těsnící manžeta / Dichtungsmanschette / Gasket 20x28x5 UN	1
16	96.060.002	Stírací kroužek / Abstreifring / Wiping ring 20x28	1
17	96.082.001	Těsnící kroužek / Dichtungsring / Sealing ring	1
18	96.082.002	Těsnící kroužek / Dichtungsring / Sealing ring 13/17	1



24.5. Podavač / Vorschub / Feeder

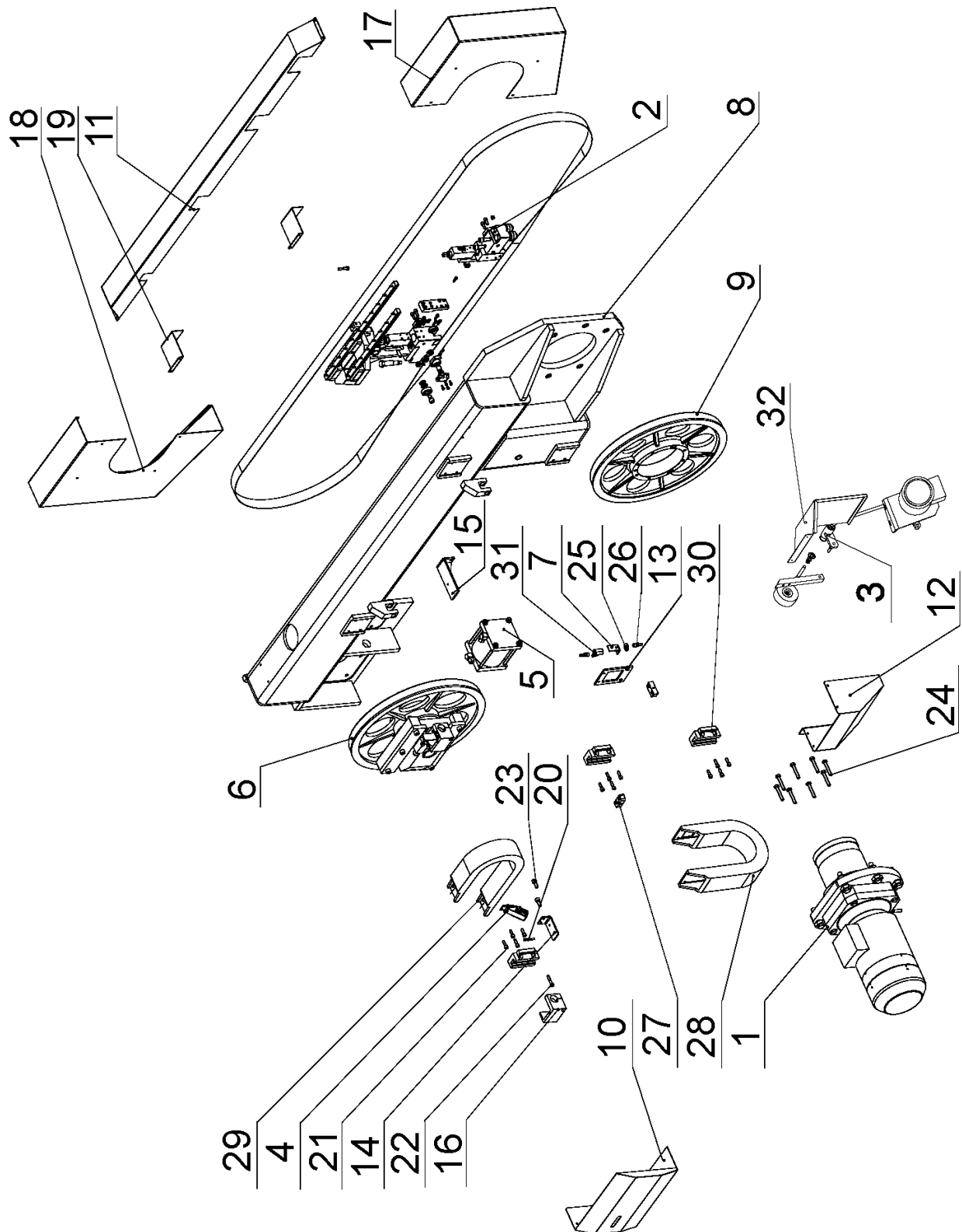
Poz.	Objednací číslo	Název položky	ks
Pos.	Bestell - Nr.	Bezeichnung	Menge
Pos.	Reference No.	Item	Pcs.
1	201.2911-200	Válečkový element / Zylinderelement / Roller element	4
2	201.4307-500	Fixační válec / Fixierzylinder / Fixation cylinder	1
3	201.6607-000	Válec svěráku / Schraubstockzylinder / Vice cylinder	1
4	30.2011-010	Příložka / Lasche / Splice plate	1
5	30.2014-023	Držák snímače / Halter / Sensor holder	1
6	30.2911-021	Lišta čelisti / Leiste / Listel	2
7	30.2911-025	Lišta čelisti / Leiste / Listel	2
8	30.2911-030	Stěrač / Abstreifer / Scraper	1
9	30.6611-026	Konzola / Konsole / Console	1
10	30.6611-301	Základna / Grundlage / Base	1
11	30.6611-303	Základna / Grundlage / Base	1
12	30.6611-304	Lišta čelisti / Leiste / Listel	2
13	30.6611-305	Kryt / Deckel / Cover	1
14	30.6611-306	Sloup / Säule / Pillar	1
15	30.6611-307	Sloup / Säule / Pillar	1
16	30.6611-308	Tyč / Stange / Bar	2
17	30.6611-310	Brýle / Brillen / Glasses	1
18	30.6611-311	Kryt / Deckel / Cover	1
19	30.6611-370	Doraz / Anschlag / Stop	2
20	30.6611-371	Doraz / Anschlag / Stop	1
21	30.6611-401	Čelist / Backe / Jaw	1
22	30.6611-402	Čelist / Backe / Jaw	1
23	30.6711-027	Konzola / Konsole / Console	1
24	90.001.25.018	Šroub / Schraube / Screw M6x20 DIN 912 8.8	16
25	90.001.25.023	Šroub / Schraube / Screw M6x50 DIN 912	2
26	90.001.25.031	Šroub / Schraube / Screw M8x16 DIN 912	2
27	90.001.25.032	Šroub / Schraube / Screw M8x20 DIN 912	1
28	90.001.25.033	Šroub / Schraube / Screw M8x25 DIN 912	1
29	90.001.25.035	Šroub / Schraube / Screw M8x35 DIN 912	4
30	90.001.25.050	Šroub / Schraube / Screw M10x40 DIN 912	8
31	90.001.25.052	Šroub / Schraube / Screw M10x50 DIN 912	2
32	90.001.25.055	Šroub / Schraube / Screw M10x70 DIN 912	8
33	90.001.25.108	Šroub / Schraube / Screw M5x45 DIN 912	4
34	90.002.2D.013	Šroub / Schraube / Screw M8x25 DIN 913	8
35	90.004.2D.019	Šroub / Schraube / Screw M16x40 DIN 915	1
36	90.005.55.034	Šroub / Schraube / Screw M12x40 DIN 933	3
37	90.008.50.006	Šroub / Schraube / Screw M6x12 DIN 965	16
38	90.100.55.005	Matice / Mutter / Nut M8 DIN 934	8
39	90.100.55.007	Matice / Mutter / Nut M12 DIN 934	3
40	90.100.55.008	Matice / Mutter / Nut M16 DIN 934	1
41	91.270.006	Magnetický sensor / Magnet. Sensor / Magnetic sensor LMIX2-000-08.0-1-01	1
42	92.002.001	Šroubení přímé / Gerade Verschraubung / Straight screwing GES 08LR	1
43	92.003.001	Šroubení natáčecí / Winkelverschraubung / swivelling screw RSWS 08LR	1
44	92.007.101	Propojka / Verbindungsstück / Jumper T	1
45	92.008.101	Průchodka / Tülle / Grommet	2
46	92.009.001	Průchodka / Tülle / Grommet	3
47	92.013.001	Matice / Mutter / Nut	6
48	92.014.001	Těsnící kroužek / Dichtungsring / Sealing ring	6
49	95.700.004	Pouzdro / Buchse / Bush 20x20	1
50	95.710.002	Kuličkové pouzdro / Kugelbuchse / Ball bush 50x70 KH	4
51	95.800.021	Pojistný kroužek / Sicherungsring / Retaining ring Ø62 DIN 471	1

52	96.040.004	Stírací manžeta / Manschette / Sleeve 50x62x5	4
53	96.082.002	Těsnící kroužek / Dichtungsring / Sealing ring 13/17	1
54	99.170.001	Řetěz energií / Energiekette / Hydr. pipes leading EFK0555.030.075.100	1
55	99.201.008	Vozík / Wagen / Trolley LGW30CC-Hiwin	4



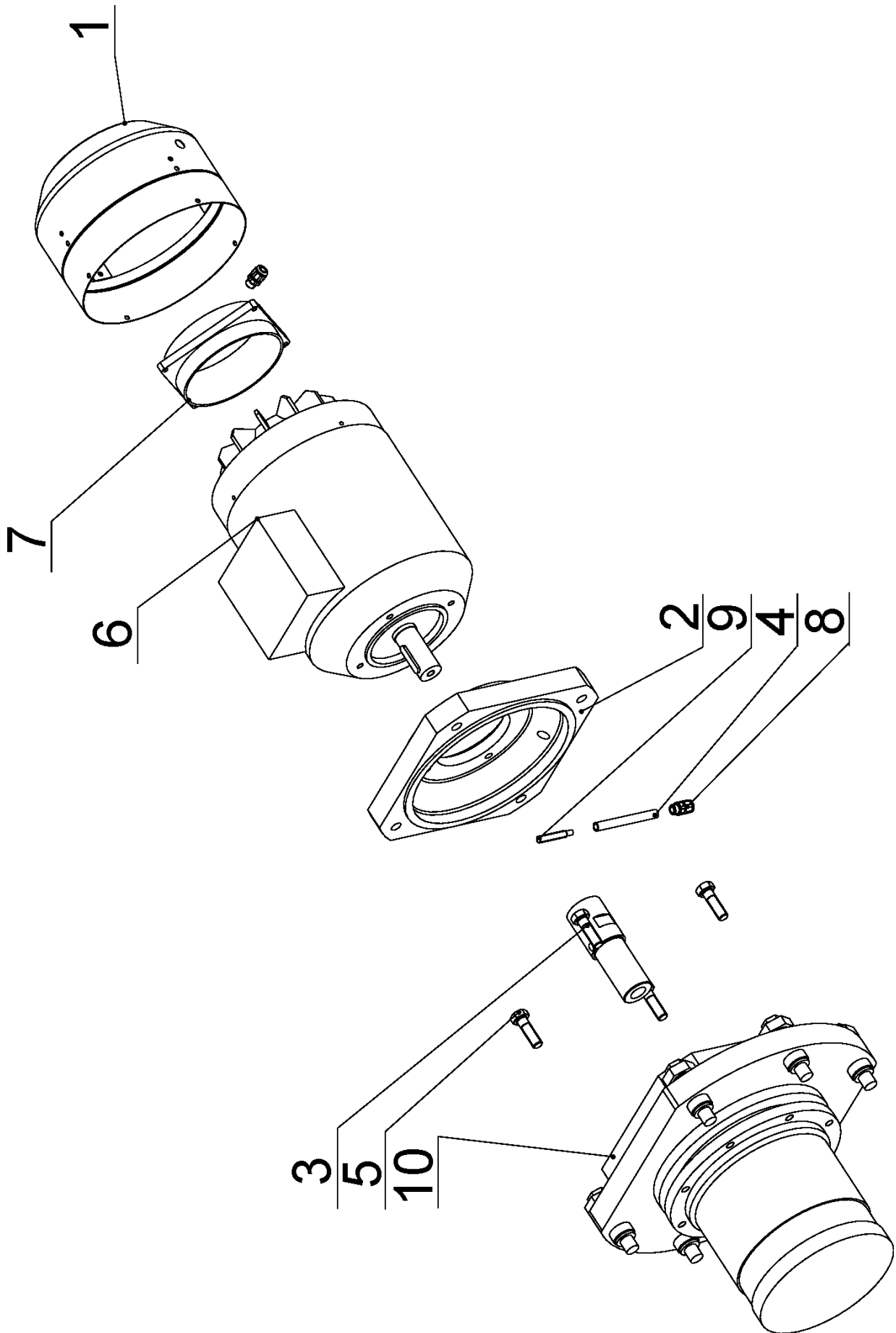
24.6. Válečková trať / Rollenbahn / Roller conveyor

Poz.	Objednací číslo	Název položky	ks
Pos.	Bestell - Nr.	Bezeichnung	Menge
Pos.	Reference No.	Item	Pcs.
1	30.6611-322	Lišta / Leiste / Listel	2
2	30.6611-323	Rošt / Gitter / Hake	1
3	30.6611-324	Rošt / Gitter / Hake	1
4	30.6611-325	Čelo / Stirn / Forehead	1
5	30.6611-326	Válec / Zylinder / Cylinder	8
6	30.6611-327	Tyč / Stange / Bar	8
7	90.001.25.103	Šroub / Schraube / Screw M10x75 DIN 912	4
8	90.002.2D.029	Šroub / Schraube / Screw M6x8 DIN 913	8
9	90.011.27.012	Šroub / Schraube / Screw M8x16 DIN 7991	14
10	90.154.50.011	Podložka / Scheibe / Washer Ø20x28x1 DIN 988	16
11	95.001.024	Ložisko / Lager / Bearing 6304 2RS	16



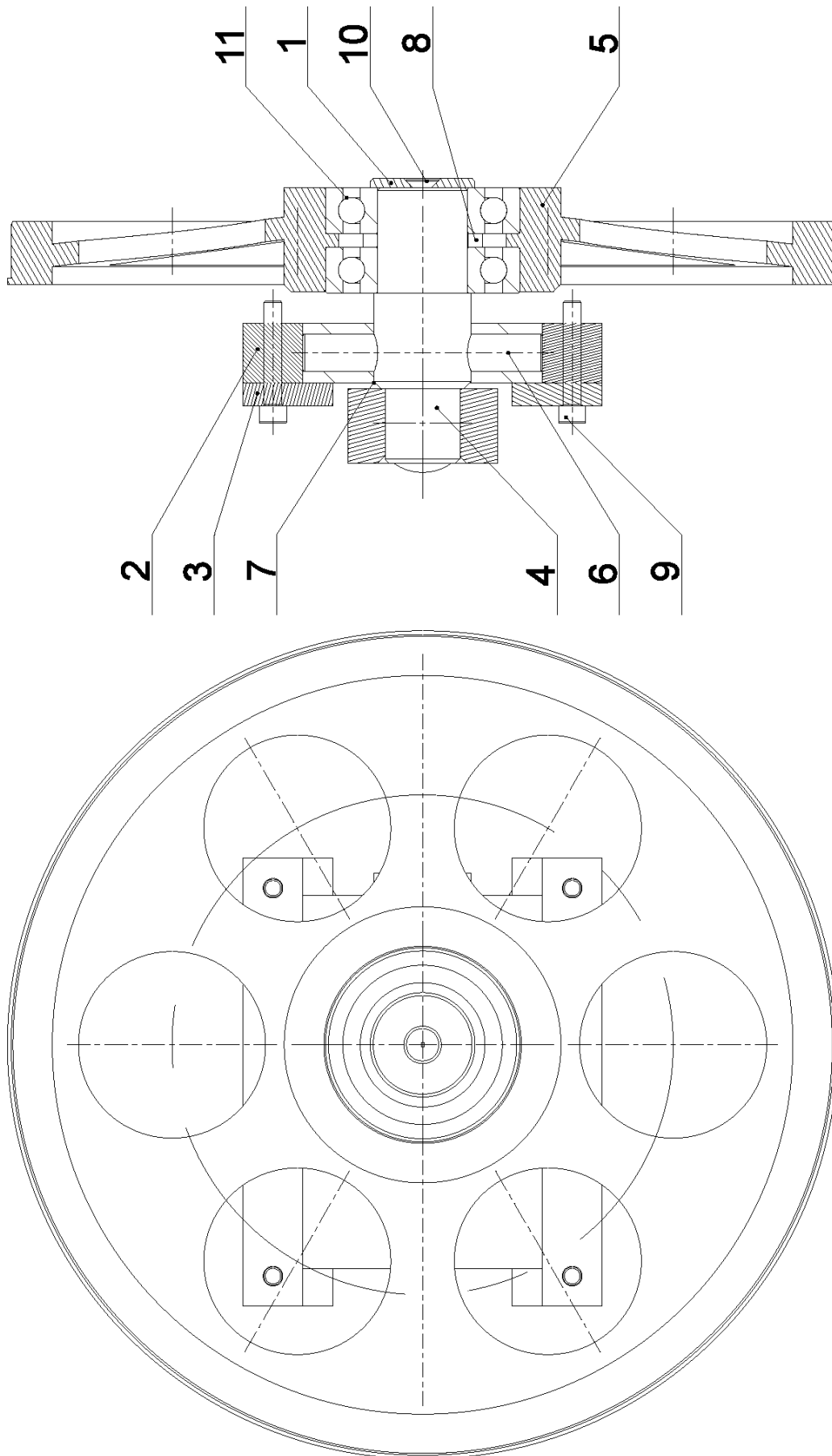
24.7. Pilové rameno / Sägerahmen / Saw arm

Poz.	Objednací číslo	Název položky	ks
Pos.	Bestell - Nr.	Bezeichnung	Menge
Pos.	Reference No.	Item	Pcs.
1	201.6605-300	Pohon pilového pásu / Sägebandantrieb / Saw band drive	1
2	201.6610-300	Vedení pilového pásu / Sägebandführung / Saw band guiding	1
3	201.6614-450	Kartáček / Bürste / Brush	1
4	201.6702-200	Snímač / Sensor / Sensor	1
5	201.6707-400	Napínací válec / Spannzylinder / Tightening cylinder	1
6	201.6708-000	Napínání pilového pásu / Sägebandspannung / Saw band stretching	1
7	30.1814-011	Držák / Halter / Holder	1
8	30.6604-301	Rameno / Sägerahmen / Arm	1
9	30.6604-302	Hnací kolo / Antriebsrad / Driving wheel	1
10	30.6614-301	Kryt / Deckel / Cover	1
11	30.6614-330	Kryt / Deckel / Cover	1
12	30.6614-420	Skluz / Rutsch / Slide	1
13	30.6704-010	Držák / Halter / Holder	1
14	30.6704-012	Držák / Halter / Holder	1
15	30.6704-013	Držák / Halter / Holder	1
16	30.6708-301	Třmen / Sattel / Caliper	1
17	30.6714-210	Kryt / Deckel / Cover	1
18	30.6714-211	Kryt / Deckel / Cover	1
19	30.6714-212	Kryt / Deckel / Cover	2
20	90.001.25.022	Šroub / Schraube / Screw M6x40 DIN 912 8.8	1
21	90.001.25.033	Šroub / Schraube / Screw M8x25 DIN 912 8.8	12
22	90.001.25.036	Šroub / Schraube / Screw M8x40 DIN 912 8.8	1
23	90.001.25.047	Šroub / Schraube / Screw M10x25 DIN 912 8.8	2
24	90.005.55.029	Šroub / Schraube / Screw M10x60 DIN 933 8.8	8
25	90.150.50.008	Podložka / Scheibe / Washer Ø15 DIN 125	1
26	94.202.002	Redukce / Reduktion / Reduction 1/4"-6	2
27	94.204.005	Držák / Halter / Holder LBG 14/14-PP	2
28	99.170.001	Řetěz energií / Energiekette / Energy chain 36x75/R-100	1
29	99.170.002	Řetěz energií / Energiekette / Energy chain 26x56/R-95	1
30	99.201.007	Vozík / Wagen / Trolley LGW30CC-Hiwin	3
31	99.260.003	Kulový ventil / Kugelventil / Spherical valve 1/4"	1
32	30.6614-306	Kryt kartáčku / Bürstenabdeckung / Brush cover	1



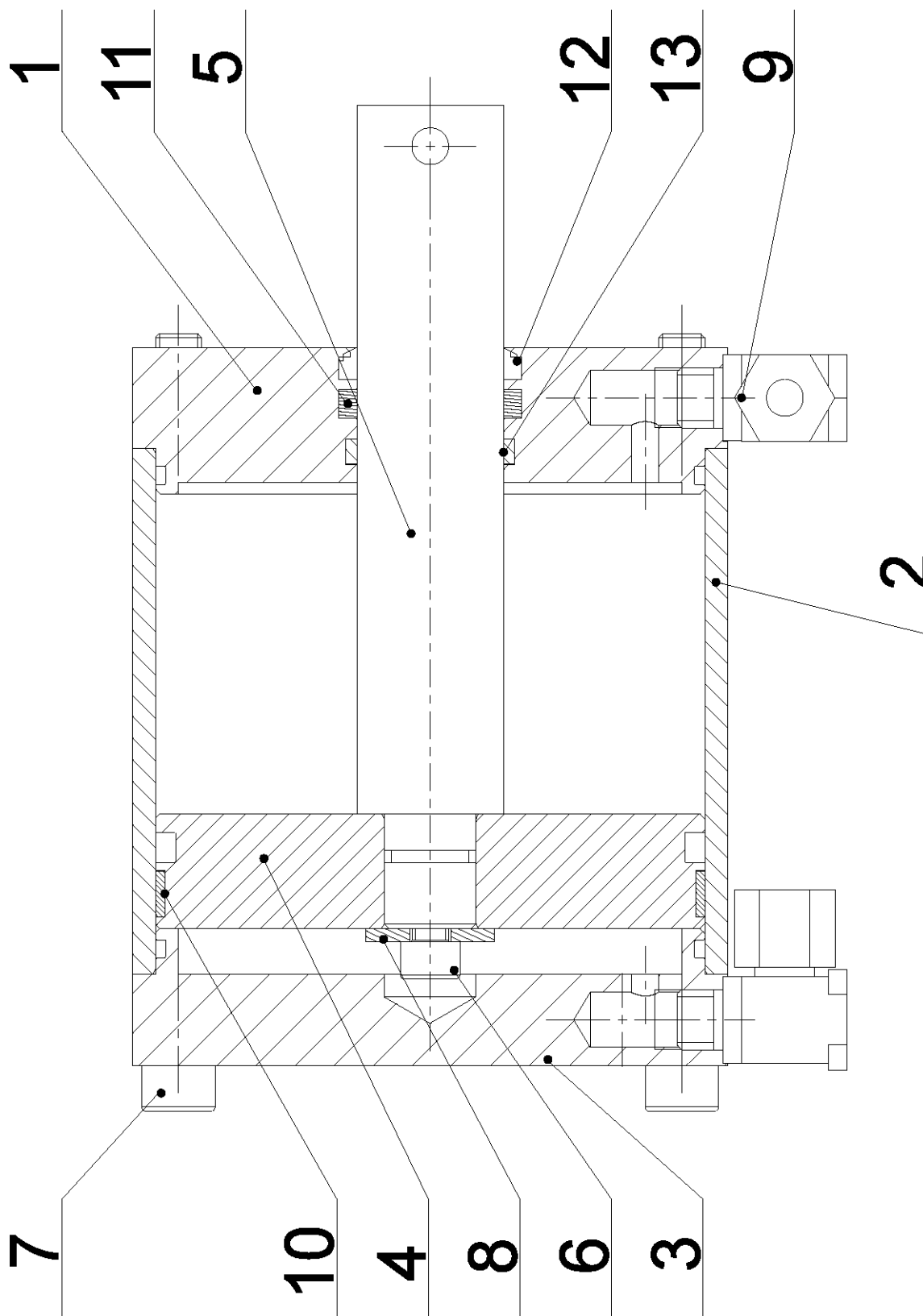
24.8. Pohon pilového pásu / Sägebandantrieb / Saw band drive

Poz.	Objednací číslo	Název položky	ks
Pos.	Bestell - Nr.	Bezeichnung	Menge
Pos.	Reference No.	Item	Pcs.
1	30.4304-018	Ventilátor / Ventilator / Ventilator	1
2	30.6604-304	Příruba / Flansche / Flange	1
3	30.6604-305	Hřídel / Welle / Shaft	1
4	30.6704-304	Držák / Halter / Holder	1
5	90.005.55.034	Šroub / Schraube / Screw M12x40 DIN 933	4
6	91.001.055	Elektromotor / Elektromotor / Electromotor	1
7	91.015.100	Ventilátor / Ventilator / Ventilator	1
8	91.070.010	Vývodka / Tülle / Bushing M 12x1,5	2
9	91.172.001	Induktivní spínač / Induktiver Schalter / Inductive switch BES M08MI	1
10	99.004.001	Převodovka / Getriebe / Gear D-RED 250/PAM 132	1



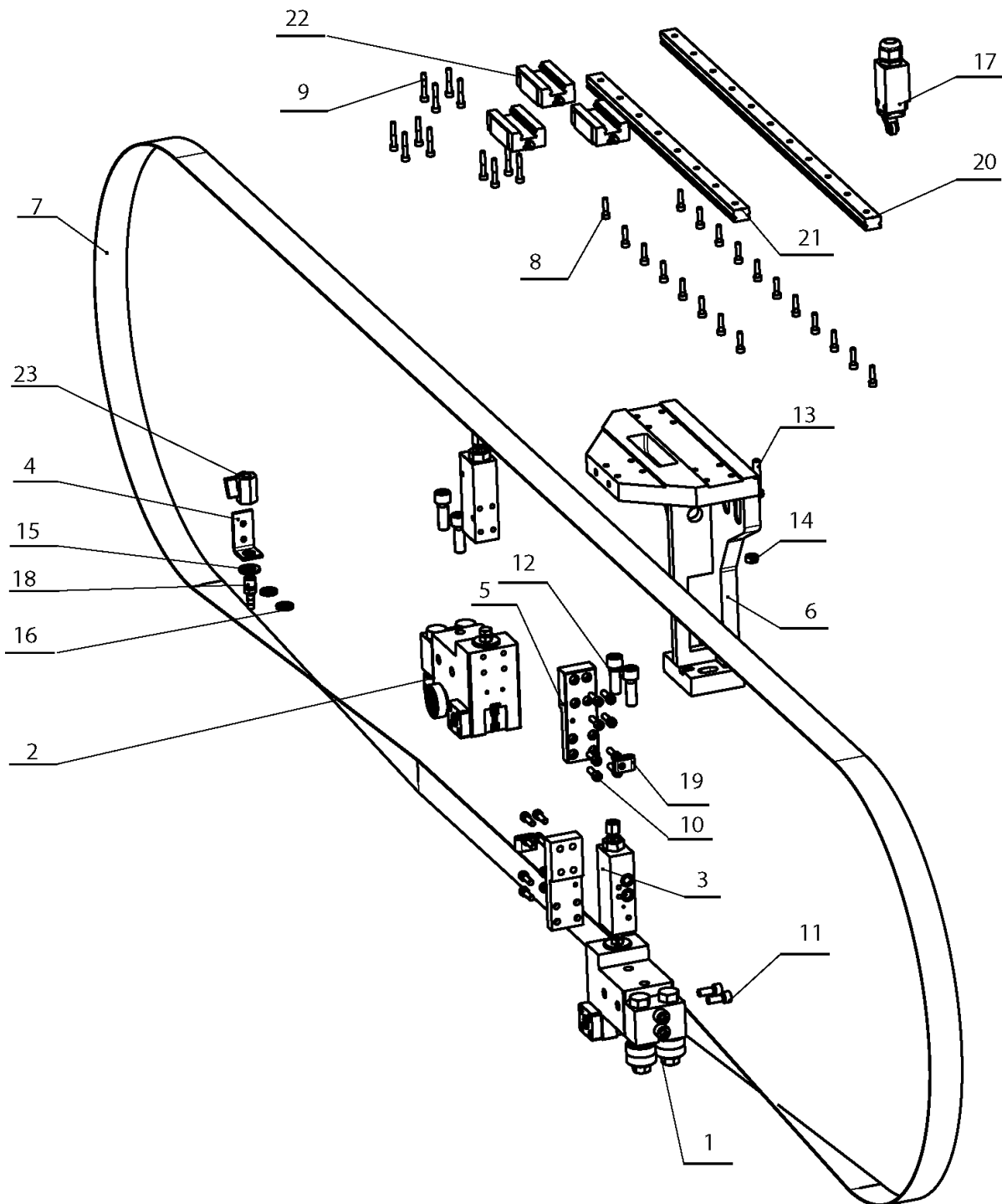
24.9. Napínání pilového pásu / Sägebandspannung / Saw band stretching

Poz.	Objednací číslo	Název položky	ks
Pos.	Bestell - Nr.	Bezeichnung	Menge
Pos.	Reference No.	Item	Pcs.
1	30.1804-010	Podložka / Scheibe / Washer	1
2	30.6008-002	Vodící lišta / Führungsleiste / Guiding listel	2
3	30.6008-003	Vodící lišta / Führungsleiste / Guiding listel	2
4	30.6008-004	Napínání / Spannung / Stretching	1
5	30.6008-006	Napínací kolo / Umlenkrad / Stretching wheel	1
6	30.6008-014	Čep / Bolzen / Pivot	1
7	30.6708-001	Napínání / Spannung / Stretching	1
8	30.6708-002	Distanční trubka / Distanzrohr / Distance tube	1
9	90.001.25.064	Šroub / Schraube / Screw M12x70 DIN 912	6
10	90.011.27.009	Šroub / Schraube / Screw M12x20 DIN 7991	1
11	95.001.041	Ložisko / Lager / Bearing 6312 2RS	2



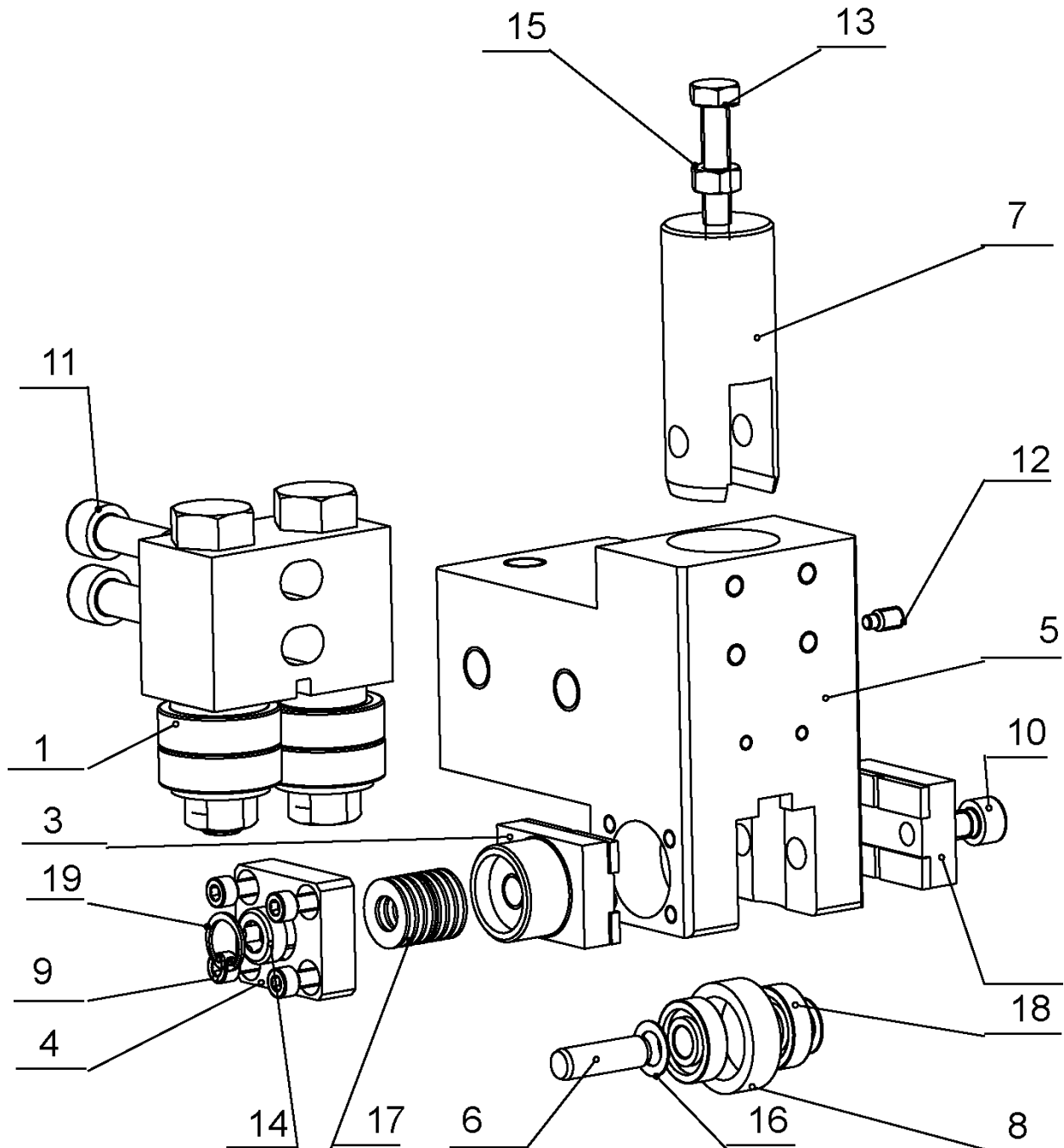
24.10. Válec napínání pilového pásu / Sägebandspannungszylinder / Saw band stretching cylinder

Poz.	Objednací číslo	Název položky	ks
Pos.	Bestell - Nr.	Bezeichnung	Menge
Pos.	Reference No.	Item	Pcs.
1	30.6707-401	Víko / Deckel / Cover	1
2	30.6707-402	Válec / Zylinder / Cylinder	1
3	30.6707-403	Víko / Deckel / Cover	1
4	30.6707-404	Píst / Kolben / Piston	1
5	30.6707-405	Pístnice / Kolbenstange / Piston rod	1
6	90.001.25.028	Šroub / Schraube / Screw M8x10 DIN 912	1
7	90.001.25.XXX	Šroub / Schraube / Screw M10x160 DIN 912	4
8	90.151.50.005	Podložka / Scheibe / Washer Ø9x28x3 DIN 440	1
9	92.003.001	Šroubení natáčecí / Winkelverschraubung / Swivelling screw RSWS 08LR	2
10	95.780.001	Vodící pásek / Führungsband / Guiding band 10x2 - F87	1
11	96.042.007	Manžeta / Manschette / Sleeve 32x40x6.3	1
12	96.060.009	Stírací kroužek / Abstreifring / Wiping ring 32x40x5	1
13	96.084.003	Vodící kroužek / Führungsring / Guiding ring GR 6500320 T47	1



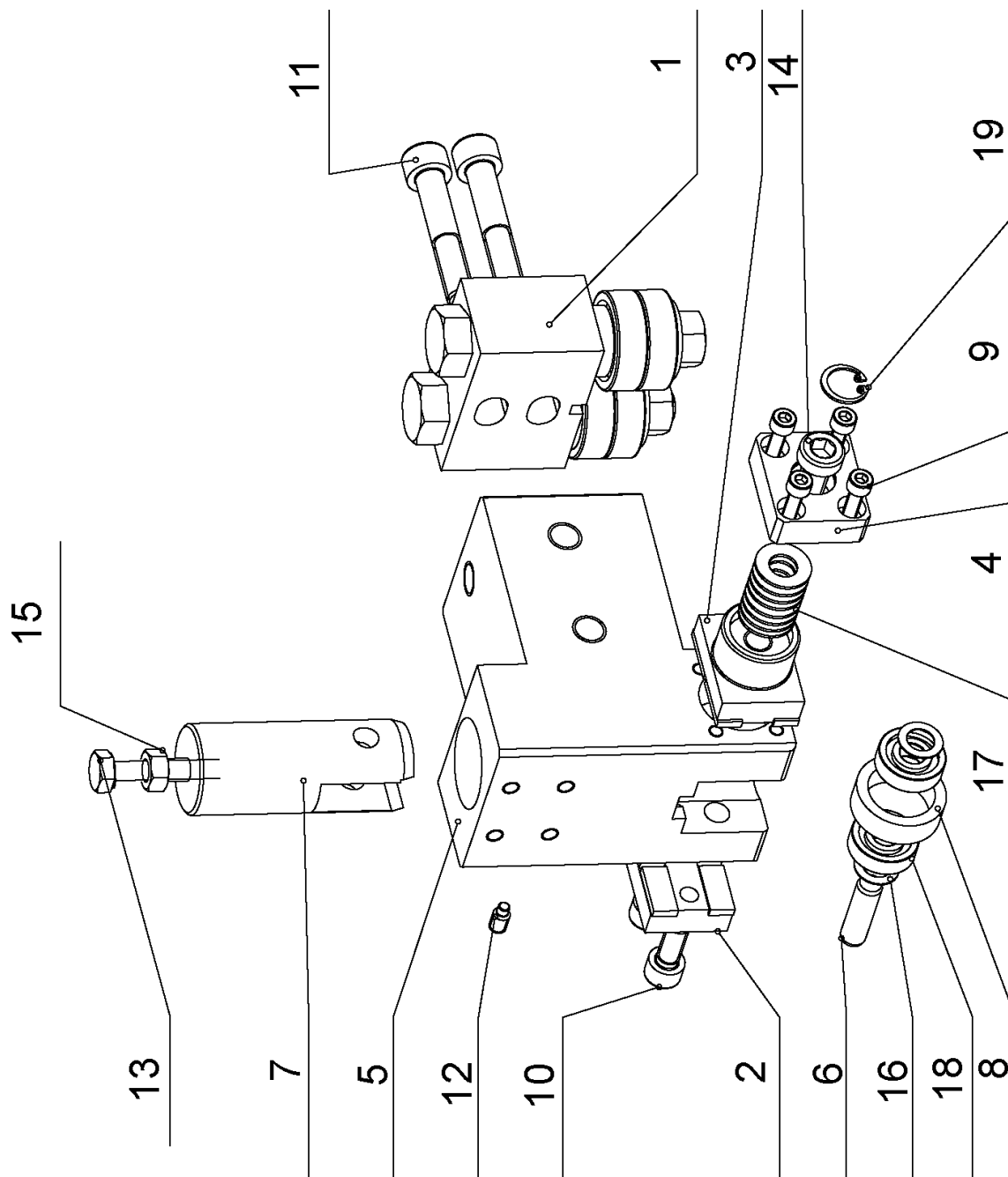
24.11. Vedení pilového pásu / Sägebandführung / Saw band guiding

Poz.	Objednací číslo	Název položky		ks
Pos.	Bestell - Nr.	Bezeichnung		Men ge
Pos.	Reference No.	Item		Pcs.
1	201.6110-610	Kostka vodící P / Führungsklotz / Guiding Cube		1
2	201.6710-550	Kostka vodící L/ Führungsklotz / Guiding Cube		1
3	201.6816-100	Regulace řezu / Schnittdruckregulation / Pressure regulation		2
4	30.1814-011	Držák ventilu / Ventilhalter / Valve holder		1
5	30.6016-002	Deska / Platte / Plate		2
6	30.6610-301	Konzola / Konsole / Console		1
7	30.6610-302	Pás / Band / Band		1
8	90.001.25.010	Šroub / Schraube / Screw	M5x20 DIN 912 8,8	19
9	90.001.25.012	Šroub / Schraube / Screw	M5x30 DIN 912 8,8	12
10	90.001.25.018	Šroub / Schraube / Screw	M6x20 DIN 912 8,8	16
11	90.001.25.032	Šroub / Schraube / Screw	8x20 DIN 912 8,8	2
12	90.001.25.059	Šroub / Schraube / Screw	M12x40	4
13	90.005.55.007	Šroub / Schraube / Screw	M8x35 DIN 912 8,8	1
14	90.100.55.005	Šroub stavěcí / Stellschraube / Setscrew	M12x20	1
15	90.150.50.007	Podložka / Scheibe / Washer	d13 DIN 125	1
16	90.163.00.003	Podložka / Scheibe / Washer	M12 D19,5	2
17	91.173.009	Koncový spínač / Endschalter / Limit switch		1
18	94.202.002	Redukce / Reduktion / Reduction	G1/4-6	1
19	94.204.001	Držák / Halter / Holder		2
20	99.200.020	Lineární vedení / Führung / Linear guiding		1
21	99.200.021	Lineární vedení / Führung / Linear guiding		1
22	99.201.010	Lineární vedení / Führung / Linear guiding		3
23	99.260.003	Ventil kulovy / Kugelventil / Ball valve	.1/4	1

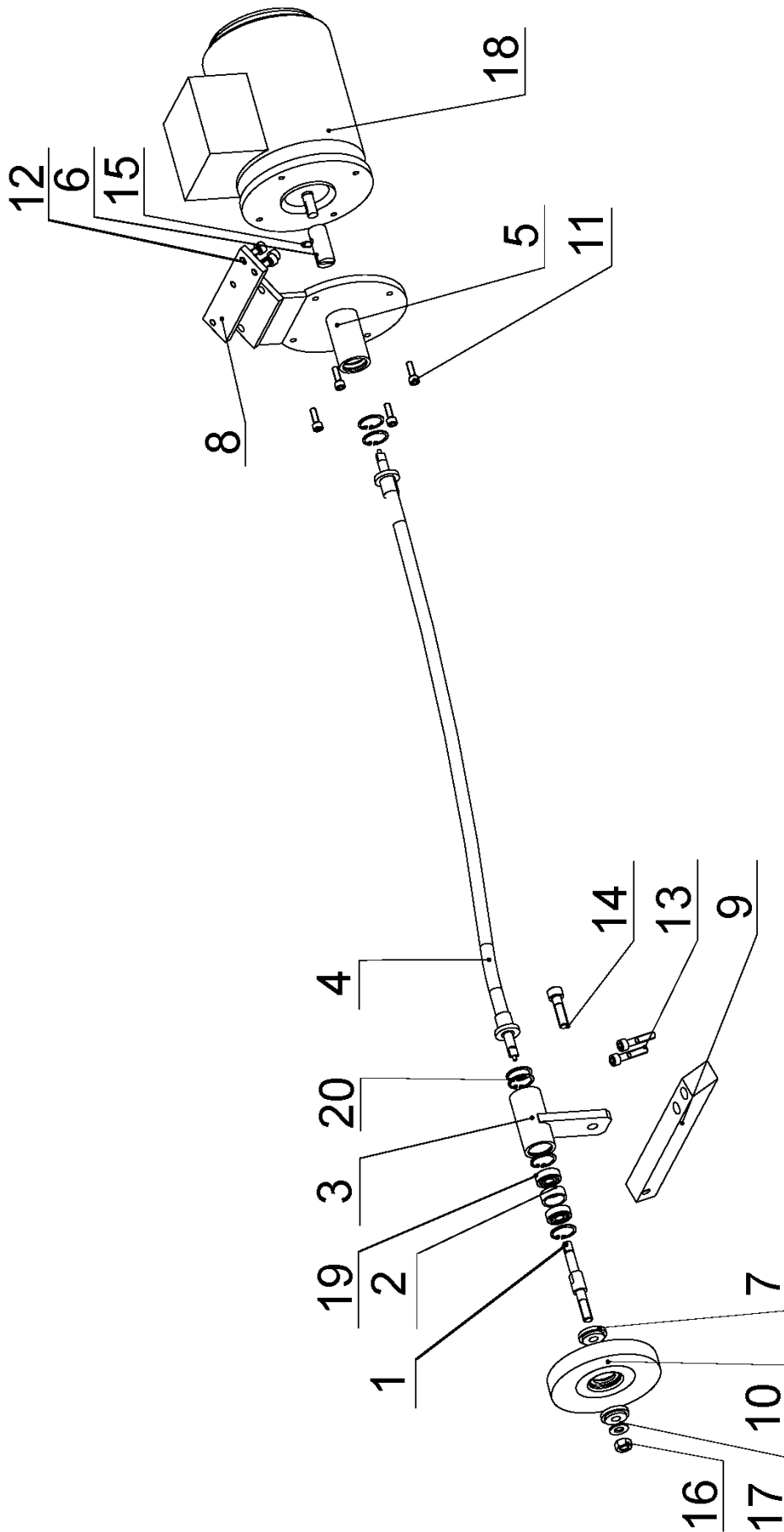


24.12. Levá vodící kostka / Linker Führungsklotz / Left guiding cube

Poz.	Objednací číslo	Název položky		ks
Pos.	Bestell - Nr.	Bezeichnung		Menge
Pos.	Reference No.	Item		Pcs.
1	201.6110-510	Vedení / Führung / Guide		1
2	30.6010-105	Deska vodící / Führungsplatte / Guiding plate		1
3	30.6010-214	Deska vodící / Führungsplatte / Guiding plate		1
4	30.6010-218	Příložka / Lasche / Splice plate		1
5	30.6110-501	Kostka vodící levá / Linke Führungsplatte / Left guiding cube		1
6	30.6710-108	Kolík / Bolzen / Pin		1
7	30.6710-109	Píst / Kolben / Piston		1
8	30.6710-110	Kroužek / Ring / Ring		1
9	90.001.25.009	Šroub / Schraube / Screw	M5x16 DIN 912 8,8	4
10	90.001.25.032	Šroub / Schraube / Screw	8x20 DIN 912 8,8	2
11	90.001.25.053	Šroub / Schraube / Screw	M10x55 DIN 912 8,8	2
12	90.004.2D.002	Šroub stavěcí / Stellschraube / Setscrew	M6x12	1
13	90.005.55.019	šroub se šestihrannou hlavou / Sechskantschraube / Hex head screw	M8x40	1
14	90.015.30.003	Šroub / Schraube / Screw	M10x25 DIN 6912	1
15	90.100.55.005	Matice / Mutter / Nut	M8 DIN934	1
16	90.154.50.003	Podložka / Scheibe / Washer	10x16x0,5 DIN 988	2
17	90.350.0Z.005	Pružina / Feder / Spring	20x10.2x1.1 DIN 2093	8
18	95.001.044	Kuličkové ložisko / Kugellager / Ball bearing	609 2RS	2
19	95.801.035	Pojistný kroužek / Sicherungsring / Retaining ring		1

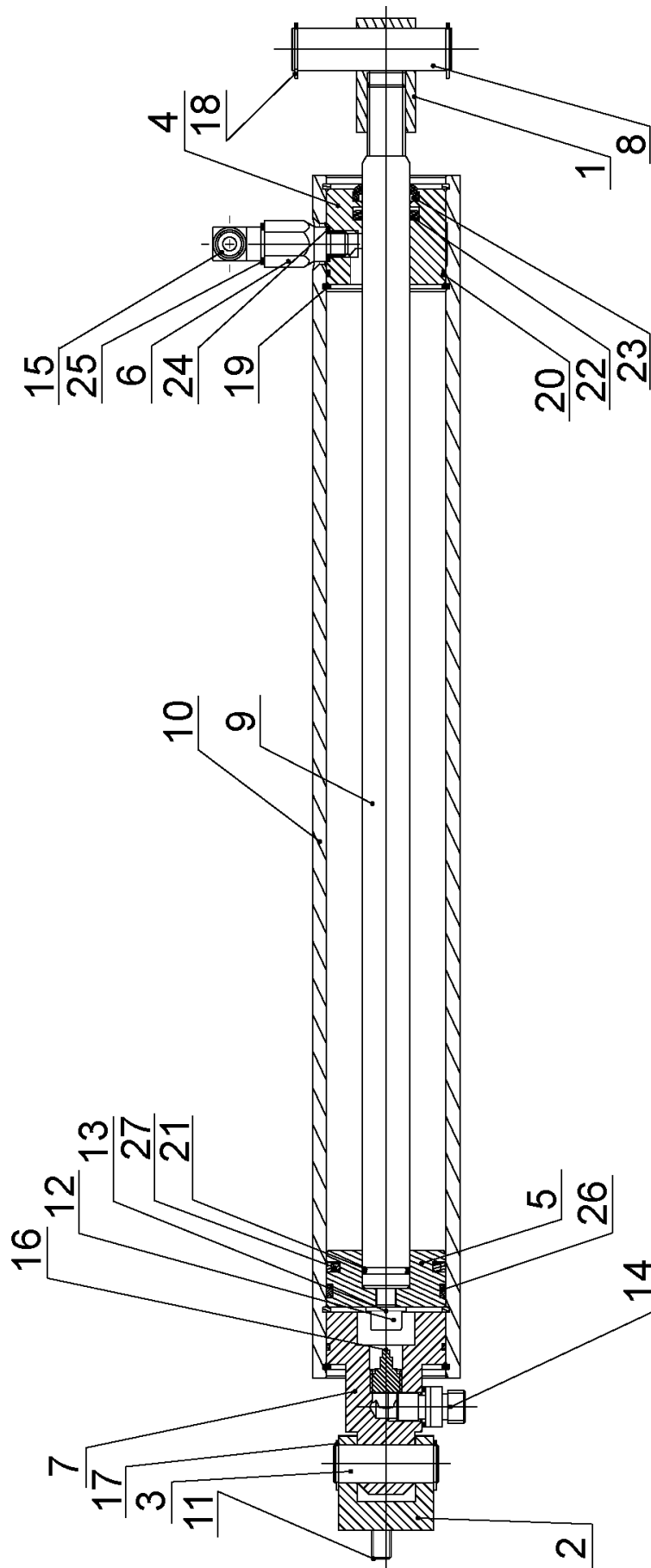

24.13. Pravá vodící kostka / Rechter Führungsklotz / Right guiding cube

Poz.	Objednací číslo	Název položky		ks
Pos	Bestell - Nr.	Bezeichnung		Menge
Pos	Reference No.	Item		Pcs.
1	201.6110-510	Vedení / Führung / Guide		1
2	30.6010-105	Deska vodící / Führungsplatte / Guiding plate		1
3	30.6010-214	Deska vodící / Führungsplatte / Guiding plate		1
4	30.6010-218	Příložka / Lasche / Splice plate		1
5	30.6110-501	Kostka vodící pravá / Rechte Führungsplatte / Right guiding cube		1
6	30.6710-108	Kolík / Bolzen / Pin		1
7	30.6710-109	Píst / Kolben / Piston		1
8	30.6710-110	Kroužek / Ring / Ring		1
9	90.001.25.009	Šroub / Schraube / Screw	M5x16 DIN 912 8,8	4
10	90.001.25.032	Šroub / Schraube / Screw	8x20 DIN 912 8,8	2
11	90.001.25.053	Šroub / Schraube / Screw	M10x55 DIN 912 8,8	2
12	90.004.2D.002	Šroub stavěcí / Stellschraube / Setscrew	M6x12	1
13	90.005.55.019	šroub se šestihrannou hlavou / Sechskantschraube / Hex head screw	M8x40	1
14	90.015.25.010	Šroub / Schraube / Screw	M10x25 DIN 7984	1
15	90.100.55.005	Matice / Mutter / Nut	M8 DIN934	1
16	90.154.50.003	Podložka / Scheibe / Washer		2
17	90.350.0Z.004	Pružina / Feder / Spring	20x10.2x1.1 DIN 2093	8
18	95.001.044	Kuličkové ložisko / Kugellager / Ball bearing	609 2RS	2
19	95.801.035	Pojistný kroužek / Sicherungsring / Retaining ring		1



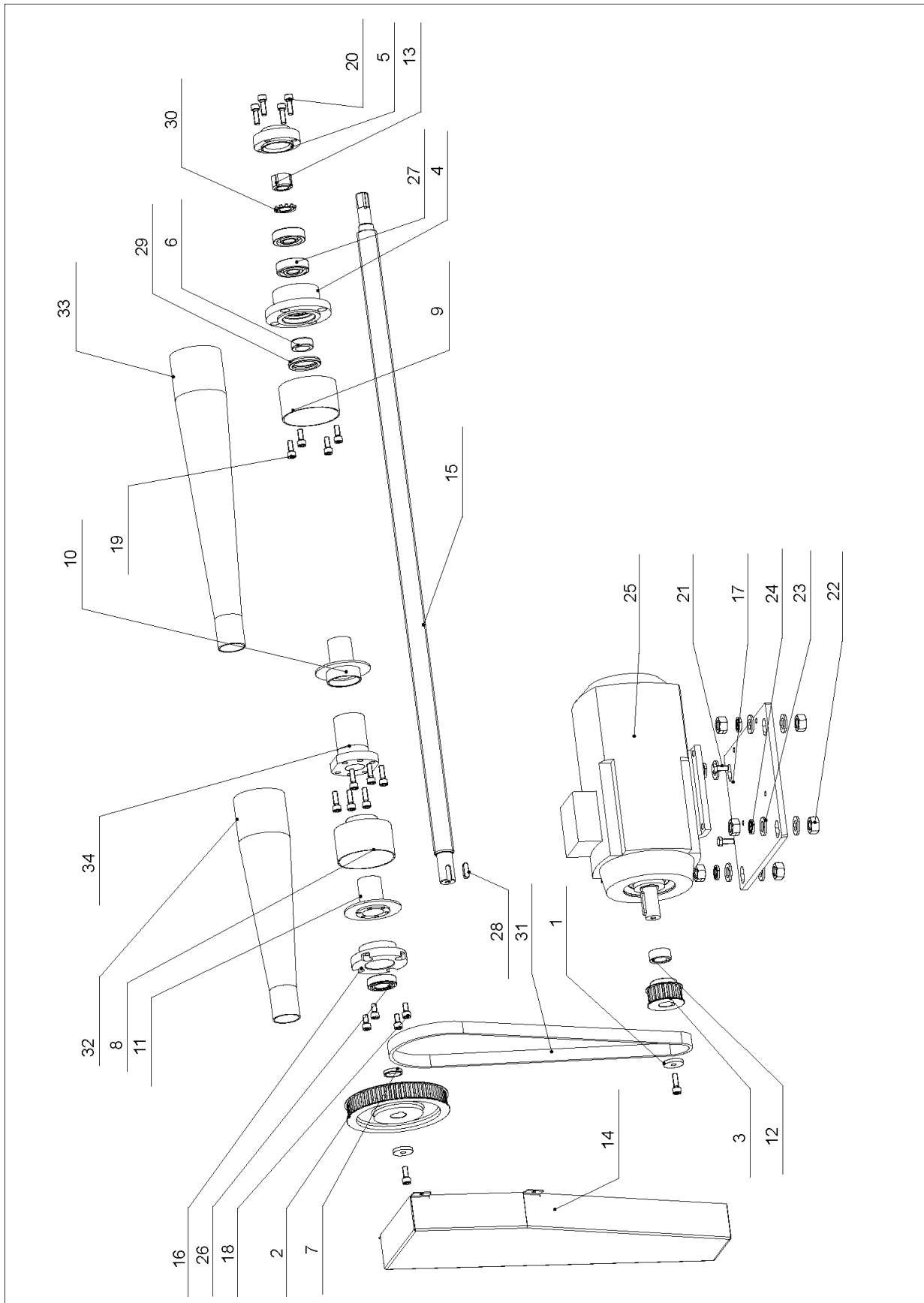
24.14. Kartáček / Spänbürste / Brush

Poz.	Objednací číslo	Název položky	ks
Pos.	Bestell - Nr.	Bezeichnung	Menge
Pos.	Reference No.	Item	Pcs.
1	30.4314-002	Hřídel kartáčku / Bürstenwelle / Brush shaft	1
2	30.4314-004	Distanční kroužek / Distanzring / Distance ring	1
3	30.6614-411	Držák / Halter / Holder	1
4	30.6614-412	Hřídel / Welle / Shaft	1
5	30.6614-414	Příruba / Flansche / Flange	1
6	30.6614-415	Hřídel / Welle / Shaft	1
7	30.6614-416	Distanční kroužek / Distanzring / Distance ring	2
8	30.6614-417	Držák / Halter / Holder	1
9	30.6614-418	Držák / Halter / Holder	1
10	49.250.015	Kartáček / Spänbürste / Brush	1
11	90.001.25.009	Šroub / Schraube / Screw M5x16 DIN 912 8.8	4
12	90.001.25.018	Šroub / Schraube / Screw M6x20 DIN 912 8.8	4
13	90.001.25.020	Šroub / Schraube / Screw M6x30 DIN 912 8.8	2
14	90.001.25.034	Šroub / Schraube / Screw M8x30 DIN 912 8.8	1
15	90.002.2D.004	Šroub / Schraube / Screw M5x8 DIN 913 8.8	1
16	90.100.55.005	Matice / Mutter / Nut M8 DIN 934	1
17	90.150.50.005	Podložka / Scheibe / Washer Ø8,4 DIN 125	1
18	91.001.069	Elektromotor / Elektromotor / Electromotor	1
19	95.001.001	Ložisko / Lager / Bearing 608 2RS	2
20	95.801.019	Pojistný kroužek / Sicherungsring / Retaining ring Ø22 DIN 472	6



24.15. Zvedací válec / Hubzylinder / Lifting cylinder

Poz.	Objednací číslo	Název položky	ks
Pos.	Bestell - Nr.	Bezeichnung	Menge
Pos.	Reference No.	Item	Pcs.
1	30.0807-006	Držák pístnice / Kolbenstangehalter / Piston rod holder	1
2	30.0807-008	Držák válce / Zylinderhalter / Cylinder holder	1
3	30.0807-009	Čep / Bolzen / Pivot	1
4	30.2807-002	Víko / Deckel / Cover	1
5	30.2807-004	Píst / Kolben / Piston	1
6	30.3407-103	Redukce / Reduktion / Reduction	1
7	30.4107-003	Víko / Deckel / Cover	1
8	30.6607-103	Čep / Bolzen / Pivot	1
9	30.6607-501	Pístnice / Kolbenstange / Piston rod	1
10	30.6607-502	Válce / Zylinder / Cylinder	1
11	90.001.25.031	Šroub / Schraube / Screw M8x16 DIN 912	2
12	90.001.25.032	Šroub / Schraube / Screw M8x20 DIN 912	1
13	90.150.50.005	Podložka / Scheibe / Washer Ø8,4 DIN 125	1
14	92.002.001	Šroubení / Schraubung / Screwing	1
15	92.004.001	Šroubení / Schraubung / Screwing	1
16	92.151.001	Pojistný ventil / Sicherungsventil / Safety valve VPN-H 1/4"	1
17	95.800.007	Pojistný kroužek / Sicherungsring / Retaining ring Ø16 DIN 471	2
18	95.800.008	Pojistný kroužek / Sicherungsring / Retaining ring Ø18 DIN 471	2
19	95.801.018	Pojistný kroužek / Sicherungsring / Retaining ring Ø50 DIN 472	4
20	96.001.013	O kroužek / O Ring / O Ring 45x2	2
21	96.002.007	O kroužek / O Ring / O Ring 16x2	1
22	96.041.002	Těsnící manžeta / Dichtungsmanschette / Gasket 20x28x5 UN	1
23	96.060.002	Stírací kroužek / Abstreifring / Scraper ring 20x28	1
24	96.082.001	Těsnící kroužek / Dichtungsring / Sealing ring 10/14	1
25	96.082.002	Těsnící kroužek / Dichtungsring / Sealing ring 13/17	2
26	96.084.001	Vodící kroužek / Führungsring / Guiding ring 50x5.5x2.5x146.9	1
27	96.900.001	Těsnění / Dichtung / Packing 50x39x4	1



24.16. Pohon podavače / Vorschubantrieb / Feeder device

Poz.	Objednací číslo	Název položky	ks
Pos.	Bestell - Nr.	Bezeichnung	Menge
Pos.	Reference No.	Item	Pcs.
1	30.4404-022	Podložka / Scheibe / Washer	2
2	30.6611-352	Řemenice / Riemenscheibe / Pulley	1
3	30.6611-353	Řemenice / Riemenscheibe / Pulley	1
4	30.6611-354	Příruba / Flansche / Flange	1
5	30.6611-356	Víko ložiska / Lagerdeckel / Bearing cover	1
6	30.6611-357	Kroužek / Ring / Ring	1
7	30.6611-359	Kroužek distanční / Distanzring / Distance ring	1
8	30.6611-361	Příruba / Flansche / Flange	1
9	30.6611-362	Příruba / Flansche / Flange	1
10	30.6611-363	Držák / Halter / Holder	1
11	30.6611-364	Příruba / Flansche / Flange	1
12	30.6611-366	Příložka / Lasche / Splice plate	1
13	30.6611-368	Matice / Mutter / Nut	1
14	30.6611-372	Kryt / Deckel / Cover	1
15	30.6611-501	Šroub / Schraube / Screw	1
16	30.6611-502	Příruba / Flansche / Flange	1
17	30.6611-503	Deska / Platte / Plate	1
18	90.101.25.031	Šroub / Schraube / Screw	M8x16 DIN 912 8,8 4
19	90.101.25.032	Šroub / Schraube / Screw	M8x20 DIN 912 8,8 5
20	90.101.25.33	Šroub / Schraube / Screw	M8x25 DIN 912 8,8 11
21	90.005.55.015	šroub se šestihrannou hlavou / Sechskantschraube / Hex head screw	M8x20 4
22	90.100.55.008	Matice / Mutter / Nut	M16 DIN 934 8
23	90.150.50-009	Podložka / Scheibe / Washer	Ø 17 DIN 125 8
24	90.158.50-004	Podložka pružná / Federscheibe, / Spring washer	Ø 16.2 DIN 7980 4
25	91.001.072	Motor Motor motor,	TM90-4x 1
26	95.001.008	Ložisko / Lager / Bearing	6005 2RS 1
27	95.001.049	Stavitelné ložisko / Stellbarlager / Adjustable bearing	7304 B 2
28	95.810.007	Pero těsné / Passfeder / Feather	8x7x25 1
29	95.830.016	Těsnění Gufero / Gufero Dichtung / Gufero gasket	Gufero 35x52x7 1
30	95.855.006	Podložka / Scheibe / Washer	M8 4 1
31	99.024.005	Ozubený řemen /Gezahnte Riemen / Toothed belt	1
32	99.211.002	Pružina / Feder / Spring	1
33	99.211.002	Pružina / Feder / Spring	1
34	99.212.001	Matice / Mutter / Nut	1

25. Troubleshooting table

25.1. Mechanical problems

Problem	Possible causes	Repair
1. Slanting cut	<ul style="list-style-type: none"> - Wrongly adjusted hard metal guides. - Worn hard metal guides. - Wrongly adjusted cubes of the saw band guiding. - Worn bearings of the saw band guiding. - Wrongly adjusted swarf brush. - Worn swarf brush. - Insufficient saw band stretching. - Wrongly chosen tooth system of the saw band. - Worn saw band. - Wrongly balanced roller conveyor. - Dirty feeding board. - Guiding arm and guiding cube are loosened. - Guiding arm and cube are too far from the material. - Too fast cutting rate. - Unexpected oscillation in material quality. 	<p>Set according to the chapter „Servicing and adjustment“</p> <p>Replace to the chapter „Worn pieces replacement“</p> <p>Set according to the chapter „Servicing and adjustment“</p> <p>Replace according to the chapter „Worn pieces replacement“</p> <p>Set according to the chapter „Servicing and adjustment“</p> <p>Replace according to the chapter „Worn pieces replacement“</p> <p>Rise the saw band stretching and set the limit switch.</p> <p>Replace the saw band and keep the instructions of manufacturer on new saw band choice.</p> <p>Replace the saw band.</p> <p>Set the roller conveyor.</p> <p>Cleanse the feeding board from debris, chip and residue material.</p> <p>Clamp the guiding arm.</p> <p>Set the guiding cube to the material.</p> <p>Lower the material feeding speed.</p> <p>Set the cut and feeding speed to the relevant material.</p>
2. The cut is not cut upon desired angle	<ul style="list-style-type: none"> - Securing lever is loosened. - Set angle does not match the cut angle. - Insufficient saw band stretching. - Guiding arm and guiding cube are loosened. - Dirt between material and clamping jaw. 	<p>Check the securing lever efficiency and carry out its adjustment according to chapter „Servicing and adjustment“.</p> <p>Check the angle adjustment with a protractor and possibly set it according to chapter „Servicing and adjustment“.</p> <p>Stretch the saw band and set the limit switch according to chapter „Servicing and adjustment“.</p> <p>Fasten the guiding arm and the cube.</p> <p>Cleanse the material and mating jaw.</p>
3. Short lifetime of the saw band	<ul style="list-style-type: none"> - Insufficient saw band stretching. - Worn swarf brush. 	<p>Raise the tightening of the saw band set the scanner of saw band tightening according to chapter „Servicing and adjustment“.</p> <p>Check the swarf brush condition and replace it in case of excessive use as described in chapter „Worn pieces replacement“</p>

	- Wrongly adjusted swarf brush.	Check swarf brush adjustment, set it according to chapter „Servicing and adjustment“
	- Over stretched saw band	Lower stretching of the saw band and set the limit switch of the saw band stretching according to chapter „Servicing and adjustment“
	- Wrongly adjusted hard metal guides.	Check the adjustment of the hard metal guides and carry out adjustment as described in chapter „Servicing and adjustment“
	- Worn hard metal guides of the saw band.	Check the condition of the hard metal guide and if it is too worn, replace hard metal guides according to chapter „Worn pieces replacement“
	- Worn saw band guide bearings.	Check guiding bearings and if you notice some sort of excessive damage, replace them according to chapter „Worn pieces replacement“
	- Wrongly adjusted guiding cubes of the saw band.	Set guiding cube according to chapter „Servicing and adjustment“
	- Wrongly adjusted down feed and saw band speed.	Adjust the feeding and speed of a saw band according to values published by saw band manufacturer.
	- Different material quality.	Adjust feeding and speed of a saw band according to desired material (try cut-test).
	- Low-class saw band	Replace the saw band (contact your local accessory supplier for more information)
	- Wrongly chosen saw band tooth system.	Replace the saw band and keep instructions of the manufacturer on the choice.
	- Wrongly adjusted tracking.	Check the space between top of a saw band and driving wheel. Perhaps adjust the tracking as described in chapter „Servicing and adjustment“
4. Insufficient cut output.	- Worn saw band.	Replace the saw band and keep instructions of the manufacturer on the choice.
	- Wrong saw band tooth system.	Replace the saw band and keep instructions of the manufacturer on the choice.
	- Wrongly set down feed and speed of a saw band.	Set feed and speed of a saw band according to values published by saw band manufacturer.
5. The cut is not finished.	- Wrongly adjusted lower stop point of the saw frame.	Check lower limit switch and screw.
	- Stop point surface is messed-up.	Cleanse stop point surface of the limit switch from debris and residue material.
6. By choke is not possible turn	- Metal clamps between valve and panel.	Clamps must be removed and put on the shaft O-Ring about 10x2 mm.
	- Metal clams are in body of valve.	Valve must be cleared or changed.

7.Saw band drive cannot be started.	<ul style="list-style-type: none"> - Pressure switch is adjusted wrong. - Pressure switch is defective. 	Set the pressure switch according to chapter „Servicing and adjustment“ Replace defective parts of the pressure switch.
8.The saw bands are cracked.	<ul style="list-style-type: none"> - In stretching wheel is wrong adjusting geometry. - Hard metal plates of circuit saw band are not adjusting. - Guiding cubes are not adjusting (bearings + hard metal circuit) - Bearings of guiding cubes are used (rolling elements are damaged or outside ring of bearing has conical form). 	Adjust distance band from recess wheel c.2 mm according to operating instructions. Hard metal plates of circuit saw band must be adjusting according to operating instructions. Guiding cubes must be adjusting (bearings + hard metal circuit) according to operating instructions. Bearings of guiding cubes must be replaced. Bearings must be adjusting according to operating instructions.
9.Damage tooth system of the saw band	<ul style="list-style-type: none"> - In gripping the lifting cylinder is backlash. - Squeezed pin upper or downer holder of the lifting cylinder. 	Exchange complete upper or downer holder of lifting cylinder.
10.The saw is cut downing.	<ul style="list-style-type: none"> - Geometry of hardmetal guiding cubes is wrong adjusted. - Bearings of guiding cubes are used. 	Hardmetal guiding cubes must be adjusted. Bearings of guiding cubes must be replaced.
11.Cleansing of the saw band is not functional.	<ul style="list-style-type: none"> - Elastic wheel of the brush drive is worn-down. - Knurling of the driving wheel is worn-down. - The shaft of the brush drive is rusted. - The brush position and the brush cover is adjusted wrong – with the brush cannot be turned. 	Elastic wheel of the brush must be changed. Driving wheel must be changed. The shaft of the brush must be cleaned and oiled. The brush cover must be posed, in order to the brush can be turned.
12.The saw arm periodically rise and fall during the cut; this cause short lifetime of the saw band.	<ul style="list-style-type: none"> - Backlash in driving wheel lodgement on the shaft. - Worn channel for spring. 	Change the driving shaft for a long one, new bearings, distance ring, new driving wheel, spring, two covers on the forehead of the shaft + screws.

25.2. Electric and hydraulic problems

Problem	Possible causes	Repair
1.Machine is not possible start.	<ul style="list-style-type: none"> - In socket is not voltage - Transfer relay is closed (thermal protector) 	Line voltage must be checked. Each FA relay must be checked.

	- Limit switch of saw band stretching, cover of frame or cover of saw band is not started.	Check of saw band stretching and covers closing.
2. When cut is finished, the frame is not raising.	- Bottom limit switch is adjusted wrong. - In hydraulic (pneumatic) ring is error. HYTOS (BOSCH) is not acting to frame uplift.	Bottom limit switch must be adjusted according to chapter ADJUSTING. Function of magnetic valve must be checked, valve must be closed, voltage of clamps and inductor must be checked.
3. Electric motor and pump are without voltage. Between contactor and thermal protector is not voltage.	- Wrong contactor.	Replace contactor of engine.
4. The indicator of speed saw band is not functional.	- Sensor of speed is not adjusted. - Defective display - Wrong sensor – diode of indicator speed is not light.	Sensor of speed must be adjusted. The display must be changed. Sensor must be changed and adjusted.
5. Protector is switched off from engine hydraulic aggregate MA3 sometimes.	- Into hydraulic system is high working pressure.	Service engineer must reduce the pressure in hydraulic system.
6. The hydraulic aggregate cannot be started	Auxiliary contact on thermo-relay FA1 is defective.	Replace the defective contact on motor starter FA1.
7. Hydraulic aggregate is switched on but the saw arm or the main vice is not functional	- Wrong connection of electrical supply. The electrical phases are connected conversely.	The phases must be switched. Only service engineer can do this.
8. Cooling is not active	Lack of cooling agent. - Thermal relay is defective - Input hosepipe is broken or obstructed. - Cooling pump protection is defective - Cooling pump is defective.	Fill the tank with cooling agent. Change the thermal relay Check the cooling circuit and perhaps cleanse cooling system. Check the protection of cooling pump if need change it. Replace the cooling pump.
9. When is the material placed on the feeder and laser is not functional.	Error nr.15- sender or receiver are defective or pollution.	Replace the laser.

Declaration of Conformity

according to the Directive of the European Parliament and the Council 98/37EC modified by the Directive of the European Parliament and the Council 98/79/EC (statutory order num. 24/2003 Dig.), according to the Directive of the Council 73/23/EEC modified by the Directive of the Council 93/68/EEC (statutory order num. 17/2003 Dig.) and according to the Directive of the Council 89/336/EEC modified by the Directive 93/68/EEC (statutory order num. 18/2003 Dig.)

Manufacturer:

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627 00 Brno
Czech Republic

we hereby **declare** that the **machinery**

Compact 360A, 460A
Performance 280A

satisfy all the **requirements** stated in the above Directives and that the **machinery is safe** for defined usage. Measures, which ensure conformity with all machinery on the market, were adopted and practiced.

To ensure the conformity, the following directives were applied:

- the Directive of the European Parliament and the Council 98/37/EC modified by the Directive of the European Parliament and the Council 98/79/EC
- the Directive of the Council 73/23/EEC modified by the Directive of the Council 93/68/EEC
- the Directive of the Council 89/336/EEC modified by the Directive of the Council 93/68/EEC

Cross-reference for the harmonized technical standards:

- ČSN EN ISO 12100-1:2004
- ČSN EN ISO 12100-2:2004
- ČSN EN 13898:2004
- ČSN EN 614-1:1997
- ČSN EN 953:1998
- ČSN EN 982:1997
- ČSN ISO 3746:1996
- ČSN EN 60204-1:2000
- ČSN EN 55011:1999
- ČSN EN 61000-6-4:2002 EMC
- ČSN EN 61000-6-2:2002 EMC

Year of the CE put on the product: 06

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