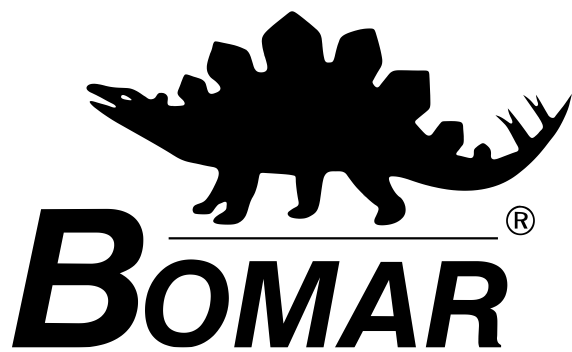




Operating Instructions for Band Saw

individual 510.330 GANC



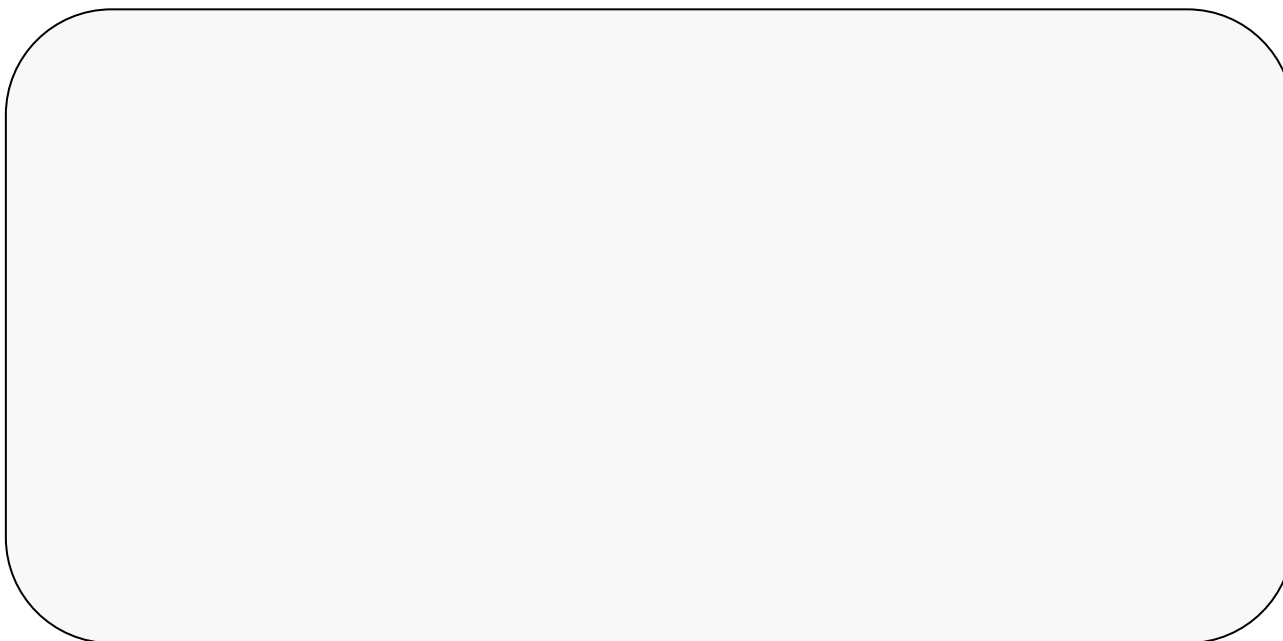
**Before transporting and using the machine, please read
the instructions thoroughly!**

Serial number:



Service and Information

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



Or contact Bomar, spol. s r.o. directly:

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Content

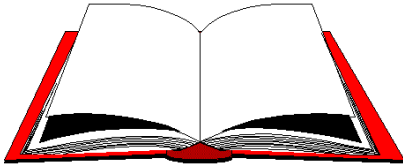
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1. Introduction



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 of the machine, please read the instructions thoroughly!



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

2. Band saw using

The individual 510.330 GANC 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

Machine weight:

Weight	1700 kg
--------	---------

Machine size:

Length	2484 mm
Width	2477 mm
Height	1636 mm

Electrical equipment of the machine:

Supply voltage	~3 x 400V, 50Hz, TN-C-S
Total input	6,8 kVA
Max. fuse	16 A
Protection degree	IP 54

Driving engine of the band saw:

Type	1LA7107-4AA10
Output	3,0 kW

Hydraulic equipment:

Type	870-1383
Output	1,1 kW

Cooling pump:

Type	3COA2-14H
Capacity	100 dm ³

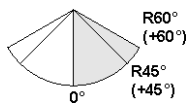
Size of the saw band:

4780 x 32 (34) x 1,1 mm

Cutting speed:

20 - 90 m/min

Cutting angles:

				
0°	Ø330 mm	500 x 330 mm	500 x 330 mm	330 x 330 mm
R 45° (+45°)	Ø330 mm	340 x 300 mm	300 x 330 mm	310 x 310 mm
R 60° (+60°)	Ø230 mm	240 x 200 mm	190 x 330 mm	210 x 210 mm

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.

4.2. Protective suit and personal safety



Wear tight fitting overalls!
Loose fitting clothes may 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.

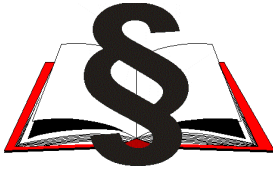
Do not hold the material for clamping to the vice and for cutting!

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.).
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!



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

For parts changing, use only parts, which are identical with the originals.

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.

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 $+55^{\circ}\text{C}$, for a short term (max. 24 hours) temperature of the air until $+70^{\circ}\text{C}$.
- 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.

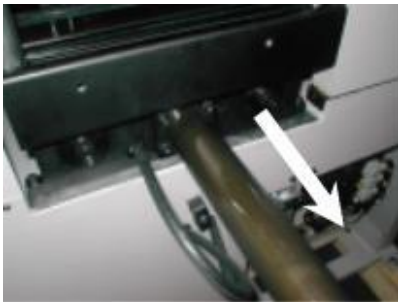
At relative dampness of the air in the extend from 30% to 95% (not concentrate).

Altitude higher than 1000 metres.

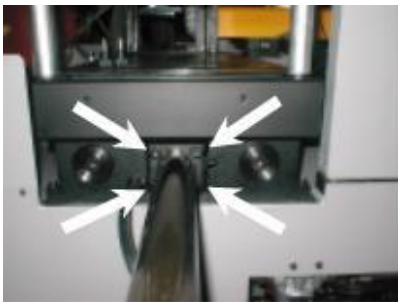
Do not expose the machine to the radiation (for example microwave radiation, ultra-violet radiation, laser radiation, X – ray radiation). Radiation can cause problems with the machine function and deteriorating condition of the isolation.

6.2. Band saw unpacking and assembling

1) Remove the packing from the machine and unpack all parts.



2) Pull the feeding cylinder up.



3) Screw on the feeding cylinder by means of screws (they are added to the band saw).

6.3. 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.

6.4. Electrical connection



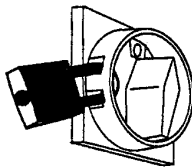
ATTENTION! Only a qualified professional must carry out the servicing and repairs of the electric equipment! Take special care during work with electrical equipment. High voltage shock can have fatal consequences! Always keep notes about work safety!

Electrical parameters of the machine:

Service voltage:	~ 3 x 400 V, 50 Hz, TN-C-S
Total input:	see Technical data
Max. fuse:	16 A

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.



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.

6.5. 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.

6.6. 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.

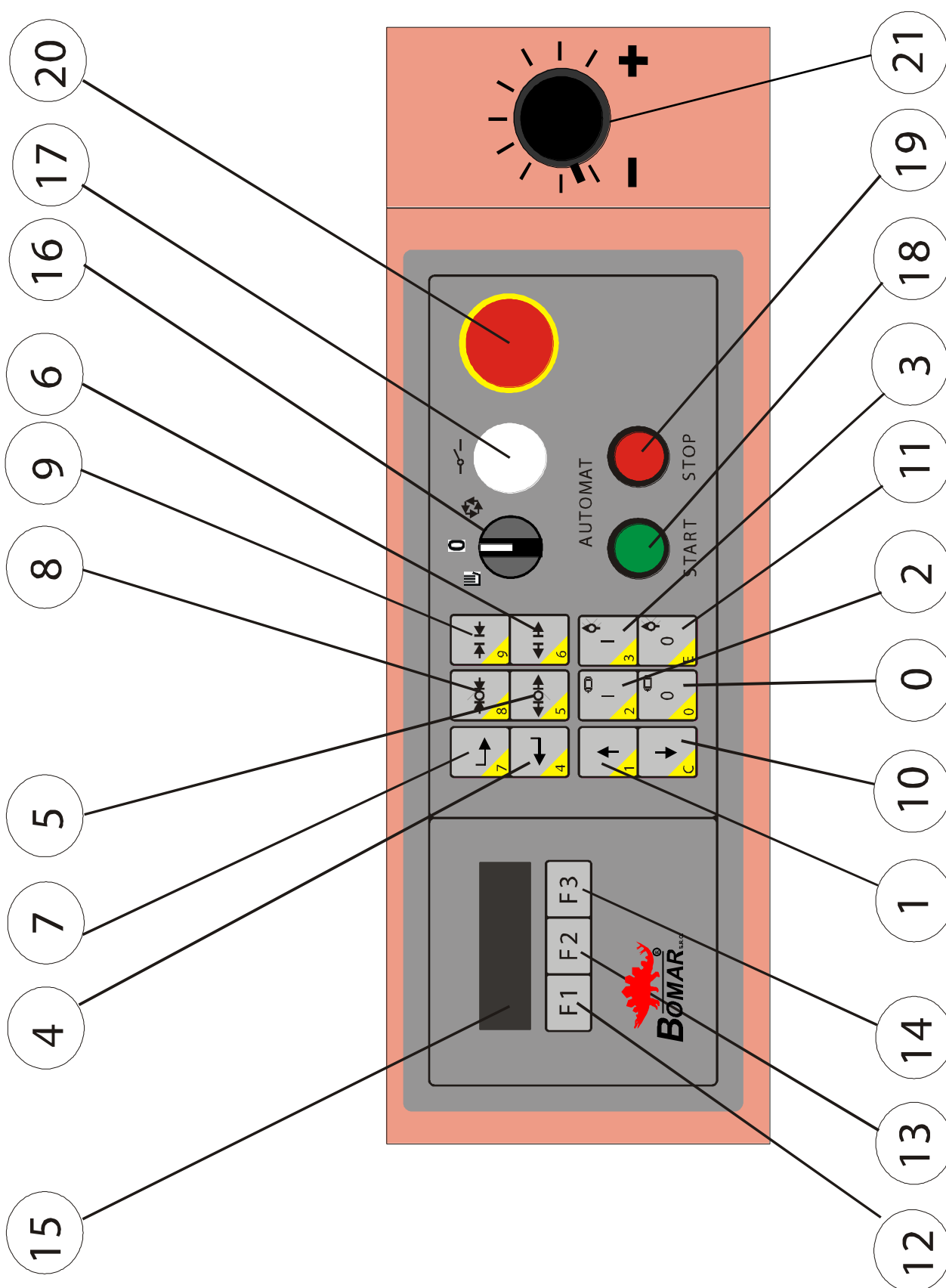
Switch on the main switch and check the motors and systems (saw band drive, hydraulic pump, cooling pump, chips conveyor).

Open and close the main vice and the feeding vice. Drive the front feeder from the front position – GANC 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 – description



0	Stop the saw band drive
1	Lift the saw frame
2	Start the saw band drive
3	Start the hydraulic aggregate
4	Feeding vice to the back position
5	Open the feeding vice
6	Open the main vice
7	Feeding vice to the forward position
8	Close the feeding vice
9	Close the main vice
10	Saw frame down Press together buttons 10 and 14 (F3) , the frame is sinking quickly.
11	Stop the hydraulic aggregate
12	F1 –Functional button Button function is described below in the text.
13	F2 –Functional button Button function is described below in the text.
14	F3 –Functional button Button function is described below in the text.
15	Display There is depicted operating mode and it allows dialogue with service workers.
16	Switch Operating mode pre-selection.  Semi-automatic mode  Automatic mode 0 Set mode
17	Safety circuit switching on Switch on the safety circuit by pressing the button.
18	START button It starts the automatic cycle by pressing button.
19	STOP button It stops the automatic cycle by pressing button.

20**TOTAL – STOP button**

Shutting the machine down in emergency!

21**Governing valve**

Adjust the speed of the arm sinking to the cut by governing valve.

Notice: If you keep closing the throttle valve too tightly, the valve seat may wear off which causes its leakage. Therefore, close the valve always gently.

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 17 – control panel of the band saw).

8.2. Feeder reference position

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

```
"  MODE SELECTION  "
" Mode select. Switch "
" is in position '0' "
"<REFER>      <SERVICE>"
```



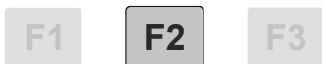
2) Press button **F2**. Feeder drives to the reference position.

```
" AUTOMATIC SETUP OF "
" REFERENCE POSITION "
"      FEEDER      "
"      <START>     "
```



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

```
" REFERENCE POSITION "
"      FEEDER      "
"      SET CORRECTLY "
"      <OK>        "
```



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!



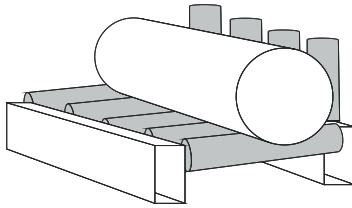
Handle with the material only with the lift truck or use the suspension strands and the crane!
Do not use the lift truck or crane in case that you do not have the licence to handle with it!

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**“.

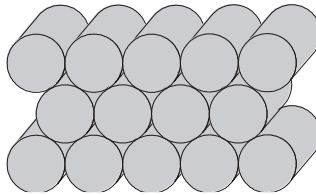
Make sure the conveyor is long enough and the material cannot tip off the conveyor.



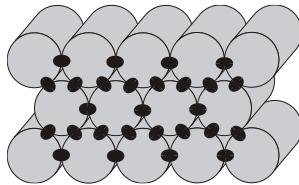
Be especially careful with round materials that it always stays on two vertical rollers and that it cannot fall off the conveyor!

9.4. Bundle material cutting

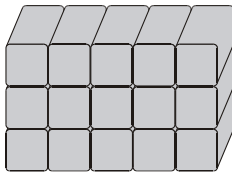
If you want to cut the material in the bundle, there are suggestions for the positioning of bundles



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!



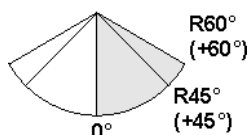
Wear protective boots!
Falling cut pieces can cause serious injuries.



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

10.2. Angular cut setting

The cut angle can be varied from 0° to $+60^\circ$. Angles 0° and $+60^\circ$ are set by means of the fixed stop.



1) Release the securing lever.



2) Adjust the desired cutting angle according to display (on the saw pillar) and tighten the lever again.

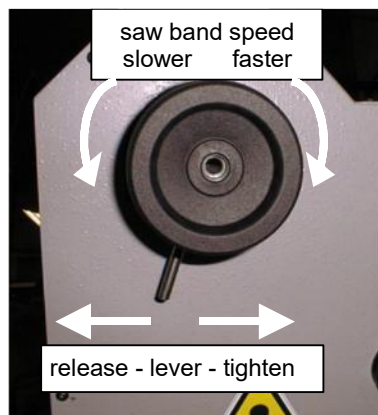


Note: Set the saw frame to the position 0° and press button zeroizing of the angle (on the distribution box under the main switch) after main switch starting of the machine. Angles admeasurement is secured.

10.3. Cutting speed adjustment

The saw band speed is possible to change from 20 to 90 min⁻¹. Makes the cutting speed adjustment:

- 1) Turn switch **16** to position „“.
- 2) Start the saw band drive by button **2**.
- 3) Release the securing lever.
- 4) Adjust the desired band speed.



The saw band speed appears on the display (it is situated on the saw arm).

- 5) Tighten the securing lever again.

ATTENTION! At least once a week set the saw band speed from the lowest up to the highest speed.

10.4. Optimal adjusting of the guide cubes span

If you want to achieve a smooth and precise cut, it is helpful to position the guide cube as close as possible to the material.



1) Release the lever of the left listel and move left part of the guide apparatus so that the left guide cube edge is as close to the cut material as possible.

2) Lower the frame to the lower position and check the position of the guide cube towards vice loading area. The guide cube must be a distance of at least 10 mm from the vice loading area.

3) Tighten the lever of the gib and check the guide cube setting once more for possible collision with binding table or vice jaw.

10.5. Swarf conveyor operation

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

In semi-automatic cycle

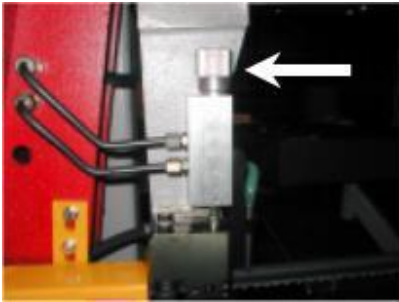
Swarf conveyor ON – press together **F1** and **3** buttons.
Swarf conveyor OFF – press together **F1** and **E** buttons.

In automatic cycle

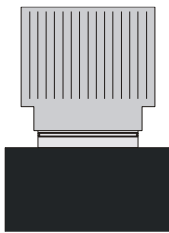
The swarf conveyor operation is adjusted according to chapter Service menu.

10.6. Pressure adjusting to the cut

The band saw individual 510.330 GANC is equipped with pressure to the cut on the right guiding cube.

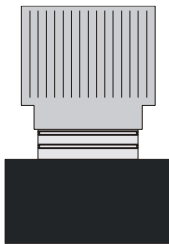


Pressure adjusting is performed with regulating wheel on the guiding cube. Screw on the wheel, the pressure is increased. Screw off the wheel, pressure is lowered.



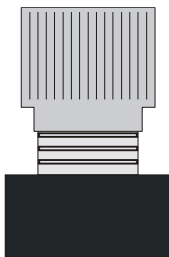
1) One visible neck

Solid material over $\varnothing 200$ mm.



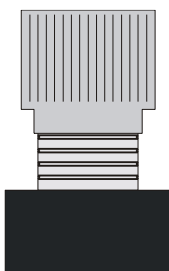
2) Two visible necks

Solid material from $\varnothing 100$ to $\varnothing 200$ mm.



3) Three visible necks

Pipes and shapes material with surface from 10 – 15 mm.
I – shaped material from 200 – 500 mm.
Solid material to $\varnothing 100$ mm.



4) Four visible necks

Pipes and shapes material with surface to 10 mm.
I- shaped material to 200 mm.

11. Semi-automatic cycle

11.1. 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.

11.2. Semi-automatic mode

There is possible to make the individual cuts. The adjusting of the desired length is performed semi-automatically.

- 1) Turn switch **16** to position „“.
- 2) Open the main and feeding vice by means of buttons **6** and **5**.
- 3) Insert the material to the feeding vice.
- 4) Clamp the material to the feeding vice by button **8**.
- 5) Drive the material to the desired length, which you want to cut by buttons **4** and **7**.
- 6) Clamp the material to the main vice by button **9**.
- 7) Press button **START**. The band saw cuts the material.
- 8) When material cutting is finished, the saw arm is lifted up and button **START** starts to blink. Now you can remove the blank.

11.3. Cycle breaking

The cycle can be stopped by 2 ways:

a) Press button **STOP** (button 19 – control panel) – the saw interrupts the actual cut, the saw arm lifts to the starting position and it stops.

b) Press emergency button **TOTAL STOP** (button 20 – control panel) in emergency causes! The safety circuit is broken and the saw band drive is stopped too.

11.4. Speed adjusting of the arm lowering

Set the speed of the arm lowering to the cut by control valve (position 21 – 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**.

Notice: If you keep closing the throttle valve too tightly, the valve seat may wear off which causes its leakage. Therefore, close the valve always gently.

12. Automatic mode

12.1. 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.

12.2. Cycle preset

Turn switch **16** to position „“ to pre-set the automatic cycle.

Definition explain:

Pre-selection is programme part, which includes the length of blank and pieces number of the set length.

12.2.1. Preset

1) Adjust the length of blank. Press button **F2**.

```
" PROGRAM No: 1"
" Length: 0.0 mm "
```

" Pieces: 0 pcs."

"<BACK> <NEXT> <DONE>"

F1 **F2** **F3**

2) Adjust the pieces number. Press button **F2**. Pre-selection number 1 is pre-set.

```
" PROGRAM No: 1"
" Length: 0.0 mm "
```

" Pieces: 0 pcs."

"<BACK> <NEXT> <DONE>"

F1 **F2** **F3**

3) Pre-set the other pre-selections by repeating points 1 and 2. Press button **F3**. Preset is finished.

```
" PROGRAM No: 2"
" Length: 0.0 mm "
```

" Pieces: 0 pcs."

"<BACK> <NEXT> <DONE>"

F1 **F2** **F3**

Note: Finish the cycle preset by button F3 is impossible, if the length or pieces number has null value in set pre-selection. That means the length and pieces number must be bigger than null.

4) Programme will be effected from beginning to the pre-selection, in which will be finished preset by pressing button **F3 <DONE>**. That means, if you pre-set 3 pre-selections and you finish the preset by pressing button F3, pre-selections 1,2 and 3 will be effected.

12.2.2. Editing

The length of blank or pieces number is possible to change this way:

1) Adjust the pre-selection, which you want to change, by pressing buttons **F1** and **F2**.

```
"    PROGRAM No:  2"
" Length:  200.0 mm "
```

" Pieces: 5 pcs."

"<BACK> <NEXT> <DONE>"

F1

F2

F3

2) Adjust the new length of the blank. Press button **F2**. The length of blank is changed.

```
"    PROGRAM No:  2"
" Length:  250.0 mm "
```

" Pieces: 5 pcs."

"<BACK> <NEXT> <DONE>"

F1

F2

F3

3) Adjust the new pieces number. Press button **F2**. The pieces number is changed.

4) You can change the other pre-selections by repeating points 1, 2 and 3. Press button F3, editing is finished.

12.2.3. Clearing

Clear the adjusted pre-selection from the memory is possible to adjust the null values of the length and pieces number.

1) Adjust the pre-selection, which you want to clear by pressing buttons **F1** and **F2**.

```
"    PROGRAM No:  3"
" Length:  0.0 mm "
```

" Pieces: 5 pcs."

"<BACK> <NEXT> <DONE>"

F1

F2

F3

2) Adjust the length of blank „0“. Press button **F2**. The length of blank is cleared from adjusted pre-selection.

```
"    PROGRAM No:  3"
" Length:  0.0 mm "
```

" Pieces: 0 pcs."

"<BACK> <NEXT> <DONE>"

F1

F2

F3

3) Adjust pieces number „0“. Press button **F2**. The pieces number is cleared from adjusted pre-selection.

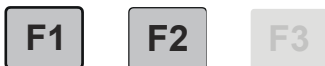
4) Adjusted pre-selection was cleared with adjusting the null length and null pieces number. All following pre-selections will be ignored, that means they not will be effected.

12.3. Automatic cycle with material cutting

If you want to cut the material end before starting of the automatic cycle pre-set, you must continue this way:

1) Make following after finishing of the automatic cycle pre-set.

```
"SETUP OF THE RETURN "
"POSITION OF SAW-ARM "
"(pos. after the cut)"
"<END> <DONE> "
```



2) Adjust the arm cca 3 cm above the material by pressing buttons „Saw arm up“ (1) and „Saw arm down“ ©. The saw arm will be returned to this height always.

3) Store the adjusted position by pressing button **F2**.

Note: Return to the pre-set by pressing button **F1**.

```
" AUTOMATIC TRIM CUT "
" "
" <YES> <NO> "
```



4) Press button **F1** <YES> for material cutting.

```
" AUTOMATIC TRIM CUT "
" Press the START "
" "
```

5) Press button **START** (18). The saw makes the material cutting.

```
" AUTOMATIC TRIM CUT "
" Wait until "
" the cut is finished"
```

6) The report about course of cutting appears on the display during material cutting.

```
" AUTOMATIC CYCLE "
" Press button "
" START "
" "
```

7) When the cutting is finished, press button **START** again. The saw makes the pre-set of automatic cycle.

8) Button **START** starts to blink after finishing of the automatic cycle. Now you can remove blanks.

12.4. Automatic cycle without material cutting

If you do not want to cut material end before starting of the automatic cycle pre-set, you must continue this way:

1) Make following after finishing of the automatic cycle pre-set.

```
"SETUP OF THE RETURN "
"POSITION OF SAW-ARM "
"(pos. after the cut)"
"<END> <DONE> "
```



2) Adjust the arm cca 3 cm above the material by pressing buttons „Saw arm up“ (1) and „Saw arm down“ ©. The saw arm will be returned to this height always.

3) Store the adjusted position by pressing button **F2**.

Note: Return to the pre-set by pressing button **F1**.

```

" AUTOMATIC TRIM CUT "
"                               "
" <YES>                <NO> "
    

```

```

" AUTOMATIC CYCLE "
"   Press button  "
"       START     "
"               "

```

4) Now press button **F3** <NO>, you do not want to cut the material.

5) Press button **START**. The saw makes the pre-set of automatic cycle.

6) Button **START** starts to blink after finishing of the automatic cycle. Now you can remove blanks.

12.5. Cycle breaking

Cycle can be broken by 2 ways:

a) Press button **STOP** (button 19 – control panel) – the saw finishes the actual cut, arm lifts to the starting position and cycle is stopped.

b) Press emergency button **TOTAL STOP** (button 20 – control panel) in emergency causes! The safety circuit is broken and saw band drive is broken too.

12.6. Setting the speed of the saw arm lowering

Set the speed of the arm lowering to the cut by control valve (position 21 – 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**.

Notice: If you keep closing the throttle valve too tightly, the valve seat may wear off which causes its leakage. Therefore, close the valve always gently.

13. Blanks removing from the band saw

13.1. 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!

13.2. 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!

13.3. Blanks removing

Remove the blanks from the band saw.

14. Service menu

Service – adjusting of the cutting parameters. All parameters are possible to find in service menu.

14.1. Entrance to service menu

```
"  MODE SELECTION  "
" Mode select. Switch"
" is in position '0'"
"<REFER>          <SERVICE>"
```



Turn switch (16) to position „0“ and press button **F3** to enter to service menu.

14.2. 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 = Clamp params.  "
"2 = Cooling params."
"3 = Cutting params."
"          <NEXT> <DONE>"
```



1) Press button **1** to enter to menu: Vice parameters.

```
" CLAMP OPENING TIME"
" <-]O[-> : x.x sec  "
" <-] [-> : x.x sec  "
"          <NEXT> <MENU>"
```



2) Feeding vice (upper row) – adjust the time, press button **F2**.

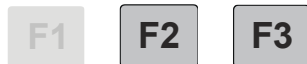
The main vice (lower row) – adjust the time, press button **F3** for returning to main menu.

14.3. Cooling parameters

You can select the type and mode of the band cooling.

Press button **2** to enter to menu: Cooling parameters.

```
"1 = Clamp params.  "
"2 = Cooling params."
"3 = Cutting params."
"      <NEXT><DONE>"
```



14.3.1. Cooling type

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

1) Press button **1** to enter to menu: Cooling type.

```
"1 = Cooling type  "
"2 = Cooling mode  "
"      <MENU>"
```



```
"1= Water cooling [x]"
"2= Microniser   [ ]"
"3= No cooling    [ ]"
"      <MENU>"
```



2) Select the desired cooling mode. The selected item is marked „x“.

button **1** – saw band cooling with the water.
 Button **2** – saw band cooling with Microniser.
 Button **3** – without cooling of the saw band.

3) Press button **F3**. The selected cooling type is stored and you can return to the previous menu.

14.3.2. Cooling mode

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

1) Press button **2**, to enter to menu: Cooling mode.

```
"1 = Cooling type  "
"2 = Cooling mode  "
"      <MENU>"
```



```
"1=Top pos shutoff [x]"
"2=Bot.pos shutoff [ ]"
"3=No shutoff      [ ]"
"      <MENU>"
```



2) Select the desired mode of cooling stopping. The selected item is marked „x“.

button **1** – stop the saw band cooling after cutting finishing in **top** position of the saw arm.
 Button **2** – stop the saw band cooling after cutting finishing in **down** position of the saw arm.
 Button **3** – **do not stop** the saw band cooling after cutting finishing.

3) Press button **F3**. The selected cooling type is stored and you can return to the previous menu. To another pressing button **F3**, you can return to the service menu.

14.4. Cutting parameters

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

```
"1 = Clamp params      "
```

```
"2 = Cooling params   "
```

```
"3 = Cutting params   "
```

```
"      <NEXT><DONE>"
```



```
"1=Top pos shutoff [x]"
```

```
"2=Bot.pos shutoff [ ]"
```

```
"3=No shutoff      [ ]"
```

```
"      <MENU>     "
```



1) Press button **3** to enter to menu: Cutting parameters.

2) Select the desired mode of the saw band stopping. The selected item is marked „x“.

button **1** – saw band stopping in **top** position after cutting finishing.

Button **2** – saw band stopping in **down** position after cutting finishing.

Button **3** – **do not stop** the saw band after cutting finishing.

3) Press button **F3**. The selected mode of band stopping is stored you can return to the previous menu.

14.5. Swarf conveyor operation

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

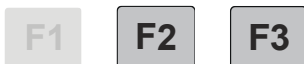
You can select from 3 possibilities of swarf conveyor operation in automatic cycle.

```
"1 = Clamp params      "
```

```
"2 = Cooling params   "
```

```
"3 = Cutting params   "
```

```
"      <NEXT><DONE>"
```

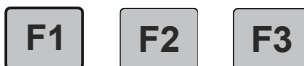


```
"1 = Machine params. "
```

```
"2 = Language        "
```

```
"3 = Swarf conve.mode"
```

```
"<BACK> <NEXT> <DONE>"
```



1) Press button **F2** – other. Shift to the next menu.

2) Press button **3** to enter to menu: Swarf conveyor operation.

3) Select the desired swarf conveyor operation. The selected item is marked „x“.

button **1** – starting and stopping of the swarf conveyor together with saw band.

Button **2** – starting of the swarf conveyor automatically, but stopping of the eliminator is performed manually.

Button **3** – starting and stopping of the swarf conveyor is performed manually.

4) Press button **F3**. The selected mode of swarf conveyor operation is stored, you can return to the previous menu.

```
"1=Along with band[ ]"
```

```
"2=Manual shut-off[ ]"
```

```
"3=Manual control [x]"
```

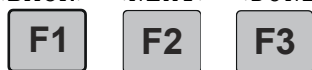
```
"      <MENU>     "
```



14.6. Length units selection

You can select the length units: millimetres or inches.

```
"1 = Machine params. "  
"2 = Language      "  
"3 = Swarf conve.mode "  
"<BACK> <NEXT> <DONE>"
```



```
"1 = System info    "  
"2 = Length correct "  
"F1= mm(1) inch(0) [1]"  
"                  <MENU> "
```



1) Press button **F2** – other. Shift to the next menu.

2) Select the length units: millimetres or inches by repeated pressing button **F1**.

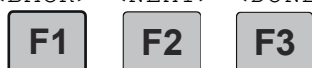
1 = millimetres
0 = inches

3) Press button **F3**. The selected parameters are stored and you can return to the previous menu.

14.7. Service menu closing

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

```
"1 = Machine params. "  
"2 = Language      "  
"3 = Swarf conve.mode "  
"<BACK> <NEXT> <DONE>"
```



15. Selection and replacement of the saw band

15.1. 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.

15.2. Saw band sizes

4780 x 32 (34) x 1,1 mm

15.3. 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 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.

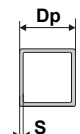
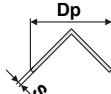
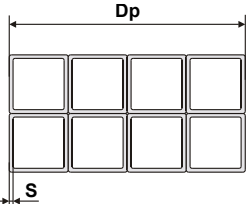
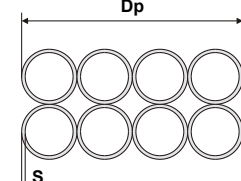
K – tooth with positive angle of the teeth.

Examples of the tooth system marking:

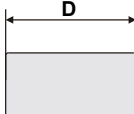
32 S – number „32“ means 32 teeth on one inch (that means constant tooth system), letter „S“ marks teeth with zero angle of the tooth.

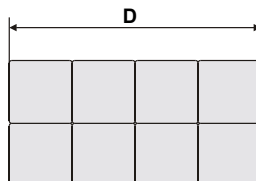
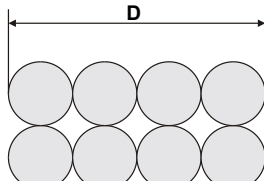
4-6 K – number „4-6“ means 4 till 6 teeth on one inch (that means variable tooth system); letter „K“ marks teeth with positive angle of the teeth.

Tables for teeth selection:

SHAPED MATERIAL (Dp, S = mm)						
						
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.						
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!

15.4. Saw band running - in

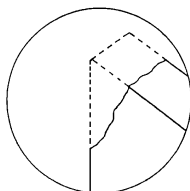
To ensure a full service life of the saw bands, we strongly recommend that you carry out the „RUN-IN“ process.

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

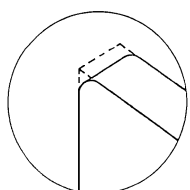
When cutting small pieces run the band until approximately 300 cm² of material has been cut.

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.

Note: Run regrounding saw bands too!

15.5. Saw band dismantling

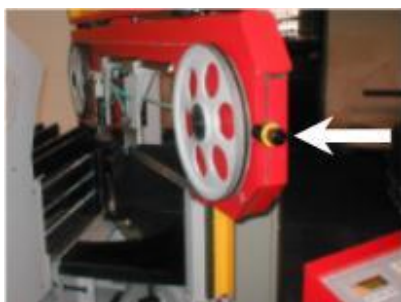
1) Lift the saw arm to the top position.



2) Dismantle yellow protective cover of the saw band. The cover is fastened with screw.



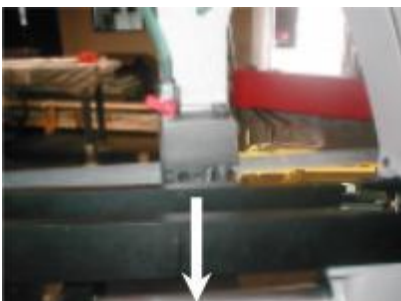
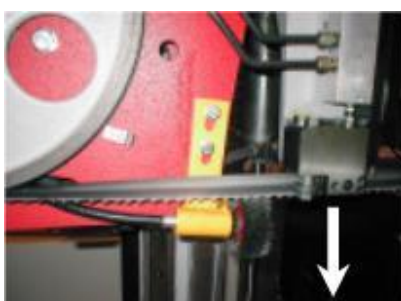
3) Release clasps on arm cover and open it.



4) Turn by stretching star to the left side, release saw band stretching.



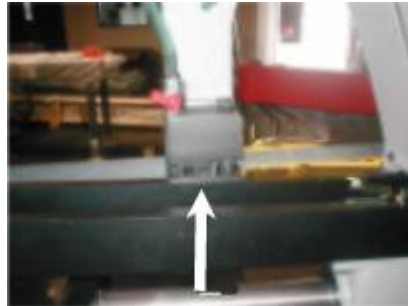
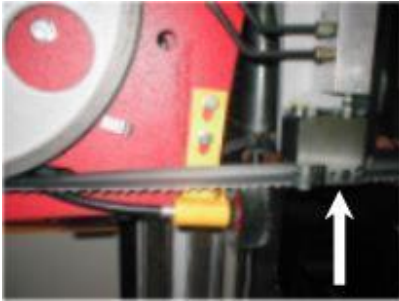
5) Pull saw band from blade wheels.



6) Pull up the saw band from the guiding cubes.

15.6. Saw band installation

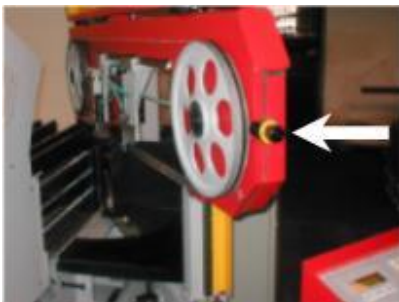
1) Prior to installation, clean all track wheels, guide cubes and inner side of the arm thoroughly of all traces of chips and dirt. Keep in mind the teeth direction when installing the saw band.



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.



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) By turning the stretching star to the right, you will stretch the saw band slightly. Remove the plastic cover of the saw band teeth.



5) Close the rear cover of the arm.



6) Install the yellow protective cover of the band. The arrow on the cover must match the direction of the arrow on the band. If it does not match, you must turn the band round.

15.7. 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.

15.7.1. 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.

15.7.2. 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 **1 – 3 mm**, setting is right.

- if the distance is bigger than **3 mm**, or the saw band is on the offset of the wheel, set the saw band according to chapter „**Servicing and adjustment**“.

5) Close cover of the saw band.

16. Cooling agents and chips disposal

16.1. 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.

16.2. 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

16.3. 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 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.

16.4. 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.

17. Greases and oils

17.1. 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
Individual 410.260 GANC	Shell Tivela S 320	0,85 l
Individual 410.260 GH	Shell Tivela S 320	0,85 l
Individual 510.330 GANC	Shell Tivela S 320	1,8 l
Individual 510.330 GH	Shell Tivela S 320	1,8 l
Individual 610.440 GANC	Shell Tivela S 320	2,3 l
Individual 610.440 GH	Shell Tivela S 320	2,3 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

17.2. 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		

17.3. 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	Energol 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

18. Service

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

18.2. 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.

18.3. 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.

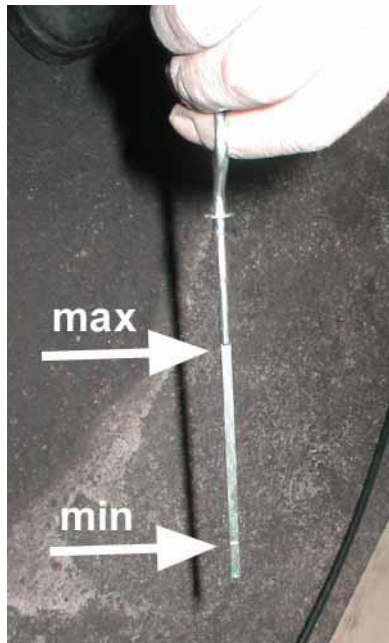
If the cooling liquid is little in the tank, it can cause the damage of the saw band influences insufficient cooling.

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

18.4. Hydraulic oil level check

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

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



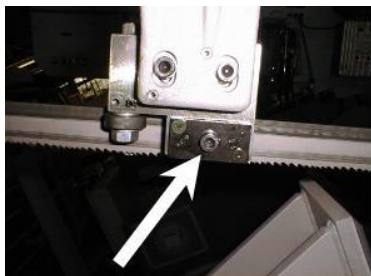
Pull up the gauge and check the state of the oil. The oil level must be situated between marks **min** and **max**.

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

19. Servicing and adjustment

19.1. 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) Tighten the screw on the guide cube to release the saw band.
- 2) Release the screw and let hard metal plate sits on the saw band. The screw must turn slightly by hand. Adjust guides of the hard metal on the right cube.
- 3) Be sure that the hard metal guides do not put up to much resistance otherwise the lifetime of the saw band and drive decreases.

19.2. Guide cubes adjustment

The guiding cubes are set from the manufacturer. Cubes are secured with two pins. It is not necessary to set the guiding cubes all the while of the lifetime.

19.3. Saw band run adjustment on stretching wheel

Saw band run on the stretching wheel must be regularly inspected. The inspection has to follow every saw band replacement.

Saw band run inspection

If the run is not correct, the following problems may occur:

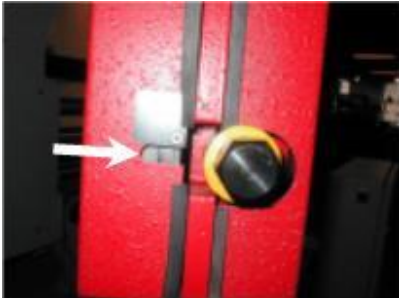
The saw band falls off the wheel

The saw band and protective cover can be damaged.

The saw band runs on the wheel rim

The saw band and wheel rim can be damaged.

- 1) Start and stop saw band drive.
- 2) Stop the main switch!
- 3) Open rear cover of the saw frame.



- 4) Check saw band placing on the wheels.

- If the distance of the rear part of the saw band from wheel rim is 1 – 3 mm, setting is right.
- If the distance is bigger than 3 mm, or the saw band runs on the wheel rim, saw band run must be set.

Saw band setting



The saw band run is set with screw in the stretching cube on the saw frame. Optimal distance has been determined at **1 – 3 mm**.

- Turn by screw to the right, the saw band approximates to the stretching wheel rim.
- Turn by screw to the left, the saw band departs from the stretching wheel rim.

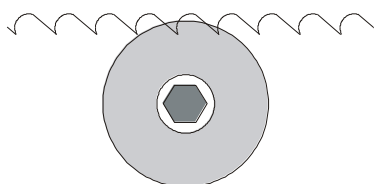
Check saw band run again after setting.

19.4. Brush adjustment

The brush for chip removal from the saw band influences cutting durability, saw band lifetime and wheels lifetime, hard metal guides and finally the cut accuracy. Brush adjustment must be checked every shift.



1) Release screws on the brush holder.



2) Set the brush to the saw band so, that brush touches with band.

3) Tighten the screws.

19.5. Limit switch setting of the saw band stretching

After the saw band is replaced, the limit switch setting must be checked out. If the limit switch is not set correctly, the band is stretch too much or it is to loose.



1) Stretch the saw band by means of TENZOMAT on the optimal value.

2) Release the nut on the stop screw.

3) Start the driving engine. Two scenarios can occur:

a) If the engine is switched on, but it does not run, turn the screw to the left until the engine starts to run.

b) If the engine runs turn the screw to the right until it stops to run, then turn the screw shortly to the left until the engine starts to run again.



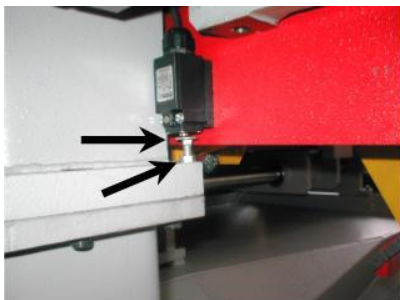
4) Secure the stop screw with nut and check the switch setting once more.

19.6. Limit switch of the saw frame lower position adjustment

Check setting

Lower the saw frame to the bottom position. If the saw frame is on the lower stop and the limit switch was responded, the limit switch adjustment is right. If the limit switch is not right, it must be set.

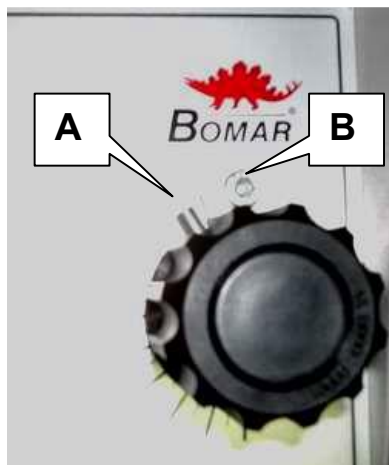
Limit switch setting



- 1) Release the nut of the stop screw of the switch and screw on the screw.
- 2) Lower the saw frame to the lower stop. Start the saw band drive.
- 3) Screw off the stop screw of the switch, until the saw band drive is not stopped.
- 4) Secure the screw with the nut and check limit switch adjustment again.

19.7. Adjustment of a throttle valve

- 1) Switch off the machine by its main switch. Let the sawing head down at the bottom. Close the throttle valve gently.
- 2) The worm screw (pos. A) must be next to the stop (pos. B), when the valve is closed.



Pic. 1



Pic. 2

- 3) Otherwise, you must loosen the worm screw, lift the plastic knob and close the throttle valve to the maximum. Next loosen the worm screw and take off the plastic knob. Put it back so that the worm screw must be next to the stop while the valve is closed. Then tighten the worm screw again.
- 4) Turn the machine on and test the down-feed control.

20. Worn pieces replacement

20.1. Hard metal guides replacement

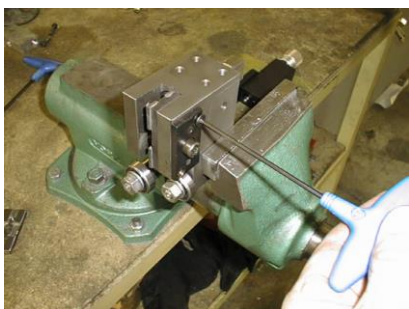
If the hard metal guides cannot be adjusted, they have to be replaced.



1) Remove the hosepipe leading to the cooling agent and dismantle saw band and saw band guiding cube.



2) Fasten the guiding cube to the vice. Release clamping screws of both hard metal guides and remove them.



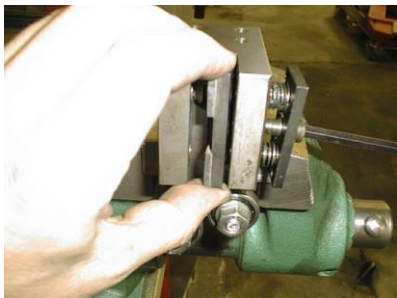
3) Screw out the adjusting screw of the adjustable hard metal guide.



4) Screw out the adjusting screw of the adjustable guide as far from the guiding cube so that it is not possible to see it from the inner side.



5) Remove the adjustable guide.



6) Insert new hard metal guides and screw on them.

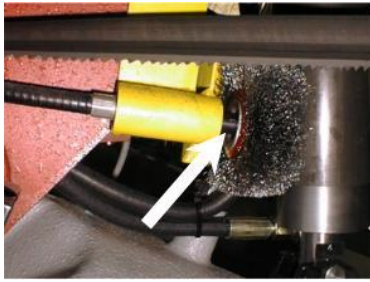


7) Install the cube on the holder and connect the cooling.

8) Adjust hard metal guides.

20.2. Round brush replacement

If the chip removing brush is so worn, that it does not fulfil its function, the brush must be replaced.



1) Hold brush shaft by key.



2) Release the nut of the brush, exchange old brush to new brush and screw on the nut of the brush.

3) Set the brush to the saw band.

20.3. Saw band guiding rollers replacement

If the saw band is not sufficiently guided by guiding pulleys or if the pulleys are obviously worn, the pulleys should be replaced. **ATTENTION!** Guiding pulleys must be replaced together on both guiding cubes!

1) Dismantle the saw band.

2) Disconnect the hose from the cooling agent, screw off the cutting pressure regulation. Let the cutting pressure regulation connected to the hydraulic system. Dismantle the guiding cube of the saw band.



3) Tighten the guiding cube to the vice and dismantle both eccentrics with bearings following way.

ATTENTION! Mark both eccentrics placing and components on the eccentric! Eccentrics must not be replaced with each other!

4) Screw off nuts from eccentrics.



5) Remove eccentrics from bearings by means of the swager.



6) Change all bearings and other worn parts.



7) Install eccentrics to the cubes. Install components on both eccentrics in given order. Put bearings by means of the preparation on eccentrics.

ATTENTION! Do not replace the eccentrics placing in the cube.



8) Screw on nuts on both eccentrics and tighten them.



9) Insert the saw band to the guiding cube (cca 15 – 20 cm). Set the eccentrics by means of the wrenches, the saw band must run in the centre. Guide pulleys must not press too much on the band, but must spin freely during the band run.

10) Tighten nuts on both eccentrics.

11) Remove the testing piece of saw band from the cube lead. Install the guiding cube on the machine and connect the cutting pressure regulation and cooling. Install the saw band.

20.4. Stretching wheel replacement

1) Dismantle the saw band.



2) Screw off the screw and remove the washer.

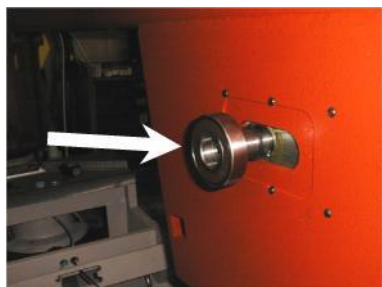


3) Pull the wheel from the shaft by means of wheel puller. If the lower bearing stays on the shaft, remove it too.

4) Check score of the bearings of the stretching wheel and replace them for new.



5) Clean the shaft and grease it with oil. Insert retaining ring to the groove.



6) Install bearing on the shaft and move it to the retaining ring. Insert the distance ring on the shaft and move it to the bearing.



7) Insert the retaining ring to the hole in the wheel.



8) Insert the bearing to the hole in the wheel and press it to the retaining ring.



9) Put the wheel on the shaft and screw on the preparation to the wheel stretching to the hole in the shaft.



10) Pull the wheel on the shaft.



11) Screw on the washer and screw back.

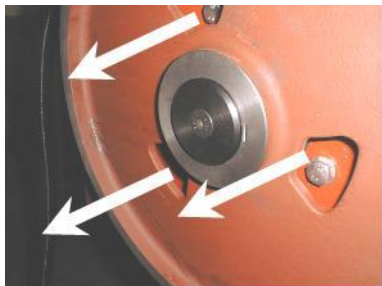
12) Install the saw band. Wheel replacement is ready.

20.5. Driving wheel replacement

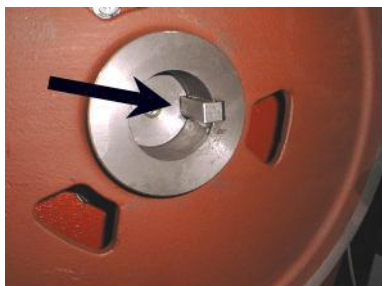
1) Dismantle the saw band.



2) Screw off the screw and remove the washer.



3) Pull off the wheel from the shaft by means of the three-armed puller



4) Install the wheel on the shaft. Insert the feather to the groove.



5) Screw on the preparation to the wheel stretching to the hole in the shaft. Pull on the wheel on the shaft.



6) Screw on washer and screw back.

7) Install the saw band. Wheel replacement is ready.

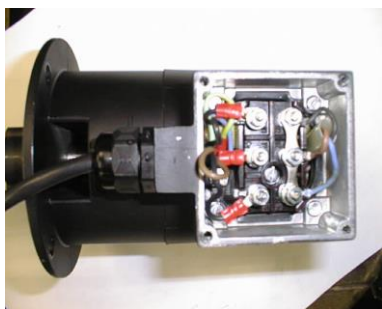
20.6. Cooling pump replacement



**Only a qualified worker can carry out the connection!
High-voltage shock may have fatal results.**

1) Pull the tank with the liquid from the pedestal.

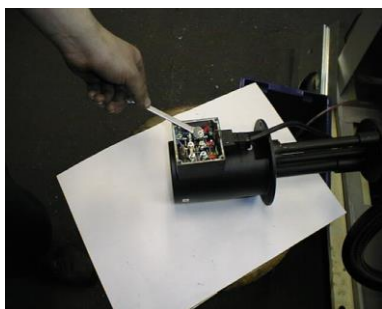
2) Remove the hosepipe leading to the cooling agent from the plug on the pump.
Screw off four screws from the cooling pump flange and pull out the pump from the sheet metal holder.



3) Remove the cover of the pump terminal switchboard. Disconnect 4 terminal connectors of the input cables. Cables are identified according to the red clamps.



4) Loosen the bushing and pull the cable out from the pump.

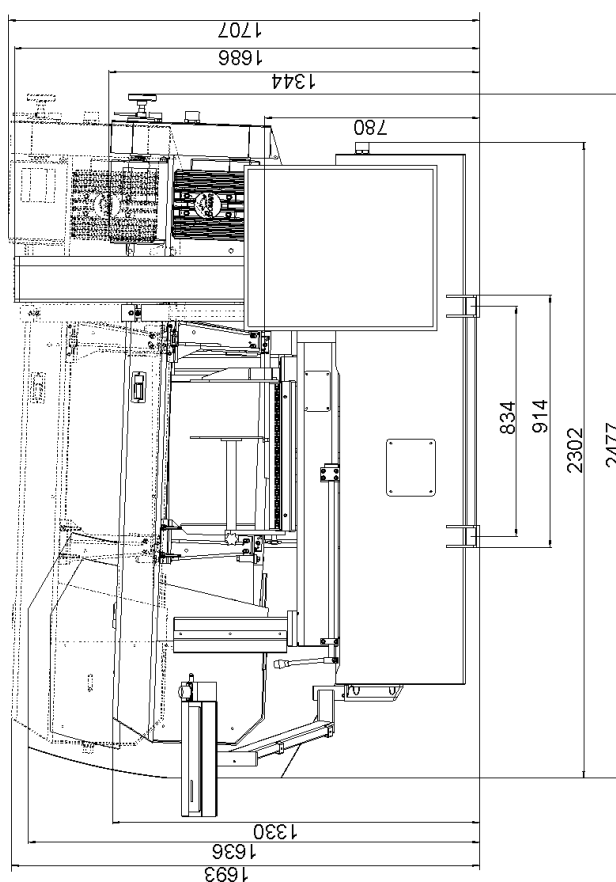
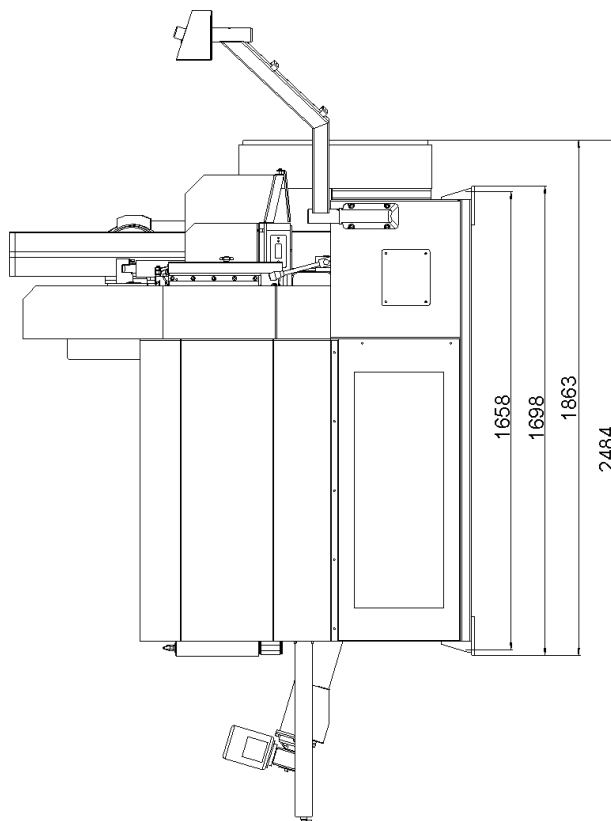


5) Dismantle new pump switchboard cover. Push the cable through the bushing and fasten it.

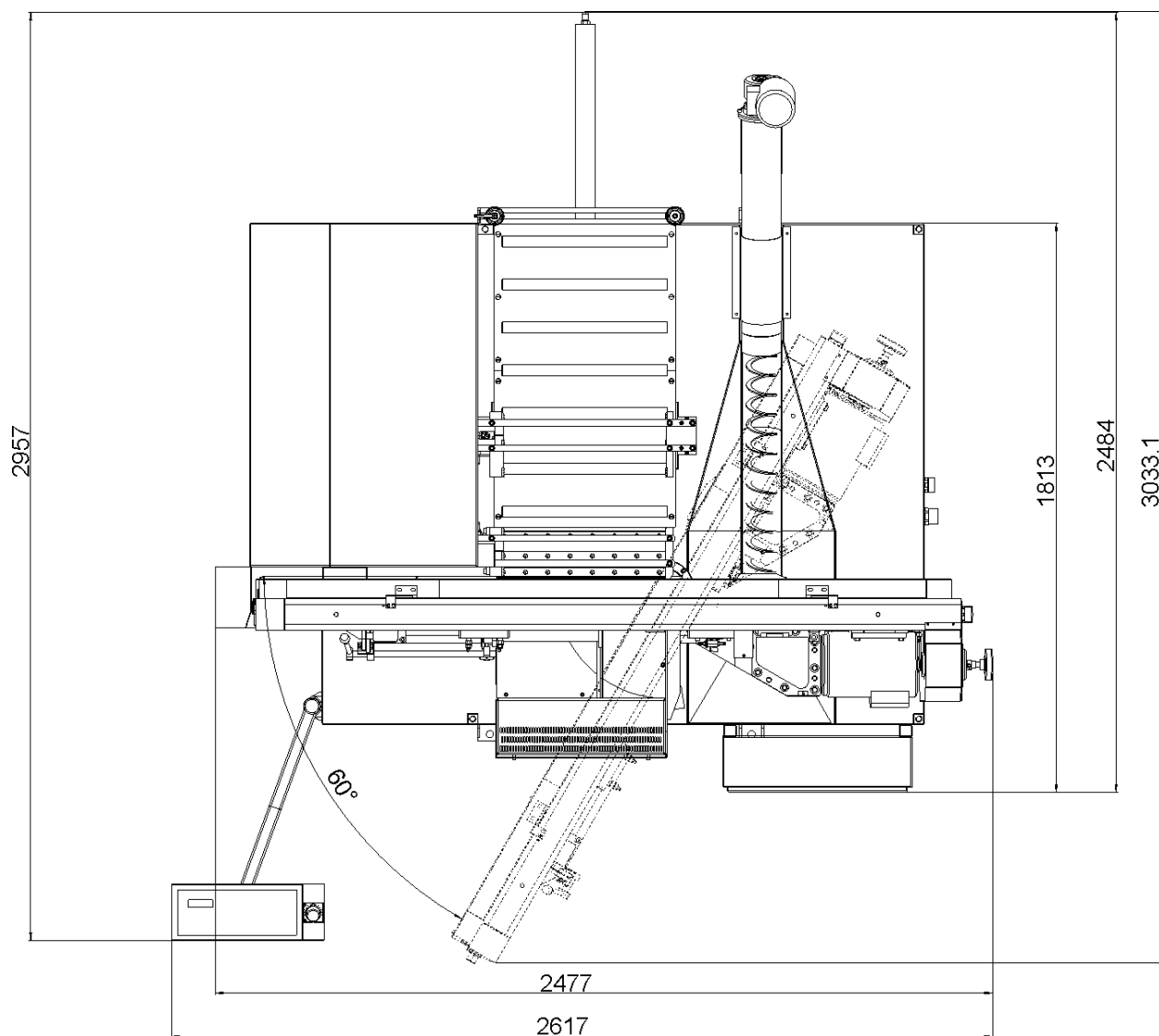


6) Screw on the cable bushing and cover of the terminal block. Do not forget the rubber gasket! Tighten the cooling liquid hose with non-stick tape and screw it again. Install cooling liquid hose, place the pump on the sheet metal holder and screw it.

21. Rozměrové schéma / Aufstellzeichnung / Installation diagram

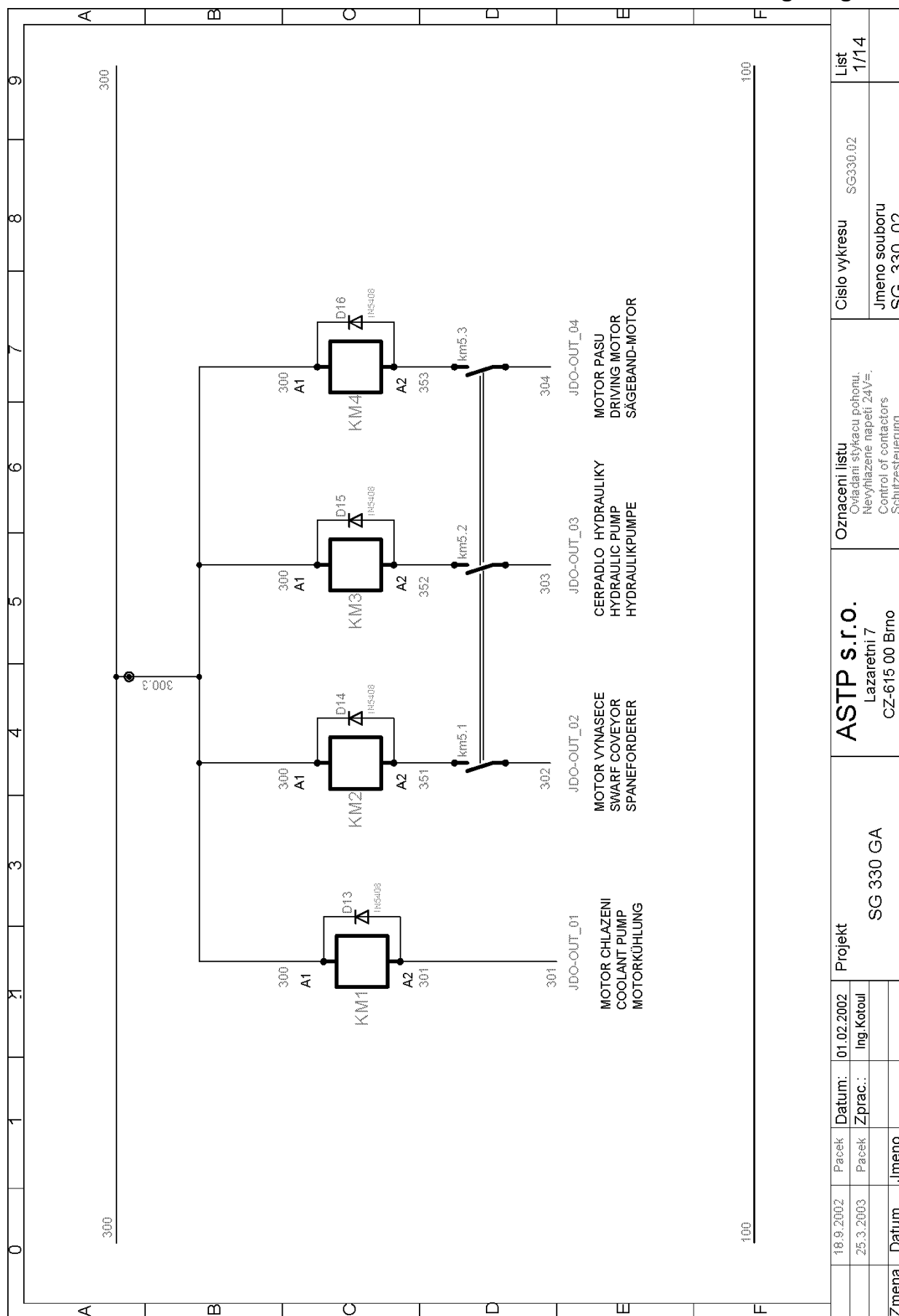


Rozměrové schéma I / Aufstellzeichnung I / Installation diagram I



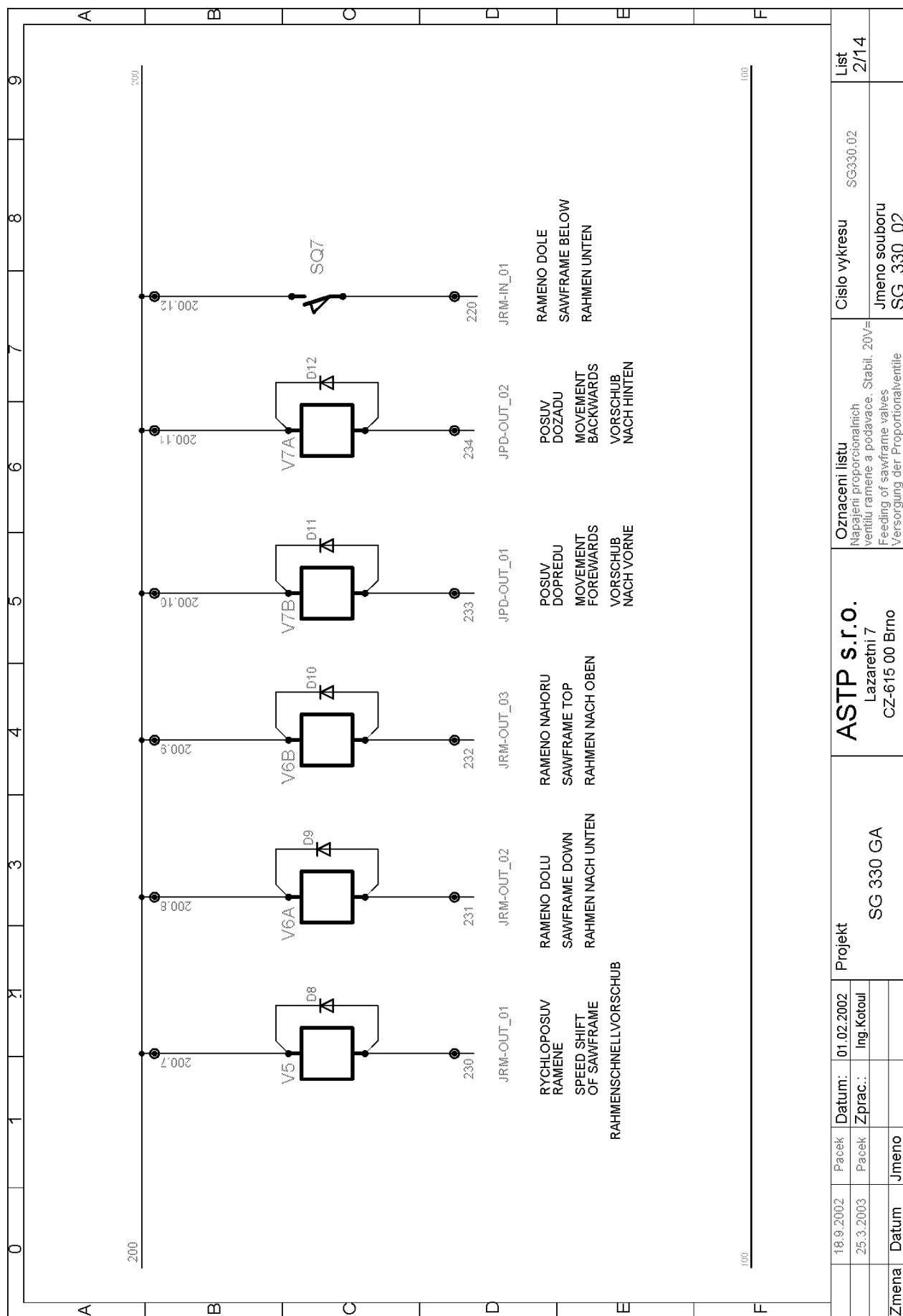
Rozměrové schéma II / Aufstellzeichnung II / Installation diagram II

22. Elektrická schémata / Elektroschemas / Wiring diagrams

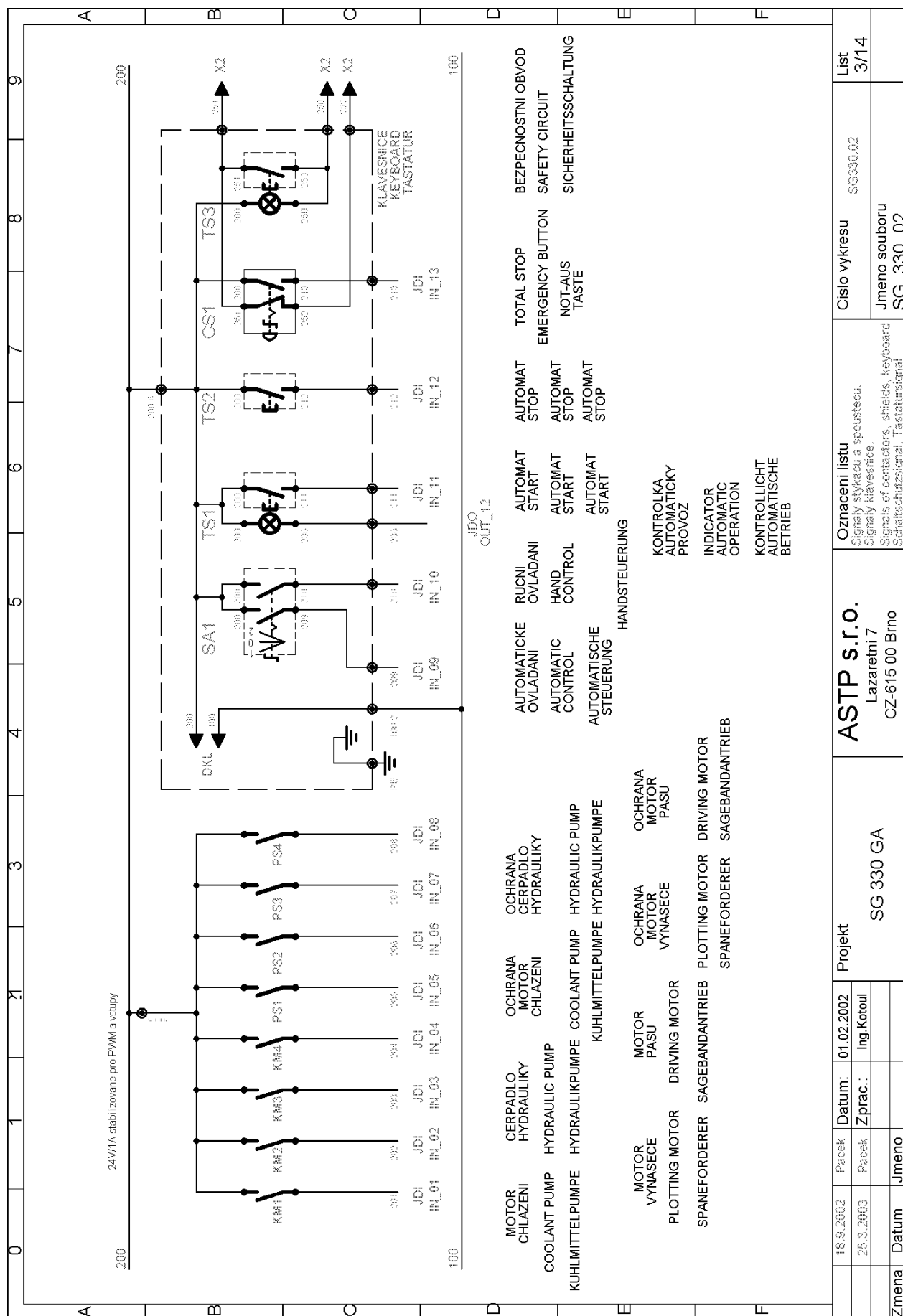


Elektrické schéma 1 / Elektroschema 1 / Wiring diagram 1

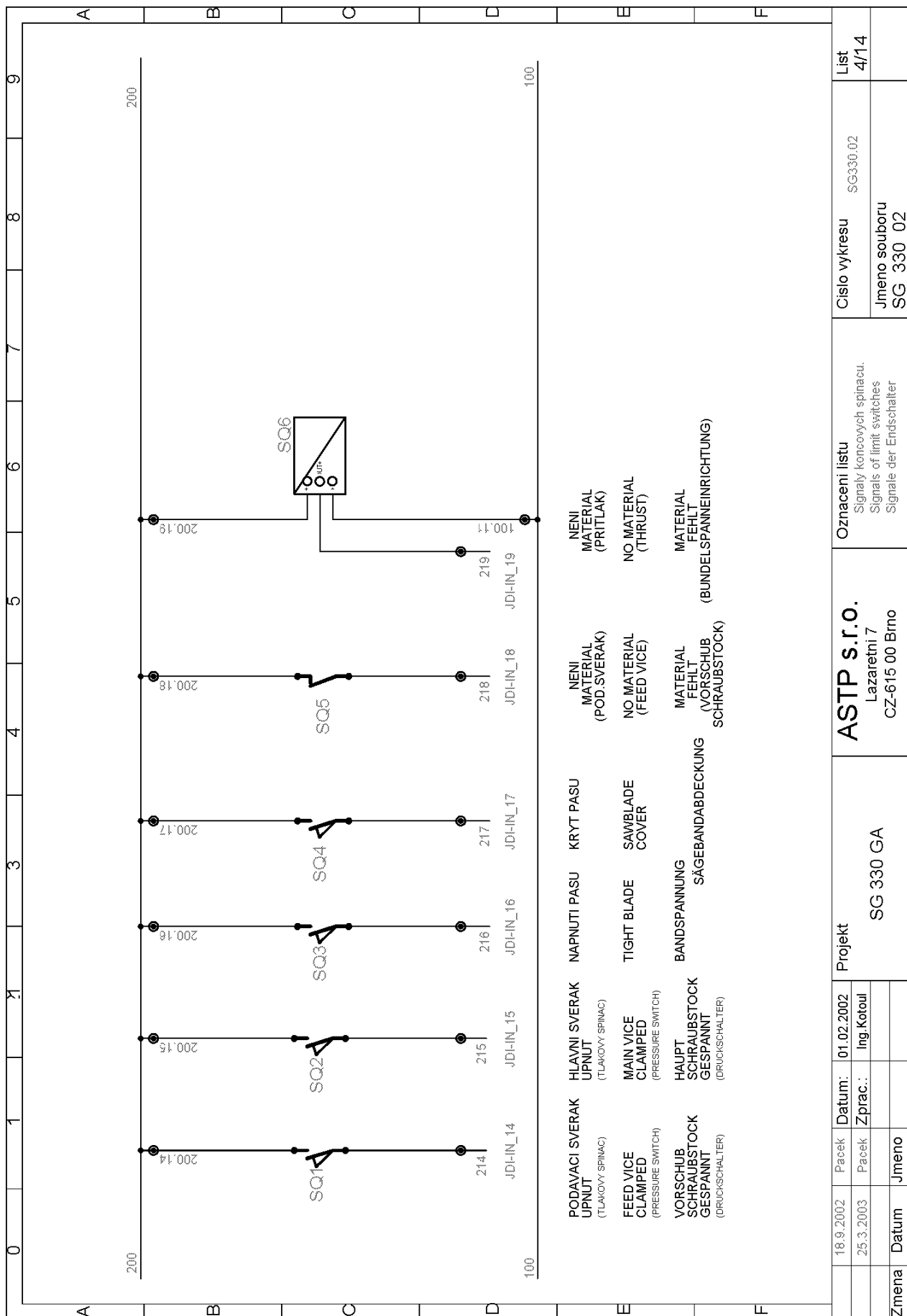
Zmena	Datum	Jmeno	Projekt	ASTP s.r.o. Lazaretní 7 CZ-615 00 Brno	Oznaceni listu Ovládání stykačů pohonu. Newly installed power 24V _~ . Control of contactors Schutzsteuerung	Cislo vykresu SG330.02	List 1/14



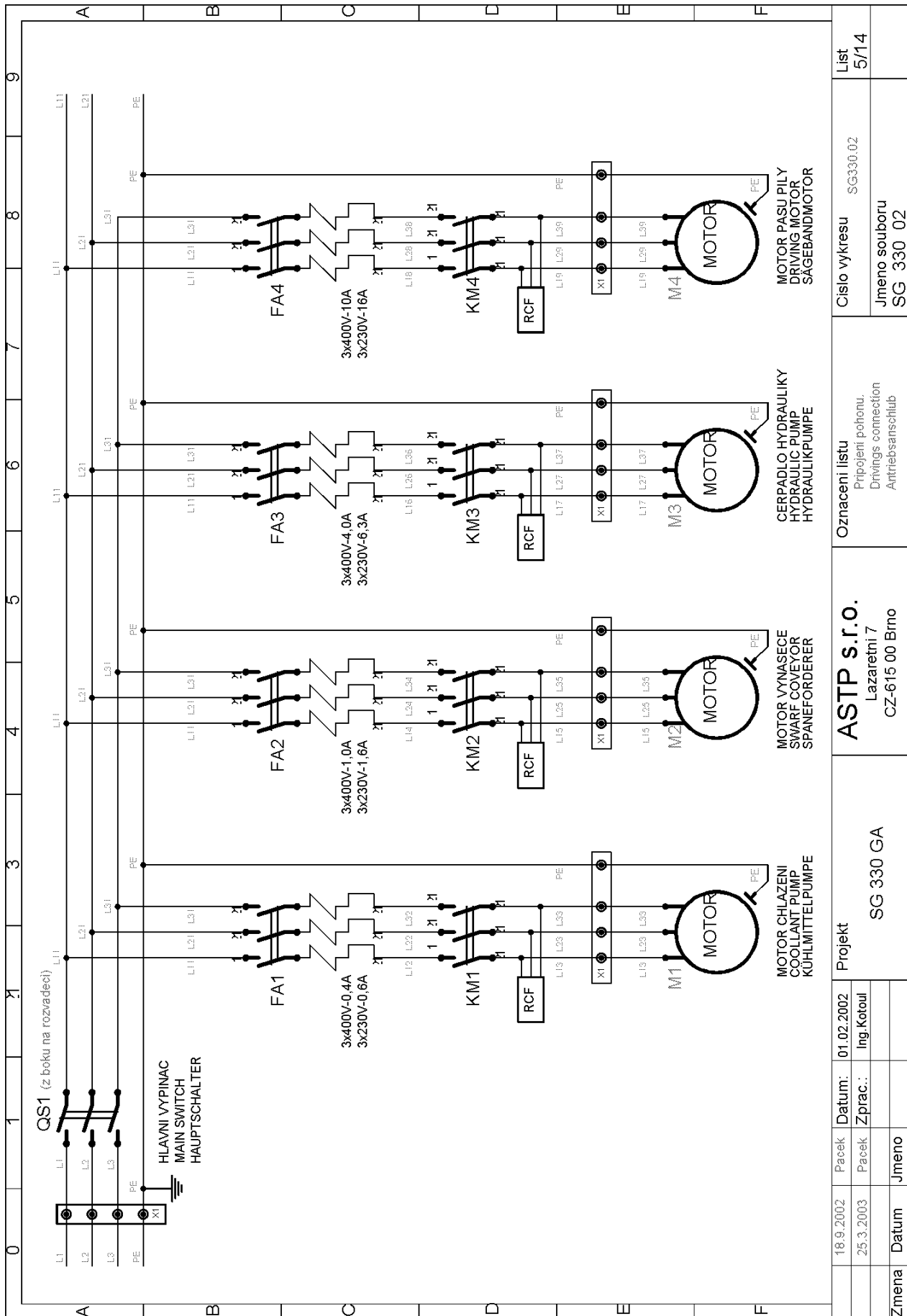
Elektrické schéma 2 / Elektroschema 2 / Wiring diagram 2



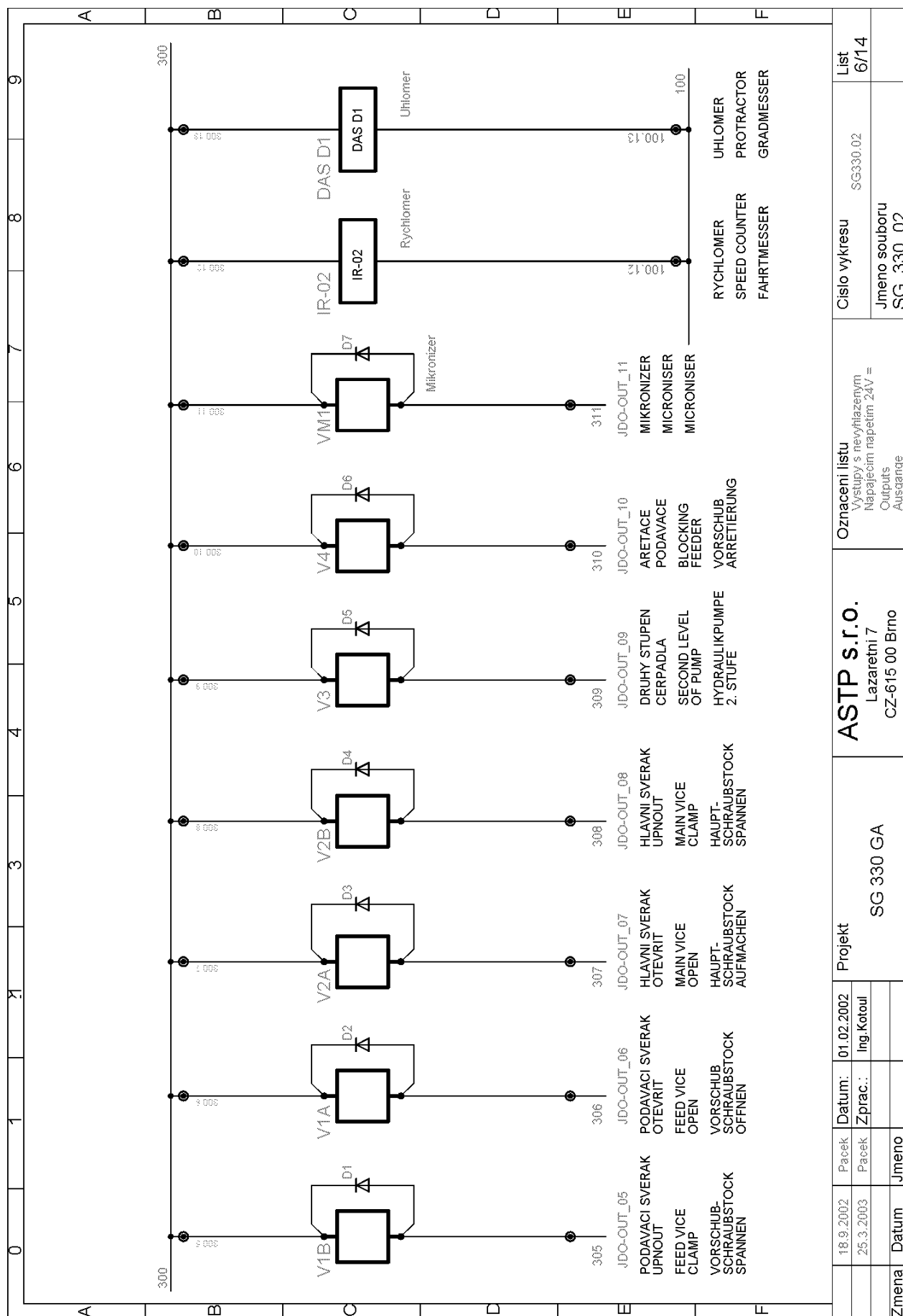
Elektrické schéma 3 / Elektroschema 3 / Wiring diagram 3



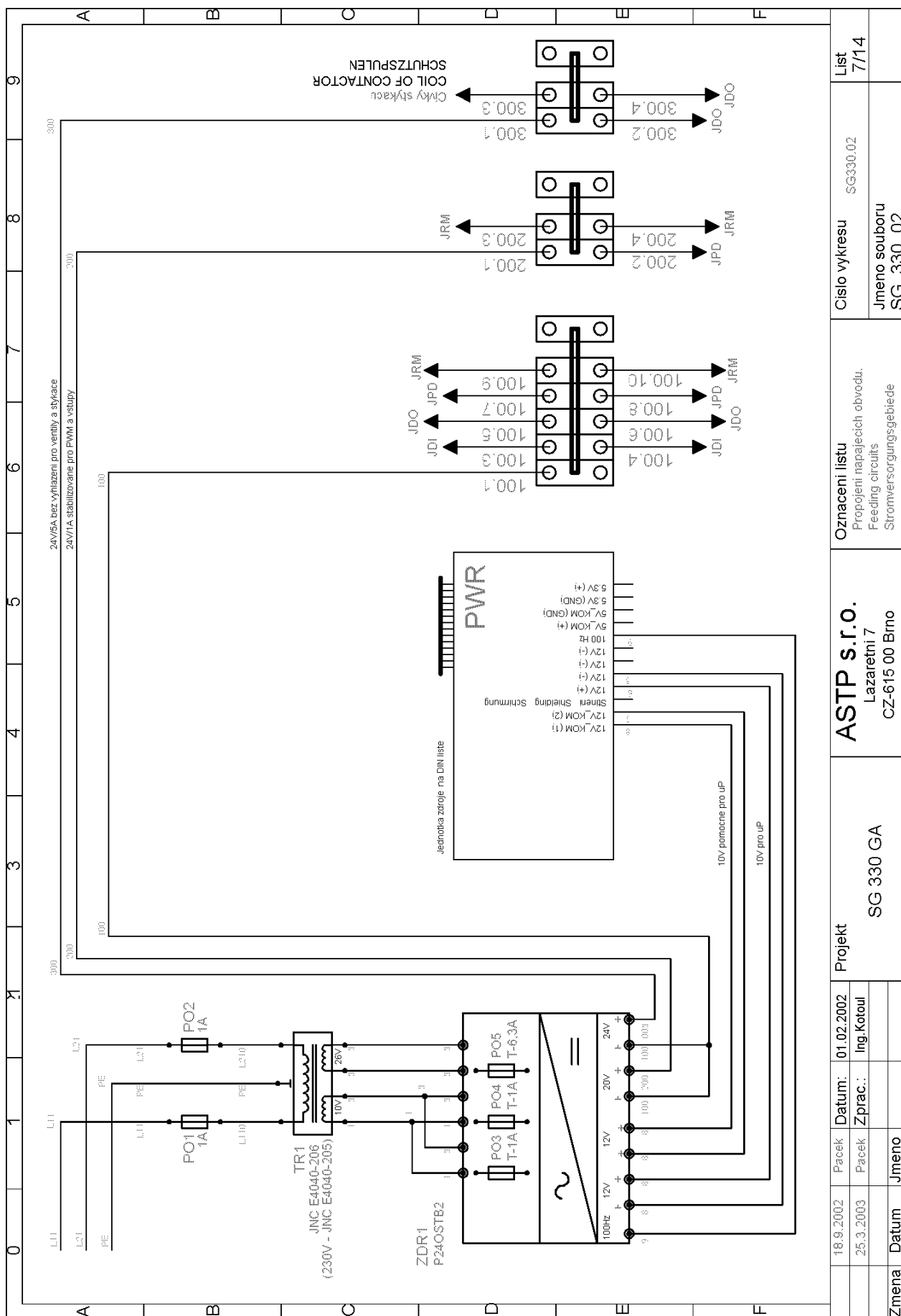
Elektrické schéma 4 / Elektroschema 4 / Wiring diagram 4



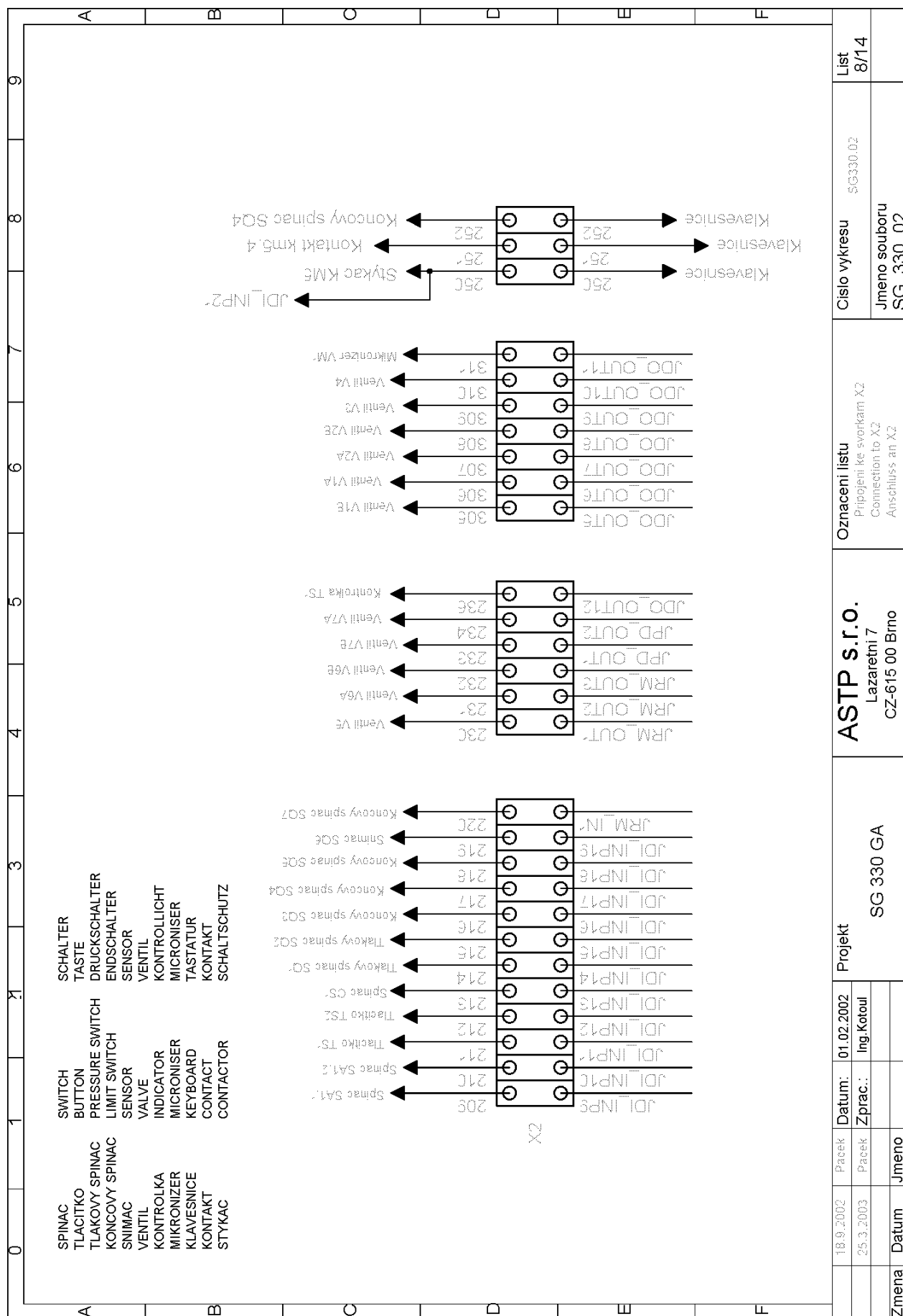
Elektrické schéma 5 / Elektroschema 5 / Wiring diagram 5



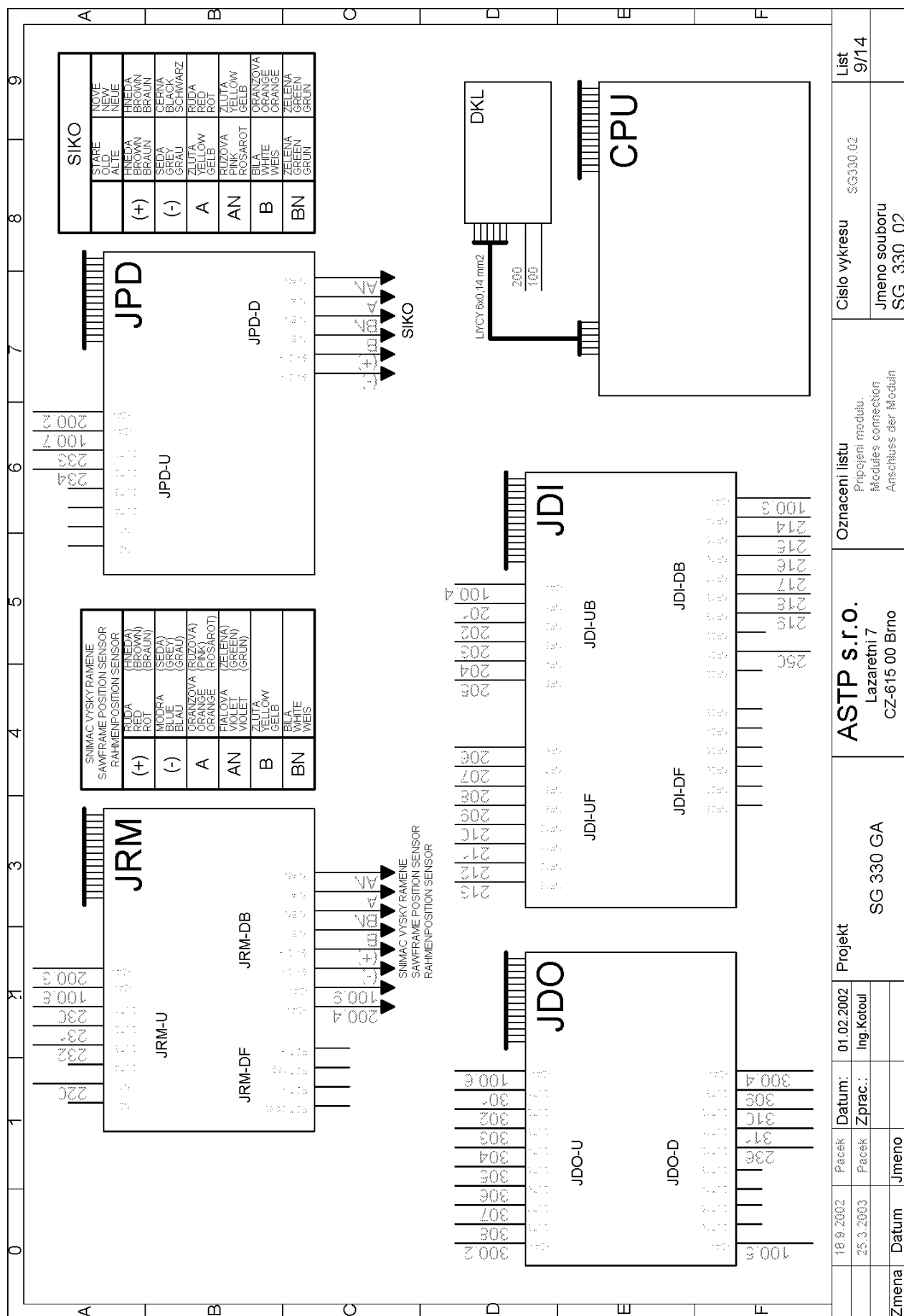
Elektrické schéma 6 / Elektroschema 6 / Wiring diagram 6



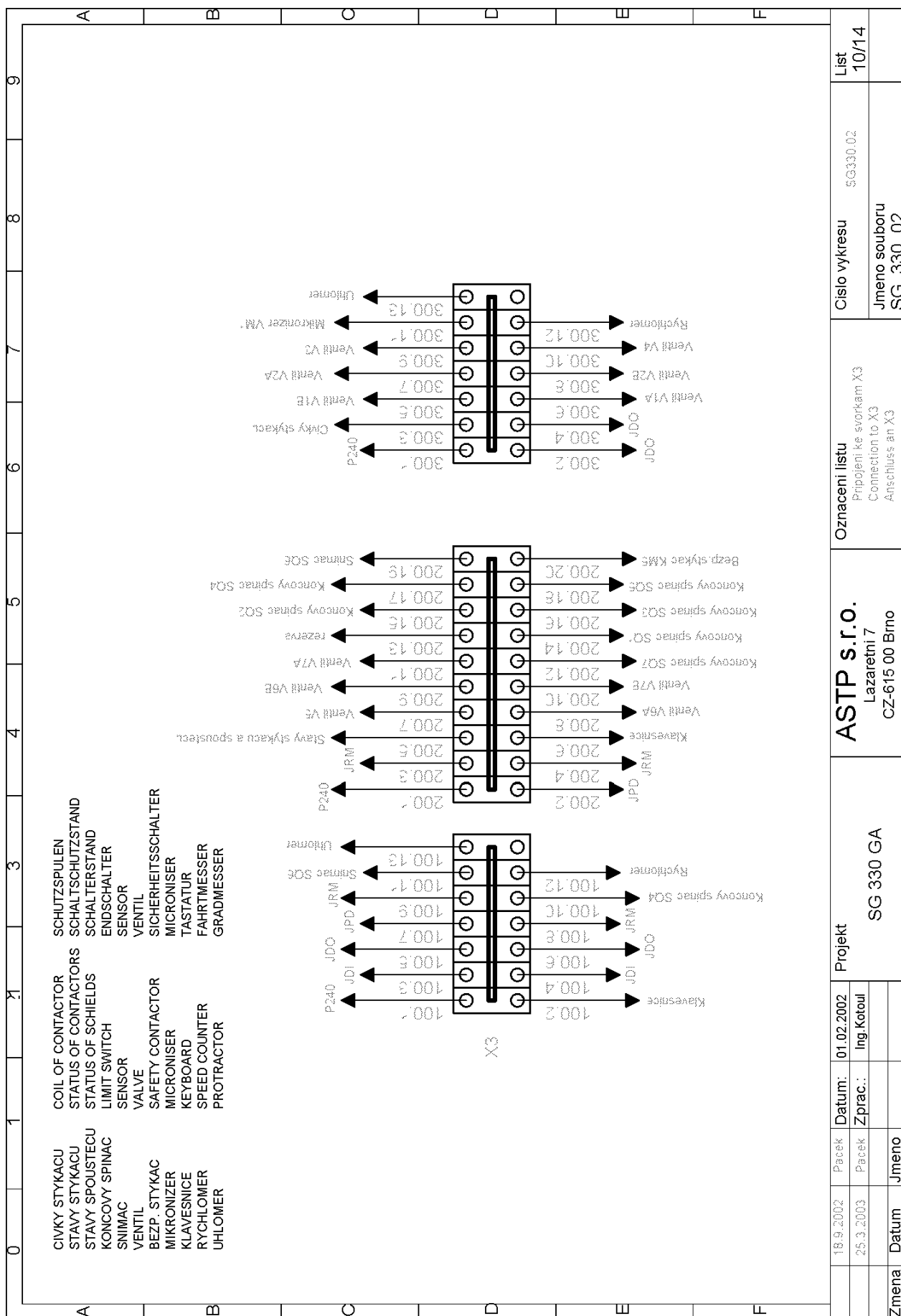
Elektrické schéma 7 / Elektroschema 7 / Wiring diagram 7



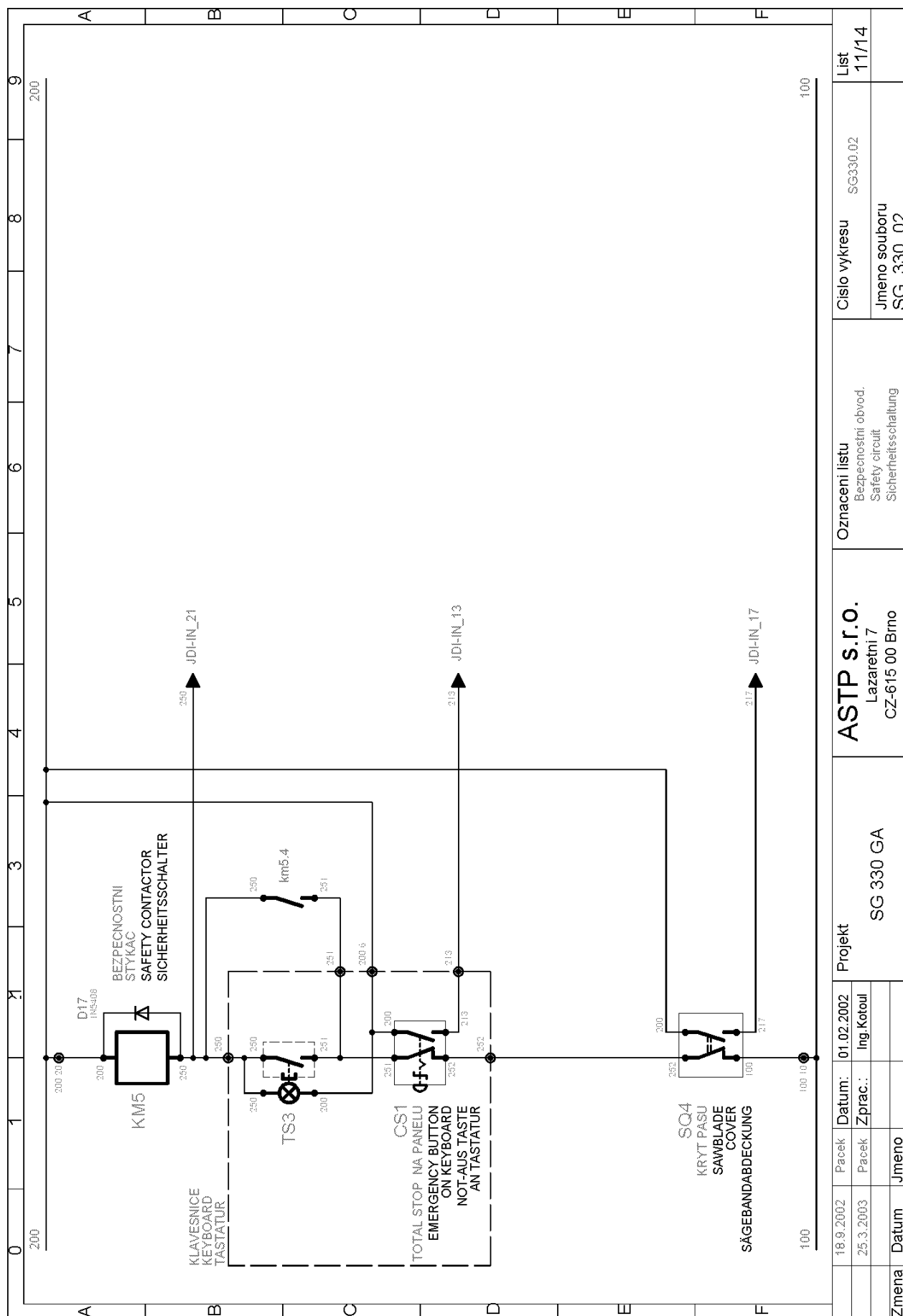
Elektrické schéma 8 / Elektroschema 8 / Wiring diagram 8



Elektrické schéma 9 / Elektroschema 9 / Wiring diagram 9



Elektrické schéma 10 / Elektroschema 10 / Wiring diagram 10



Elektrické schéma 11 / Elektroschema 11 / Wiring diagram 11

0	1	2	3	4	5	6	7	8	9
A	JDO - Signalizace stavu výstupu			JDI - Signalizace stavu vstupu			JRM - Signalizace stavu ramene		
	1	Zapnout motor chlazení					1	Rameno dolů	
	2	Zapnout motor výsasece					2	Rameno nahoru	
	3	Zapnout čerpadlo hydrauliky					3	Rychloposuv ramene	
	4	Zapnout motor pasu					4	Rameno je dole	
	5	Upnout podávací sverak					5	Rameno je nad materiálem	
	6	Otevrit podávací sverak					6	Rameno je v klidu	
	7	Otevrit hlavní sverak					7	Povel CPU - Zastavit rameno	
	8	Upnout hlavní sverak					8	Povel CPU - Rychloposuv ramene	
	9	Aktivovat druhý stupeň čerpadla					9	Povel CPU - Rameno dolů	
	10	Ařetovat podávac					10	Povel CPU - Rameno nahoru	
	11	Aktivovat mikronizer					11	Signal ze snímace výšky ramene	
	12	Aktivovat kontrolku aut. režimu					12	Komunikace s CPU	
D	CPU - Signalizace stavu jednotky			JPD - Signalizace stavu podávace					
	1	Spojení s jednotkou DKL OK					1	Podávac vzad	
	2	Spojení s jednotkou JDO OK					2	Podávac vpřed	
	3	Spojení s jednotkou JDI OK					3	Regulace podávace aktivní	
	4	Spojení s jednotkou JRM OK					4	Podávac je vzadu	
	5	Spojení s jednotkou JPD OK					5	Podávac je vpředu	
	6						6	Zadana poloha dosazena	
	7						7	Povel CPU - Podávac vzad	
	8	Externí CAN - RXD					8	Povel CPU - Podávac vpřed	
	9	Externí CAN - TXD					9	Povel CPU - Podávac stop	
	10	Interní CAN - RXD					10	Reference podávace nastavena	
	11	Interní CAN - TXD					11	Signal ze snímace vzdálenosti	
	12	Napájení 5V-KOM					12	Komunikace s CPU	
F	PWR - Signalizace stavu napájení			ASTP s.r.o.			Cislo vykresu		
	1	Napájení 5V-KOM					SG 330 GA		
	2	Napájení 5V					Lazaretní 7		
				CZ-615 00 Brno			Oznaceni listu		
							Signalizace LED diod		
							Jmeno souboru		
							SG 330_02		
							List		
							12/14		

Elektrické schéma 12 / Elektroschema 12 / Wiring diagram 12

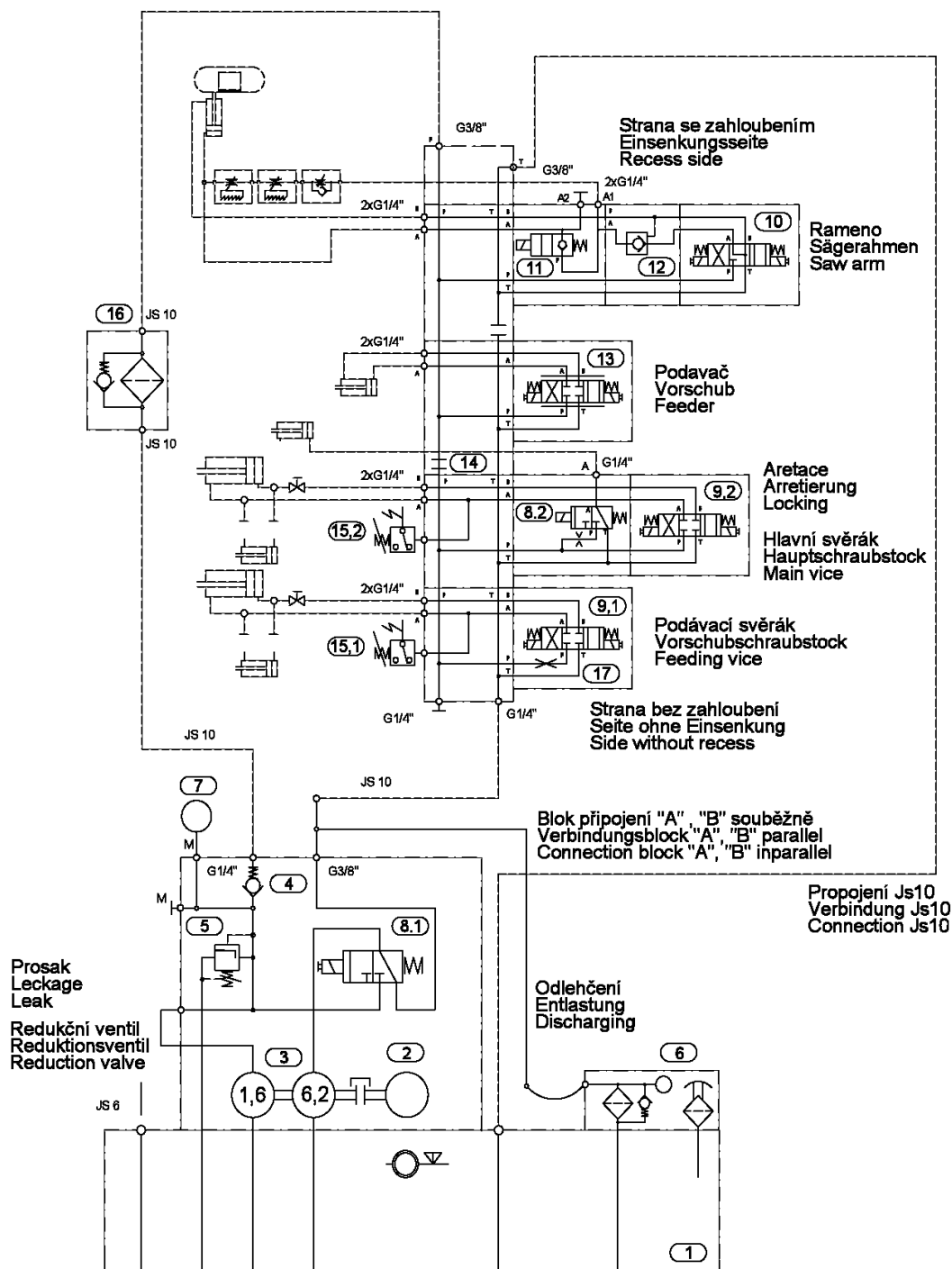
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Elektrické schéma 13 / Elektroschema 13 / Wiring diagram 13

	0	1	2	3	4	5	6	7	8	9
A	JDO - Ausgabe - Standanzeige									
	1	Kühlmittelpumpe einschalten								
B	2	Spänpföhrer einschalten								
	3	Hydraulikpumpe einschalten								
C	4	Sägebandantrieb einschalten								
	5	Vorschubschraubstock spannen								
D	6	Vorschubschraubstock öffnen								
	7	Hauptschraubstock öffnen								
E	8	Hauptschraubstock spannen								
	9	Zweite Stufe der Hydraulikp. aktiv.								
F	10	Vorschub anfahren								
	11	Microniser aktivieren								
A	12	Kontrollleuchte (rel. Betrieb) aktiv.								
B										
C										
D										
E										
F										
JDI - Eingabe - Standanzeige										
A										
	1	Kühlmittelpumpe eingeschaltet								
B	2	Spänpföhrer eingeschaltet								
	3	Hydraulikpumpe eingeschaltet								
C	4	Sägebandantrieb eingeschaltet								
	5	Schutz der Kühlmittelpumpe OK								
D	6	Schutz des Spänpföhrers OK								
	7	Schutz der Hydraulikpumpe OK								
E	8	Schutz des Sägebandantriebes OK								
	9	Automatisches Bedienen aktiviert								
F	10	Manuelles Bedienen aktiviert								
	11	START des automatischen Zyklus								
A	12	STOP des automatischen Zyklus								
	13	NOT-AUS Taste aktiviert								
B	14	Vorschubschraubstock gespannt								
	15	Hauptschraubstock gespannt								
C	16	Sägeband gespannt								
JRM - Sägerahmen - Standanzeige										
A										
	1	Sägerahmen senken								
B	2	Sägerahmen heben								
	3	Eilgang des Sägerahmens								
C	4	Sägerahmen befindet sich unten								
	5	Sägerahmen befindet sich über Mater.								
D	6	Sägerahmen steht still								
	7	CPU-Befehl - Sägerahmen stoppen								
E	8	CPU-Befehl - Eilgang des Sägerahm.								
	9	CPU-Befehl - Sägerahmen senken								
F	10	CPU-Befehl - Sägerahmen heben								
	11	Signal des Sägerahmenhubhöhesensors								
A	12	Kommunikation mit CPU								
JPD - Vorschub - Standanzeige										
A										
	1	Vorschub nach hinten								
B	2	Vorschub nach vorne								
	3	Vorschubregulierung aktiv								
C	4	Vorschub hinten								
	5	Vorschub vorne								
D	6	Vorschub in der gewünschten Pos.								
	7	CPU-Befehl - Drehen nach hinten								
E	8	CPU-Befehl - Drehen nach vorne								
	9	CPU-Befehl - Drehen STOP								
F	10	Referenzpos. des Vorschubes eingest.								
	11	Signal des Abstandsensors								
A	12	Kommunikation mit CPU								
PWR - Versorgung - Standanzeige										
A										
	1	Versorgung 5V-KOM								
B	2	Versorgung 5V								

Elektrické schéma 14 / Elektroschema 14 / Wiring diagram 14

23. Hydraulické schéma / Hydraulikschema / Hydraulic diagram



Základní technické parametry:
Technische Spezifikation:
Technical specification:

Q	8+2,1	dm ³ ·min ⁻¹	ot.	1410	min ⁻¹
P _{max}	4,0	MPa	P	1,1	kW

Hydraulické schéma:
Hydraulikschema:
Hydraulic diagram:

870-1383

Schéma / Schema / Diagram: 8701383C.DWG
Datum / Datum / Date: 28.5. 2003

Hydraulické schéma / Hydraulikschema / Hydraulic diagram

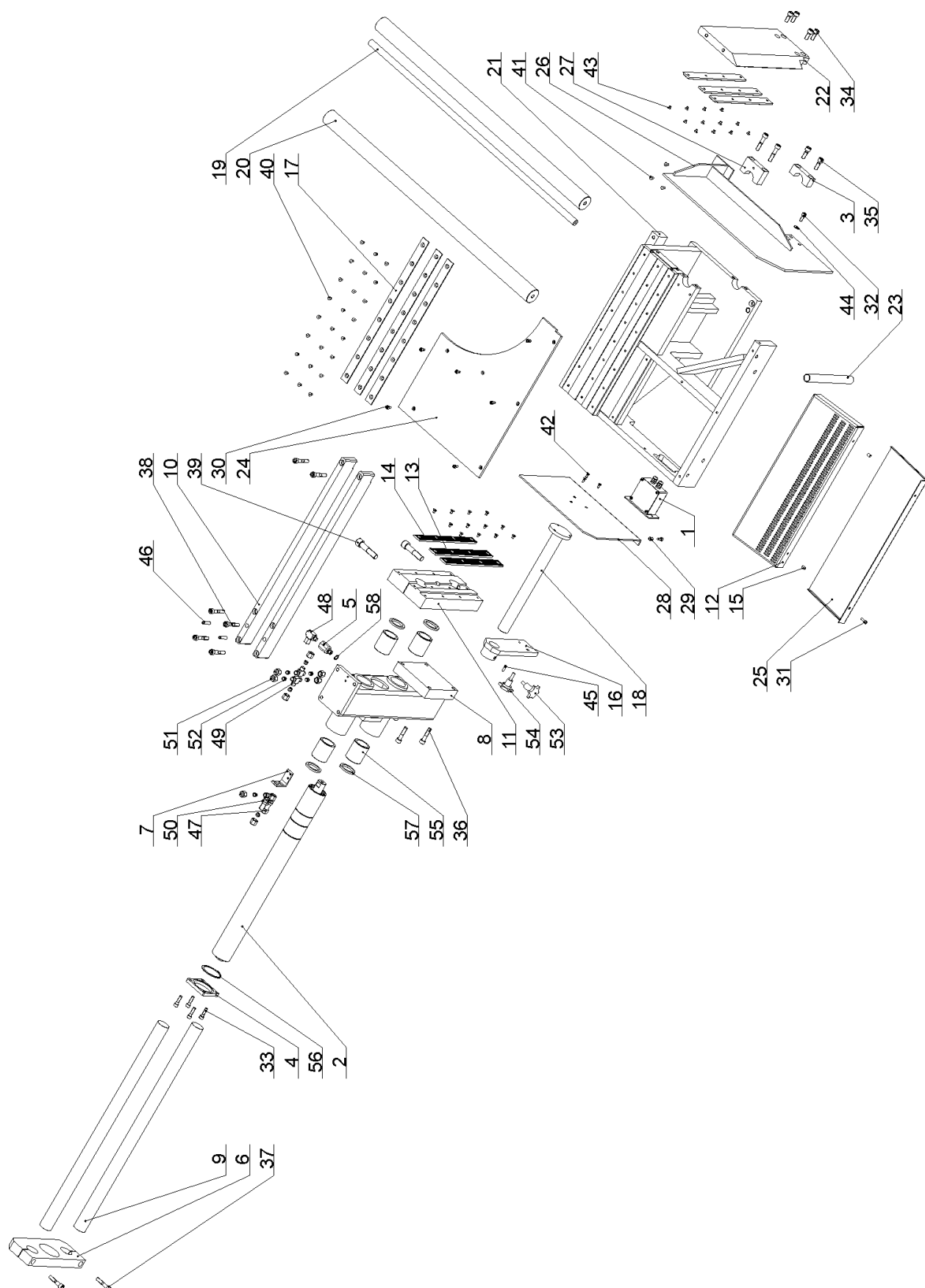
Poz.	Název položky	ks
Pos.	Bezeichnung	Menge
Pos.	Item	Pcs.
1	Nádrž / Behälter / Tank N20 - BO	1
2	Elektromotor / Elektromotor / Electromotor MA-AL90S-4	1
3	Hydrogenerátor / Hydraulikaggregat / Hydrogenerator P2-6,2/1,6L.66313	1
4	Jednosměrný ventil / Einwegventil / One-way valve VJO1-06/SG-1	1
5	Přepouštěcí ventil / Bypassventil / By-pass valve VPP2-04/S-6S	1
6	Zpětný 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	2
10	Rozváděč / Verteilung / Distributor RPE3-043Y11/02400E1K1	1
11	Blok rychloposuvu / Eilgangsblok / 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 R1,5	1

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).

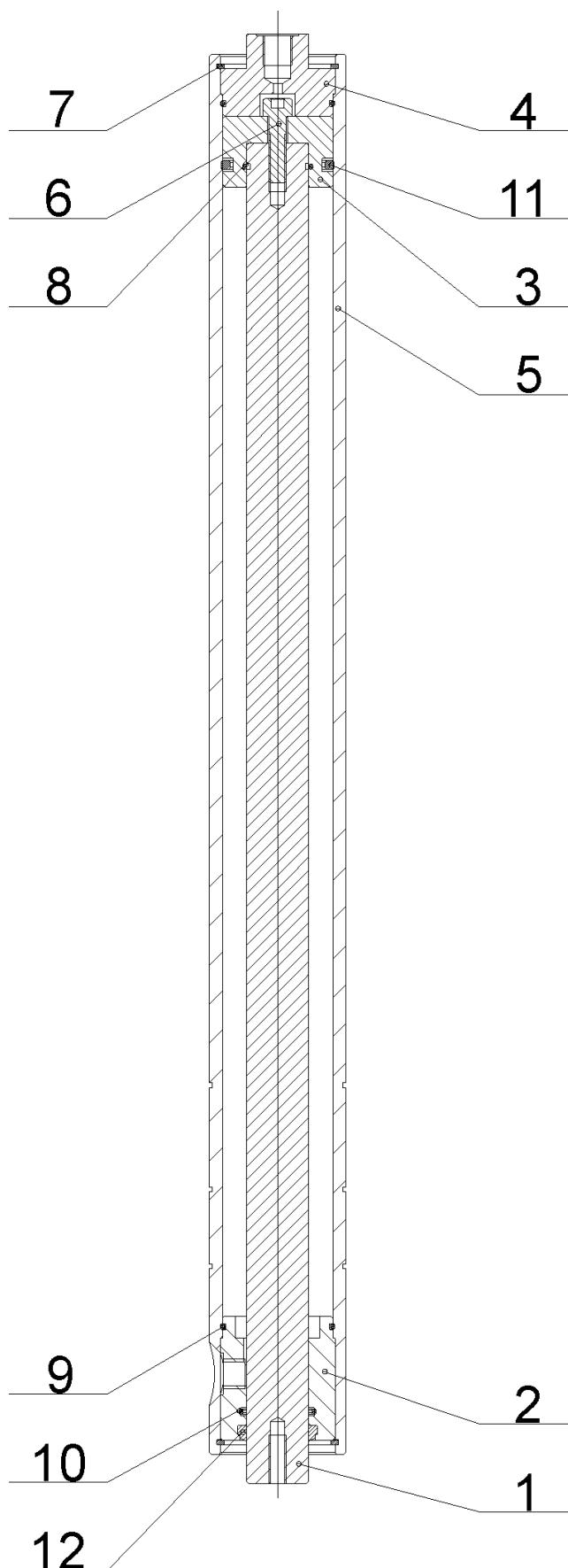
For spare parts order, you must always to allege: type of
machine (for example STG 120), serial number (for example 125)
and year of construction (for example 1999).



24.1. Hlavní svěrák / Hauptschraubstock / Main vice

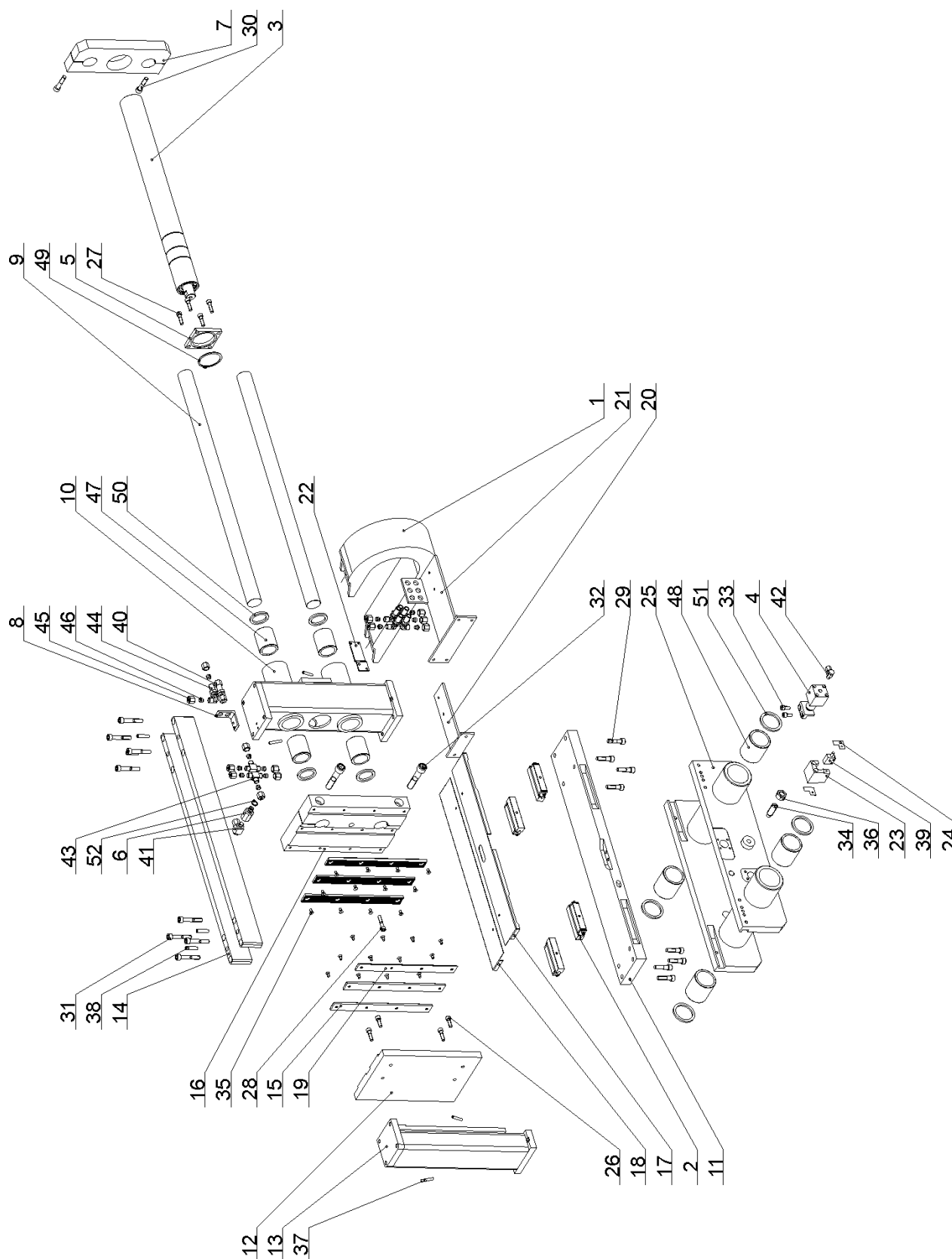
Poz.	Objednací číslo	Název položky	ks
Pos.	Bestell - Nr.	Bezeichnung	Menge
Pos.	Reference No.	Item	Pcs.
1		Display / Display / Display	1
2		Válec / Zylinder / Cylinder	1
3	30.0809-010	Příložka / Lasche / Splice plate	1
4	30.2011-010	Příložka / Lasche / Splice plate	1
5	30.2011-011	Šroubení / Schraubung / Screwing	1
6	30.2011-013	Brýle / Brille / Glasses	1
7	30.2014-011	Držák hadice / Schlauchhalter / Hose holder	1
8	30.2903-002	Sloup / Säule / Pillar	1
9	30.2903-004	Vodící tyč / Stange / Guiding bar	2
10	30.2903-005	Lišta / Leiste / Listel	2
11	30.2903-006	Čelist / Backe / Jaw	1
12	30.2903-012	Držák / Halterung / Holder	1
13	30.2911-021	Lišta / Leiste / Listel	4
14	30.2911-025	Lišta / Leiste / Listel	2
15	30.3509-015	Distanční trubka / Distanzrohr / Spacer pipe	2
16	30.3514-502	Konzola / Konsole / Console	1
17	30.3709-014	Třecí lišta / Reibungsleiste / Friction reglet	3
18	30.3714-402	Vedení čelisti / Führung / Jaw guiding	1
19	30.4303-021	Tyč odměřování / Messungsstange / Measuring bar	1
20	30.4803-016	Vodící tyč / Stange / Guiding bar	2
21	30.8603-001	Podstavec / Untergestell / Pedestal	1
22	30.8603-003	Čelist / Backe / Jaw	1
23	30.8603-008	Trubka / Rohr / Tube	1
24	30.8603-012	Deska / Platte / Plate	1
25	30.8603-013	Skluz / Rutsch / Glide	1
26	30.8603-014	Čelist pomocná / Hilfsbacke / Auxiliary jaw	1
27	30.8603-015	Příložka / Lasche / Splice plate	1
28	30.8603-016	Čelist pomocná / Hilfsbacke / Auxiliary jaw	1
29	30.8603-017	Distanc / Distanz / Distance	1
30	90.001.25.016	Šroub / Schraube / Screw M6x12 DIN 912	6
31	90.001.25.017	Šroub / Schraube / Screw M6x16 DIN 912	3
32	90.001.25.032	Šroub / Schraube / Screw M8x20 DIN 912	1
33	90.001.25.034	Šroub / Schraube / Screw M8x30 DIN 912	4
34	90.001.25.047	Šroub / Schraube / Screw M10x25 DIN 912	4
35	90.001.25.048	Šroub / Schraube / Screw M10x30 DIN 912	2
36	90.001.25.051	Šroub / Schraube / Screw M10x45 DIN 912	4
37	90.001.25.052	Šroub / Schraube / Screw M10x50 DIN 912	4
38	90.001.25.054	Šroub / Schraube / Screw M10x60 DIN 912	6
39	90.001.25.093	Šroub / Schraube / Screw M16x70 DIN 912	2
40	90.011.27.004	Šroub / Schraube / Screw M6x10 DIN 7991	36
41	90.011.27.005	Šroub / Schraube / Screw M6x12 DIN 7991	3
42	90.011.27.XXX	Šroub / Schraube / Screw M5x14 DIN 7991	3
43	90.011.27.XXX	Šroub / Schraube / Screw M6x8 DIN 7991	12
44	90.150.50.005	Podložka / Scheibe / Washer Ø8.4 DIN 125	1
45	90.300.0Z.XXX	Válcový kolík / Zylinderstift / Cylindrical pin 6x22 DIN 6325	1
46	90.302.0Z.003	Kuželový kolík+závit / Kegelbolzen + Gewinde / Taper pin+thread 8x36 DIN 7978	2
47	92.002.001	Šroubení přímé / Gerade Verschraubung / Straight screwing GES 08LR	1
48	92.003.001	Šroubení natáčecí / Winkelverschraubung / Swivelling screw RSWS 08LR	1
49	92.006.001	Propojka / Verbindungsstück / Jumper T TS 8L	2
50	92.009.001	Průchodka úhlová / Tülle / Angle grommet	1
51	92.013.001	Matice / Mutter / Nut M 08L	8

52	92.014.001	Těsnící kroužek / Dichtungsring / Sealing ring	P-R 08L/S	8
53	94.006.001	Plastový šroub / Schraube / Plastic screw	M8x17	1
54	94.006.002	Hvězdice / Stern / Star	M8x25	1
55	95.710.001	Kuličkové pouzdro / Busche / Bush	40x60 KH	4
56	95.800.021	Pojistný kroužek / Sicherungsring / Retaining ring	Ø62 DIN 471	1
57	96.040.003	Stírací manžeta / Abstreifmanschette / Scraper cup	40x52x5	4
58	96.082.002	Těsnící kroužek / Dichtungsring / Sealing ring	13/17	1



24.2. Upínací válec svěráku / Spannzylinder des Schraubstockes / Vice clamping cylinder - 251.076

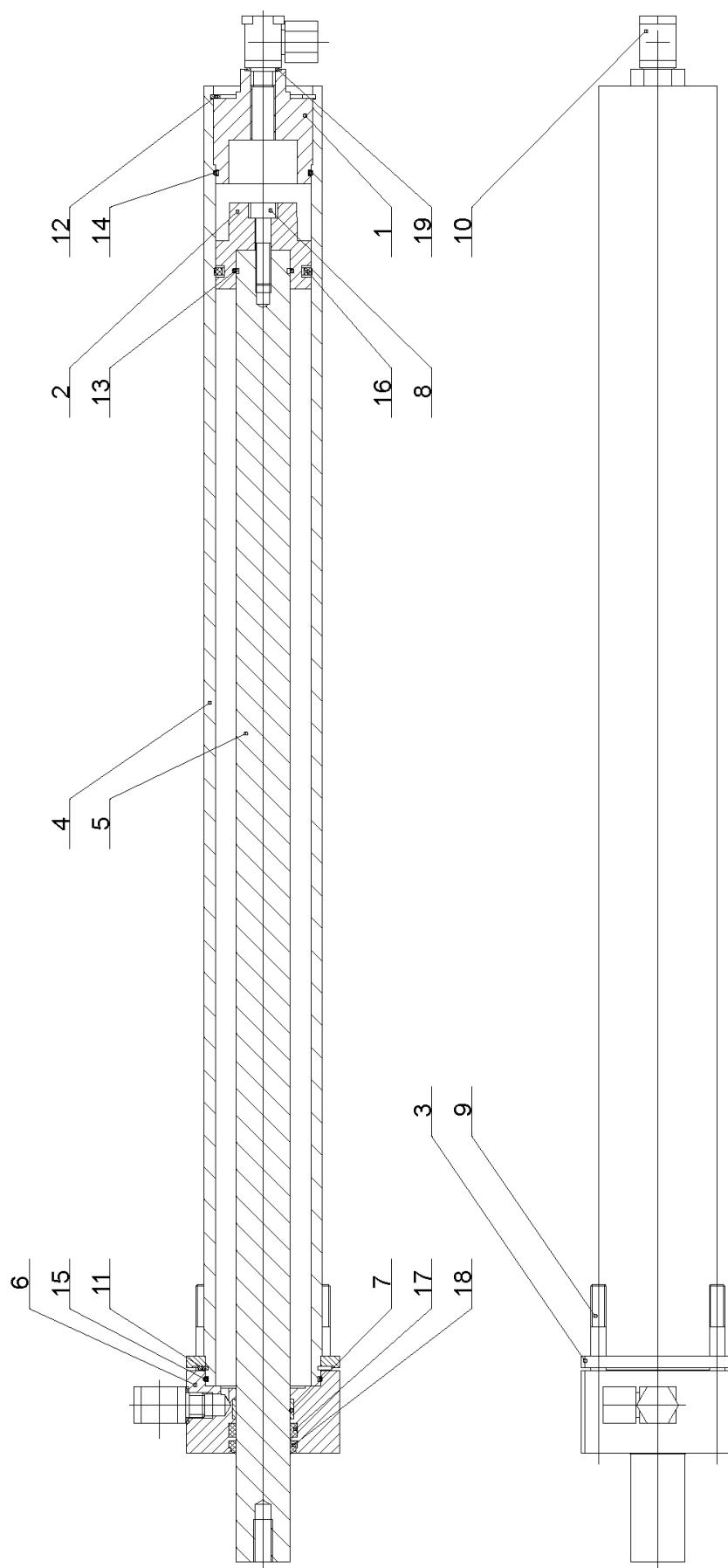
Poz.	Objednací číslo	Název položky	ks
Pos.	Bestell - Nr.	Bezeichnung	Menge
Pos.	Reference No.	Item	Pcs.
1	30.0607-102	Pístnice / Kolbenstange / Piston rod	1
2	30.1807-104	Přívod / Zufuhr / Inflow	1
3	30.2007-302	Píst / Kolben / Piston	1
4	30.2007-304	Víko / Deckel / Cover	1
5	30.3707-001	Válec / Zylinder / Feeder	1
6	90.001.25.034	Šroub / Schraube / Screw M8x30 DIN 912	1
7	95.801.009	Pojistný kroužek / Sicherungsring / Retaining ring Ø52 DIN 472	2
8	96.001.007	O kroužek / O Ring / O Ring 25x2	1
9	96.001.013	O kroužek / O Ring / O Ring 45x2	2
10	96.002.014	O kroužek / O Ring / O Ring 28x3	1
11	96.020.005	Q kroužek / Q Ring / Q Ring	1
12	96.060.003	Stírací kroužek / Abstreifring / Scraper ring 28x36	1



24.3. Podávací svěrák / Vorschubschraubstock / Feeding vice

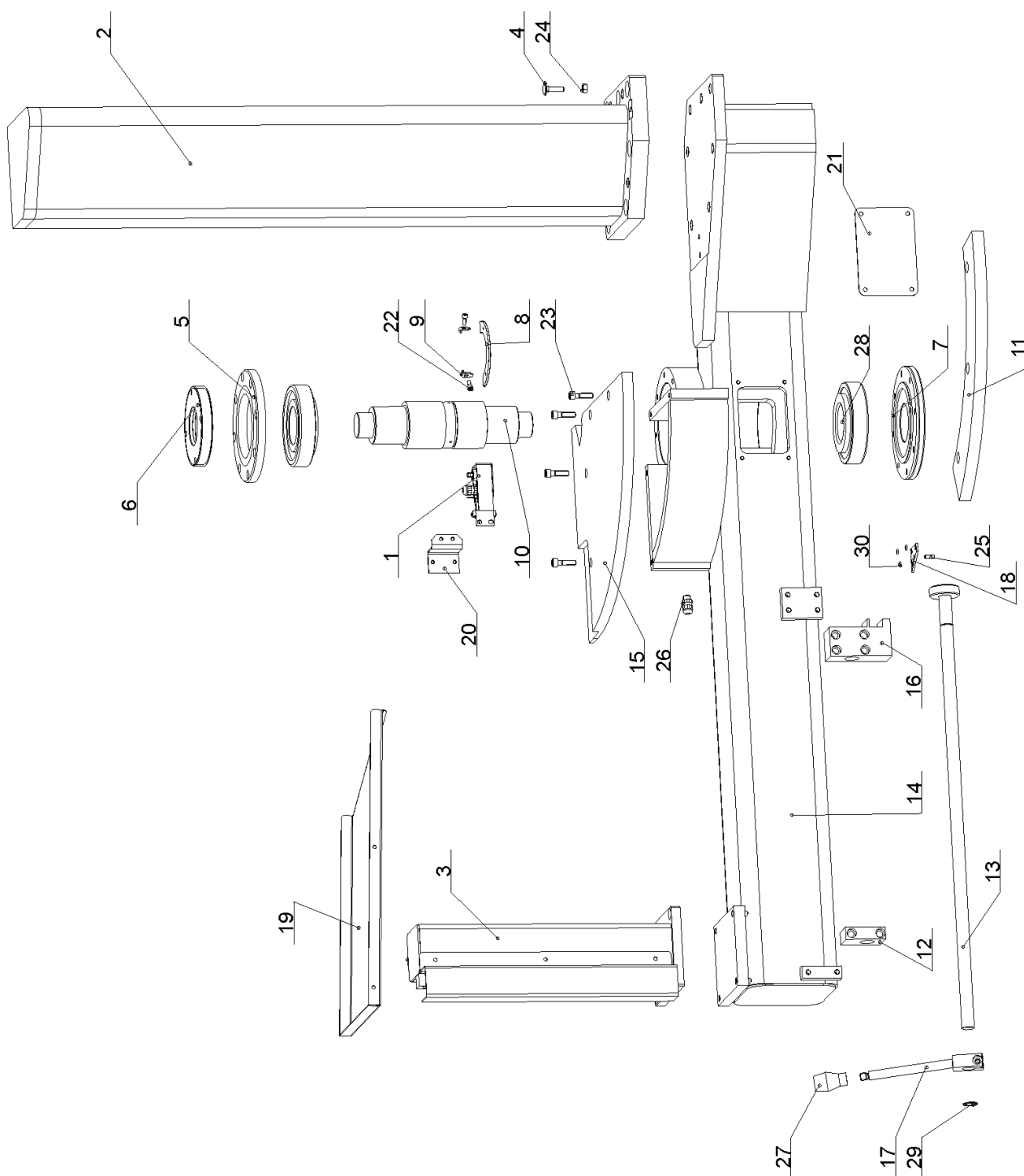
Poz.	Objednáací číslo	Název položky	ks
Pos.	Bestell - Nr.	Bezeichnung	Menge
Pos.	Reference No.	Item	Pcs.
1		Kabelové vedení / Kabelführung / Cables leading	1
2		Válečkový element / Zylinderelement / Cylindrical element	4
3		Válec / Zylinder / Cylinder	1
4		Fixační válec / Fixzylinder / Fixative cylinder	1
5	30.2011-010	Příložka / Lasche / Splice plate	1
6	30.2011-011	Šroubení / Schraubung / Screwing	1
7	30.2011-013	Brýle / Brille / Glasses	1
8	30.2014-011	Držák hadice / Halterung / Hose holder	1
9	30.2903-004	Vodící tyč / Stange / Guiding bar	2
10	30.2911-002	Sloup / Säule / Pillar	1
11	30.2911-003	Základna / Grundlage / Base	1
12	30.2911-004	Čelist / Backe / Jaw	1
13	30.2911-007	Sloup / Säule / Pillar	1
14	30.2911-010	Lišta / Leiste / Listel	2
15	30.2911-021	Lišta / Leiste / Listel	4
16	30.2911-022	Čelist / Backe / Jaw	1
17	30.2911-023	Kryt / Deckel / Cover	1
18	30.2911-024	Kryt / Deckel / Cover	1
19	30.2911-025	Lišta / Leiste / Listel	2
20	30.2911-026	Konzola / Konsole / Console	1
21	30.2911-027	Konzola / Konsole / Console	1
22	30.2911-028	Držák koncového spínače / Endschalterhalter / Limit switch holder	1
23	30.2911-029	Držák snímače / Sensorhalter / Sensor holder	1
24	30.2911-030	Stěrač / Abstreifer / Scraper	2
25	30.8611-001	Základna / Grundlage / Base	1
26	90.001.25.033	Šroub / Schraube / Screw M8x25 DIN 912	2
27	90.001.25.034	Šroub / Schraube / Screw M8x30 DIN 912	6
28	90.001.25.036	Šroub / Schraube / Screw M8x40 DIN 912	1
29	90.001.25.050	Šroub / Schraube / Screw M10x40 DIN 912	8
30	90.001.25.052	Šroub / Schraube / Screw M10x50 DIN 912	2
31	90.001.25.054	Šroub / Schraube / Screw M10x60 DIN 912	8
32	90.001.25.098	Šroub / Schraube / Screw M16x80 DIN 912	2
33	90.001.25.XXX	Šroub / Schraube / Screw M8x18 DIN 912	2
34	90.004.2D.0XX	Šroub / Schraube / Screw M16x40 DIN 915	1
35	90.011.27.005	Šroub / Schraube / Screw M6x12 DIN 7991	24
36	90.100.55.008	Matice / Mutter / Nut M16 DIN 934	1
37	90.302.0Z.001	Kuželový kolík+závít / Kegelbolzen + Gewinde / Taper pin+thread 6x36 DIN 7978	4
38	90.302.0Z.003	Kuželový kolík+závít / Kegelbolzen + Gewinde / Taper pin+thread 8x36 DIN 7978	4
39	91.270.006	Magnetický senzor / Magnet. Meßgeber / Sensor magnetic	1
40	92.002.001	Šroubení přímé / Gerade Verschraubung / Straight screwing	1
41	92.003.001	Šroubení natáčecí / Winkelverschraubung / Swivelling screw	1
42	92.003.104	Šroubení natáčecí / Winkelverschraubung / Swivelling screw	1
43	92.006.001	Propojka / Verbindungsstück / Jumper T	2
44	92.009.001	Průchodka úhlová / Tülle / Angle grommet	6
45	92.013.001	Matice / Mutter / Nut M 08L	13
46	92.014.001	Těsnící kroužek / Dichtungsring / Sealing ring P-R 08L/S	13
47	95.710.001	Kuličkové pouzdro / Büchse / Ball bush 40x60 KH	4
48	95.710.002	Kuličkové pouzdro / Büchse / Ball bush 50x70	4

49	95.800.021	Pojistný kroužek / Sicherungsring / Retaining ring	Ø62 DIN 471	1
50	96.040.003	Stírací manžeta / Abstreifmanschette / Scraper cup	40x52x5	4
51	96.040.004	Stírací manžeta / Abstreifmanschette / Scraper cup	50x62x5	4
52	96.082.002	Těsnící kroužek / Dichtungsring / Sealing ring	13/17	1



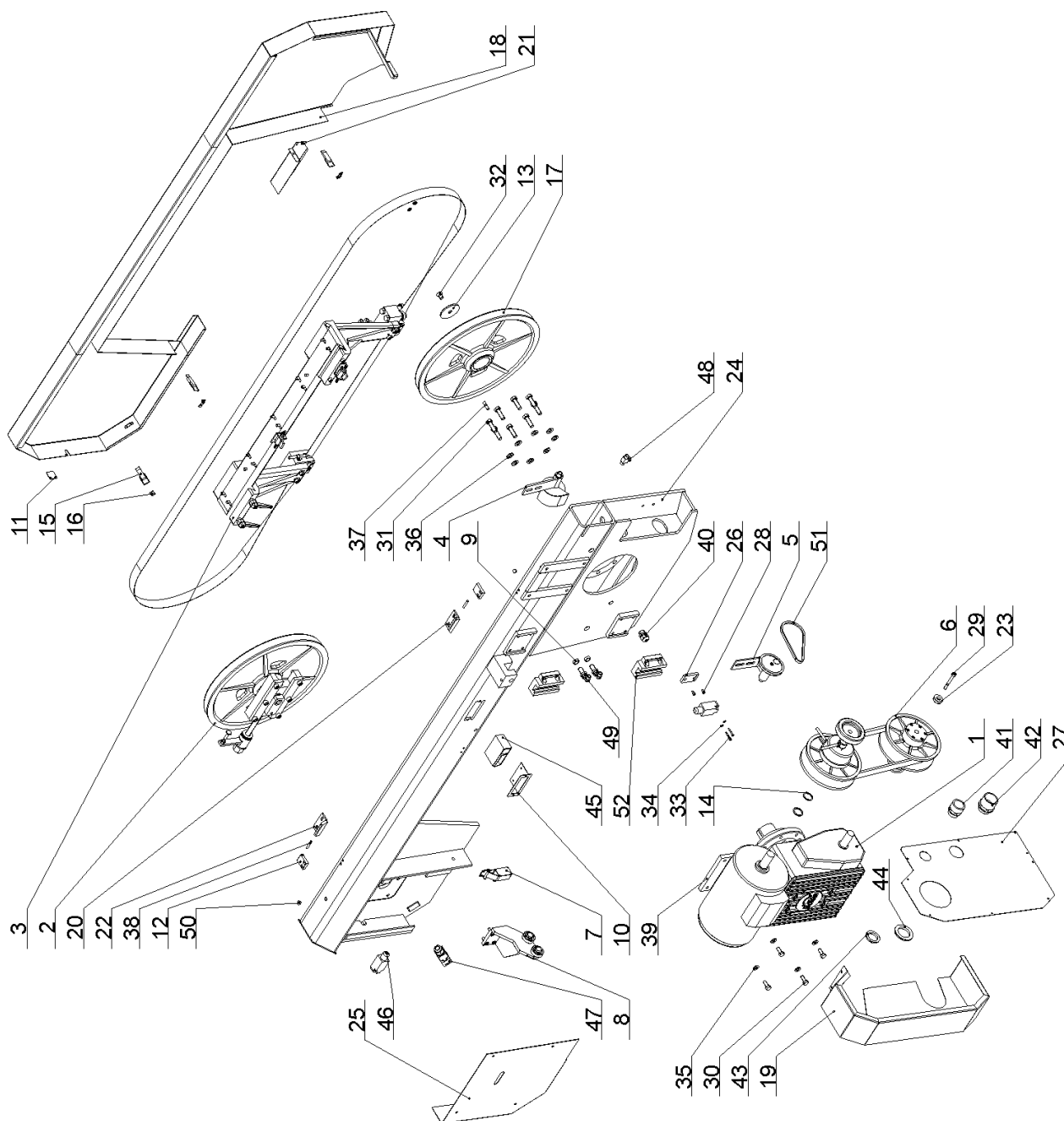
24.4. Válec podávání / Vorschubzylinder / Feeding cylinder - 251.255

Poz.	Objednací číslo	Název položky	ks
Pos.	Bestell - Nr.	Bezeichnung	Menge
Pos.	Reference No.	Item	Pcs.
1	30.1807-103	Zadní víko / Hinterer Deckel / Rear panel	1
2	30.1807-105	Píst / Kolben / Piston	1
3	30.2007-103	Příložka / Lasche / Splice plate	1
4	30.3507-101	Válec / Zylinder / Cylinder	1
5	30.3507-102	Pístnice / Kolbenstange / Piston rod	1
6	30.3507-103	Víko / Deckel / Cover	1
7	30.3507-104	Vodící pásek / Führungsband / Guiding tape	1
8	90.001.25.035	Šroub / Schraube / Screw M8x35 DIN 912	1
9	90.001.25.041	Šroub / Schraube / Screw M8x65 DIN 912	4
10	92.003.001	Šroubení natáčecí / Winkelverschraubung RSWS 08LR / Swivelling screwing	2
11	95.800.020	Pojistný kroužek / Sicherungsring / Retaining ring Ø60 DIN 471	1
12	95.801.009	Pojistný kroužek / Sicherungsring / Retaining ring Ø52 DIN 472	1
13	96.001.007	O kroužek / O Ring / O Ring 25x2	1
14	96.001.013	O kroužek / O Ring / O Ring 45x2	1
15	96.001.014	O kroužek / O Ring / O Ring 55x2	1
16	96.020.005	Q kroužek / Q Ring / Q Ring 4326A 39.2x5.33	1
17	96.041.003	Těsnící manžeta / Dichtungsmanschette / Gasket 28x36x7.1	1
18	96.060.003	Stírací kroužek / Abstreifring / Scraper ring 28x36	1
19	96.082.002	Těsnící kroužek / Dichtungsring / Sealing ring 13/17	2



24.5. Otočná konzola / Drehkonsole / Turning console

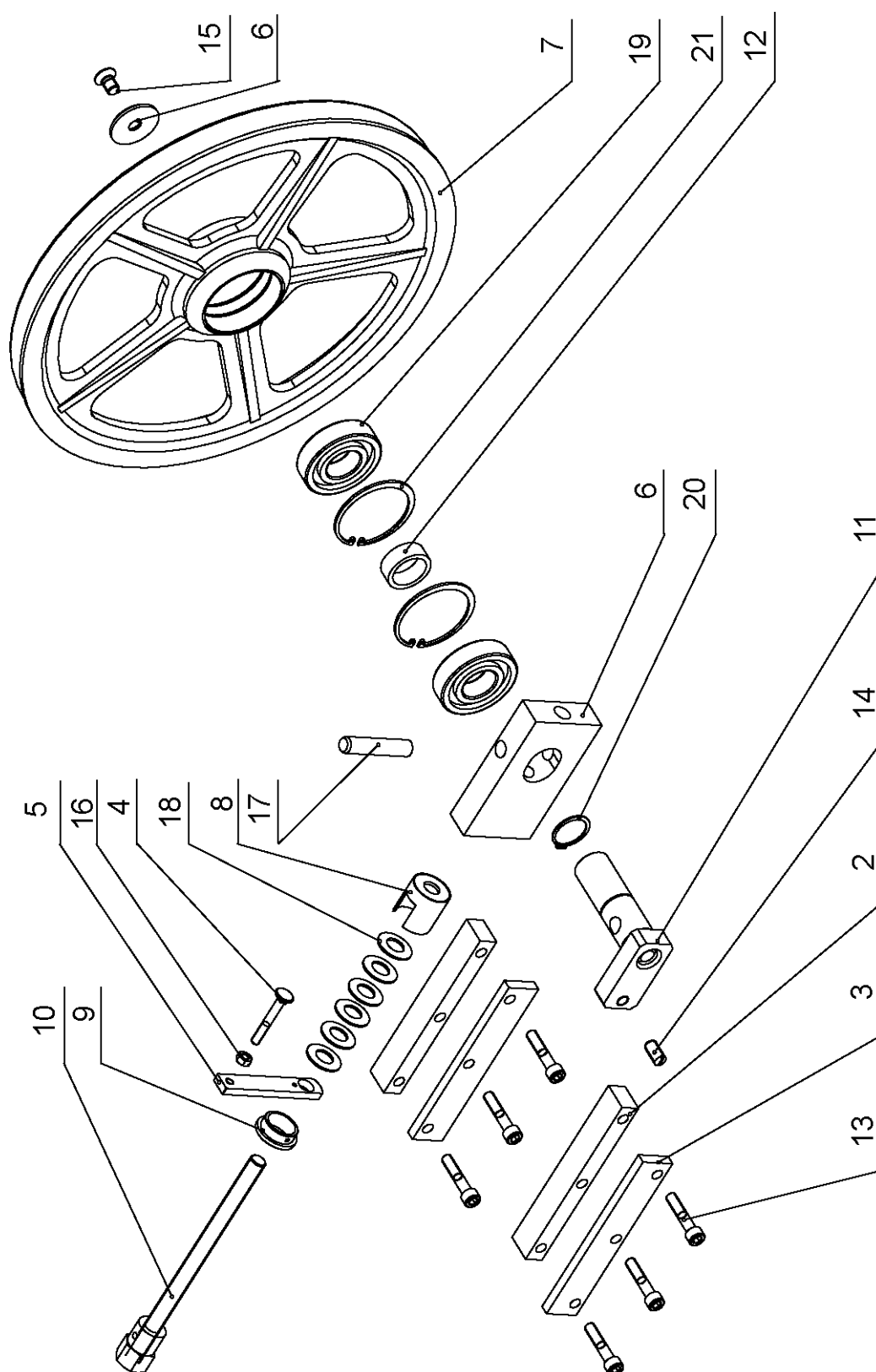
Poz.	Objednací číslo	Název položky	ks
Pos.	Bestell - Nr.	Bezeichnung	Menge
Pos.	Reference No.	Item	Pcs.
1		Snímač natáčení / Positionsgeber / Turning sensor	1
2		Sloupek / Säule / Pillar	1
3		Sloupek / Säule / Pillar	1
4	30.0702-013	Šroub / Schraube / Screw	1
5	30.0802-004	Horní víko / Deckel / Upper cover	1
6	30.0802-005	Matice ložiska / Mutter / Bearing nut	1
7	30.0802-006	Spodní víko / Deckel / Bottom cover	1
8	30.2902-010	Segment / Segment / Segment	1
9	30.2902-112	Držák / Halterung / Holder	2
10	30.8602-003	Čep konzoly / Bolzen / Console pivot	1
11	30.8602-016	Segment / Segment / Segment	1
12	30.8602-017	Kostka / Würfel / Cube	1
13	30.8602-018	Tyč / Stange / Bar	1
14	30.8602-501	Konzola / Konsole / Console	1
15	30.8602-502	Segment / Segment / Segment	1
16	30.8602-510	Kostka / Würfel / Cube	1
17	30.8602-514	Tyč zpevnění / Festigungsstange / Hardening bar	1
18	30.8602-521	Deska / Platte / Plate	1
19	30.8602-524	Plech / Blech / Metal plate	1
20	30.8602-525	Držák / Halterung / Holder	1
21	81.8602-515	Kryt / Deckel / Cover	1
22	90.001.25.008	Šroub / Schraube / Screw M5x12 DIN 912	2
23	90.001.25.034	Šroub / Schraube / Screw M8x30 DIN 912	4
24	90.100.55.005	Matice / Mutter / Nut M8 DIN 934	1
25	90.301.0Z.002	Válcový kolík / Zylinderstift / Cylindrical pin 5x16 DIN 7	1
26	91.070.010	Vývodka / Ausführung / Bushing M 12x1.5	1
27	94.002.001	Rukojeť kuželová / Griffschalter / Conical handle M12	1
28	95.300.001	Ložisko / Lager / Bearing 30312 AX	2
29	95.800.009	Pojistný kroužek / Sicherungsring / Retaining ring Ø20 DIN 471	1
30	96.002.002	O kroužek / O Ring / O Ring 4x2.2	3



24.6. Pilové rameno / Sägerahmen / Saw arm

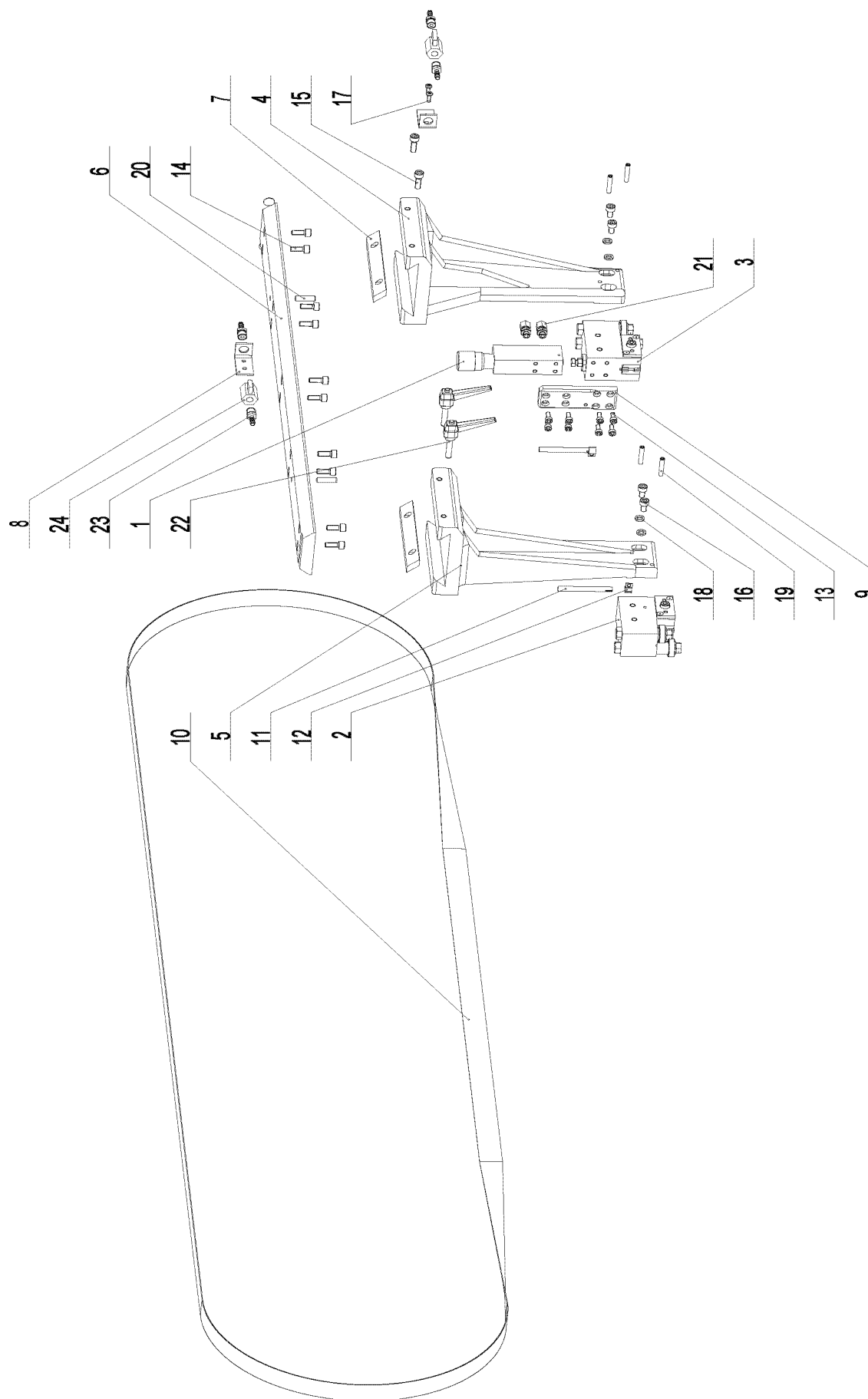
Poz.	Objednací číslo	Název položky	ks
Pos.	Bestell - Nr.	Bezeichnung	Menge
Pos.	Reference No.	Item	Pcs.
1		Převodovka / Getriebe / Gearbox	1
2	Viz výkres / Siehe Zeichnung / See drawing	Napínání / Sägebandspannung / Stretching	1
3	Viz výkres / Siehe Zeichnung / See drawing	Vedení pásu / Sägebandführung / Saw band guiding	1
4	Viz výkres / Siehe Zeichnung / See drawing	Kartáček / Bürste / Brush	1
5	Viz výkres / Siehe Zeichnung / See drawing	Řemenice / Riemenscheibe / Band - wheel	1
6		Variátor / Variator / Variator	1
7	251.148	Snímač natáčení / Positionsgeber / Turning sensor	1
8		Vodící konzola / Konsole / Guiding console	1
9	30.0614-001	Kroužek / Ring / Ring	2
10	30.0814-016	Držák rychloměru / Halterung / Speedometer holder	1
11	30.0814-113	Plech / Blech / Metal plate	1
12	30.1714-103	Kostka / Würfel / Cube	2
13	30.1804-010	Podložka kola / Scheibe / Wheel washer	1
14	30.1805-005	Kroužek motoru / Ring / Electromotor ring	2
15	30.1814-110	Pant / Türband / Hinge	3
16	30.1814-111	Pant / Türband / Hinge	3
17	30.2904-003	Hnací kolo / Antriebsrad / Driving wheel	1
18	30.2914-203	Kryt ramene / Deckel / Arm cover	1
19	30.2914-205	Kryt variátoru / Deckel / Variator cover	1
20	30.2914-206	Konzola / Konsole / Console	1
21	30.2914-209	Kryt kartáčku / Deckel / Brush cover	1
22	30.2914-210	Konzola / Konsole / Console	1
23	30.2914-401	Řemenice / Riemenscheibe / Band - wheel	1
24	30.8404-001	Rameno / Rahmen / Arm	1
25	30.8414-002	Kryt napínání / Deckel / Stretching cover	1
26	30.8414-005	Držák koncového spínače / Halterung / Limit switch holder	1
27	81.2914-201	Víko / Deckel / Cover	1
28	90.001.25.007	Šroub / Schraube / Screw M5x10 DIN 912	2
29	90.001.25.095	Šroub / Schraube / Screw M8x70 DIN 912	1
30	90.005.55.024	Šroub / Schraube / Screw M10x25 DIN 933	4
31	90.005.55.034	Šroub / Schraube / Screw M12x40 DIN 933	8
32	90.011.27.009	Šroub / Schraube / Screw M12x20 DIN 7991	1
33	90.012.50.007	Šroub / Schraube / Screw M4x30 DIN 84	2
34	90.150.50.002	Podložka / Scheibe / Washer Ø4.3 DIN 125	2
35	90.150.50.006	Podložka / Scheibe / Washer Ø10.5 DIN 125	4
36	90.150.50.007	Podložka / Scheibe / Washer Ø13 DIN 125	8
37	90.300.0Z.010	Válcový kolík / Zylinderstift / Cylindrical pin 8x32 DIN 6325	1
38	90.301.0Z.005	Válcový kolík / Zylinderstift / Cylindrical pin 6x36 DIN 7	2
39	91.001.012	Elektromotor / Elektromotor / Electromotor 7AA 100L 04	1
40	91.070.012	Vývodka / Ausführung / Bushing M 20x1.5	1
41	91.071.004	Vývodka hadice / Verschraubung Gerade / Hose bushing PG29	1
42	91.071.005	Vývodka hadice / Verschraubung Gerade / Hose bushing PG36	1

43	91.072.007	Matice / Mutter / Nut	PG29	1
44	91.072.008	Matice / Mutter / Nut	PG36	1
45	91.100.001	Indikátor rychlosti / Geschwindig.anzeige / Speed indicator		1
46	91.173.007	Koncový spínač / Endschalter / Limit switch		2
47	91.173.012	Koncový spínač - zámek / Endschalter mit Klinke / Limit switch - lock		1
48	92.006.001	Propojka / Verbindungsstück / Jumper T		1
49	92.009.001	Průchodka úhlová / Tülle / Angle grommet		2
50	94.102.001	Ucpávka / Liderung / Ewad		2
51	96.022.012	Klínový řemen / Keilriemen / V-belt	8x400Li	1
52	LGW30_CC	Vozík / Wagen / Carriage		2



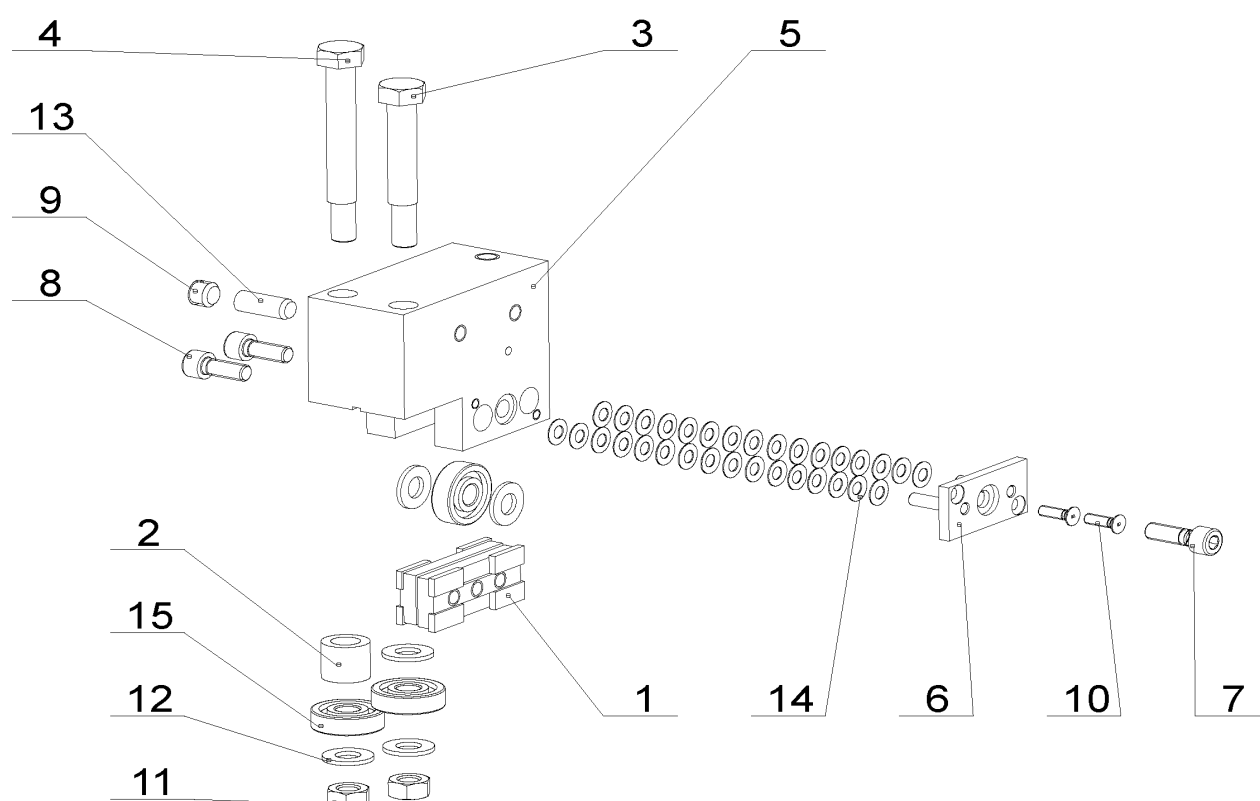
24.7. Napínání pilového pásu / Sägebandspannung / Saw band stretching

Poz.	Objednací číslo	Název položky	ks
Pos.	Bestell - Nr.	Bezeichnung	Menge
Pos.	Reference No.	Item	Pcs.
1	30.0808-001	Kostka napínání / Bandspannungswürfel / Stretching cube	1
2	30.0808-002	Lišta vodící / Führungsleiste / Guiding listel	2
3	30.0808-006	Lišta / Leiste / Listel	2
4	30.0808-007	Šroub / Schraube / Screw	1
5	30.1708-004	Držák šroubu / Halter / Screw holder	1
6	30.2908-001	Podložka / Scheibe / Washer	1
7	30.2908-103	Kolo napínací / Umlenkrad / Stretching wheel	1
8	30.3508-002	Kalíšek pružiny / Federbecher / Spring cup	1
9	30.3508-004	Kroužek měřicí / Meßring / Measuring ring	1
10	30.4008-001	Šroub napínání / Bandspannungsschraube / Stretching screw	1
11	30.4808-101	Čep napínání / Bolzen Bandspannung / Stretching pivot	1
12	30.4808-103	Distanční kroužek / Distanzring / Distance ring	1
13	90.001.25.052	Šroub / Schraube / Screw M10x50 DIN 912 8.8	6
14	90.004.2D.013	Šroub / Schraube / Screw M12x25 DIN 915	1
15	90.011.27.009	Šroub / Schraube / Screw M12x20 DIN 84 4.8	1
16	90.100.55.005	Matice / Mutter / Nut M8 DIN 934 8.8	1
17	90.300.OZ.003	Válcový kolík / Zylinderstift / Cylindrical pin d16x80 DIN 7	1
18	90.350.OZ.002	Talířová pružina / Tellerfeder / Belleville spring 35.5x18.3x2.0x2.8	6
19	95.001.026	Ložisko / Lager / Bearing 6307 2RS	2
20	95.800.014	Pojistný kroužek / Sicherungsring / Retaining ring d35 DIN 471	1
21	95.801.013	Pojistný kroužek / Sicherungsring / Retaining ring d80 DIN 472	2



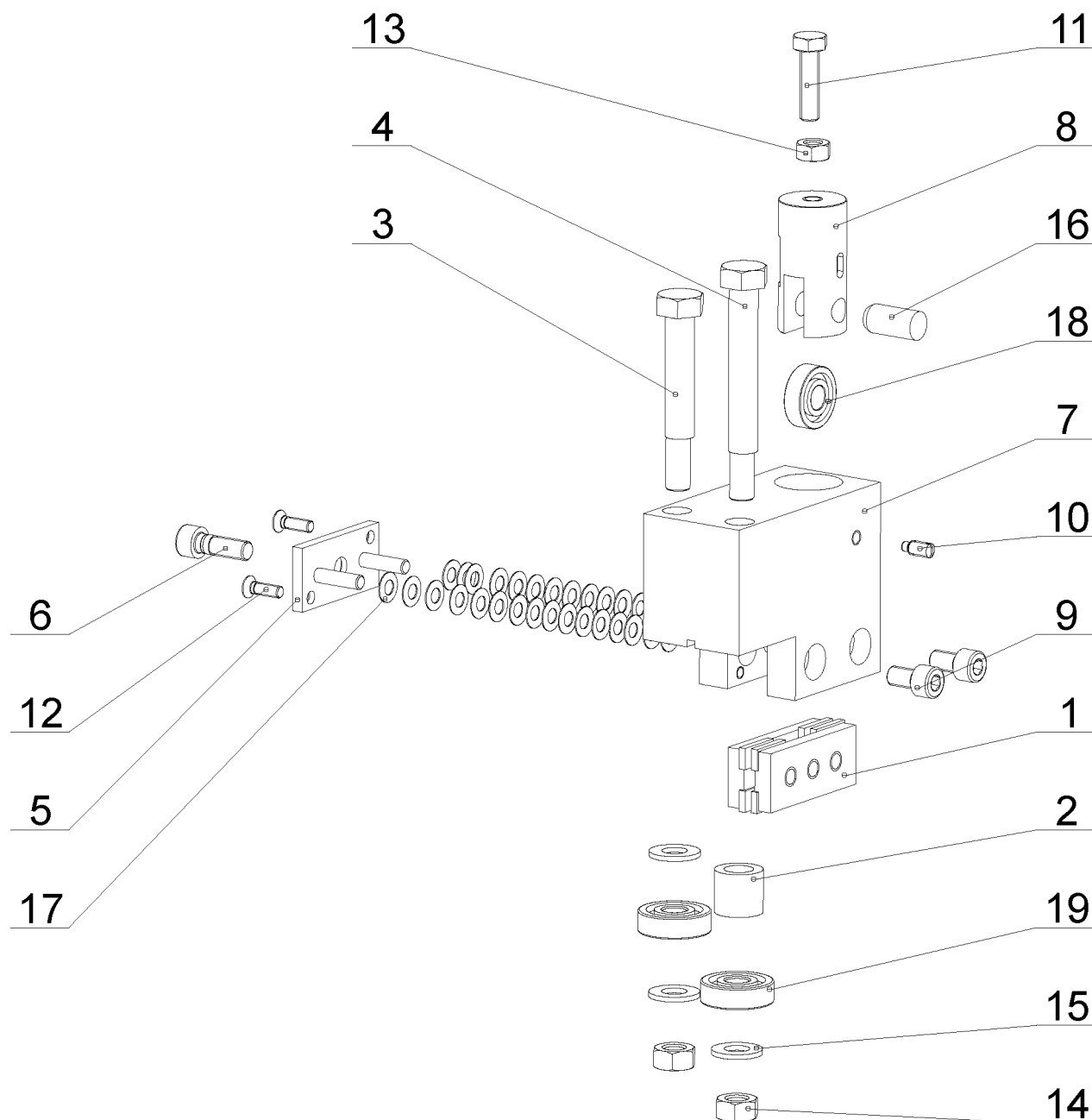
24.8. Vedení pilového pásu / Sägebandführung / Saw band guiding

Poz.	Objednací číslo	Název položky	ks
Pos.	Bestell - Nr.	Bezeichnung	Menge
Pos.	Reference No.	Item	Pcs.
1		Regulace přítlaku / Schnittdruckregulation / Cutting pressure regulation	1
2	Viz výkres / Siehe Zeichnung / See drawing	Levá vodící kostka / Linker Führungsklotz / Left guiding cube	1
3	Viz výkres / Siehe Zeichnung / See drawing	Pravá vodící kostka / Rechter Führungsklotz / Right guiding cube	1
4	30.0810-003	Držák vodící kostky-pravý / Führungsschuhhalt.-R / Guiding cube holder-right	1
5	30.0810-004	Držák vodící kostky-levý / Führungsschuhhalt.-L / Guiding cube holder-left	1
6	30.0810-008	Vedení / Führung / Guide	1
7	30.0810-011	Lišta držáku / Leiste / Holder listel	2
8	30.1814-011	Držák ventilu / Halter / Valve holder	2
9	30.2016-006	Deska / Platte / Plate	1
10	30.2904-913	Pilový pás / Sägeband / Saw band	1
11	30.3510-004	Trubka / Rohr / Tube	2
12	30.9010-003	Držák / Halter / Holder	2
13	90.001.25.017	Šroub / Schraube / Screw M6x16 DIN 912	8
14	90.001.25.032	Šroub / Schraube / Screw M8x20 DIN 912	10
15	90.001.25.033	Šroub / Schraube / Screw M8x25 DIN 912	2
16	90.001.25.XXX	Šroub / Schraube / Screw M8x1x14 DIN 912	4
17	90.013.27.005	Šroub / Schraube / Screw M5x16 ISO 7380	2
18	90.163.00.002	Podložka / Scheibe / Washer M 8 NORD-LOCK	4
19	90.302.0Z.001	Kuželový kolík+závit / Kegelbolzen + Gewinde / Taper pin+thread 6x36 DIN 7978	4
20	90.302.0Z.002	Kuželový kolík+závit / Kegelbolzen + Gewinde / Taper pin+thread 8x30 DIN 7978	2
21	92.002.102	Šroubení přímé / Gerade Verschraubung / Straight screwing S-GEV 08LLR	2
22	94.008.003	Montážní páka / Klemmhebel / Assembly lever M8x40	2
23	94.202.002	Redukce / Reduktion / Reduction 1/4"-6	4
24	99.260.003	Kulový ventil / Kugelventil / Spherical valve 1/4"	2



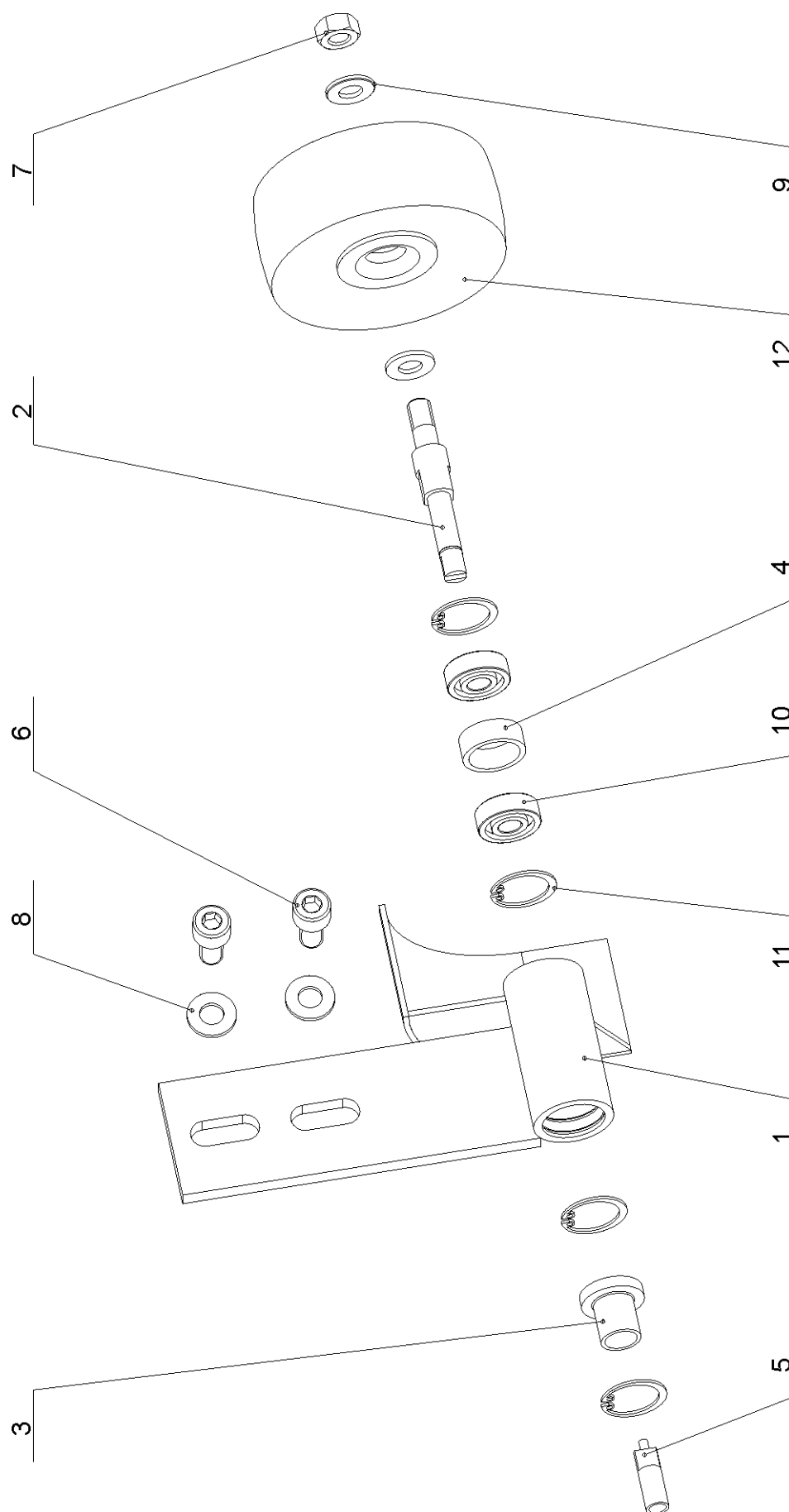
24.9. Levá vodící kostka / Linker Führungsklotz / Left guiding cube

Poz.	Objednací číslo	Název položky	ks
Pos.	Bestell - Nr.	Bezeichnung	Menge
Pos.	Reference No.	Item	Pcs.
1	30.0810-005	Držák tvrdokovu / HM-Halter / HM holder	2
2	30.0810-007	Trubka ložiska / Lagerrohr / Bearing tube	1
3	30.0810-009	Excentr / Exzenter / Excenter	1
4	30.0810-010	Excentr / Exzenter / Excenter	1
5	30.0810-101	Levá vodící kostka / Linker Führungsklotz / Left guiding cube	1
6	30.0810-103	Vodící deska / Führungsplatte / Guide plate	1
7	30.0810-104	Šroub / Schraube / Screw	1
8	90.001.25.029	Šroub / Schraube / Screw M8x12 DIN 912 8.8	2
9	90.002.2D.016	Šroub / Schraube / Screw M12x10 DIN 913 45H	1
10	90.011.27.022	Šroub / Schraube / Screw M5x16 DIN 7991 10.9	2
11	90.100.55.006	Matice / Mutter / Nut M10 DIN 934 8.8	2
12	90.150.50.006	Podložka / Scheibe / Washer Ø10,5 DIN 125	5
13	90.301.0Z.001	Válcový kolík / Zylinderstift / Cylindrical pin 10x28 DIN 7	1
14	90.350.0Z.001	Talířová pružina / Tellerfeder / Belleville spring 12.5x6.2x0.5x0,85	36
15	95.001.014	Ložisko / Lager / Bearing 6200 2RS	3



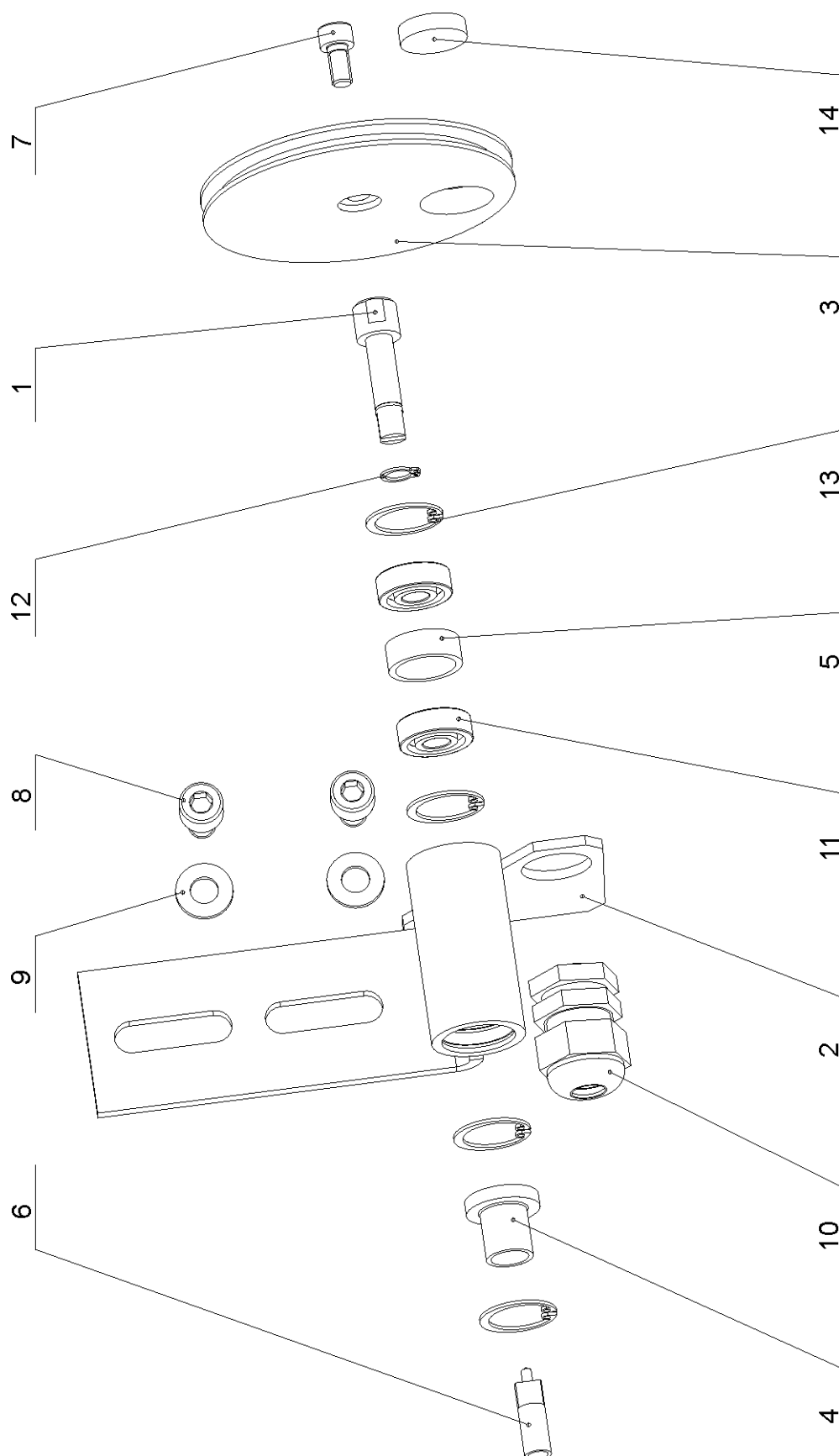
24.10. Pravá vodící kostka / Rechter Führungsklotz / Right guiding cube

Poz.	Objednací číslo	Název položky	ks
Pos.	Bestell - Nr.	Bezeichnung	Menge
Pos.	Reference No.	Item	Pcs.
1	30.0810-005	Držák tvrdokovu / HM-Halter / HM holder	2
2	30.0810-007	Trubka ložiska / Lagerrohr / Bearing tube	1
3	30.0810-009	Excentr / Exzenter / Excenter	1
4	30.0810-010	Excentr / Exzenter / Excenter	1
5	30.0810-103	Deska vodící / Führungsplatte / Guiding plate	1
6	30.0810-104	Šroub / Schraube / Screw	1
7	30.1810-101	Kostka vodící pravá / Rechte Führungsplatte / Right guiding cube	1
8	30.1810-102	Držák ložiska pravý / Rechter Lagerhalter / Right bearing holder	1
9	90.001.25.030	Šroub / Schraube / Screw M8x14 DIN 912 8.8	2
10	90.004.2D.0XX	Šroub / Schraube / Screw M6x14 DIN 915 45H	1
11	90.005.55.017	Šroub / Schraube / Screw M8x30 DIN 933 8.8	1
12	90.011.27.022	Šroub / Schraube / Screw M5x16 DIN 7991 10.9	2
13	90.100.55.005	Matice / Mutter / Nut M8 DIN 934 8.8	1
14	90.100.55.006	Matice / Mutter / Nut M10 DIN 934 8.8	2
15	90.150.50.006	Podložka / Scheibe / Washer Ø10,5 DIN 125	3
16	90.301.0Z.XXX	Válcový kolík / Zylinderstift / Cylindrical pin 12x26 DIN 7	1
17	90.350.0Z.001	Talířová pružina / Tellerfeder / Belleville spring 12.5x6.2x0.5x0,85	32
18	95.001.004	Ložisko / Lager / Bearing 6000 2RS	1
19	95.001.014	Ložisko / Lager / Bearing 6200 2RS	2



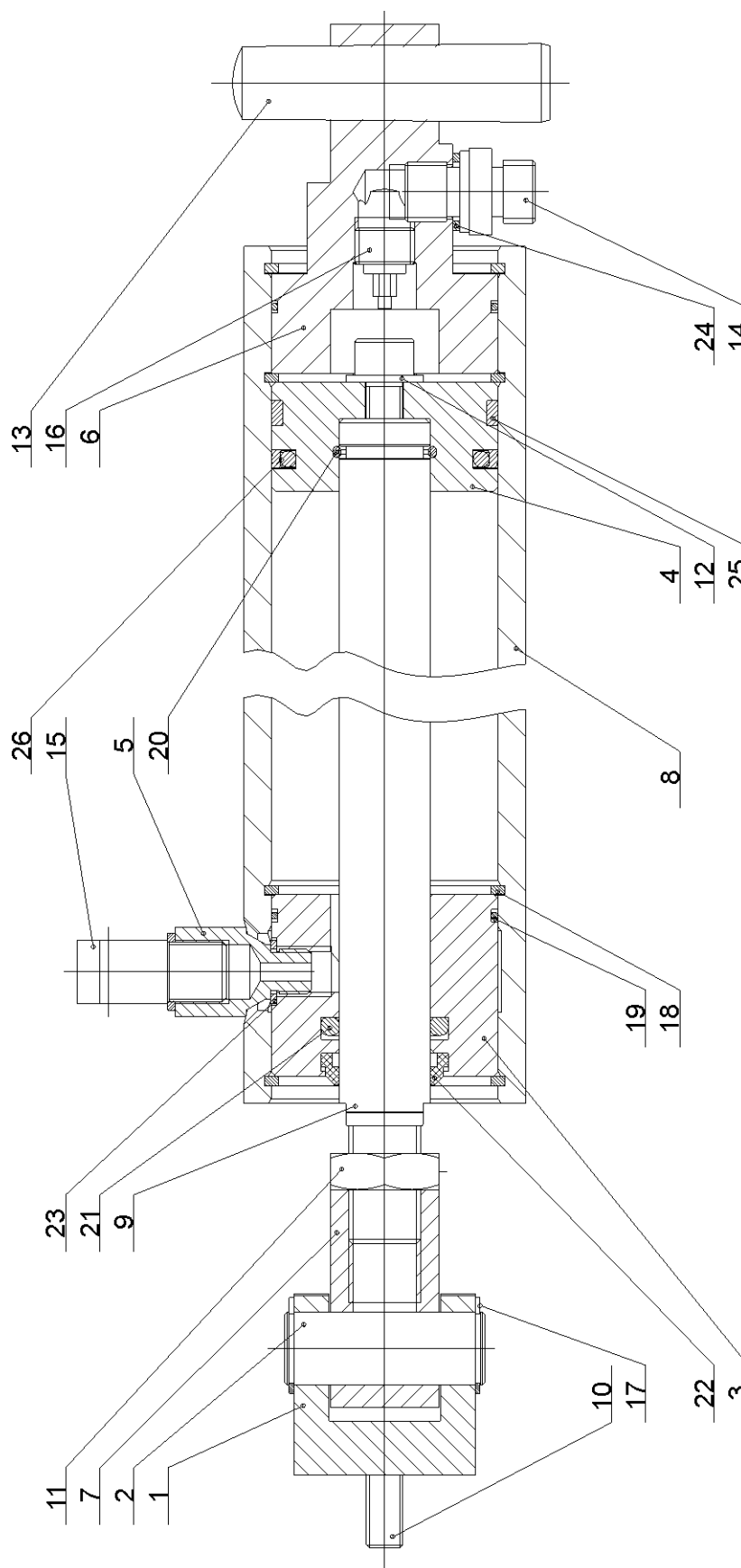
24.11. Kartáček / Spänbürste / Brush

Poz.	Objednací číslo	Název položky	ks
Pos.	Bestell - Nr.	Bezeichnung	Menge
Pos.	Reference No.	Item	Pcs.
1	30.2914-301	Držák kartáčku / Bürstenhalter / Brush holder	1
2	30.4314-002	Hřídel kartáčku / Bürstenwelle / Brush shaft	1
3	30.4314-003	Pouzdro / Buchse / Bush	1
4	30.4314-004	Distanční kroužek / Distanzring / Distance ring	1
5	30.4314-006	Koncovka / Endstück / End piece	1
6	90.001.25.031	Šroub / Schraube / Screw M8x16 DIN 912	2
7	90.100.55.005	Matice / Mutter / Nut M8 DIN 934	1
8	90.150.50.005	Podložka / Scheibe / Washer Ø8,4 DIN 125	3
9	90.150.50.XXX	Podložka / Scheibe / Washer Ø8,4 DIN 125	1
10	95.001.001	Ložisko / Lager / Bearing 608 2RS	2
11	95.801.XXX	Pojistný kroužek / Sicherungsring / Retaining ring Ø22 DIN 472	4
12	49.250.006	Kartáček / Spänebürste / Brush	1



24.12. Řemenice kartáčku / Bürstenriemenscheibe / Brush pulley

Poz.	Objednací číslo	Název položky	ks
Pos.	Bestell - Nr.	Bezeichnung	Menge
Pos.	Reference No.	Item	Pcs.
1	30.2914-107	Hřídel / Welle / Shaft	1
2	30.2914-402	Držák / Halter / Holder	1
3	30.2914-404	Řemenice / Riemenscheibe / Band-wheel	1
4	30.4314-003	Pouzdro / Buchse / Bush	1
5	30.4314-004	Distanční kroužek / Distanzring / Distance ring	1
6	30.4314-006	Koncovka / Endstück / End piece	1
7	90.001.25.016	Šroub / Schraube / Screw M6x12 DIN 912	1
8	90.001.25.029	Šroub / Schraube / Screw M8x12 DIN 912	2
9	90.150.50.005	Podložka / Scheibe / Washer Ø8,4 DIN 125	2
10	91.070.004	Vývodka / Ausführung / Bushing	1
11	95.001.001	Ložisko / Lager / Bearing 608 2RS	2
12	95.800.002	Pojistný kroužek / Sicherungsring / Retaining ring Ø8 DIN 471	1
13	95.801.XXX	Pojistný kroužek / Sicherungsring / Retaining ring Ø22 DIN 472	4
14	99.060.002	Magnet / Magnet / Magnet 22x8	1



24.13. Zvedací válec / Hubzylinder / Lifting cylinder - 251.260

Poz.	Objednací číslo	Název položky	ks
Pos.	Bestell - Nr.	Bezeichnung	Menge
Pos.	Reference No.	Item	Pcs.
1	30.0807-008	Spodní držák / Unterer halter / Bottom holder	1
2	30.0807-009	Spodní čep / Unterer Bolzen / Bottom pivot	1
3	30.2807-002	Horní víko / Oberer Deckel / Upper cover	1
4	30.2807-004	Píst / Kolben / Piston	1
5	30.3407-103	Redukce / Reduktion / Reduction	1
6	30.4107-003	Víko / Deckel / Cover	1
7	30.8607-001	Držák pístnice / Kolbenstangehalter / Piston rod holder	1
8	30.8607-101	Válec / Zylinder / Cylinder	1
9	30.8607-103	Pístnice / Kolbenstange / Piston rod	1
10	90.001.25.032	Šroub / Schraube / Screw M8x20 DIN 912	3
11	90.101.55.003	Matice / Mutter / Nut M16 DIN 439	1
12	90.150.50.005	Podložka / Scheibe / Washer Ø8,4 DIN 125	1
13	90.302.0Z.XXX	Kuželový kolík+závit / Kegelbolzen + Gewinde / Taper pin+thread 16x70 DIN 7978	1
14	92.002.003	Přímé šroubení / Gerade Verschraubung / Straight screwing	1
15	92.004.001	Úhlové šroubení / Winkel Verschraubung / Angle screwing	1
16	92.151.001	Pojistný ventil / Sicherungsventil / Retaining valve	1
17	95.800.007	Pojistný kroužek / Sicherungsring / Retaining ring Ø16 DIN 471	2
18	95.801.018	Pojistný kroužek / Sicherungsring / Retaining ring Ø50 DIN 472	4
19	96.001.013	O kroužek / O Ring / O Ring 45x2	2
20	96.002.007	O kroužek / O Ring / O Ring 16x2	1
21	96.041.002	Těsnící manžeta / Dichtungsmanschette / Gasket 20x28	1
22	96.060.002	Stírací kroužek / Abstreifring / Scraper ring 20x28	1
23	96.082.001	Těsnící kroužek / Dichtungsring / Sealing ring 10/14	1
24	96.082.002	Těsnící kroužek / Dichtungsring / Sealing ring 13/17	2
25	96.084.001	Vodící kroužek / Führungsring / Guiding ring 50x5.5x2.5x146.9	1
26	96.900.001	Těsnění / Dichtung / Sealing 50x39x4	1

25. Troubleshooting table

Problem	Possible causes	Repair
Slanting cut	- 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.	Set according to the chapter „Servicing and adjustment“ Replace to the chapter „Worn pieces replacement“ Set according to the chapter „Servicing and adjustment“ Replace according to the chapter „Worn pieces replacement“ Set according to the chapter „Servicing and adjustment“ Replace according to the chapter „Worn pieces replacement“ Rise the saw band stretching and set the limit switch. Replace the saw band and keep the instructions of manufacturer on new saw band choice. Replace the saw band. Set the roller conveyor. Cleanse the feeding board from debris, chip and residue material. Clamp the guiding arm. Set the guiding cube to the material. Lower the material feeding speed. Set the cut and feeding speed to the relevant material.
The cut is not cut upon desired angle	- 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.	Check the securing lever efficiency and carry out its adjustment according to chapter „Servicing and adjustment“. Check the angle adjustment with a protractor and possibly set it according to chapter „Servicing and adjustment“. Stretch the saw band and set the limit switch according to chapter „Servicing and adjustment“. Fasten the guiding arm and the cube. Cleanse the material and mating jaw.
Short lifetime of the saw band	- Insufficient saw band stretching. - Worn swarf brush.	Raise the tightening of the saw band set the scanner of saw band tightening according to chapter „Servicing and adjustment“. Check the swarf brush condition and replace it in case of excessive use as described in chapter „Worn pieces replacement“

	- 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“
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.
Saw band drive cannot be started.	Pressure switch is adjusted wrong.	Set the pressure switch according to chapter „Servicing and adjustment“
	Pressure switch is defective.	Replace defective parts of the pressure switch.

	Material is deformed.	Use pressure control of the vices SDRA. SDRA is possible buy as additional load, parameters of the SDRA are in chapter „ Special accessories “
Cooling is not active	Lack of cooling agent. Input hosepipe is broken or obstructed. Cooling pump is defective.	Fill the tank with cooling agent. Check the cooling circuit and perhaps cleanse cooling system. Replace the cooling pump.
The cut is not finished.	Wrongly adjusted lower stop point of the saw frame. Stop point surface is messed-up.	Check lower limit switch and screw. Cleanse stop point surface of the limit switch from debris and residue material.

26. Roller conveyors and accessories

The rollers conveyors and accessories in this appendage are not standard accessories of the band saw and it is necessary to order them separately.

26.1. Roller conveyors of D type

26.1.1. Roller conveyors

D 540 – 2

Conveyor with steel rolls

Max. load **steel rolls 600 kg/m**

Without legs

Rolls Ø 70x540mm

Dimension 530x2000mm

Conveyor height 700 – 800mm, 900 – 1000mm



D 540 – 3

Conveyor with steel rolls

Max. load **steel rolls 600 kg/m**

Without legs

Rolls Ø 70x540mm

Dimension 530x3000mm

Conveyor height 700 – 800mm, 900 – 1000mm

26.1.2. Length stops

HA – 2

Manual length stop of series H for 2m



HA – 3

Manual length stop of series H for 3m

For special lengthens of the length stop HA the price can be set together from the following components:

Trolley HA

Trolley with length stop

Guide way HA

Guide way with connection material for 1m

HDA – 3

Digital Length stop with hand wheel suitable for all conveyors of series H and HP

(Attention! Only mounted on the conveyor and with protective guide ASL-H)



HDA – 6

Digital Length stop with hand wheel suitable for all conveyors of series H and HP

(Attention! Only mounted on the conveyor and with protective guide ASL-H)

Lengthens HDA

For special lengthens of the length stop HDA, use the price of 3m or 6m as basic number and add the costs for 1m



HNCA – 3

NC-controlled length stop suitable for all conveyors of series H and HP
(Attention! Only mounted on the conveyor and with protective guide ASL-H)

HNCA – 6

NC-controlled length stop suitable for all conveyors of series H and HP
(Attention! Only mounted on the conveyor and with protective guide ASL-H)

Lengthens HNCA

For special lengthens of the length stop HNCA, use the price of 3m or 6m as basic number and add the costs for 1m



H – VL

NC-controlled Incremental infeed machine

Lengthens Arm

Special order for double side band saws (DG, DGH)

26.1.3. Feeding machines



D-VL

Automatic feeding machine.

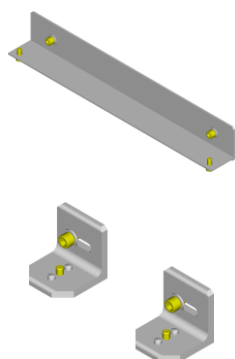
26.1.4. Connection parts



ATR

Connection part - right for conveyor D540.

26.1.5. Connection sets



VBS L

Connection set, left side.

VBS R

Connection set, right side.

26.1.6. Accessories of roller conveyors

VR – D

Set of vertical rollers suitable for all conveyors of series D.



BVR – D

Set of movable vertical rollers suitable for all conveyors of series D.



VPF – D

Preparation leg suitable for all conveyors of series D.
(Attention! At least two pieces have to be used).



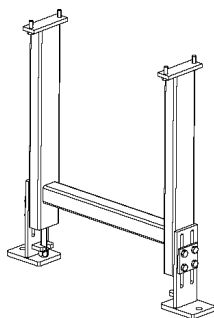
SB-D

Set of securing bolt suitable for all conveyors of series D.

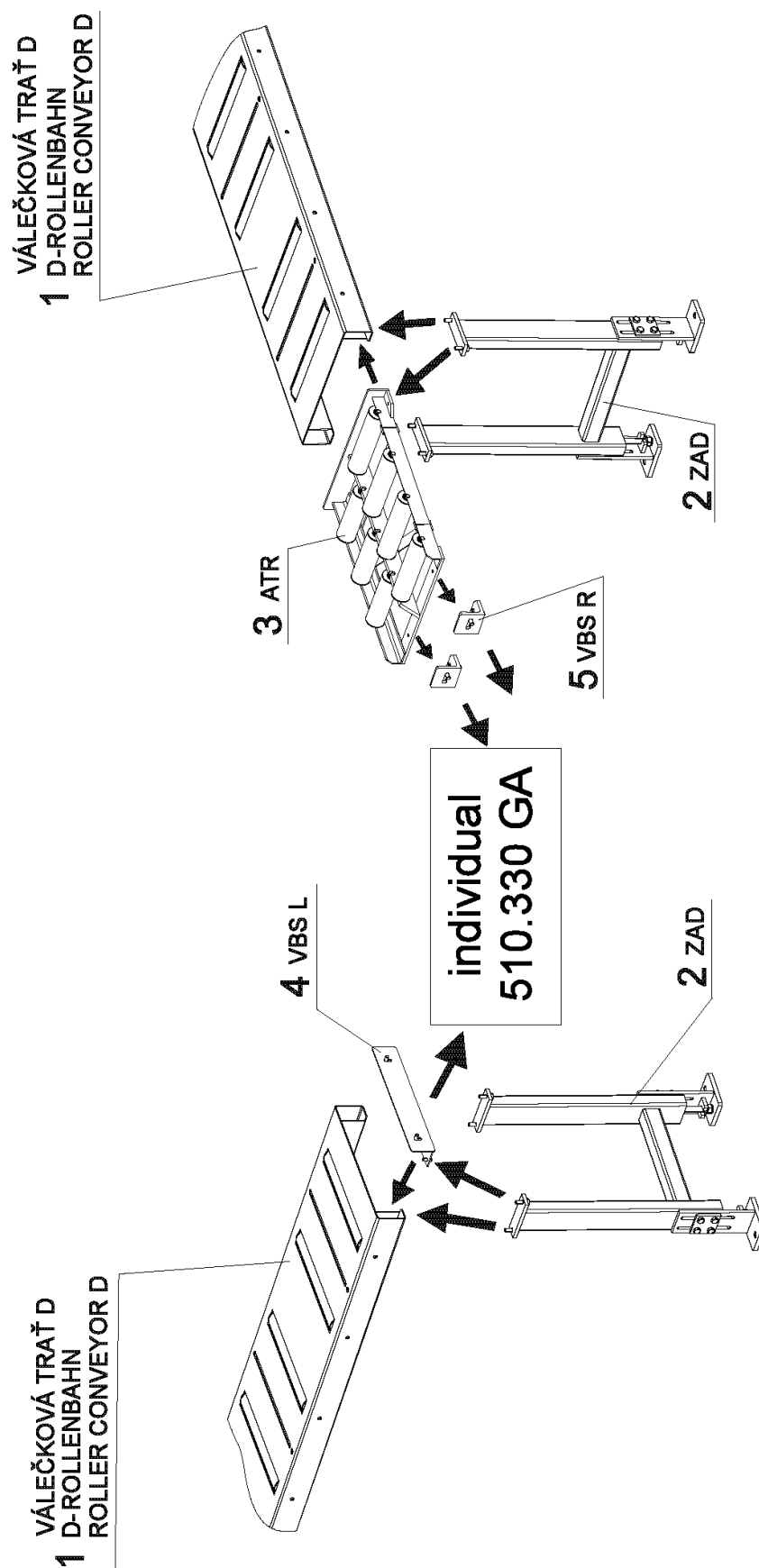


ZA-D

Additional leg suitable for conveyors D540/578, adjusted height 700-800 mm and for conveyors D540/778, adjusted height 900-1000 mm.



26.1.7. Connection schema of the roller conveyors to the band saw



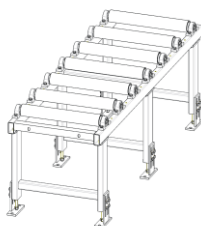
Roller conveyor D 540

Pos.	Number	Sign.	Name
1	253.086	D 540 - 2	Roller conveyor D width 540mm, length 2m
	253.087	D 540 - 3	Roller conveyor D width 540mm, length 3m
2	253.080	ZAD 540	Additional leg width 540mm
	253.081		
3	255.524	ATR	Right connection part width 540mm
4	255.258	VBS L	Left connection set
5	255.260	VBS R	Right connection set

For **individual 510.330 GANC** band saw we advise, height presented groups. The roller conveyors are solved like modules, from which is possible to set together roller conveyor from desired length. In case of your questions, please contact your dealer.

26.2. Roller conveyors of H type

26.2.1. Roller conveyors



H 550 – 2

Conveyor with steel rolls
Max. Load 1200 kg/m
7 Rolls Ø 80x550mm
Dimension 640x2000mm
Without legs



H 550 – 3W

Conveyor with steel rolls
Max. Load 1200 kg/m
7 Rolls Ø 80x550mm
Dimension 640x3000mm
Without legs



H 550 – 3K

Conveyor with steel rolls
Max. Load 1200 kg/m
10 Rolls Ø 80x550mm
Dimension 640x3000mm
Without legs

26.2.2. Roller conveyors prepared for powering

HP 550 – 2

Conveyor prepared for powering with chains and chain wheels
Max. load 1200 kg/m
7 Rolls Ø 80x550mm
Dimension 640x2000mm
Without legs

HP 550 – 3W

Conveyor prepared for powering with chains and chain wheels
Max. load 1200 kg/m
7 Rolls Ø 80x550mm
Dimension 640x3000mm
Without legs

HP 550 – 3K

Conveyor prepared for powering with chains and chain wheels
Max. load 1200 kg/m
10 Rolls Ø 80x550mm
Dimension 640x3000mm
Without legs

26.2.3. Power and control units for powered conveyors



ARH – M

Power unit for powered conveyors of series HP, including motor, worm gear and manual clutch
Max. load 2500 kg / 1 drive



ARH – P

Power unit for powered conveyors of series HP, including motor, worm gear and pneumatic clutch
Max. load 2500 kg / 1 drive



RSP 1/1

Control unit for powered conveyors of series HP with one – phase frequency converter for one unit ARH

RSP 1/3

Control unit for powered conveyors of series HP with three – phase frequency converter for one unit ARH

RSP 2/1

Control unit for powered conveyors of series HP with one – phase frequency converter for two unit ARH

RSP 2/3

Control unit for powered conveyors of series HP with three – phase frequency converter for one unit ARH



EBS

End-stop unit for combination with powered conveyors of series HP and length stops HDA and HNCA



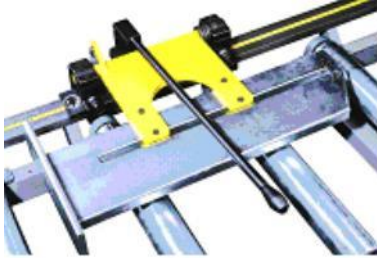
EMG-STOP

Additional emergency-stop unit for powered conveyors of series HP

26.2.4. Length stops

HA – 2

Manual length stop of series H for 2m



HA – 3

Manual length stop of series H for 3m

For special lengthens of the length stop HA the price can be set together from the following components:

Trolley HA

Trolley with length stop

Guide way HA

Guide way with connection material for 1m

HDA – 3

Digital Length stop with hand wheel suitable for all conveyors of series H and HP

(Attention! Only mounted on the conveyor and with protective guide ASL-H)



HDA – 6

Digital Length stop with hand wheel suitable for all conveyors of series H and HP

(Attention! Only mounted on the conveyor and with protective guide ASL-H)

Lengthens HDA

For special lengthens of the length stop HDA, use the price of 3m or 6m as basic number and add the costs for 1m

HNCA – 3

NC-controlled length stop suitable for all conveyors of series H and HP

(Attention! Only mounted on the conveyor and with protective guide ASL-H)



HNCA – 6

NC-controlled length stop suitable for all conveyors of series H and HP

(Attention! Only mounted on the conveyor and with protective guide ASL-H)

Lengthens HNCA

For special lengthens of the length stop HNCA, use the price of 3m or 6m as basic number and add the costs for 1m

H – VL

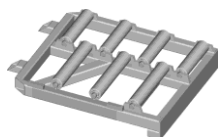
NC-controlled Incremental infeed machine



Lengthens Arm

Special order for double side band saws (DG, DGH)

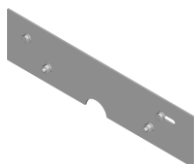
26.2.5. Connection parts



ATH - R

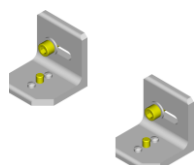
Right connection part for conveyor H 550.

26.2.6. Connection sets



VBS L

Connection set, left side.



VBS R

Connection set, right side.

26.2.7. Accessories of roller conveyors



VR – H550

Vertical roller suitable for all conveyors of series H and HP.



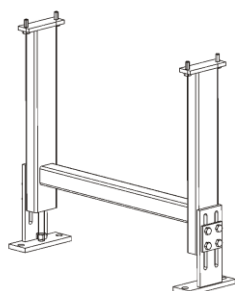
BVR – H

Movable vertical, suitable for conveyors H 550 and HP 550.



VBF – H

Preparative leg suitable for all conveyors of series H and HP.
(Attention! At least two pieces have to be used)



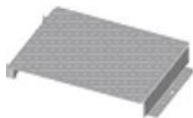
ZA-H550

Additional leg suitable for conveyors H 550 and HP 550,
adjusted height 700-800 mm.

26.2.8. Covers

ADB – H550 – 2

Set cover plates between rolls suitable for H550–2 and HP550–2. (Attention, only suitable for named conveyor)



ADB – H550 – 3W

Set cover plates between rolls suitable for H550–3W and HP550–3W. (Attention, only suitable for named conveyor)

ADB – H550 – 3K

Set cover plates between rolls suitable for H550–3K and HP550–3K. (Attention, only suitable for named conveyor)

ASL-H – 2

Cover for rollers placing from left and right side, it is suitable for conveyors H550–2.



ASL-H – 3W

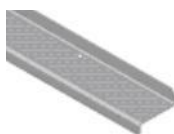
Cover for rollers placing from left and right side, it is suitable for conveyors H550–3W.

ASL-H – 3K

Cover for rollers placing from left and right side, it is suitable for conveyors H550–3K.

ASL-HP – 2

Cover for rollers placing from left and right side, it is suitable for conveyors HP550–2.



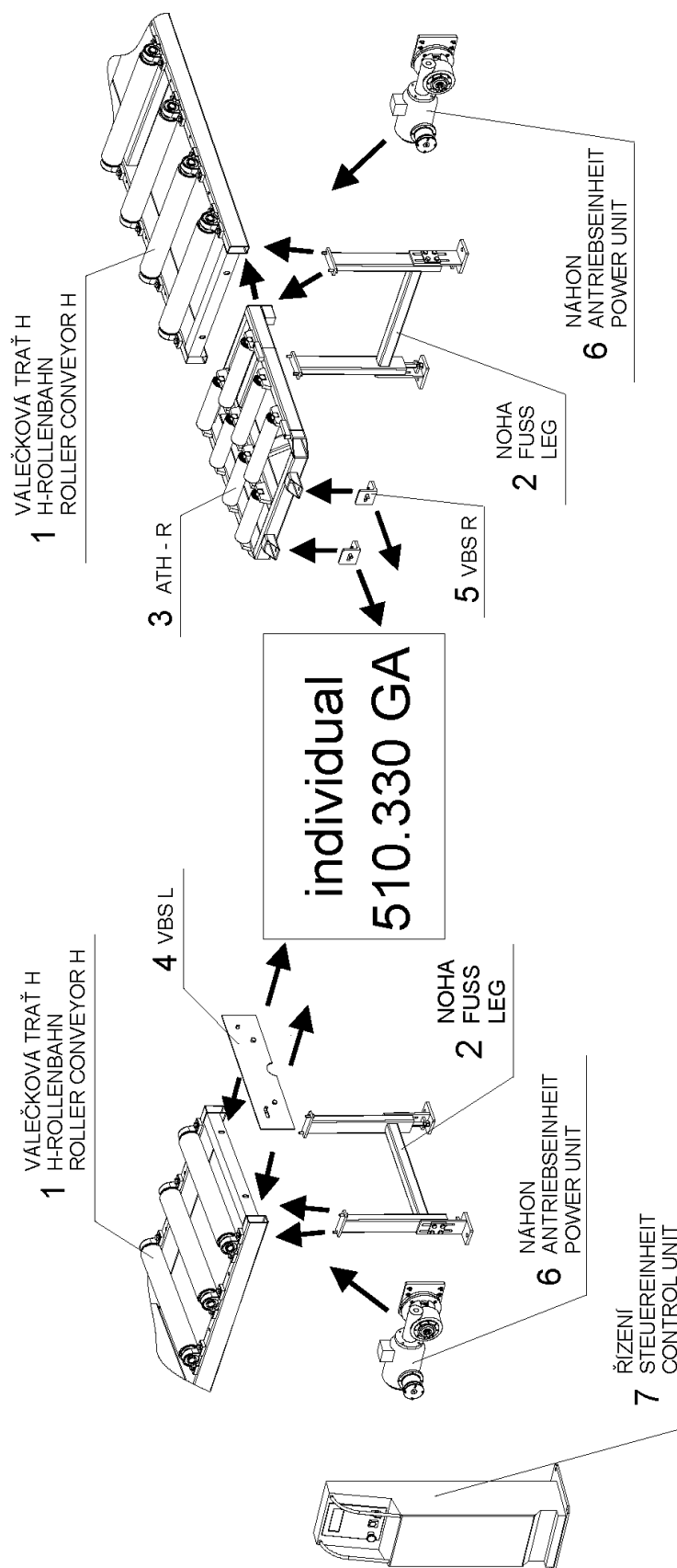
ASL-HP – 3W

Cover for rollers placing from left and right side, it is suitable for conveyors HP550–3W.

ASL-HP – 3K

Cover for rollers placing from left and right side, it is suitable for conveyors HP550–3K.

26.2.9. Connection schema of the roller conveyors to the band saw



Roller conveyor H 550

Pos.	Number	Sign.	Name
1	253.001	H 550 - 2	Roller conveyor H width 550mm, length 2m
	253.030	H 550 - 3W	Roller conveyor H width 550mm, length 3m
	253.002	H 550 -3K	Roller conveyor H width 550mm, length 3m
2	253.035	ZA - H 550	Additional leg width 550mm
3	255.525	ATH - R	Right connection part width 550mm
4	255.019	VBS L	Left connection set
5	255.260	VBS R	Right connection set

Powered roller conveyor HP 550

Pos.	Number	Sign.	Name
1	253.006	HP 550 - 2	Roller conveyor H width 550mm, length 2m
	253.031	HP 550 - 3W	Roller conveyor H width 550mm, length 3m
	253.007	HP 550 -3K	Roller conveyor H width 550mm, length 3m
2	253.035	ZA - H 550	Additional leg width 550mm
3	255.525	ATH - R	Right connection part width 550mm
4	255.019	VBS L	Left connection set
5	255.260	VBS R	Right connection set
6		ARH - M	Power unit with manual clutch
		ARH - P	Power unit with pneumatic clutch
7		RSP	Control unit with frequency converter

For **individual 510.330 GANC** band saw we advise, height presented groups. The roller conveyors are solved like modules, from which is possible to set together roller conveyor from desired length. In case of your questions, please contact your dealer.

Declaration of Conformity

according to 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 (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:

BOMAR, spol. s r.o.
Lazaretní 7
615 00 Brno
Czech Republic

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

Economic 410.260G, 410.260GH, 410.260GA, 410.260GHK, 410.260GHV,
410.260DG, 410.260DGH, 410.260DGHK, 410.260DGHV,
510.320GA, 510.320G, 510.320GH, 510.320GHK, 510.320GHV,
510.320DG, 510.320DGH, 510.320DGHK, 510.320DGHV
Transverse 410.260DGH, 410.260GANC, 510.330DGH, 510.330GANC, 610.440DGH,
610.440GANC
Individual 410.260GANC, 410.260GH, 510.330GH, 510.330 GANC, 610.440GANC
610.440GH, 640.520GH, 640.520GANC

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 61000-6-4:2002 EMC
- ČSN EN 61000-6-2:2002 EMC

Year of the CE put on the product: 06

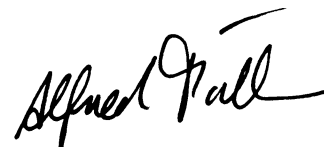
Place and date of issue:

Brno, 26th May 2006

BOMAR, spol. s r.o.
Lazaretní 7, 615 00 Brno
IČO: 489 08 827
DIČ: 288-48908827

Company seal

Alfred Pichlmann,
Managing Director



.....
name, office, signature