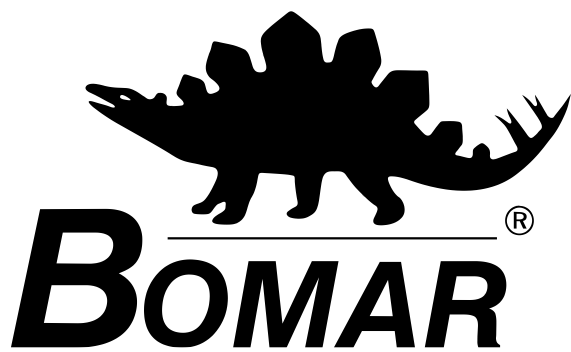




Operating Instructions for Band Saw

individual 610.440 GH



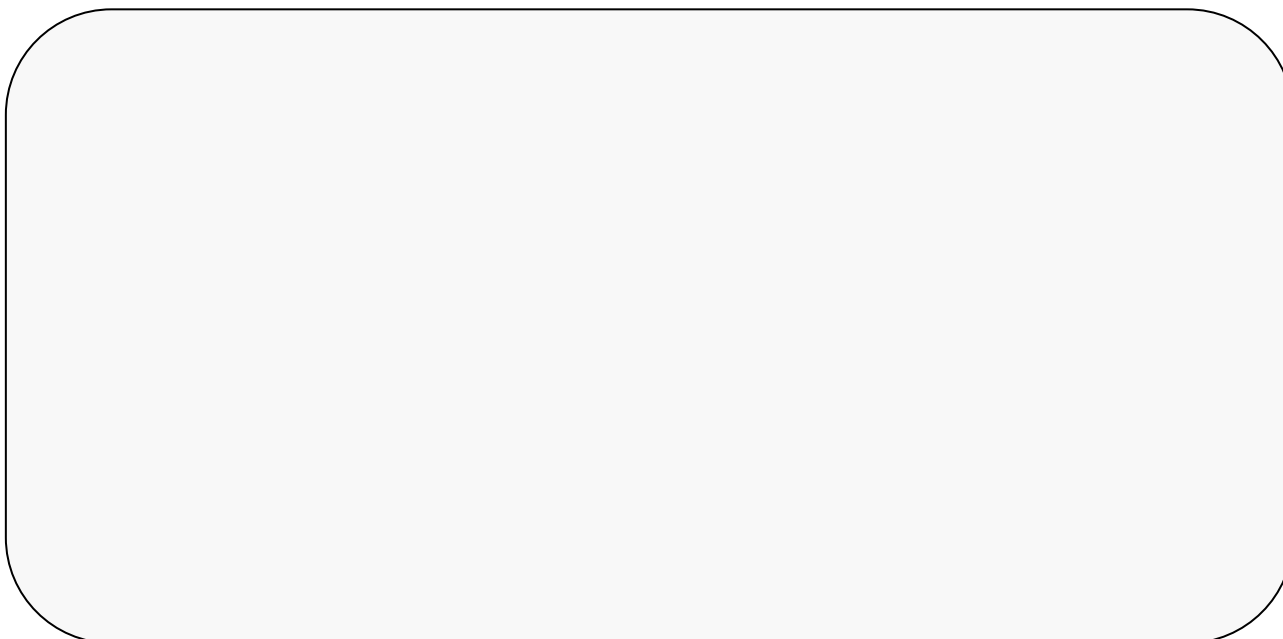
**Before transporting and using the machine, please read
the instructions thoroughly!**

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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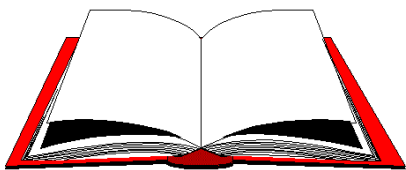
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1. Introduction



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!



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

2. Band saw using

The individual 610.440 GH 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	1980 kg
--------	---------

Machine size:

Length	3200 mm
Width	1800 mm
Height	2180 mm

Electrical equipment of the machine:

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

Driving engine of the band saw:

Type	1LA7113-4AA60
Output	4 kW

Hydraulic equipment:

Type	870-1554/02
Output	1,1 kW

Cooling pump:

Type	2COP1 - 14
Capacity	65 l

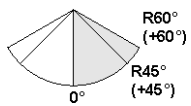
Size of the saw band:

6400 x 41 x 1,3 mm

Cutting speed:

20 - 90 m/min

Cutting angles:

				
0°	Ø440 mm	635 x 440 mm	635 x 440 mm	440 x 440 mm
R 45° (+45°)	Ø440 mm	525 x 250 mm	410 x 440 mm	410 x 410 mm
R 60° (+60°)	Ø350 mm	350 x 250 mm	230 x 440 mm	230 x 230 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.

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

4.2. Protective suit and personal safety



Wear tight fitting overalls!
Loose fitting clothes 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.



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

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

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

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

In no circumstances touch the rotating elements.

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

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

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

Keep your working area clean!

Ensure sufficient lighting in the working area.

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

Do not touch the cooling liquid with bare hands!
Do not set the nozzle of the cooling liquid, when the machine is started on!
Do not remove the chips from the working area of the machine, when the machine is started on!
Do not use the compressed air for the machine cleaning or for the chips removing!
Use the protective instruments for chips removal!

4.4. Safety notes for the servicing and repairs



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



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



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

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

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

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

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

4.5. Safety machine accessories

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



Enhanced risk!

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

TOTAL STOP button



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

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

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

Saw arm cover



If the cover is opened during operation, the limit switch is disconnected and the band saw is stopped. The band saw is impossible 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 adjustment“. Check the switch carefully and periodically – adjust it if necessary.

Saw band cover



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

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

5. Transportation and stocking

5.1. Conditions for transportation and stocking

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

Conditions for transportation and stocking:

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

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

5.2. Safety notes

Keep safety notes for the transport!



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



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



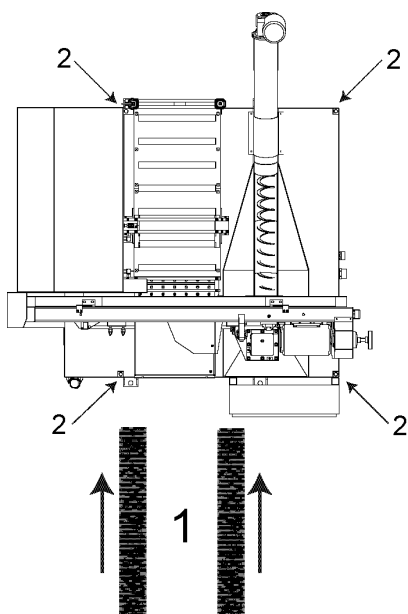
Wear safety boots!
Loose parts and packing materials can cause serious injuries.

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

5.3. Transport and stocking preparations

Close the vice and thoroughly oil all blank surfaces.
Lower the saw arm 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! Use the lifters of the truck according to the schema (num. 1). If the hand pallet truck or the forklift truck is not available it is possible to use suspension cables and the crane. The machine is equipped with screw threads M20 for fixing the shackles (num. 2). Use only shackles with appropriate capacity.
Make sure that the hand pallet truck; the forklift truck or the crane and the suspension cables 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!

Store the machine only on terms, which are stated in the operating instructions. Otherwise, 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. Machine installing and levelling

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

Minimal requirement:

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

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

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

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

6.3. Electrical connection



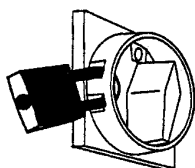
ATTENTION! Only a qualified professional must carry out the servicing and repairs of the electric equipment! Take special care during work with electrical equipment. High voltage shock can have fatal consequences! Always keep notes about work safety!

Electrical parameters of the machine:

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

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



Check the direction of the saw band!

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

6.4. Filling of the cooling system

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



Wear protective gloves when working with cooling liquids!



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

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

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

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

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

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

6.5. Check machine functions

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

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

Check, if covers are installed and functional.

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

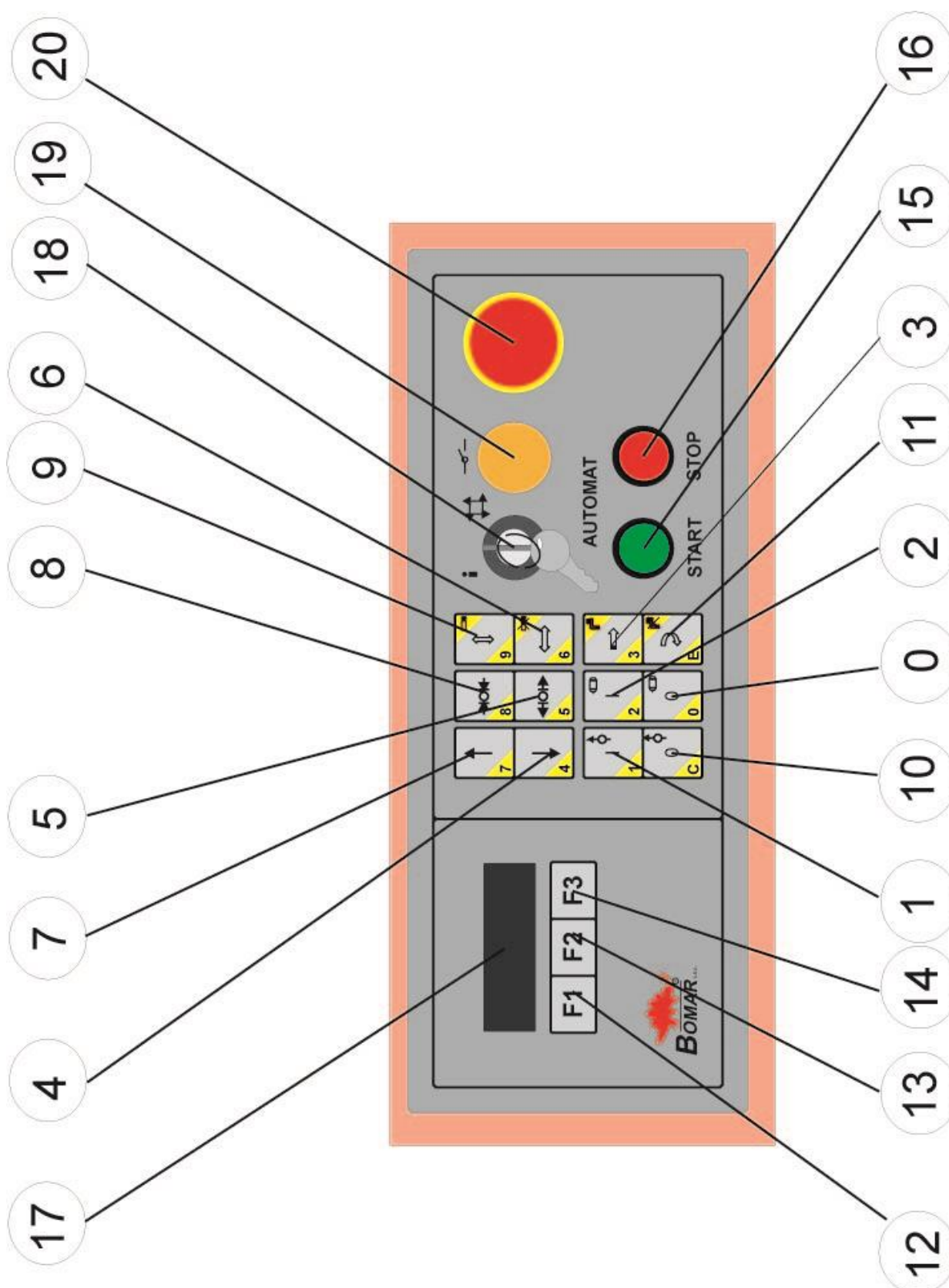
Switch on the main switch and check the motors and systems (saw band drive, hydraulic pump, cooling pump, chips conveyor).

Open and close the main vice and the feeding vice. Drive the front feeder from the front position to the rear position. Turn the saw arm of the band saw from one outer position to other outer position. Raise the saw arm to the top position and drop the saw arm 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 Switch off the saw band drive

1 Switch on the hydraulic aggregate

2 Switch on the saw band drive

3 Switch on the coolant pump

4 Lower the saw frame

Press the button. The saw frame begins ride down with *operating shift*. When the button is loosened, the saw frame is stopped. If you press at the same time button **F2**, the saw frame begins ride down with *accelerated shift* to the material. **ATTENTION!** If you will be running with accelerated shift until the cut, the saw band may be damaged.

5 Open the vice

6 Switch off Microniser

Only when the band saw is equipped with Microniser.

7 Lift the saw arm

8 Clamp the vice

9 Switch on Microniser

Only when the band saw is equipped with Microniser.

10 Switch off the hydraulic aggregate

11 Switch off the coolant pump

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 START of the automatic cycle

16 STOP of the automatic cycle

17 Display

It appears the actual state of the operating modes.

18 Operating mode switch

i set mode

↺ semi-automatic mode

19 Safety circuit switching on

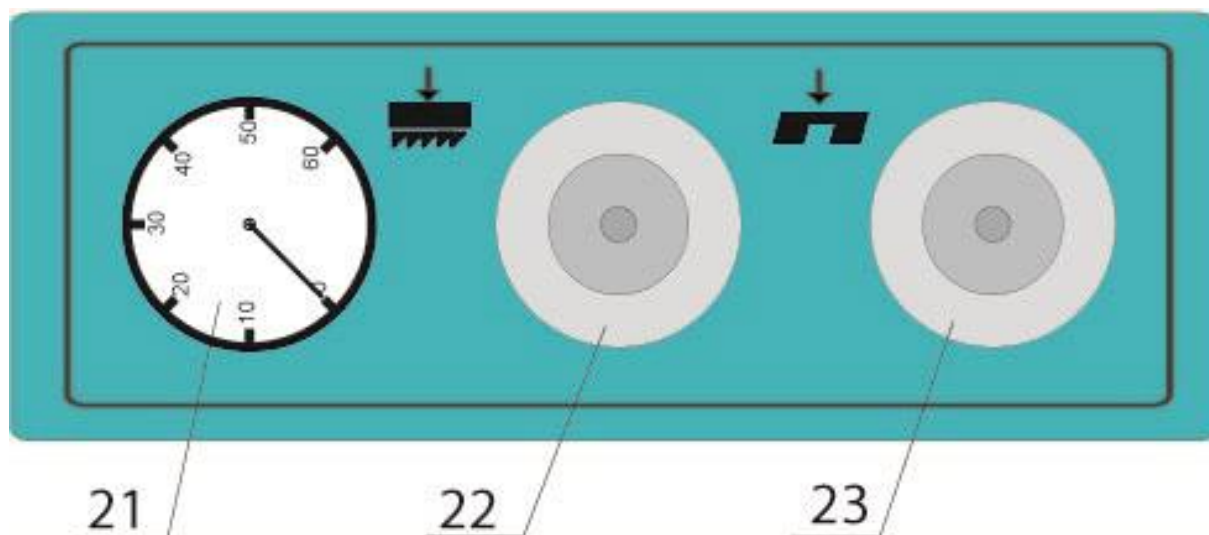
Switch on the safety circuit by pressing button.

20 TOTAL STOP button
In emergency causes, the machine must be immediately switched off.

21 Manometer of cutting pressure

22 Regulation of the cutting pressure

23 Governing valve
Set the speed of saw arm sinking to the cut by governing valve.



8. Starting 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 19 – control panel of the band saw).

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!



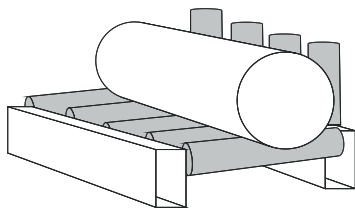
Handle the material only with the lift truck or use the suspension strands and the crane!
Do not use the lift truck or crane in case that you do not have the licence to handle with it!

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**“.

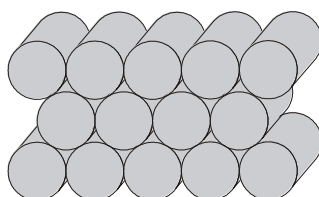
Make sure the conveyor is long enough and the material cannot tip off the conveyor.



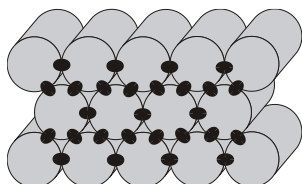
Be especially careful with round materials that it always stays on two vertical rollers and that it cannot fall off the conveyor!

9.4. Bundle material cutting

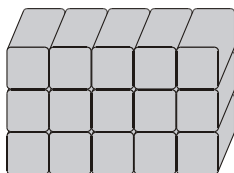
If you want to cut the material in the bundle, there are suggestions for the positioning of bundles



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!

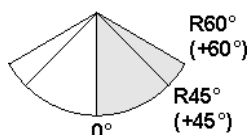


Wear protective boots!
Falling cut pieces can cause serious injuries.



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°**. Angles **0°** and **+60°** 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

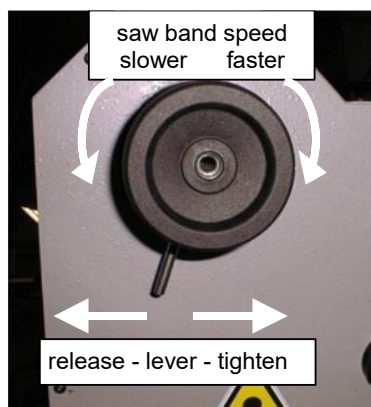
The saw band speed is possible to change from 20 to 90 m.min⁻¹. Makes the cutting speed adjustment:

1) Turn the switch **18** to the position  (semi-automatic mode).

2) Switch on 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.

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. Pressure adjusting to the cut

The band saw individual 610.440 GH is equipped with cutting pressure regulation on both guiding cubes.

Pressure adjusting is performed with regulating wheel (position **22** – control panel). The pressure to the cut is possible to set in range 20 – 45 bars. The value of the arm pressure to the cut is adjusted according to the cutting material and type of the saw band.

11. Set mode

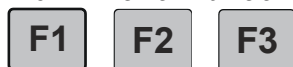
11.1. Entrance to menu

Turn the switch **18** to the position **I**.

11.2. 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.

```
"Band stopping select."
">F1 = down"
"F2 = up"
"F3 = next function"
```



1) If you press button **F1**, the saw band drive will be stopped **in the bottom** position of the saw arm.

2) If you press button **F2**, the saw band drive will be stopped **in the top** position of the saw arm.

11.3. Vice parameters (vice opening)

1) Press button **F3** to entrance to menu: Vice parameters.

```
"Vice OPEN"
">F1 = up"
"F3 = next function"
```



2) By repeated pressing button **F1**, you select: up – not release - down.

11.4. Stop time of the hydraulics

1) Press button **F3**.

```
"Hydraulic stopping"
">F1 = in minutes"
"F3 = next function"
```



2) To set the stop time, press button **F1**.

```
"Hydraulic stopping"
">F1 = in minutes"
"F3 = next function"
```



3) Select the minutes number on the keyboard (0 – 10). Confirm by pressing button **E**.

11.5. Language version selection

1) Press button **F3**.

2) By repeated pressing button **F1**, select the language.

```
" Language version  "
" Czech language   "
" F1 = language     "
" F3 = next function "
```



11.6. Menu closing

Switch the key to position .

12. Semi-automatic cycle

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. Cutting

Turn with switch with key to position „“.

1) Switch on the hydraulic aggregate by pressing button „1“.



2) Lift the saw arm to the top position by pressing button „7“.



3) Adjust the desired cutting angle.

4) Open the vice by pressing button „5“.



5) Insert the material to the vice and shift it to the desired length of the blank.

6) Clamp material to the vice by pressing button „8“.



7) Open the vice by button „5“. Set the position of the vice jaws from the material. The vice opens on this position after semi-automatic cycle stopping.



8) Lower the frame about 10 mm above the material by button „4“.



ATTENTION! Do not move the saw frame to the material, when the saw band driving is not running! Do not move the saw frame to the material with accelerated motion! The saw band can be damaged!

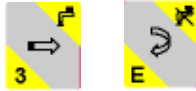
9) You can select, if:

- a) you want to set the height of the arm – press button **F1**, set the position, the arm lifts to this position after semi-automatic cycle stopping.
- b) you do not want to set the height of the arm – press button **F2**, the arm lifts to the preset height.

10) Set the guiding cubes to the cutting material.

11) Set the saw band speed according to the kind of the cutting material.

12) Select, if you want to cut with water-cooling (press button „3“) or not (press button „11“).



13) Select, if you want to cut with Microniser (press button „9“) or not (press button „6“).

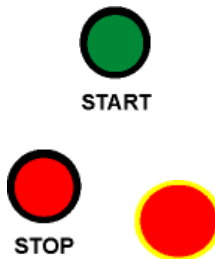


14) Set the speed of the arm sinking.

15) You can clear the register of the performed cycles by button **F3**.

16) Press button „15“ (**START** of semi-automatic cycle).

Note: Press button „16“ (**STOP** of semi-automatic cycle). In risk of injury or damage of the band saw, press the emergency button **TOTAL STOP**.



17) The band saw clamps the material to the vice and it makes the cut.

18) Open the vice. If the vice is not opened, you can open it by button „5“. Remove the blank.



19) You can repeat whole process.

12.3. Cycle breaking

12.3.1. STOP button



STOP

Semi-automatic cycle is interrupted by pressing button „16“ (**STOP** of the semi-automatic cycle).

The arm is lifted to the top position and the saw band drive is stopped.



START

By pressing button „15“ (**START** of the semi-automatic cycle), you can start the cycle.

12.3.2. TOTAL STOP button



In case of the risk, press button **TOTAL STOP**.

After pressing **TOTAL STOP** button, saw band drive is immediately broken and the arm sinking is stopped.

Reactivation:



1) Turn button **TOTAL STOP** according to the arrows (on the button).



2) Switch on the safety circuit by button „19“.



3) Switch on the hydraulic aggregate by button „1“.



START

4) Press button „15“ (**START** of the semi-automatic cycle). The arm is lifted to the top position and the saw performs the cycle.

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 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. Selection and replacement of the saw band

14.1. 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.

14.2. Saw band sizes

6400 x 41 x 1,3 mm

14.3. 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.

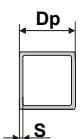
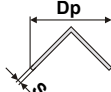
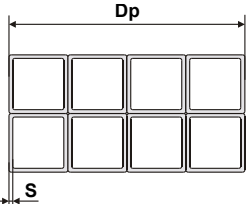
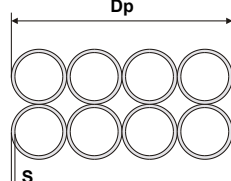
K – tooth with positive angle of the teeth.

Examples of the tooth system marking:

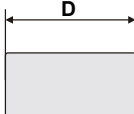
32 S – number „32“ means 32 teeth on one inch (that means constant tooth system), letter „S“ marks teeth with zero angle of the tooth.

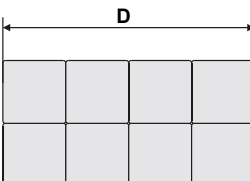
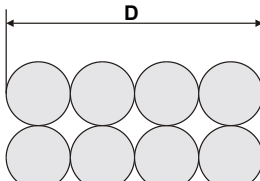
4-6 K – number „4-6“ means 4 till 6 teeth on one inch (that means variable tooth system); letter „K“ marks teeth with positive angle of the teeth.

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!

14.4. 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.

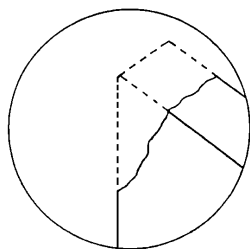
Running in: Cut the material with the arm lowering reduced to 50% only. When vibrations occur increase or decrease the band speed.

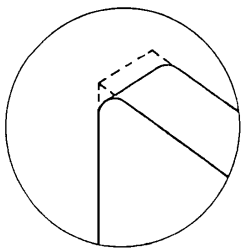
When cutting small pieces run the band until approximately 300 cm² of material has been cut.

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 regrinding saw bands too!

14.5. Saw band dismantling

1) Lift the saw arm to the top position.



2) Dismantle yellow protective cover of the saw band. The cover is clamped with two screws.



3) Open rear cover of the arm.



4) Turn by stretching star to the left side, release saw band stretching and pull down the saw band from the wheels.

5) Carefully, remove the saw band from the guide cubes.

14.6. 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.

14.7. 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.

14.7.1. Saw band stretching

1) Stretch the saw band slightly. 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.

In case of use hydraulic band tensioning, BSPA indicator, you must tighten a blade, **up to green arrow** on the manometer.

14.7.2. Saw band inspection

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

2) Switch on the saw band drive and then after 10 seconds switch off the saw band drive. If the saw band drive is not possible to switch on, set the limit switch of the saw band stretching.

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 covers of the saw band.

15. Cooling agents and chips disposal

15.1. 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.

15.2. 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

15.3. 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.

15.4. 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.

16. Greases and oils

16.1. 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 GA	Shell Tivela S 320	0,85 l
Individual 410.260 GH	Shell Tivela S 320	0,85 l
Individual 510.330 GA	Shell Tivela S 320	1,8 l
Individual 510.330 GH	Shell Tivela S 320	1,8 l
Individual 610.440 GA	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

16.2. 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		

16.3. 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

17. Service

17.1. 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 vice.
- The guiding of the feeder.
- Loading surface of the main vice, and area under them.
- Threaded bar of the main vice.

17.2. 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.

17.3. 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.

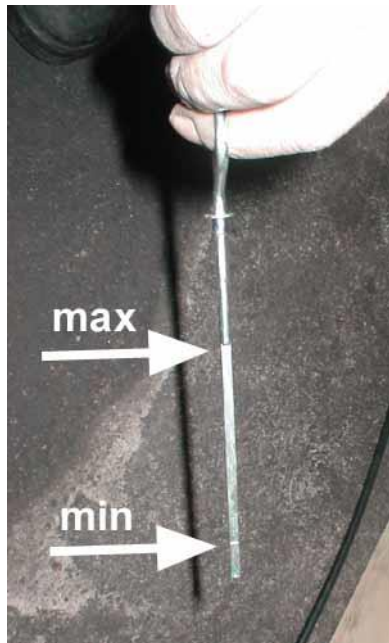
If the cooling liquid is little in the tank, it can cause the damage of the saw band influences insufficient cooling.

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

17.4. 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.

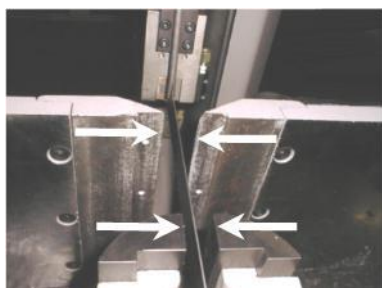
18. Adjustment

18.1. Guiding cubes adjustment

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



1) Release screws on both guiding cubes.



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

3) The guiding cubes are set.

18.2. Hard metal guides adjustment

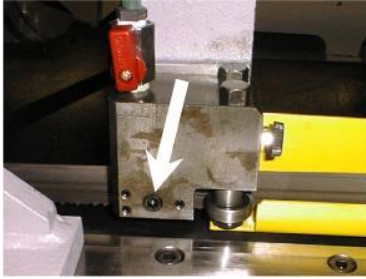
Hard metal guides adjustment is one of the most important criterions which influences cutting accuracy and saw band life. Therefore, it is essential to check regularly that hard metal guides adjustment is correct.



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



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



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

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

18.3. 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**.

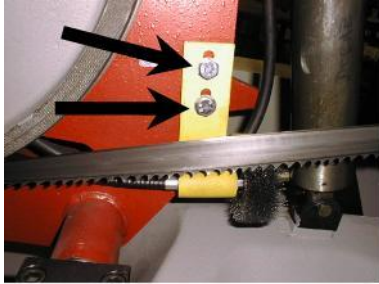
- Turn by screw to the right, the saw band approximates to the stretching wheel rim.
- Turn by screw to the left, the saw band departs from the stretching wheel rim.



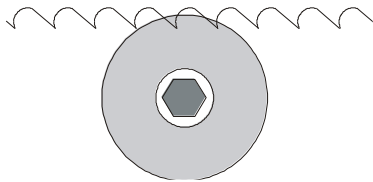
Check saw band run again after setting.

18.4. 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.

18.5. 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 too 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.

18.6. 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.

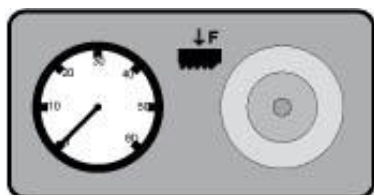
Limit switch setting



- 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.

18.7. Adjustment of pressure to the cut

The band saw **Extend 700.520** is equipped with cutting pressure regulation on the both guiding cubes.



Pressure adjusting is performed with regulating wheel (position 22 – control panel). The pressure to the cut is displayed on the cutting pressure manometer 21.

Lower pressure to the cut – turn the wheel against the clock's direction.

Higher pressure to the cut – turn the wheel to the clock's direction.

18.8. Speed adjustment of the arm lowering

Set the speed of the arm lowering to the cut by control valve (position 22 – 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.

19. Worn pieces replacement

19.1. Hard metal guides replacement

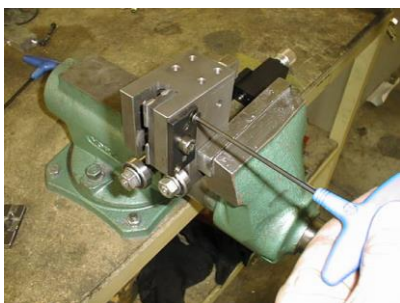
If the hard metal guides cannot be adjusted, they have to be replaced.



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.



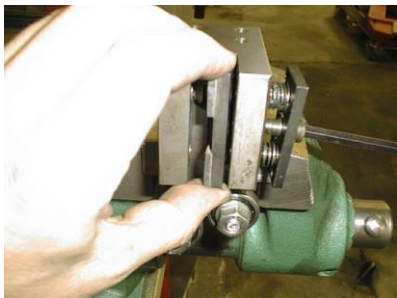
3) Screw out the adjusting screw of the adjustable hard metal guide.



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.

19.2. 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.

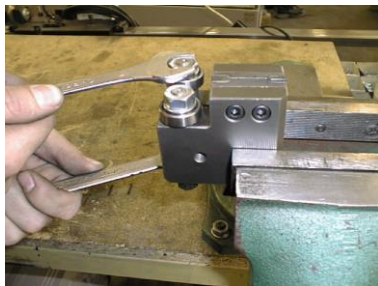
3) Set the brush to the saw band.

19.3. 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.

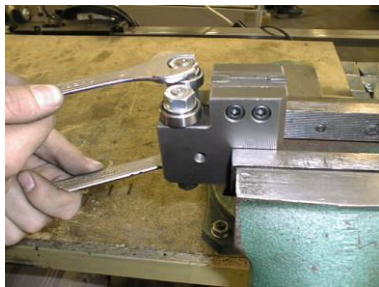


6) Change all bearings and other worn parts.



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.

19.4. Stretching wheel replacement

1) Dismantle the saw band.



2) Screw off the screw and remove the washer.

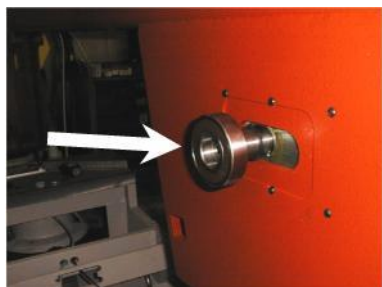


3) Pull the wheel from the shaft by means of wheel puller. If the lower bearing stays on the shaft, remove it too.

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.

19.5. Driving wheel replacement

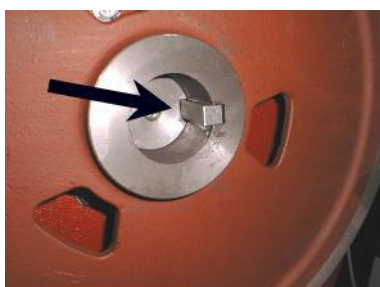
1) Dismantle the saw band.



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.

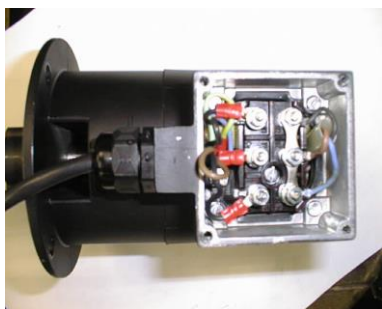
19.6. Cooling pump replacement



**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.

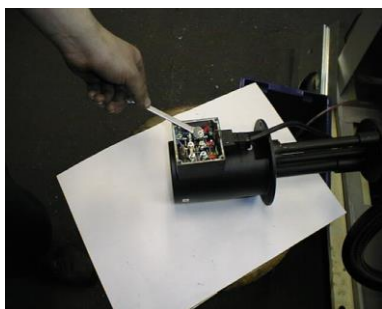
2) Remove the hosepipe leading to the cooling agent from the plug on the pump.
Screw off four screws from the cooling pump flange and pull out the pump from the sheet metal holder.



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.

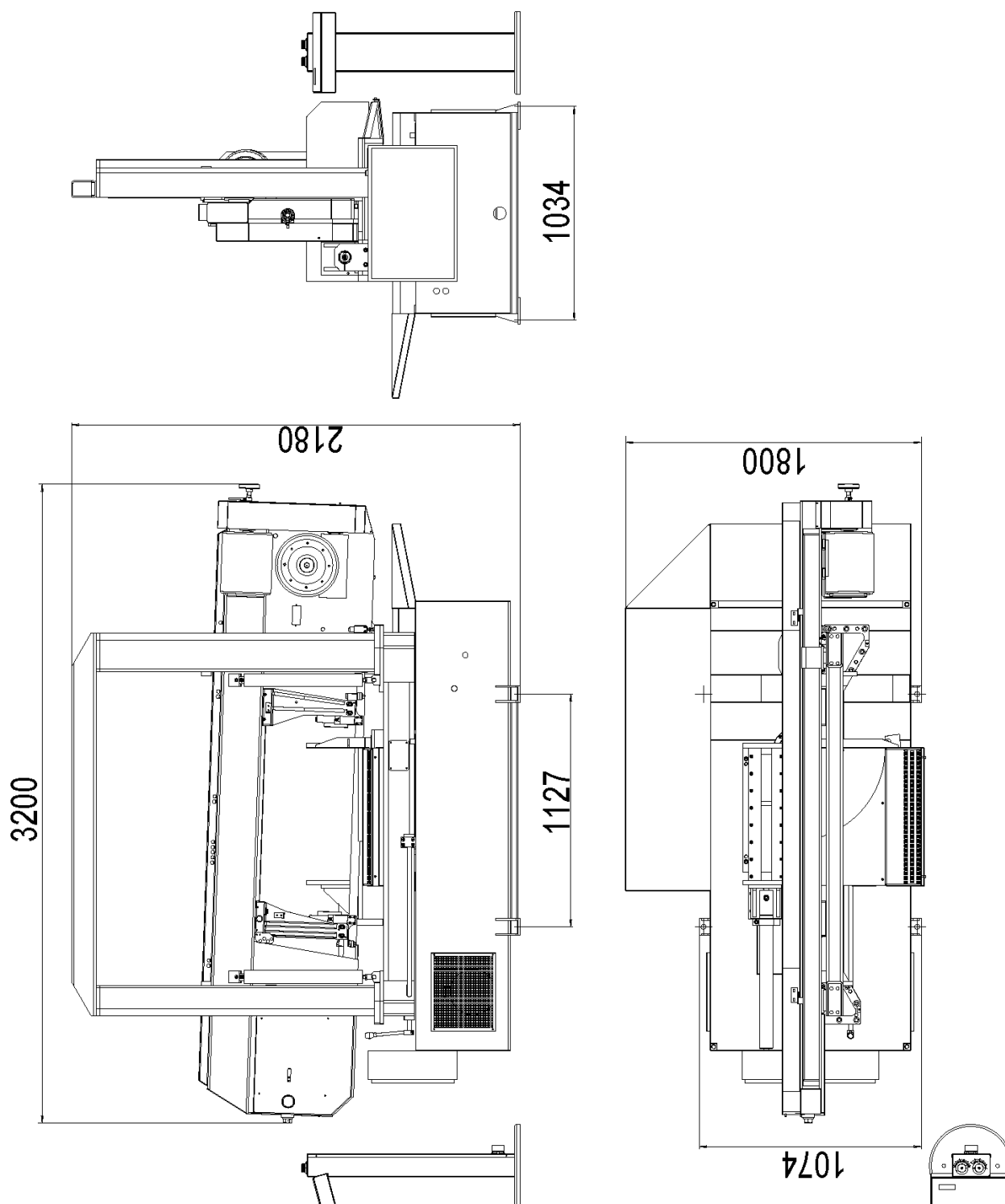


5) Dismantle new pump switchboard cover. Push the cable through the bushing and fasten it.



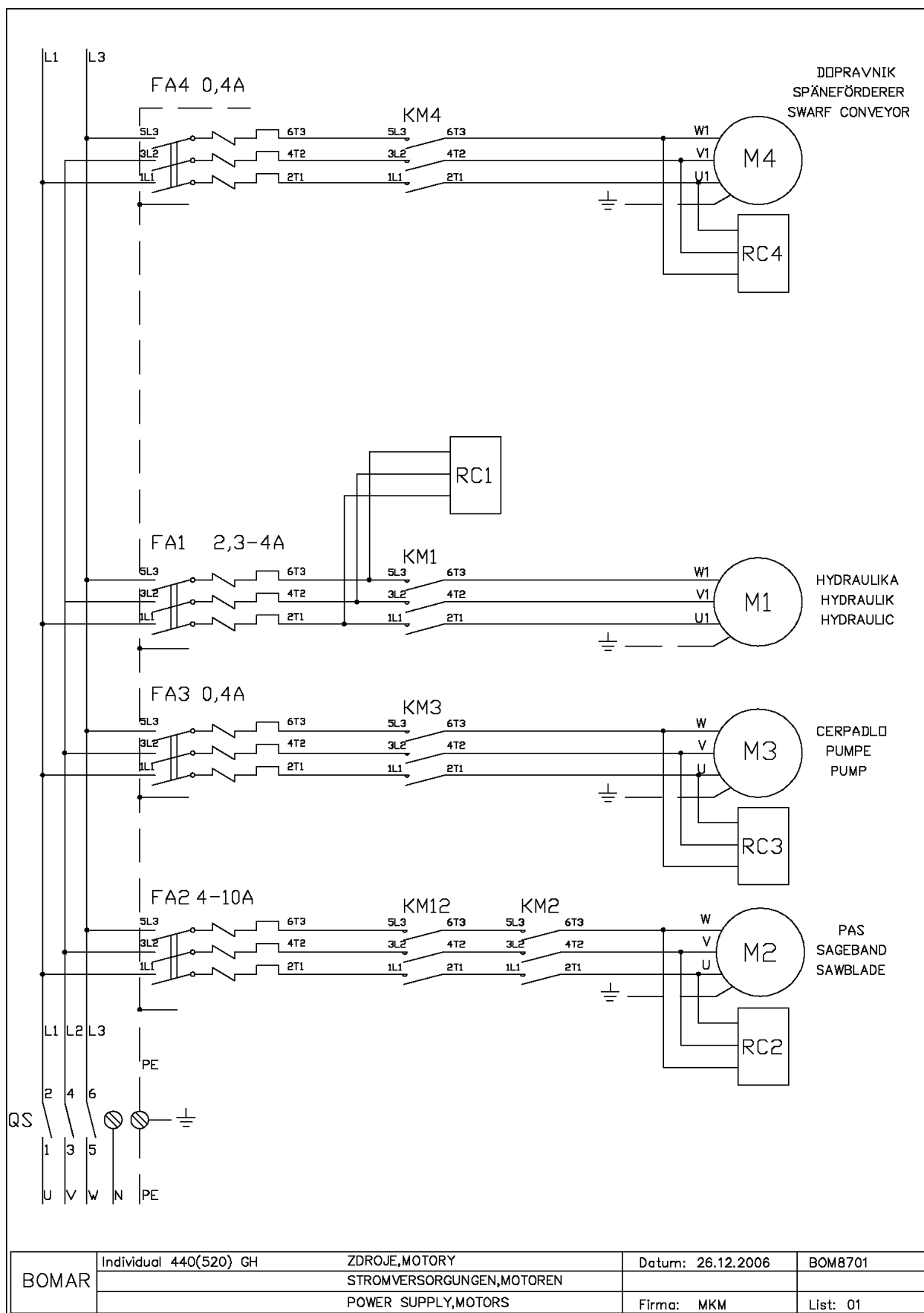
6) Screw on the cable bushing and cover of the terminal block. Do not forget the rubber gasket! Tighten the cooling liquid hose with non-stick tape and screw it again. Install cooling liquid hose, place the pump on the sheet metal holder and screw it.

20. Rozměrové schéma / Aufstellzeichnung / Installation diagram

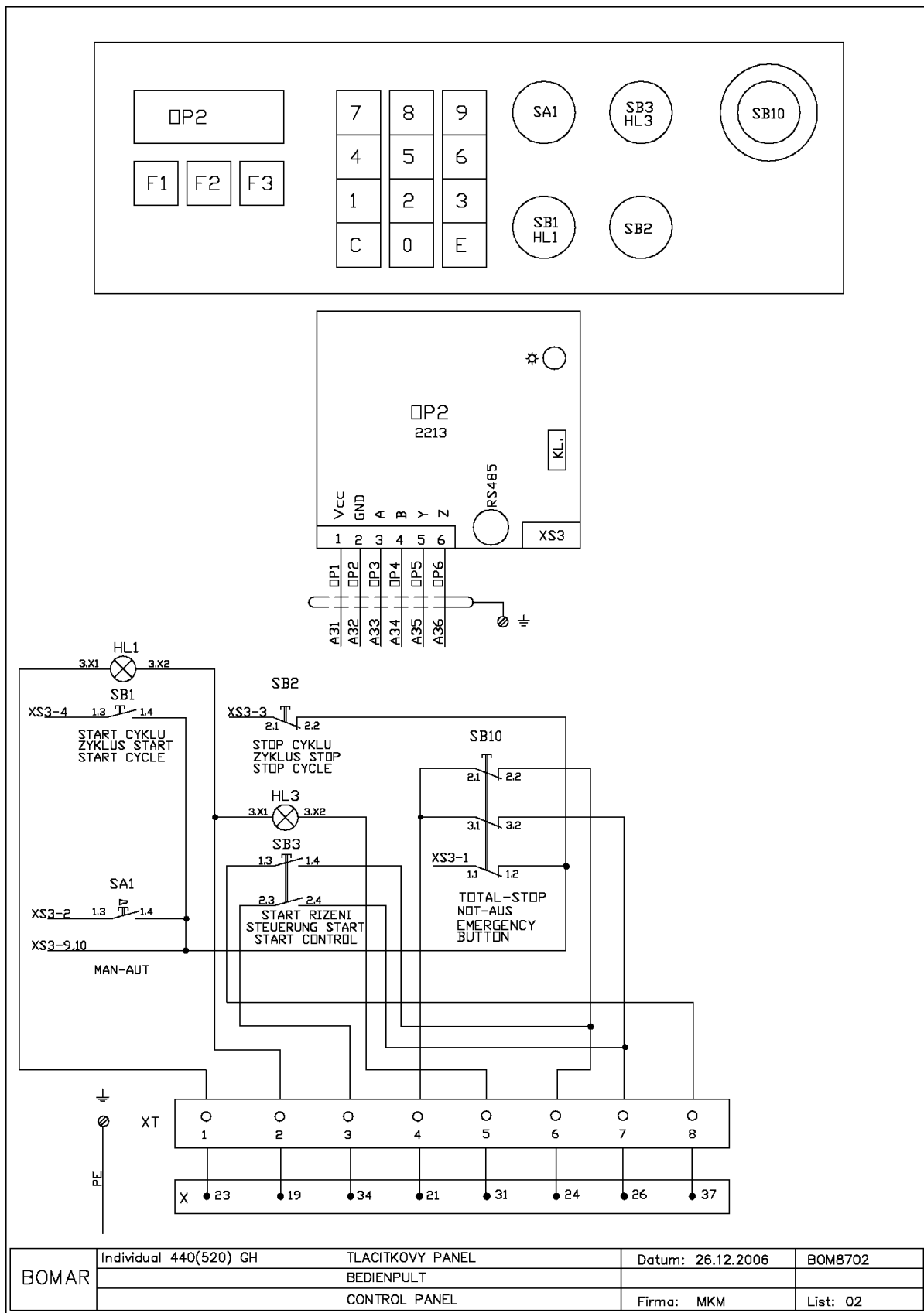


Rozměrové schéma / Aufstellzeichnung / Installation diagram – individual 610.440 GH

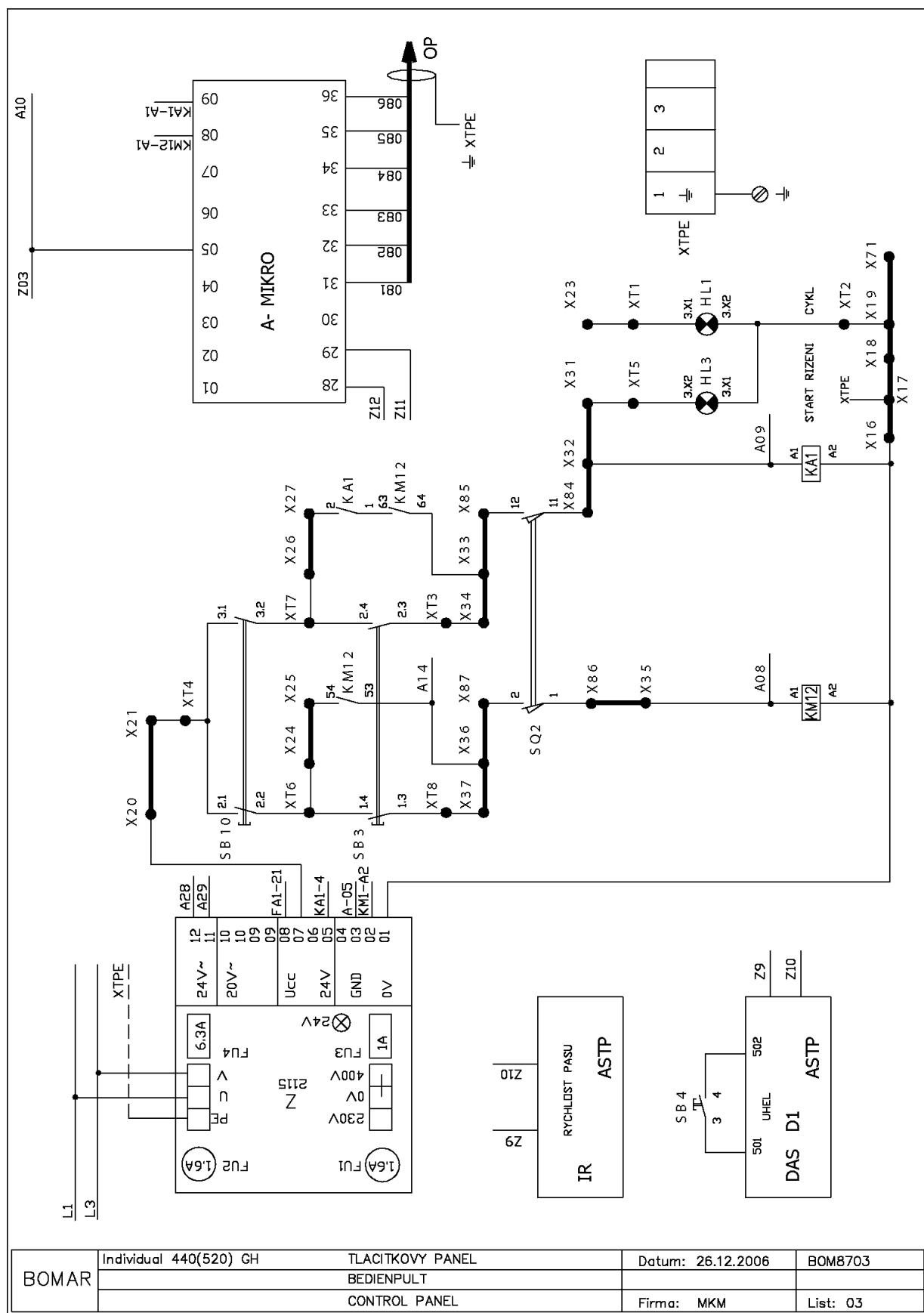
21. Elektrická schémata / Elektroschemas / Wiring diagrams



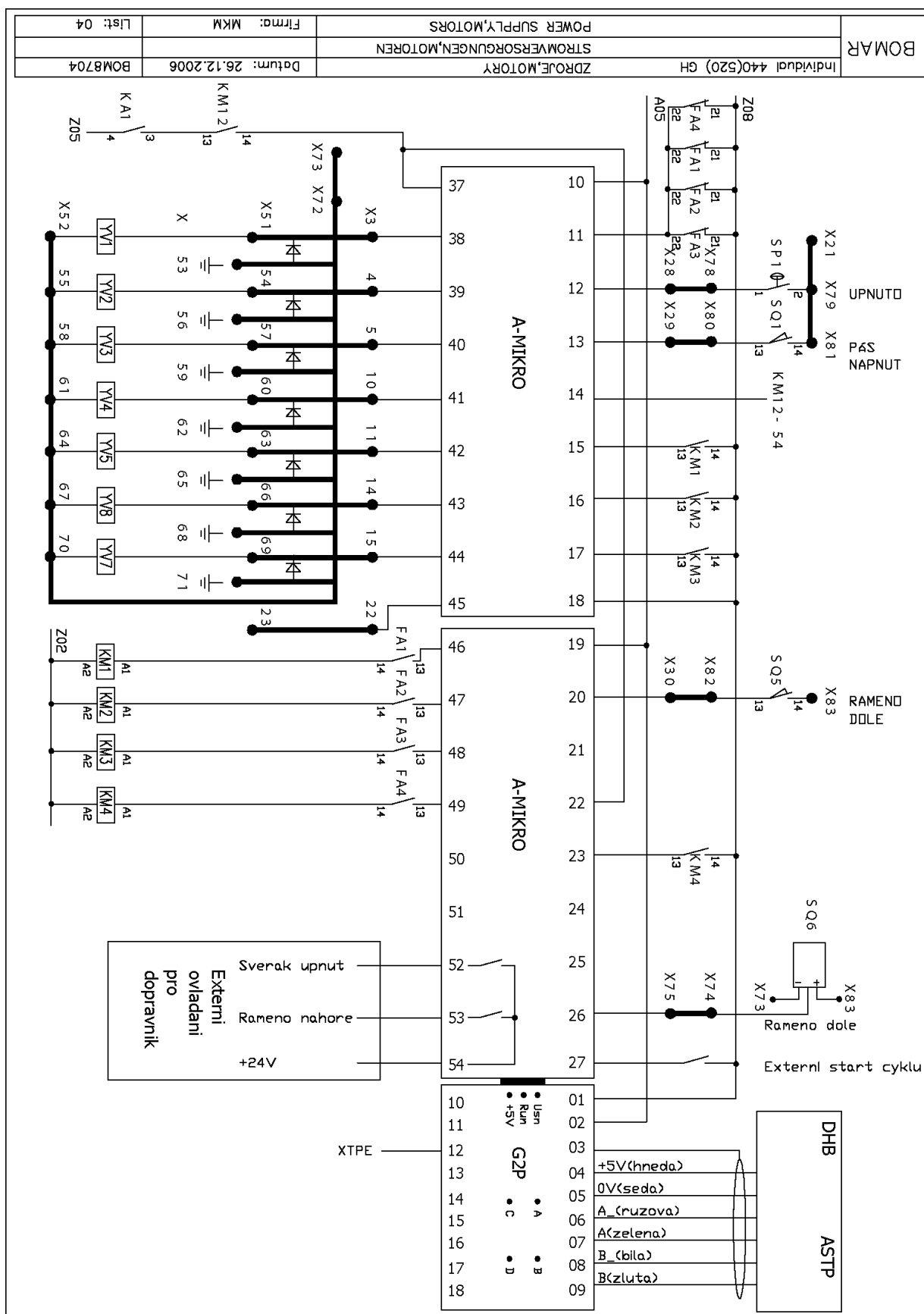
Elektrické schéma 1 / Elektroschema 1 / Wiring diagram 1 – individual 610.440 GH



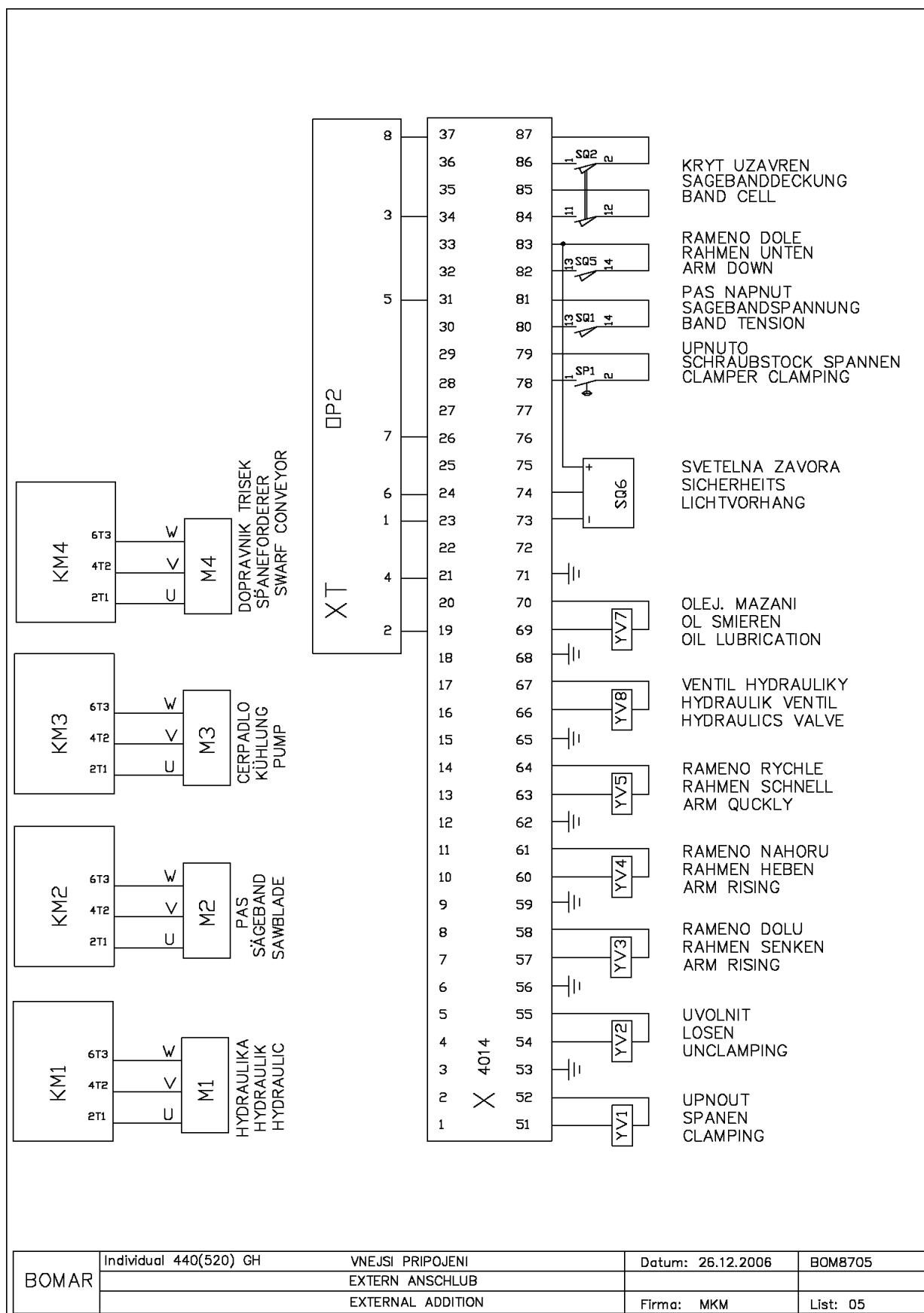
Elektrické schéma 2 / Elektroschema 2 / Wiring diagram 2 – individual 610.440 GH



Elektrické schéma 3 / Elektroschema 3 / Wiring diagram 3 – individual 610.440 GH



Elektrické schéma 4 / Elektroschema 4 / Wiring diagram 4 – individual 610.440 GH



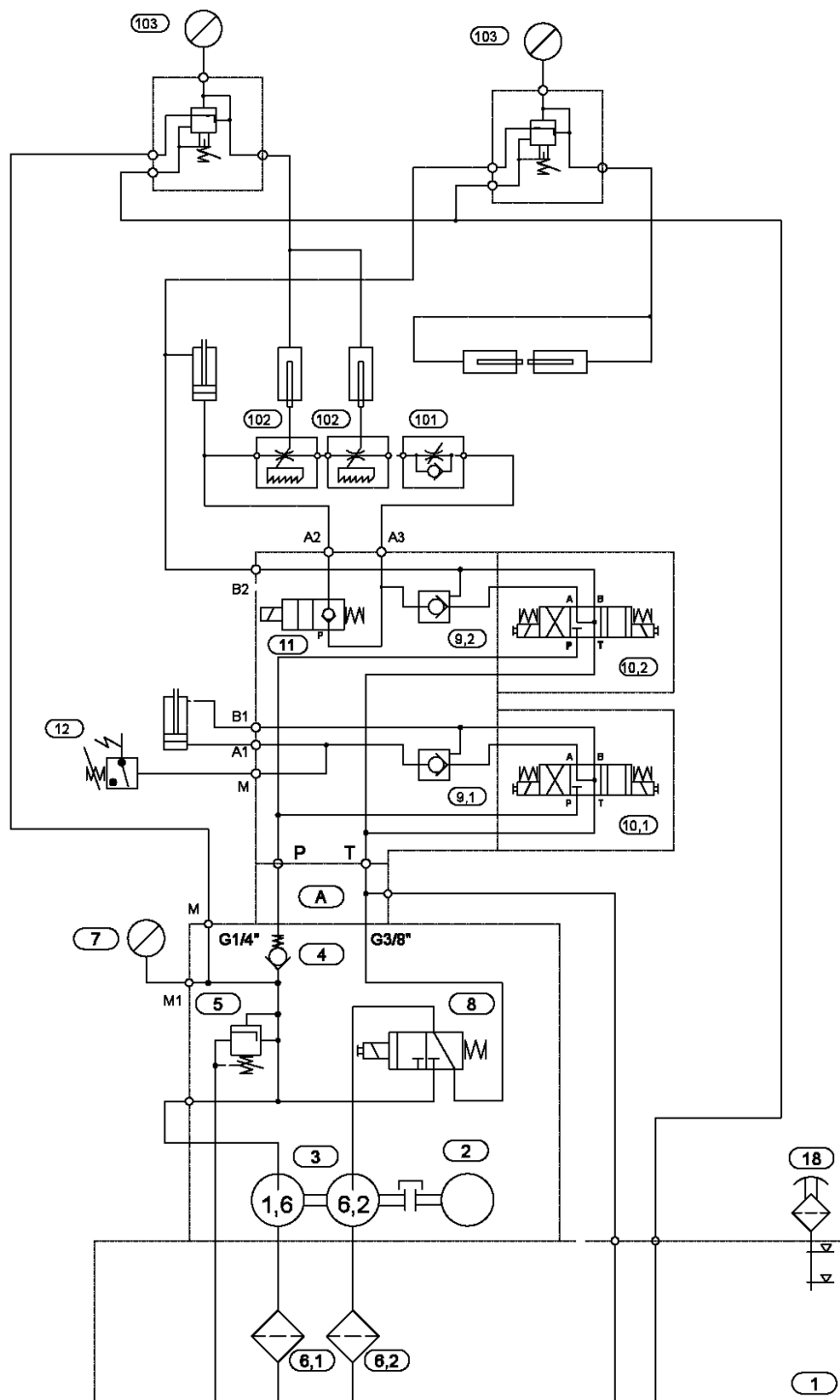
Elektrické schéma 5 / Elektroschema 5 / Wiring diagram 5 – individual 610.440 GH

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

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

Bestell - Nr.	Bezeichnung		Menge	Sign.
Objednáací číslo	Název položky		ks	Ozn.
Reference No.	Item		Pcs.	Sign.
91.995.056	Řídící jednotka / Steuereinheit / Control Modul		1	A
91.995.050	Displej / Display / Display	OP2	1	OP2
91.995.032	Modul / Modul / Modul	G2-1	1	G
91.310.001	Propojovací svorkovnice /Klemmleiste / terminal plate	4041	1	X
91.085.002	Zdroj /Generátor / Generator	2115	1	Z
91.040.004	Stykač / Schütz / contactor	LP1 KD910 BD3	6	KM
91.046.002	Pomocný kontakt / Hilfskontakt / Helping contact	ABBHKF1-11	3	FA
91.045.017	Motorový spouštěč / Motor Starter / Motor Starter	MS116--0,4A (u3x400V)	1	FA3
91.045.019	Motorový spouštěč / Motor Starter / Motor Starter	MS116-1,0A ABB (u3x400V)	1	FA4
91.045.020	Motorový spouštěč / Motor Starter / Motor Starter	MS116-1,6 A ABB u3x400V)	1	FA1
91.045.024	Motorový spouštěč / Motor Starter / Motor Starter	MS116-10 A ABB u3x400V)	1	FA2
91.045.023	Motorový spouštěč / Motor Starter / Motor Starter	MS116 -6,3 A ABB (u3x230V)	1	FA1
91.045.018	Motorový spouštěč / Motor Starter / Motor Starter	MS116 -0,63A ABB (u3x230V)	1	FA3
91.045.020	Motorový spouštěč / Motor Starter / Motor Starter	MS116-1,6 A ABB u3x230V)	1	FA4
91.045.025	Motorový spouštěč / Motor Starter / Motor Starter	MS116 -16A ABB (u3x230V)		FA2
91.041.003	Odrušovač / Endstörer / Suppressor	FILTANA- F72450	4	RC
91.060.012	Hlavice TOTAL STOP / NOT-AUS Taste / TOTAL STOP button	ZB5-AS844	1	SB10
91.060.021	Tlačítko 2 polohy / Taste - 2Lage/ buton- 2 position	ZB5-AG4	1	SA1
91.060.019	Tlačítko zelené / Taste grün / buton green	ZB5-AW33	1	SB1
91.060.023	Tlačítko žluté / Taste gelb / buton yellow	ZB5-AW35	1	SB3
91.060.015	Tlačítko čerVENÉ/ Taste rot / buton red	ZB5-AA4	1	SB2
91.060.013	Tlačítko černé / Taste schwarz / buton black	ZB5-AA2	1	SB4
91.3430-002	Rozvaděč / Schaltanlage / switchboard		1	

23. Hydraulické schéma / Hydraulikschema / Hydraulic diagram



Základní technické parametry:

Technische Spezifikation:

Technical specification:

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

Hydraulické schéma:

Hydraulikschema:

Hydraulic diagram:

870-1554

Schéma / Schema / Diagram:

Datum / Datum / Date:

8701554A.DWG

19. 8. 2003

Hydraulické schéma / Hydraulikschema / Hydraulic diagram – individual 610.440 GH

Poz.	Název položky	ks
Pos.	Bezeichnung	Menge
Pos.	Item	Pcs.
1	Nádrž / Behälter / Tank	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	Filtr / Filter / Filter 2 SF 56/48-0.063	2
7	Manometr / Manometer / Manometer 68 - 0-10 MPa	1
8	Rozváděč / Verteilung / Distributor ROX1-042D21/02400E1K1	1
9	Hydraulický zámek / Hydraulisches Schloß / Hydraulic lock RJV1-05-0	2
10	Rozváděč / Verteilung / Distributor RPE3-043Y11/02400E1K1	2
11	Rozváděč / Verteilung / Distributor ROE3-042S2/02400E1K1	1
12	Tlakový spínač / Druckschalter / Pressure switch SUCO 0166 411 03 043	1
101	Škrtkový ventil / Drosselventil / Throttle valve	1
102	Škrtkový ventil / Drosselventil / Throttle valve	2
103	Redukční ventil / Reduzierventil / Pressure control valve VRN2-06/S-6R	2

Označení hydraulických hadiček / Bezeichnung der hydraulischen Schlauche /Indication of hydraulic hose:

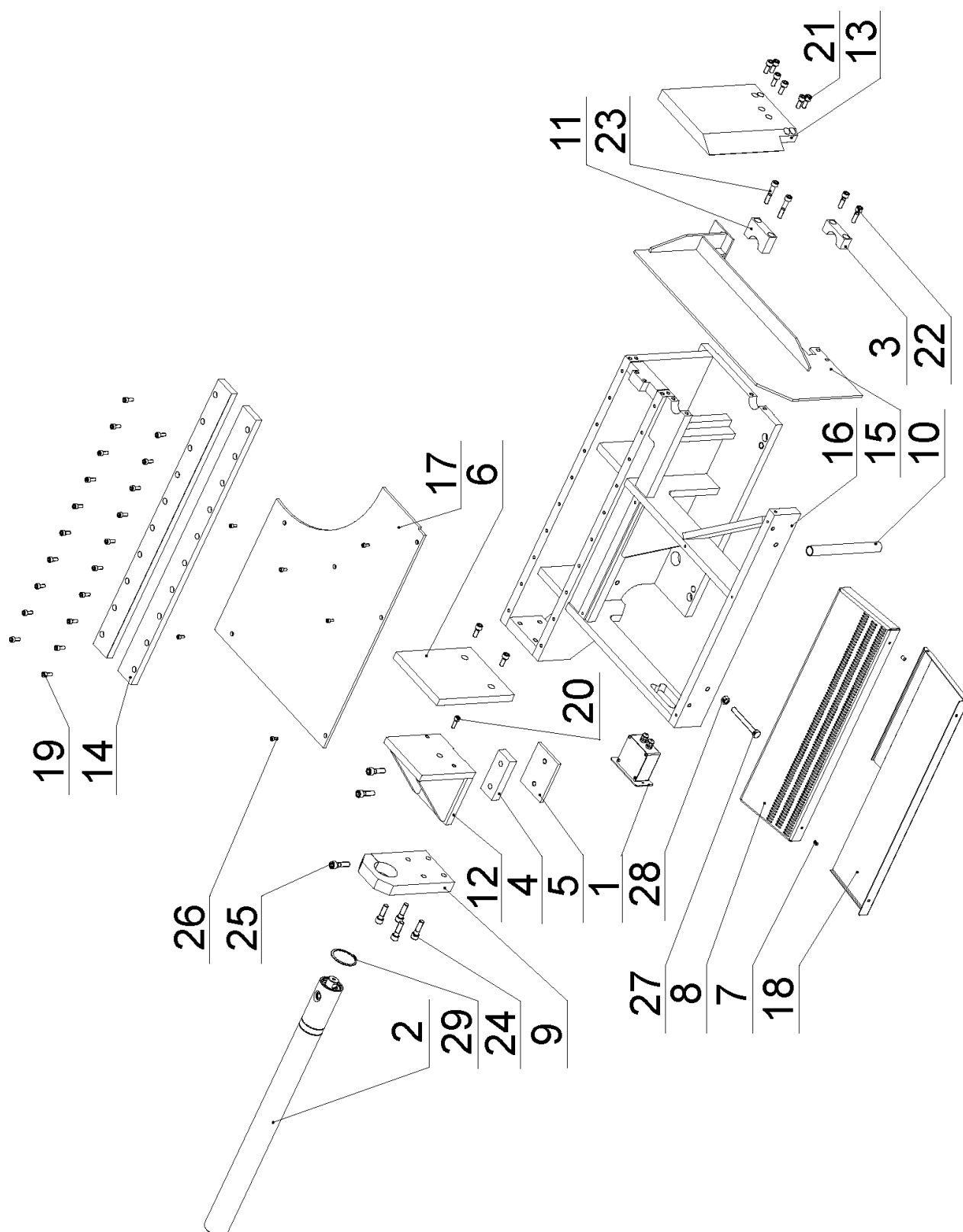
Hydr. hadice	Hadice	Kování	Konc. A	Konc. B	Konc. C	Konc. D	Konc. E	Konc. F	Konc. G	Ks
Hydr. Schlauche	Schlauche	Schmieden	Schlauchtüle A	B	C	D	E	F	G	Menge
Hydr. Hose	hose	forging	terminal A	B	C	D	E	F	G	piece
6AE2700	42.001.001	92.051.001	92.052.001	-	-	-	93.012.004	-	-	1
6AA6200	42.001.001	92.051.001	92.052.001	-	-	-	-	-	-	1
6AE8600	42.001.001	92.051.001	92.052.001	-	-	-	93.012.004	-	-	1
6AA3000	42.001.001	92.051.001	92.052.001	-	-	-	-	-	-	1
6AA850	42.001.001	92.051.001	92.052.001	-	-	-	-	-	-	1
6AA1650	42.001.001	92.051.001	92.052.001	-	-	-	-	-	-	2
6AA6200	42.001.001	92.051.001	92.052.001	-	-	-	-	-	-	1
6AA8150	42.001.001	92.051.001	92.052.001	-	-	-	-	-	-	1
3AA2100	42.004.001	92.051.004	92.052.003	-	-	-	-	-	-	1
3AA900	42.004.001	92.051.004	92.052.003	-	-	-	-	-	-	1
3AA8000	42.004.001	92.051.004	92.052.003	-	-	-	-	-	-	1
3AA1000	42.004.001	92.051.004	92.052.003	-	-	-	-	-	-	1
3AA5700	42.004.001	92.051.004	92.052.003	-	-	-	-	-	-	1
3AA3000	42.004.001	92.051.004	92.052.003	-	-	-	-	-	-	2
3AA1900	42.004.001	92.051.004	92.052.003	-	-	-	-	-	-	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).

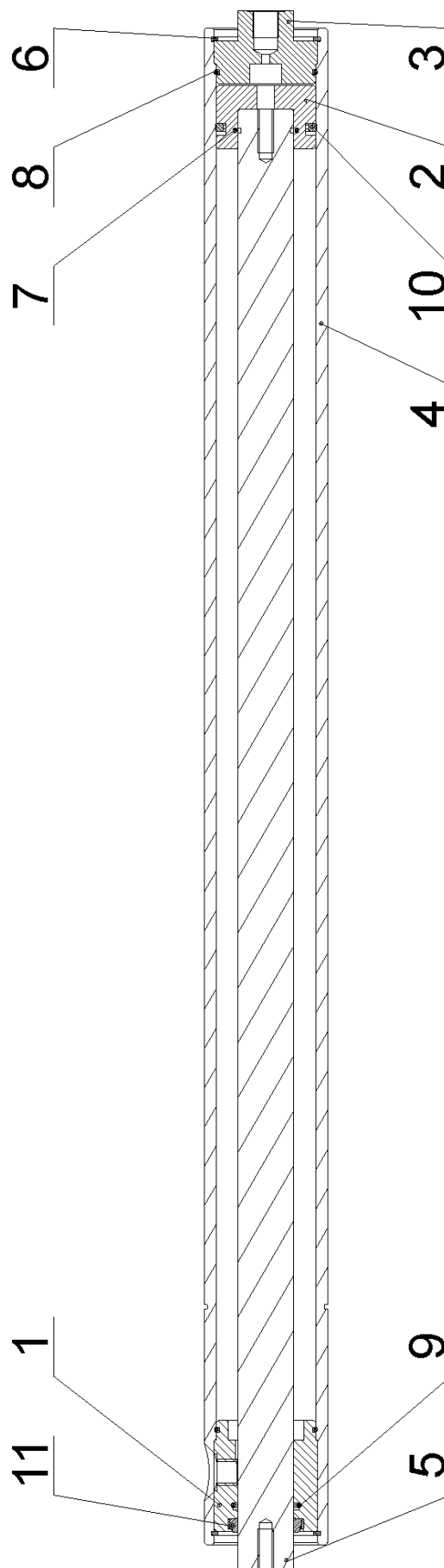
In die Bestellung der Ersatzteile führen Sie immer an:
Maschinentyp (z. B. STG 120), Serien Nr. (z. B. 125) und
Baujahr (z. B. 1999).

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).



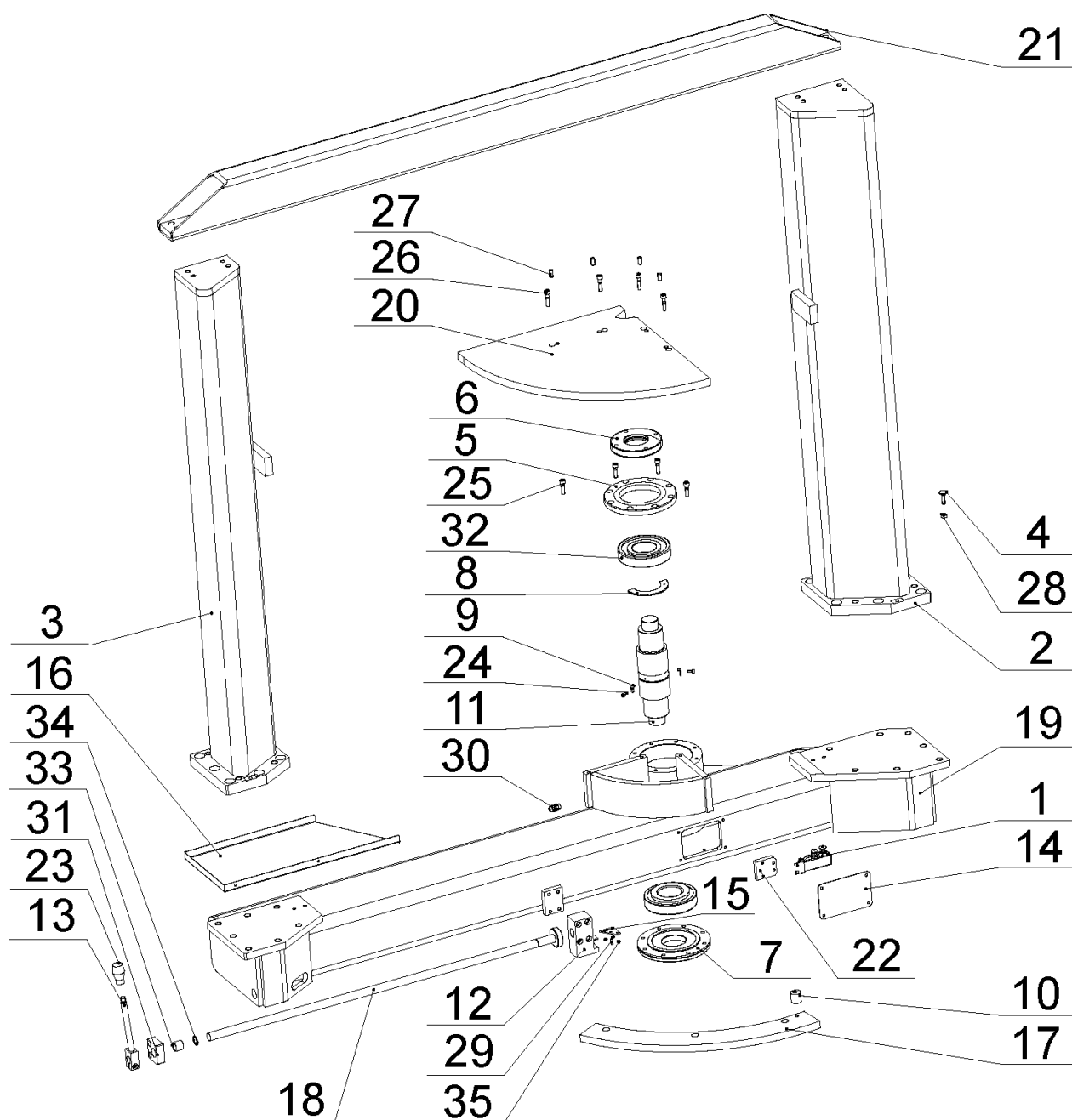
24.1. Svěrák / Schraubstock / Vice

Poz.	Objednací číslo	Název položky	ks
Pos.	Bestell - Nr.	Bezeichnung	Menge
Pos.	Reference No.	Item	Pcs.
1	201.2903-100	Displej / Display / Display	1
2	201.4807-000 (251.192)	Upínací válec / Spann cylinder / Clamping cylinder	1
3	30.0809-010	Příložka / Lasche / Shim	1
4	30.1803-004	Vodící kostka / Führungsklotz / Guiding cube	1
5	30.1803-005	Deska / Platte / Plate	1
6	30.1803-006	Čelist svěráku / Schraubstockbacke / Vice jaw	1
7	30.3509-015	Distanční trubka / Distanzrohr / Spacing tube	2
8	30.4803-014	Rošt / Rost / Grate	1
9	30.8503-016	Čelo / Stirn / Forefront	1
10	30.8603-008	Trubka / Rohr / Tube	1
11	30.8603-015	Příložka / Lasche / Shim	1
12	30.8803-604	Čelist svěráku / Schraubstockbacke / Vice jaw	1
13	30.8803-004	Čelist svěráku / Schraubstockbacke / Vice jaw	1
14	30.8803-007	Vodící lišta / Führungsleiste / Guiding lath	2
15	30.8803-014	Pomocná čelist / Hilfsbacke / Auxiliary jaw	1
16	30.8803-101	Podstavec svěráku / Schraubstockuntergestell / Vice pedestal	1
17	30.8903-012	Deska / Platte / Plate	1
18	30.8903-020	Skluz / Rutsch / Slide	1
19	90.001.25.032	Šroub / Schraube / Screw M8x20 DIN 912 8.8	20
20	90.001.25.033	Šroub / Schraube / Screw M8x25 DIN 912 8.8	1
21	90.001.25.047	Šroub / Schraube / Screw M10x25 DIN 912 8.8	8
22	90.001.25.049	Šroub / Schraube / Screw M10x35 DIN 912 8.8	2
23	90.001.25.053	Šroub / Schraube / Screw M10x55 DIN 912 8.8	2
24	90.001.25.060	Šroub / Schraube / Screw M12x40 DIN 912 8.8	6
25	90.001.25.061	Šroub / Schraube / Screw M12x45 DIN 912 8.8	1
26	90.001.25.092	Šroub / Schraube / Screw M6x14 DIN 912 8.8	6
27	90.005.55.056	Šroub / Schraube / Screw M12x100 DIN 933 8.8	1
28	90.100.55.007	Matice / Mutter / Nut M12 DIN 934 8.8	1
29	95.800.021	Pojistný kroužek / Sicherungsring / Retaining ring Ø62 DIN 471	1



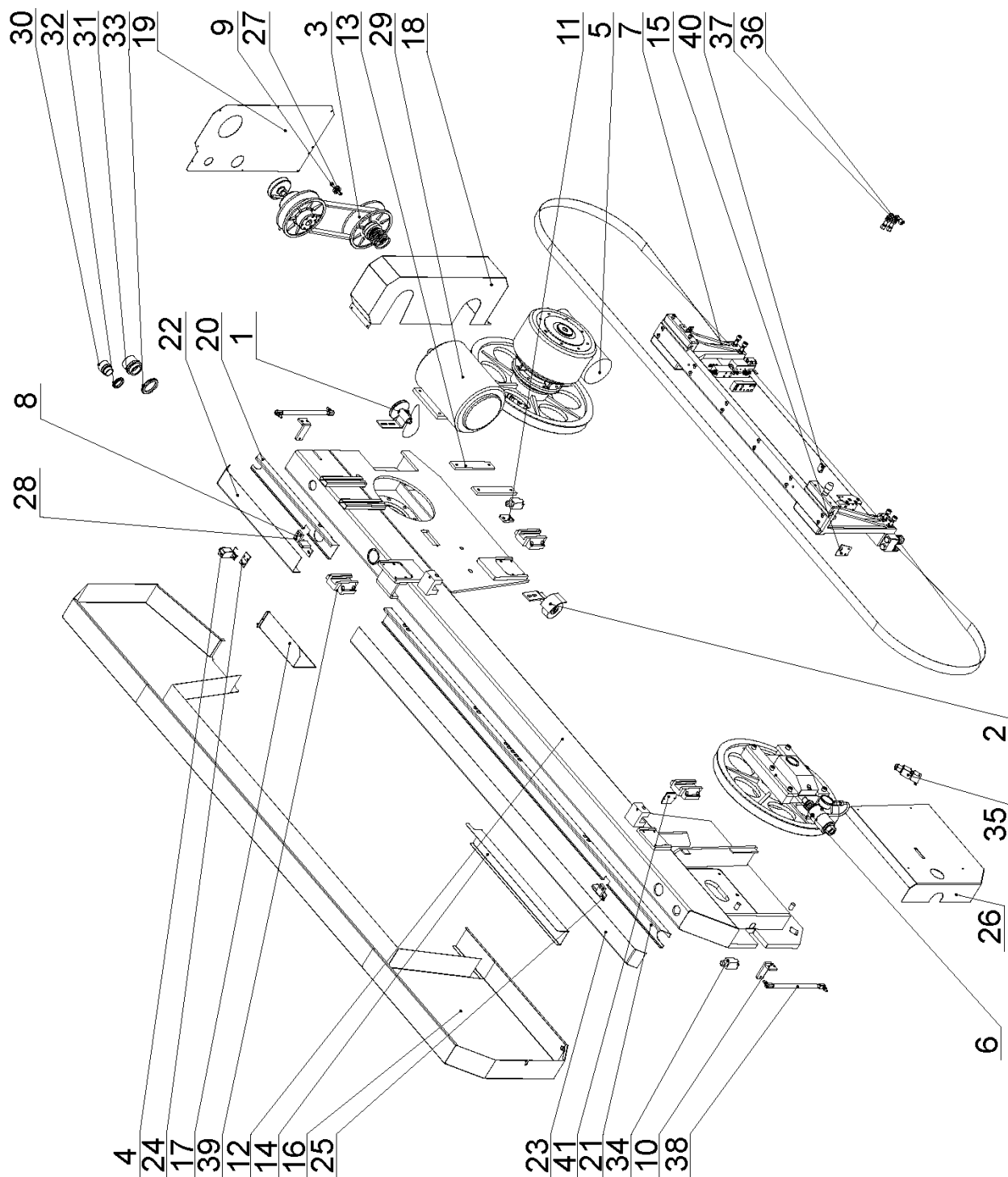
24.2. Upínací válec / Spannzylinder / Clamping cylinder

Poz.	Objednací číslo	Název položky	ks
Pos.	Bestell - Nr.	Bezeichnung	Menge
Pos.	Reference No.	Item	Pcs.
1	30.1807-104	Přívod / Zufuhr / Inflow	1
2	30.2007-302	Píst / Kolben / Piston	1
3	30.2007-304	Víko / Deckel / Cover	1
4	30.4807-001	Válec svěřáku / Zylinder / Vice cylinder	1
5	30.4807-002	Pístnice / Kolbenstange / Piston rod	1
6	95.801.009	Pojistný kroužek / Sicherungsring / Retaining ring Ø52 DIN 472	2
7	96.001.008	O-kroužek / O Ring / O Ring 26x2	1
8	96.001.013	O-kroužek / O Ring / O Ring 45x2	2
9	96.002.014	O-kroužek / O Ring / O Ring 28x3	1
10	96.020.005	Q-kroužek / Q Ring / Q Ring 4326A 39.2x5.33	1
11	96.040.003	Stírací kroužek / Abstreifring / Scraper cup 40x52x5	1



24.3. Otočná konzola / Gehrungskonsole / Turning console

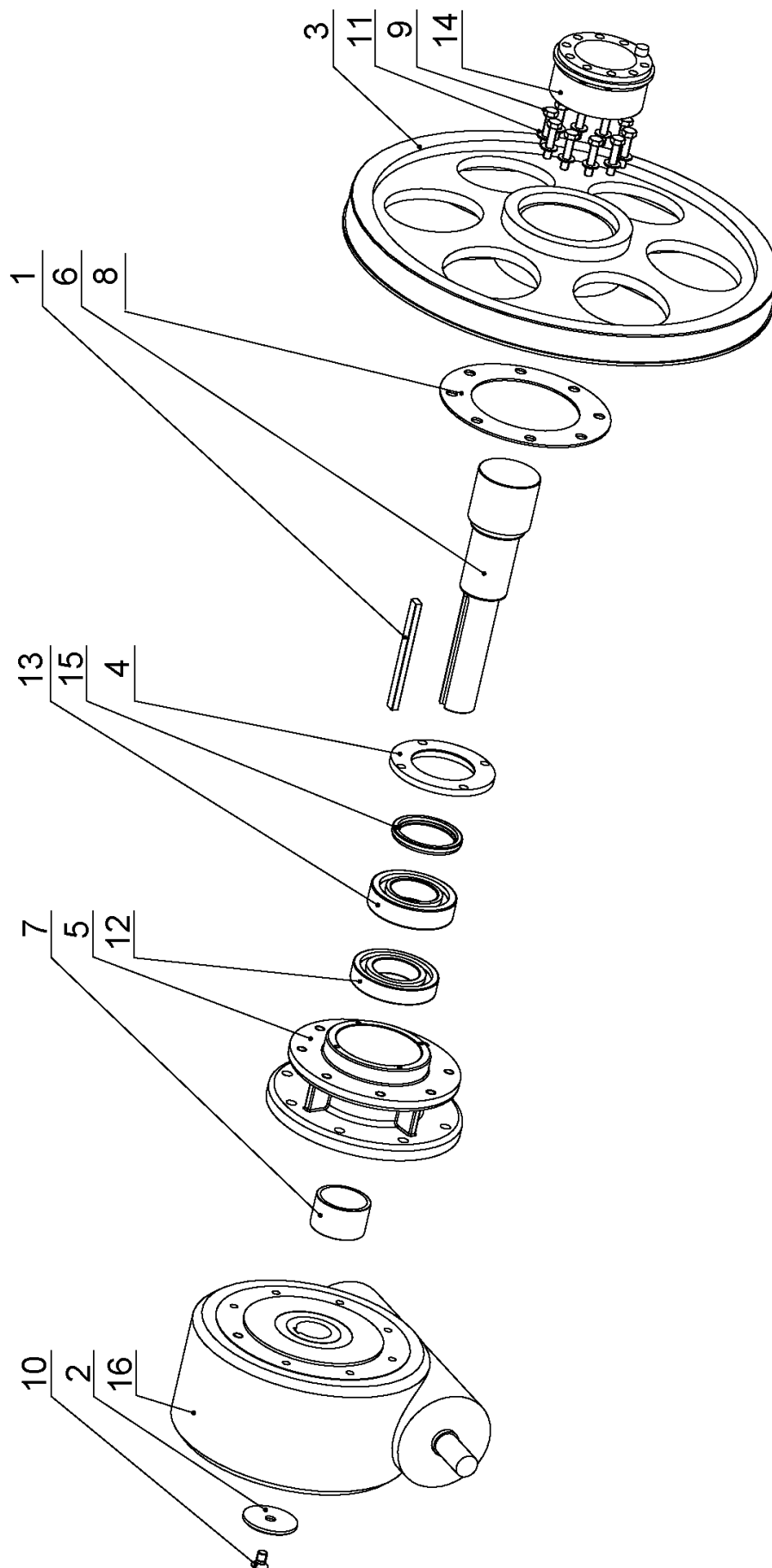
Poz.	Objednací číslo	Název položky	ks
Pos.	Bestell - Nr.	Bezeichnung	Menge
Pos.	Reference No.	Item	Pcs.
1	201.2902-200	Snímač / Sensor / Sensor	1
2	201.8902-100	Sloup / Säule / Pillar	1
3	201.8902-400	Sloup / Säule / Pillar	1
4	30.0702-013	Šroub / Schraube / Screw	1
5	30.0802-004	Víko / Deckel / Cover	1
6	30.0802-005	Matice ložiska / Lagermutter / Bearing nut	1
7	30.0802-006	Víko / Deckel / Cover	1
8	30.2902-010	Segment / Segment / Segment	1
9	30.2902-112	Držák / Halter / Holder	2
10	30.6014-209	Excentr / Exzenter / Eccentric	1
11	30.8602-003	Čep konzoly / Bolzen / Pivot	1
12	30.8602-510	Kostka / Klotz / Cube	1
13	30.8602-514	Tyč zpevnění / Stange / Rod	1
14	30.8602-515	Kryt / Abdeckung / Cover	1
15	30.8602-521	Deska / Platte / Plate	1
16	30.8602-524	Plech / Blech / Sheet metal	1
17	30.8902-016	Segment / Segment / Segment	1
18	30.8902-018	Tyč / Stange / Rod	1
19	30.8902-501	Otočná konzola / Gehrungskonsole / Turning console	1
20	30.8902-502	Segment / Segment / Segment	1
21	30.8902-504	Výztuha / Steife / Stiffener	1
22	30.8902-525	Držák / Halter / Holder	1
23	30.8902-527	Držák / Halter / Holder	1
24	90.001.25.008	Šroub / Schraube / Screw M5x12 DIN 912 8.8	2
25	90.001.25.034	Šroub / Schraube / Screw M8x30 DIN 912 8.8 VZ	4
26	90.001.55.035	Šroub / Schraube / Screw M8x35 DIN 912 8.8 VZ	4
27	90.002.2D.019	Šroub / Schraube / Screw M16x20	4
25	90.001.55.083	Šroub / Schraube / Screw M8x30 DIN 912 8.8 VZ	4
26	90.001.55.084	Šroub / Schraube / Screw M8x35 DIN 912 8.8 VZ	4
27	90.002.2D.015	Šroub / Schraube / Screw M10x20 DIN 913 45H	4
28	90.100.55.005	Matice / Mutter / Nut M8 DIN 934 8.8	1
29	90.301.0Z.002	Válcový kolík / Zylinderstift / Parallel pin 5x16 DIN 7	1
30	91.070.010	Vývodka / Tülle / Bushing M12x1.5	1
31	94.002.001	Rukojeť / Griff / Handle M12	1
32	95.300.001	Ložisko / Lager / Bearing 30312 AX	2
33	95.700.004	Pouzdro / Buchse / Bush KU 20x20	1
34	95.800.009	Pojistný kroužek / Sicherungsring / Retaining ring Ø20 DIN 471	1
35	96.002.002	O-kroužek / O-Ring / O-ring 4x2.2	3



24.4. Pilové rameno / Sägerahmen / Saw arm

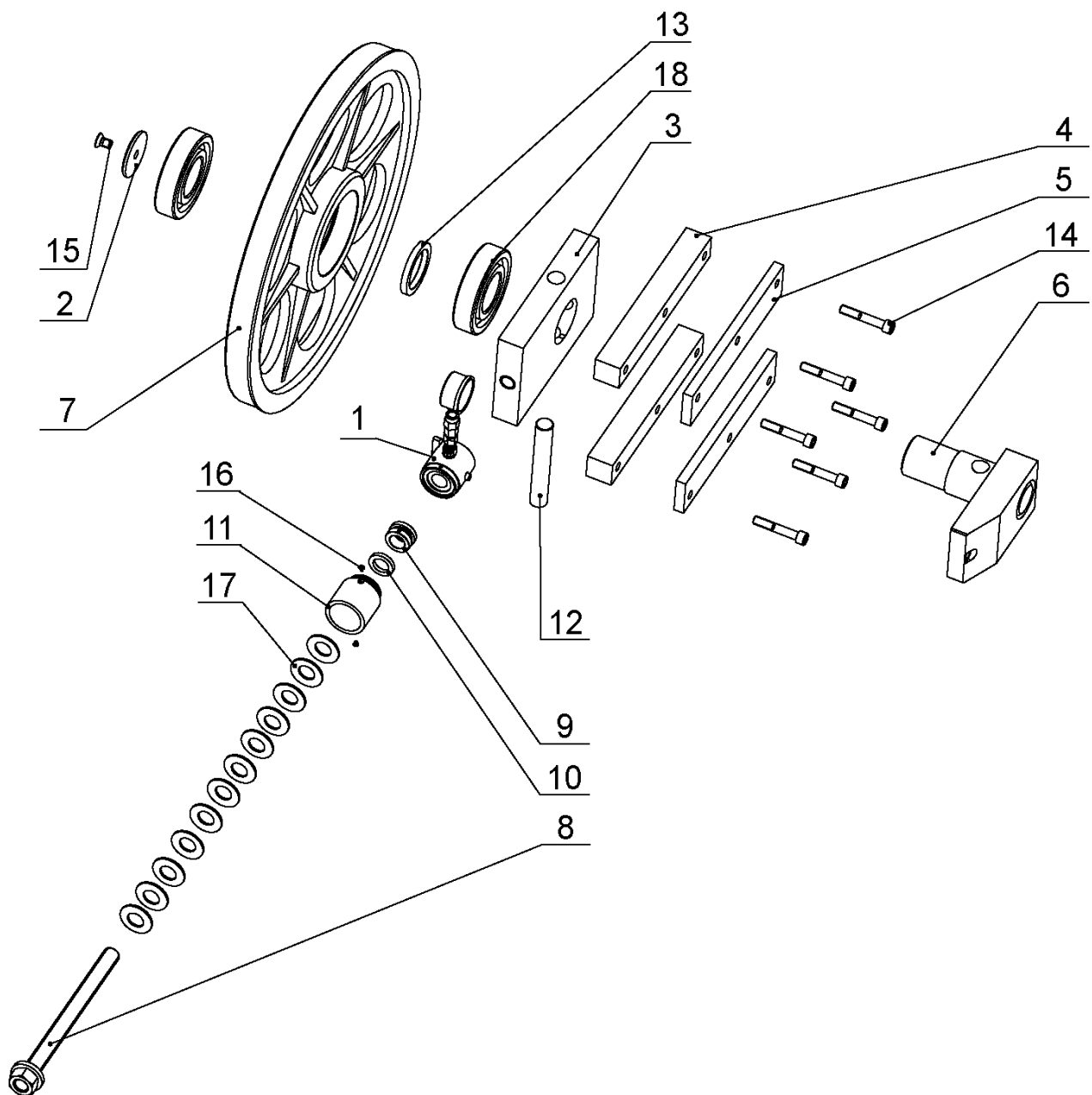
Poz.	Objednací číslo	Název položky	ks
Pos.	Bestell - Nr.	Bezeichnung	Menge
Pos.	Reference No.	Item	Pcs.
1	201.2914-400	Řemenice / Riemenscheibe / Sheave	1
2	201.2914-700	Kartáček / Spänbürste / Cleaning brush	1
3	201.3005-000	Variátor / Variator / Variator	1
4	201.6702-200	Snímač / Sensor / Sensor	1
5	201.8905-200	Pohon / Antrieb / Drive	1
6	201.8908-200	Napínání pásu / Sägebandantrieb / Saw band stretching	1
7	201.8910-000	Vedení pásu / Sägebandführung / Saw band guiding	1
8	30.1714-103	Kostka / Klotz / Cube	2
9	30.2914-401	Řemenice / Riemenscheibe / Sheave	1
10	30.7114-157	Kryt / Abdeckung / Cover	2
11	30.8414-005	Držák / Halter / Holder	1
12	30.8904-201	Rameno / Sägerahmen / Saw arm	1
13	30.8904-207	Lišta / Leiste / Lath	2
14	30.8914-110	Kryt / Abdeckung / Cover	1
15	30.8914-113	Clona / Schürze / Shutter	1
16	30.8914-203	Kryt / Abdeckung / Cover	1
17	*30.8914-201	Kryt / Abdeckung / Cover	1
18	30.8914-209	Kryt / Abdeckung / Cover	1
19	30.8914-210	Víko / Deckel / Cover	1
20	30.8914-212	Koryto / Rinne / Feed trough	1
21	30.8914-213	Koryto / Rinne / Feed trough	1
22	30.8914-214	Kryt / Abdeckung / Cover	1
23	30.8914-215	Kryt / Abdeckung / Cover	1
24	30.8914-216	Podložka / Scheibe / Washer	1
25	30.8914-217	Konzola / Konsole / Console	2
26	30.8914-218	Kryt / Abdeckung / Cover	1
27	90.001.25.040	Šroub / Schraube / Screw M8x60 DIN 912 8.8	1
28	90.301.0Z.006	Válcový kolík / Zylinderstift / Parallel pin 6x38 DIN 7	2
29	91.001.021	Elektromotor / Elektromotor / Electromotor 4AP 112-4A 4 kW 1440	1
30	91.071.004	Vývodka / Tülle / Bushing PG29	1
31	91.071.006	Vývodka / Tülle / Bushing PG48	1
32	91.072.007	Matice / Mutter / Nut PG29	1
33	91.072.009	Matice / Mutter / Nut PG48	1
34	91.173.007	Koncový spínač / Endschalter / End switch FR 601-M2	2
35	91.173.012	Koncový spínač / Endschalter / End switch QKS8	1
36	92.009.001	Průchodka / Tülle / Bushing	2
37	92.013.001	Matice / Mutter / Nut	4
38	93.004.004	Plynová vzpěra / Gasfeder / Gas spring	2
	93.004.005	Čep / Bolzen / Pivot	4
39	99.201.002	Vozík / Wagen / Trolley LGW35-Hiwin	3
40		Laser	1
41		Zrcátko / Spiegel / Mirror	1

*change old no. 30.8914-208 to year 2007



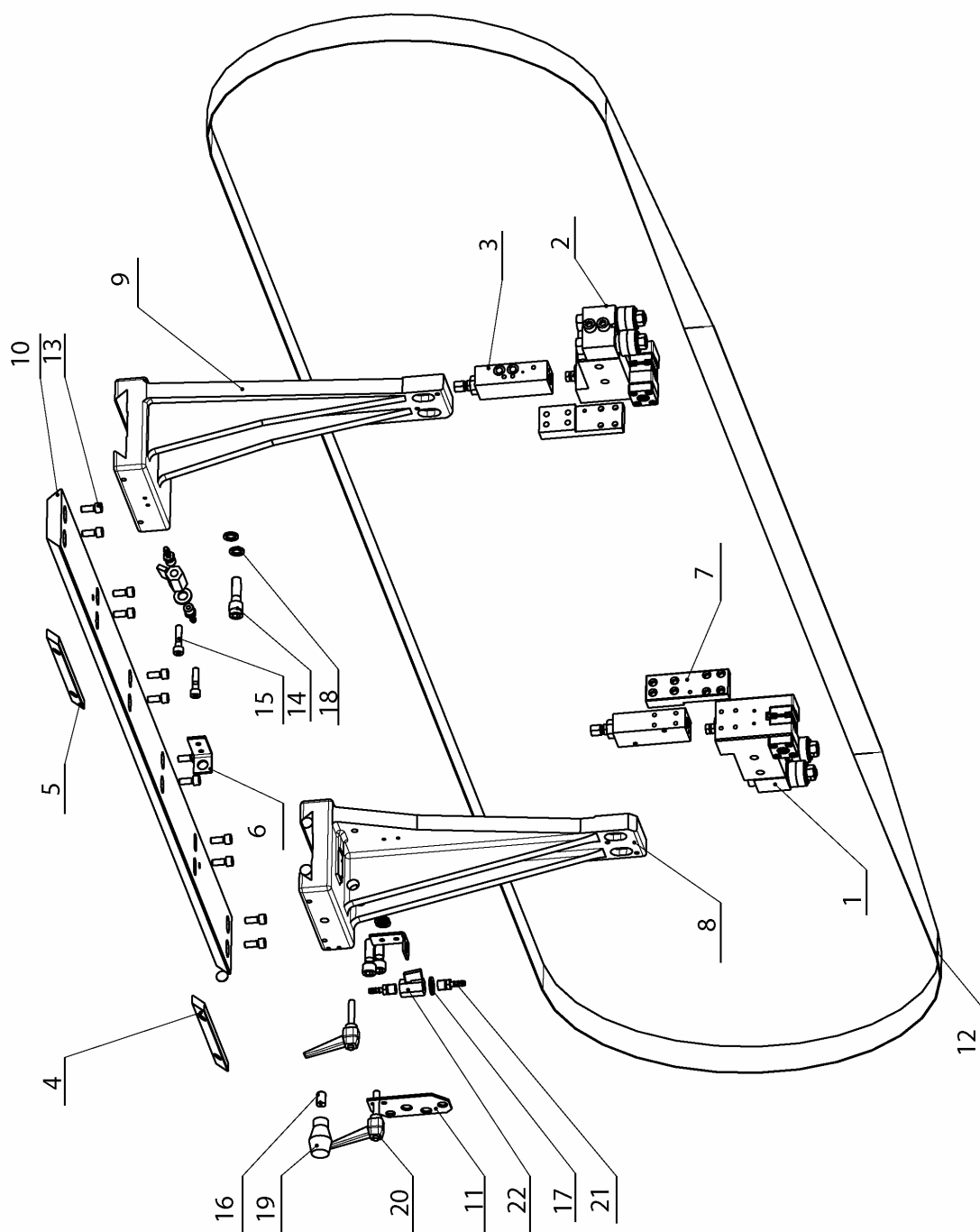
24.5. Pohon pilového pásu / Sägebandantrieb / Saw band driving

Poz.	Objednací číslo	Název položky	ks
Pos.	Bestell - Nr.	Bezeichnung	Menge
Pos.	Reference No.	Item	Pcs.
1	30.1804-008	Pero / Feder / Spring	1
2	30.1804-010	Podložka / Scheibe / Washer	1
3	30.6005-001	Hnací kolo / Antreibrad / Driving wheel	1
4	30.6005-006	Víko / Deckel / Cover	1
5	30.8904-203	Příruba / Flansch / Flange	1
6	30.8904-204	Hřídel / Welle / Shaft	1
7	30.8904-205	Distanční trubka / Distanzrohr / Distance tube	1
8	30.8904-206	Distanční kroužek / Distanzring / Distance ring	1
9	90.005.55.027	Šroub / Schraube / Screw M10x45 DIN 933 8.8	10
10	90.011.27.009	Šroub / Schraube / Screw M12x20 DIN 7991 10.9	1
11	90.150.50.006	Podložka / Scheibe / Washer Ø10,5 DIN 125	10
12	95.001.031	Ložisko / Lager / Bearing 6212 2RS	1
13	95.201.003	Ložisko / Lager / Bearing 2212 NU	1
14	95.825.001	Pouzdro / Buchse / Bush 80x120	1
15	95.830.006	Těsnící kroužek / Dichtungsring / Sealing ring 70x90x10	1
16	99.001.010	Šneková převodovka / Schneckengetriebe VF130/P/i46 / Worm gear	1



24.6. Napínání pilového pásu / Sägebandspannung / Saw band tightening

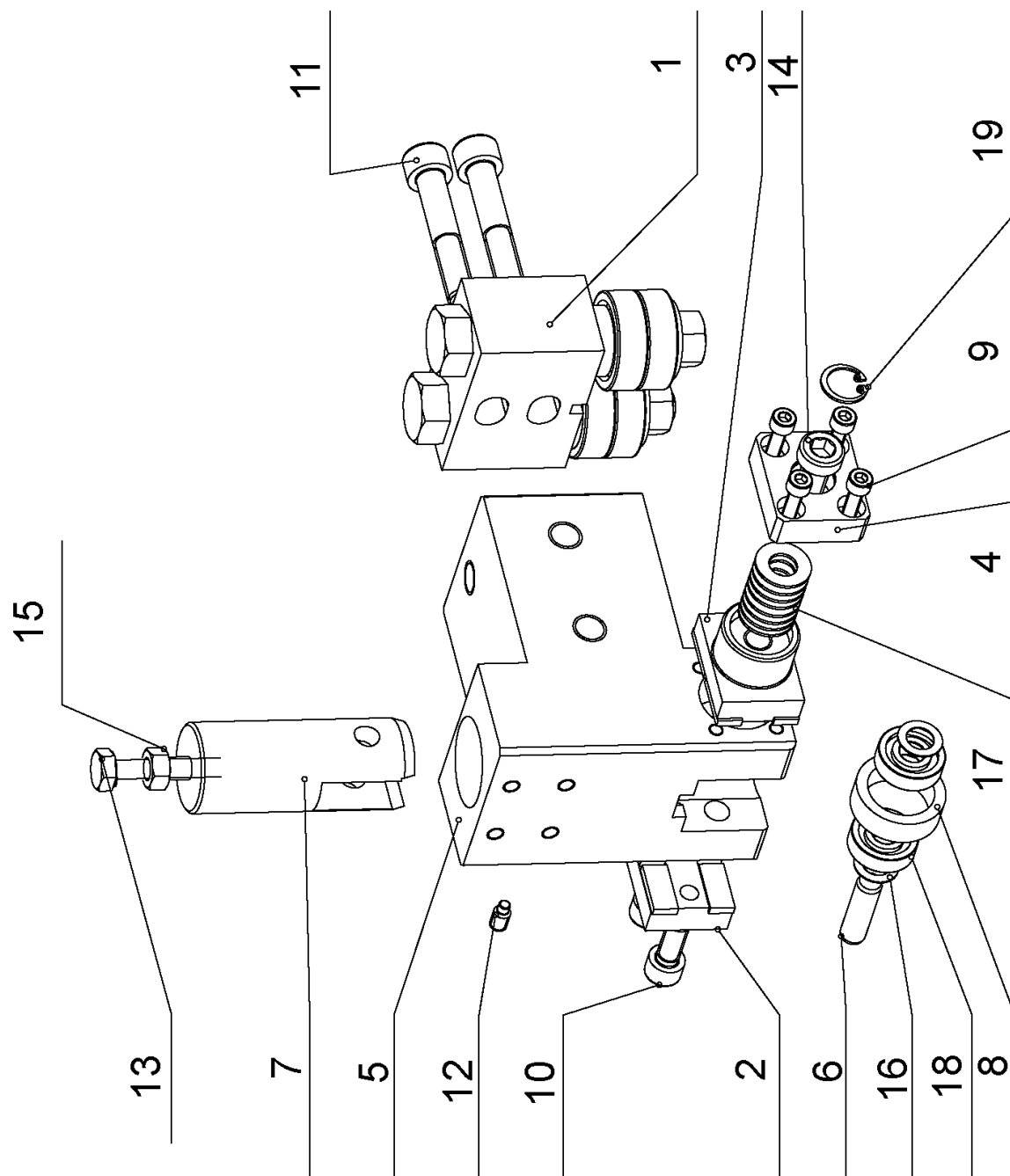
Poz.	Objednací číslo	Název položky	ks
Pos.	Bestell - Nr.	Bezeichnung	Menge
Pos.	Reference No.	Item	Pcs.
1	201.6007-200	Válec snímání napnutí / Zylinder - Bandspannungsabtasten / Cylinder - tension sensing	1
2	30.1804-010	Podložka / Scheibe / Washer	1
3	30.6008-001	Kostka napínání / Bandspannungswürfel / Stretching cube	1
4	30.6008-002	Lišta vodící / Führungsleiste / Guiding listel	2
5	30.6008-003	Lišta vodící / Führungsleiste / Guiding listel	2
6	30.6008-004	Napínání / Spannung / Stretching	1
7	30.6008-006	Kolo napínací / Umlenkrad / Stretching wheel	1
8	30.6008-008	Šroub napínání / Bandspannungsschraube / Stretching screw	1
9	30.6008-011	Kroužek / Ring / Ring	1
10	30.6008-012	Distanc / Distanz / Distance	1
11	30.6008-013	Trubka / Rohr / Tube	1
12	30.6008-014	Čep napínání / Bolzen Bandspannung / Stretching pivot	1
13	30.6708-002	Distanční trubka / Distanzrohr / Distance tube	1
14	90.001.25.064	Šroub / Schraube / Screw M12x70 DIN 912 8.8	6
15	90.011.27.009	Šroub / Schraube / Screw M12x20 DIN 7991 10.9	1
16	90.011.27.018	Šroub / Schraube / Screw M4x6 DIN 7991 10.9	2
17	90.350.0Z.004	Talířová pružina / Tellerfeder / Belleville spring 50x25.4x3	12
18	95.001.031	Ložisko / Lager / Bearing 6212 2RS	2



24.7. Vedení pilového pásu / Sägebandsführung / Saw band guiding

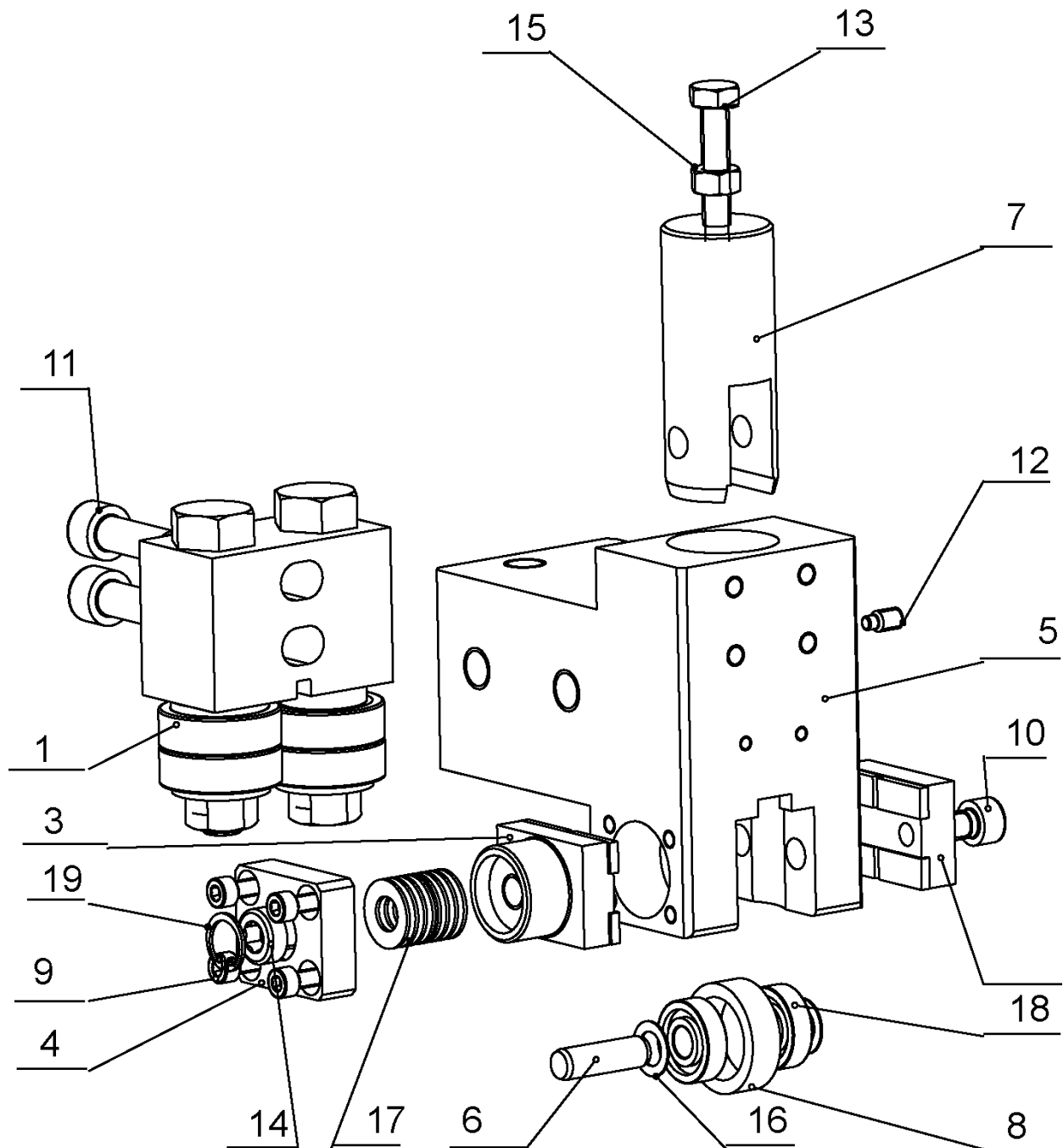
Poz.	Objednací číslo	Název položky		ks
Pos.	Bestell - Nr.	Bezeichnung		Menge
Pos.	Reference No.	Item		Pcs.
1	201.6110-550	Kostka vodící L/ Führungsklotz / Guiding Cube		1
2	201.6110-610	Kostka vodící P / Führungsklotz / Guiding Cube		1
3	201.6816-100	Regulace řezu / Schnittdruckregulation / Pressure regulation		2
4	30.1810-004	Lišta držáku / Halterleiste / holder listel		1
5	30.1810-005	Lišta držáku / Halterleiste / holder listel		1
6	30.1814-011	Držák ventilu / Ventilhalter / Valve holder		2
7	30.6016-002	Deska / Platte / Plate		2
8	*30.8910-007	Držák L / Linke Halter / Holder L		1
9	*30.8910-008	Držák P / Rechte Halter / Holder right		1
10	30.8910-003	Lišta / Leiste / Listel		1
11	30.8910-004	Držák / Halter / Holder		1
12	30.8910-006	Pás / Band / Band		1
13	90.001.25.032	Šroub / Schraube / Screw	8x20 DIN 912 8,8	12
14	90.001.25.060	Šroub / Schraube / Screw	M12x40	4
15	90.001.55.035	Šroub / Schraube / Screw	M8x35 DIN 912 8,8	2
16	90.002.2D.018	Šroub stavěcí / Stellschraube / Setscrew	M12x20	1
17	90.150.50.007	Podložka / Scheibe / Washer	d13 DIN 125	2
18	90.163.00.003	Podložka / Scheibe / Washer	M12 D19,5	4
19	94.002.001	Hruška / Birne / Pear		1
20	94.008.003	Páka montážní / Hebel / Assembly lever	M8x40	2
21	94.202.002	Redukce / Reduktion / Reduction	G1/4-6	4
22	99.260.003	Ventil kulovy / Kugelventil / Ball valve	.1/4	2

Change from june 2008



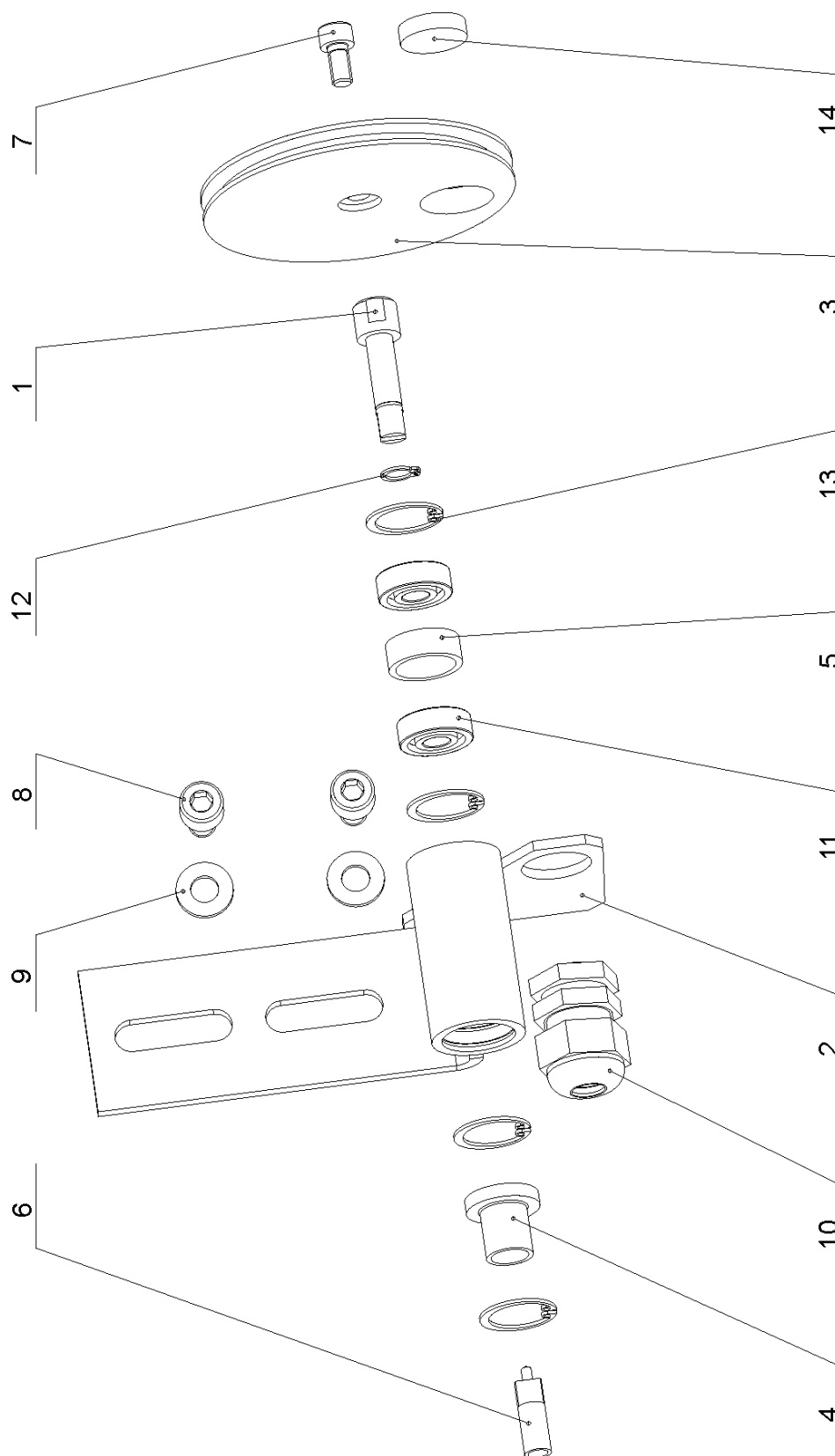
24.8. Prává vodící kostka / Rechter Führungsklotz / Right guiding cube

Poz.	Objednací číslo	Název položky		ks
Pos.	Bestell - Nr.	Bezeichnung		Menge
Pos.	Reference No.	Item		Pcs.
1	201.6110-510	Vedení / Führung / Guide		1
2	30.6010-105	Deska vodící / Führungsplatte / Guiding plate		1
3	30.6010-214	Deska vodící / Führungsplatte / Guiding plate		1
4	30.6010-218	Příložka / Lasche / Splice plate		1
5	30.6110-601	Kostka vodící pravá / Rechte Führungsplatte / Right guiding cube		1
6	30.6710-108	Kolík / Bolzen / Pin		1
7	30.6710-109	Píst / Kolben / Piston		1
8	30.6710-110	Kroužek / Ring / Ring		1
9	90.001.25.009	Šroub / Schraube / Screw	M5x16 DIN 912 8,8	4
10	90.001.25.032	Šroub / Schraube / Screw	8x20 DIN 912 8,8	2
11	90.001.25.053	Šroub / Schraube / Screw	M10x55 DIN 912 8,8	2
12	90.004.2D.002	Šroub stavěcí / Stellschraube / Setscrew	M6x12	1
13	90.005.55.019	šroub se šestihrannou hlavou / Sechskantschraube / Hex head screw	M8x40	1
14	90.015.25.010	Šroub / Schraube / Screw	M10x25 DIN 7984	1
15	90.100.55.005	Matice / Mutter / Nut	M8 DIN934	1
16	90.154.50.003	Podložka / Scheibe / Washer		2
17	90.350.0Z.004	Pružina / Feder / Spring	20x10.2x1.1 DIN 2093	8
18	95.001.044	Kuličkové ložisko / Kugellager / Ball bearing	609 2RS	2
19	95.801.035	Pojistný kroužek / Sicherungsring / Retaining ring		1



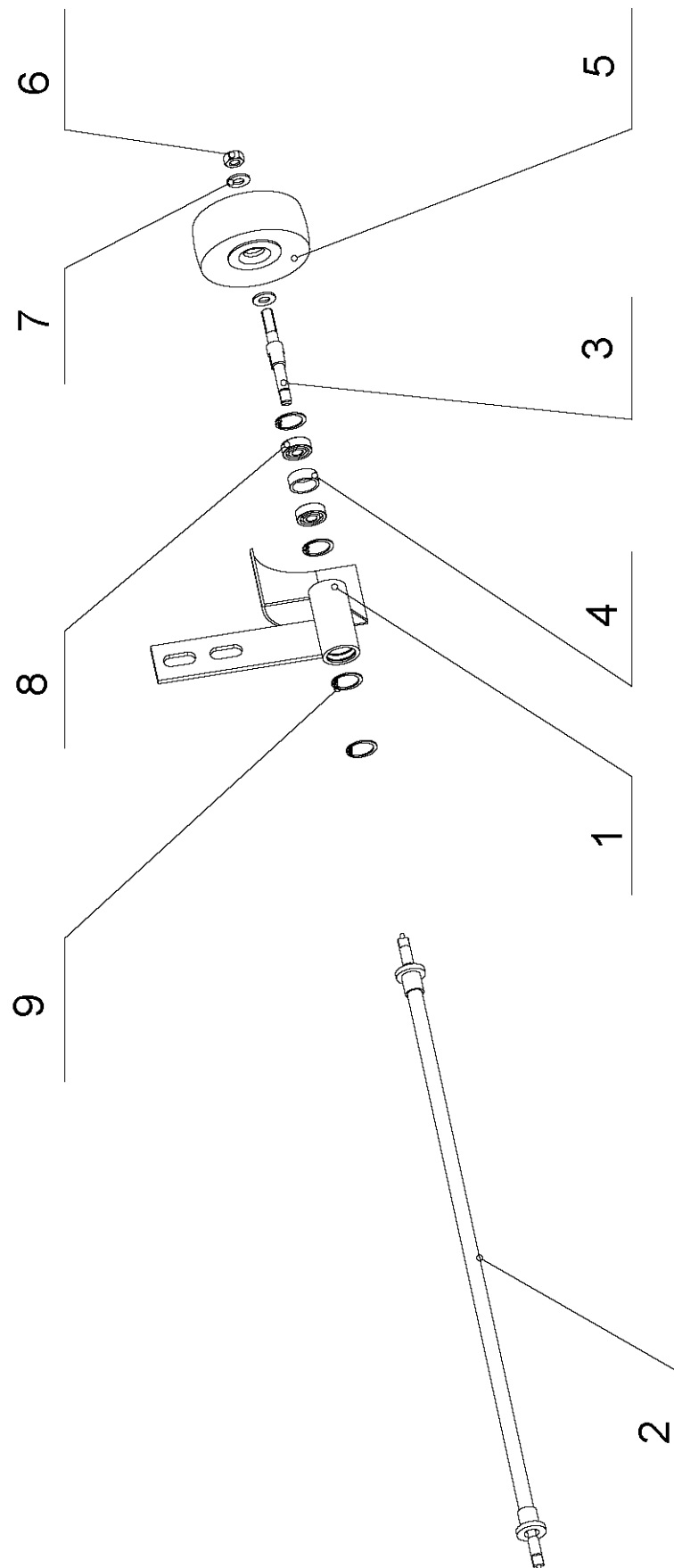
24.9. Levá vodící kostka / Linker Führungsklotz / Left guiding cube

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



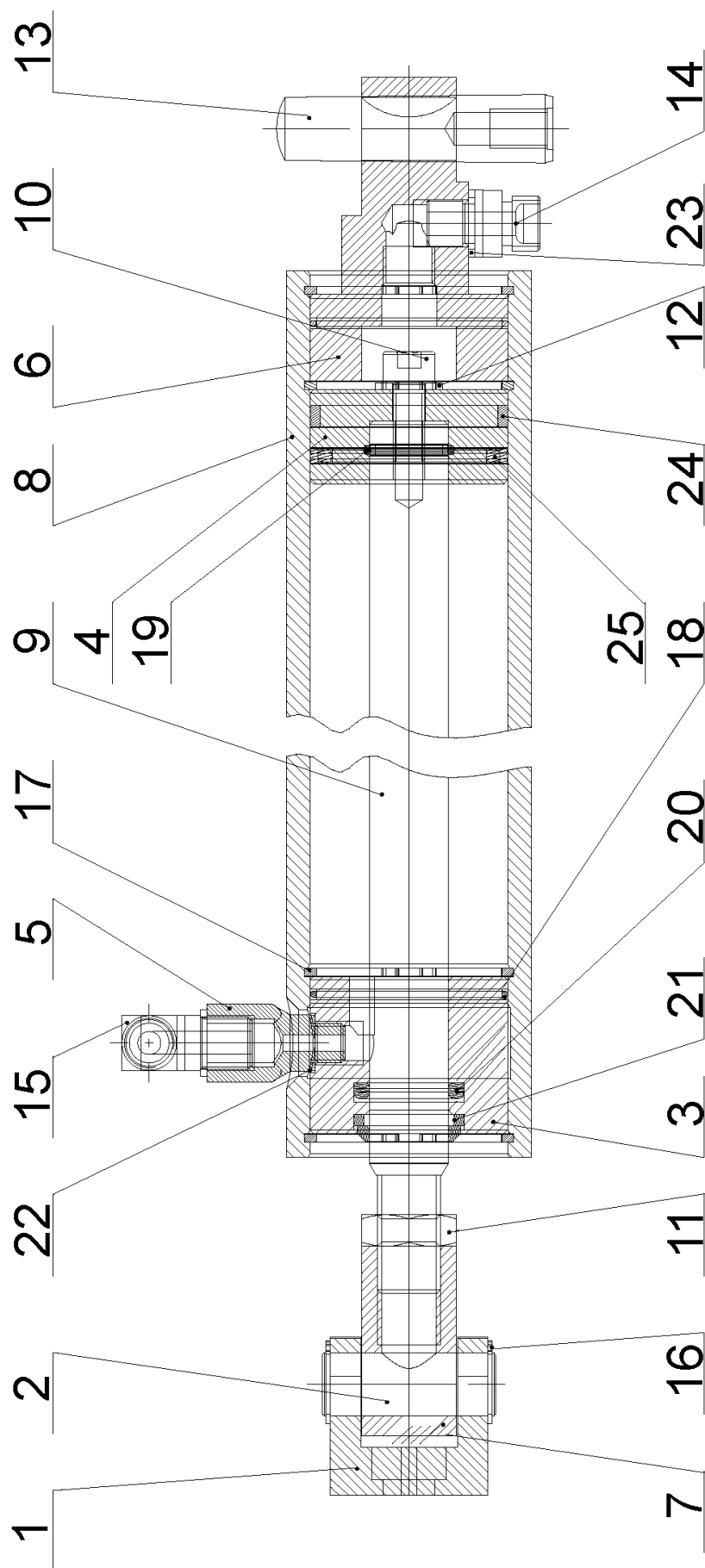
24.10. Řemenice kartáčku / Bürstenriemenscheibe / Brush sheave

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	95.801.019	Pojistný kroužek / Sicherungsring / Retaining ring Ø22 DIN 472	4
14	99.060.002	Magnet / Magnet / Magnet 22x8	1



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	30.3414-302	Hřídel náhonu / Antriebswelle / Drive shaft	1
3	30.4314-002	Hřídel kartáčku / Bürstenwelle / Brush shaft	1
4	30.4314-004	Distanční kroužek / Distanzring / Distance ring	1
5	49.250.006	Kartáček / Spänebürste / Brush	1
6	90.100.55.005	Matice / Mutter / Nut M8 DIN 934	1
7	90.150.50.005	Podložka / Scheibe / Washer d8,4 DIN 125	2
8	95.001.001	Ložisko / Lager / Bearing 608 2RS	2
9	95.801.019	Pojistný kroužek / Sicherungsring / Retaining ring d22 DIN 472	4



24.12. Zvedací válec / Hubzylinder / Lifting cylinder - 251.328

Poz.	Objednací číslo	Název položky	ks
Pos.	Bestell - Nr.	Bezeichnung	Menge
Pos.	Reference No.	Item	Pcs.
1	30.0807-008	Držák válce / Zylinderhalter / Cylinder holder	1
2	30.0807-009	Čep / Bolzen / Pivot	1
3	30.2807-002	Horní víko / Deckel / Top 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	30.8907-101	Válec / Zylinder / Cylinder	1
9	30.8907-103	Pístnice / Kolbenstange / Piston rod	1
10	90.001.25.032	Šroub / Schraube / Screw M8x20 DIN 912	1
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.012	Kuželový kolík+závit 16x70 DIN 7978	1
14	92.002.001	Přímé šroubení / Gerade Verschraubung / Straight screwing GES 08LR	1
15	92.004.001	Úhlové šroubení / Winkel Verschraubung / Angle screwing WES 08LRK	1
16	95.800.007	Pojistný kroužek / Sicherungsring / Retaining ring Ø16 DIN 471	2
17	95.801.018	Pojistný kroužek / Sicherungsring / Retaining ring Ø50 DIN 472	4
18	96.001.013	O kroužek / O Ring / O Ring 45x2	2
19	96.002.007	O kroužek / O Ring / O Ring 16x2	1
20	96.041.002	Těsnící manžeta / Dichtungsmanschette / Gasket 20x28x5 UN	1
21	96.060.002	Stírací kroužek / Abstreifring / Wiping ring 20x28	1
22	96.082.001	Těsnící kroužek / Dichtungsring / Sealing ring Cu	1
23	96.082.002	Těsnící kroužek / Dichtungsring / Sealing ring 13/17	2
24	96.084.001	Vodící kroužek / Führungsring / Guiding ring 50x5.5x2.5x146.9	1
25	96.900.001	Kombinované těsnění / Dichtung / Sealing combined 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“

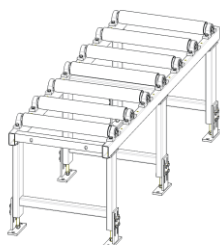
	- Wrongly adjusted swarf brush.	Check swarf brush adjustment, set it according to chapter „Servicing and adjustment“
	- Over stretched saw band	Lower stretching of the saw band and set the limit switch of the saw band stretching according to chapter „Servicing and adjustment“
	- Wrongly adjusted hard 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 arm. 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



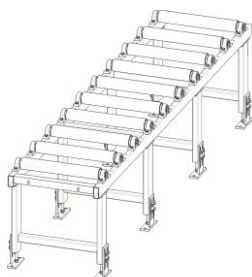
H 650 - 2

Conveyor with steel rolls
max. Load 1200 kg/m
7 Rolls Ø 80x650mm
Dimension 740x2000mm
Without legs



H 650 - 3W

Conveyor with steel rolls
max. Load 1200 kg/m
7 Rolls Ø 80x650mm
Dimension 740x3000mm
Without legs



H 650 - 3K

Conveyor with steel rolls
max. Load 1200 kg/m
10 Rolls Ø 80x650mm
Dimension 740x3000mm
Without legs

26.2. Roller conveyors prepared for powering

HP 650 - 2

Conveyor prepared for powering with chains and chain wheels
max. load 1200 kg/m
7 Rolls Ø 80x650mm
Dimension 740x2000mm
Without legs

HP 650 - 3W

Conveyor prepared for powering with chains and chain wheels
max. load 1200 kg/m
7 Rolls Ø 80x650mm
Dimension 740x3000mm
Without legs

HP 650 - 3K

Conveyor prepared for powering with chains and chain wheels
max. load 1200 kg/m
10 Rolls Ø 80x650mm
Dimension 740x3000mm
Without legs

26.3. 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



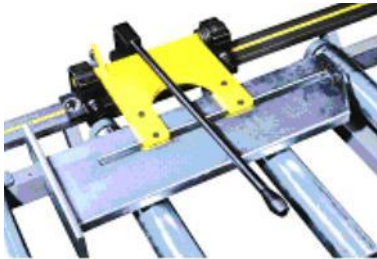
EMG-STOP

Additional emergency-stop unit for powered conveyors of series HP

26.4. 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 price of 3m or 6m as basic number and add the costs for 1 m

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 1 m

H – VL

NC-controlled Incremental infeed machine



Lengthens Arm

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

26.5. Connection parts

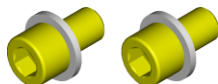
ATH – R

Right connection part for conveyor H650.

26.6. Connection sets

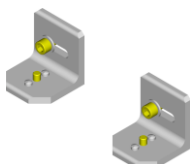
VBS L

Connection set, left side.



VBS R

Connection set, right side.



26.7. Accessories of roller conveyors

VR – H650

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



BVR – H

Movable vertical, suitable for conveyors H650 and HP650.



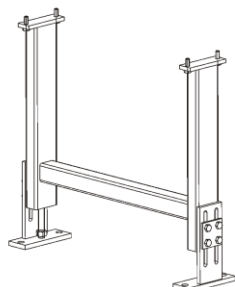
VPF – H

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



ZA-H650

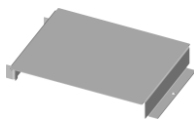
Additional leg suitable for conveyors H650 and HP650,
adjusted height 700-800 mm.



26.8. Covers

ADB – H650 – 2

Set cover plates between rolls suitable for H650–2 and HP650–2. (Attention, only suitable for named conveyor)



ADB – H650 – 3W

Set cover plates between rolls suitable for H650–3W and HP650–3W. (Attention, only suitable for named conveyor)

ADB – H650 – 3K

Set cover plates between rolls suitable for H650–3K and HP650–3K. (Attention, only suitable for named conveyor)

ASL-H – 2

Cover for rollers placing from left and right side, it is suitable for conveyors H650–2.



ASL-H – 3W

Cover for rollers placing from left and right side, it is suitable for conveyors H650–3W.

ASL-H – 3K

Cover for rollers placing from left and right side, it is suitable for conveyors H650–3K.

ASL-HP – 2

Cover for rollers placing from left and right side, it is suitable for conveyors HP650–2.



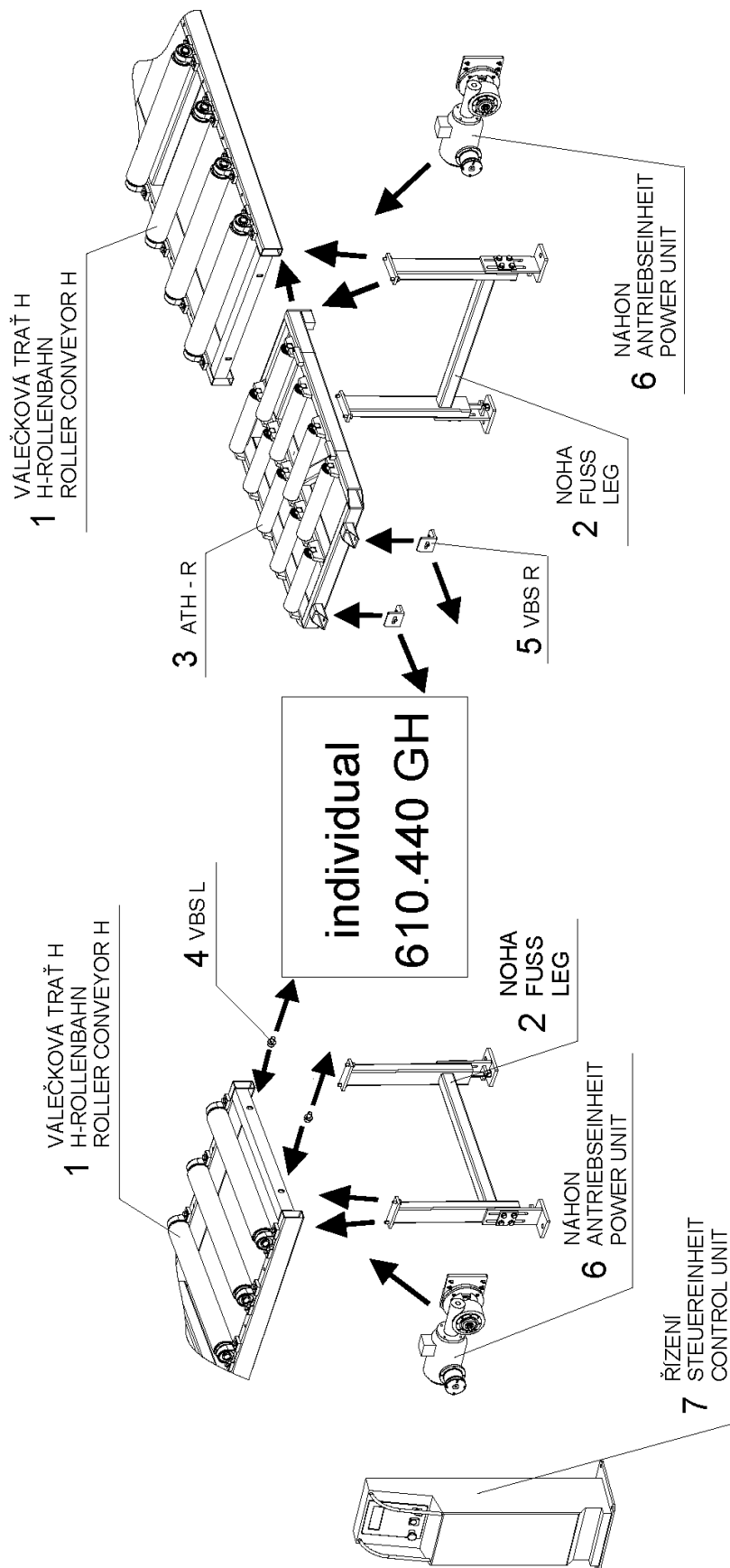
ASL-HP – 3W

Cover for rollers placing from left and right side, it is suitable for conveyors HP650–3W.

ASL-HP – 3K

Cover for rollers placing from left and right side, it is suitable for conveyors HP650–3K.

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



Roller conveyor H 650

Pos.	Number	Sign.	Name
1	253.003	H 650 - 2	Roller conveyor H width 650mm, length 2m
	253.032	H 650 - 3W	Roller conveyor H width 650mm, length 3m
	253.004	H 650 - 3K	Roller conveyor H width 650mm, length 3m
2	253.036	ZA - H 650	Additional leg width 650mm
3	255.525	ATH - R	Right connection part width 650mm
4	255.268	VBS L	Left connection set
5	255.260	VBS R	Right connection set

Powered roller conveyor HP 650

Pos.	Number	Sign.	Name
1	253.008	HP 650 - 2	Roller conveyor H width 650mm, length 2m
	253.033	HP 650 - 3W	Roller conveyor H width 650mm, length 3m
	253.009	HP 650 - 3K	Roller conveyor H width 650mm, length 3m
2	253.036	ZA - H 650	Additional leg width 650mm
3	255.525	ATH - R	Right connection part width 650mm
4	255.268	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 610.440 GH** band saw we advise, height presented groups. The roller conveyors are solved like modules, from which is possible 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.
Těžební 1236/1
627 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

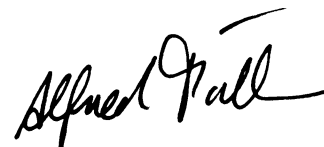
Place and date of issue:

Brno, 26th May 2006

BOMAR, spol. s r.o.
Těžební 1236/1, 627 00 Brno
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IČO: 48908827
DIČ: CZ48908827

Company seal

Alfred Pichlmann,
Managing Director



.....
name, office, signature