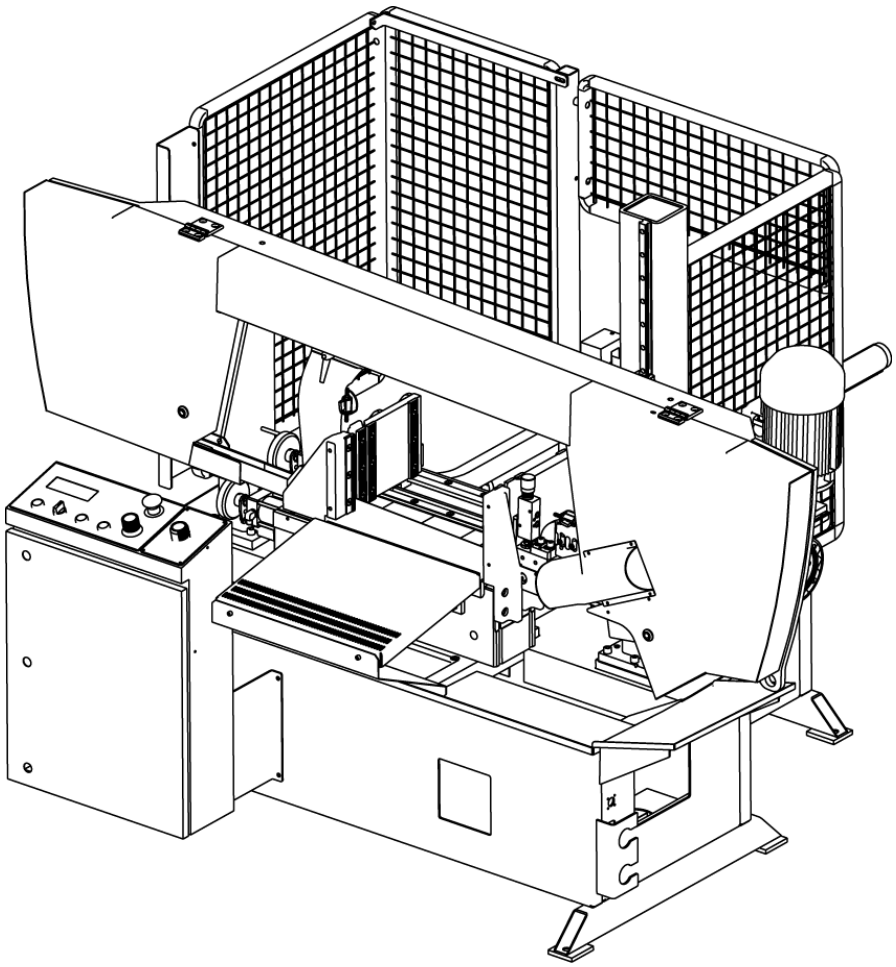
Series **Proline**



# Proline 520.450 Asx

## Operating instructions

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

Serial Number _____

# Service and information

*Your BOMAR dealer:*

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Mondays to Fridays $7^{00}$ – $16^{00}$

**Version:**

1.00 / Apr. 2012

rev. 1

# Content

# 1. Safety notes

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 familiarize 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!

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

## 1.1. Machine determination

The band saw **Proline 520.450 Asx** is determined for cutting and shortening of rolled bars and drawn bars and profiles from steels, stainless steels, non-ferrous metals and plastics **with no angle cut**.

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

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.

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

## 1.2. 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 jewelry and always tie back long hair!** Moving machine parts can catch jewelry 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!

## 1.3. Safety notes for machine operator

***Attention!***
*Machine can be operated by person older than 18 years!*
*Machine can be operated only person physically and mentally fit for this activity*

Only one person can operate machine. Machine operator is responsible for presence of other persons by the machine.

***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, when 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!

## 1.4. Safety notes for the servicing and repairs

***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!*



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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 equipment! 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.

## 1.5. Safety notes for the servicing and repairs on hydraulic unit

Compliance with the principles of cleanliness is basic requirement for trouble-free operation of hydraulic equipment. Hydraulic components are products made with high accuracy, and any contamination leads to a reduction lifetime or even malfunction. The consequences are very difficult to remove and expensive.

Always use clean tools. Parts and fasteners, which are part of a hydraulic circuit, never put away the dirty surface. The best cleaning agent is crepe paper, because the fibers of the cleaning cloths can also cause malfunction.

Protective cap from the threaded chamber remove just before the assembly of the unit.

Hoses and pipes before mounting flush with gasoline or other cleaning agent and blow compressed air.

All fittings must be properly tightened. However, do not raw power.

## 1.6. 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.

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

### 1.6.1. Total Stop

**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.

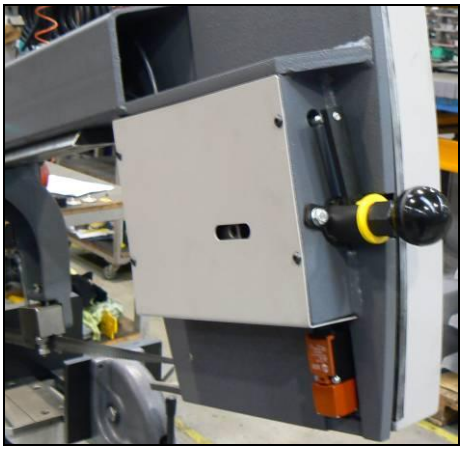
### 1.6.2. Arm covers

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

***The band saw is stated to the operation, when the covers are closed!*** Limit switched on saw arm control if cowers are open or not.

### 1.6.3. Saw band stretching and rupture inspection

This device checks the saw band stretching and causes immediate machine shut – down in the event the band ruptures.



The device contains limit switch. Check the stretching carefully and periodically – eventually adjust.

### 1.6.4. Protective fencing

Protective fencing is preventing personal injury from moving machine parts.

The doors of the protective fencing are protected by limit switches. If the limit switch is open, the machine is turned off.

### 1.6.5. Band saw cover

It covers the visible area of the saw band from left guiding cube to the frame.

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

### 1.6.6. Brush cover

It covers the brush for saw blade.

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

## 1.7. Safety notes for the cooling

***Attention!***

- *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*

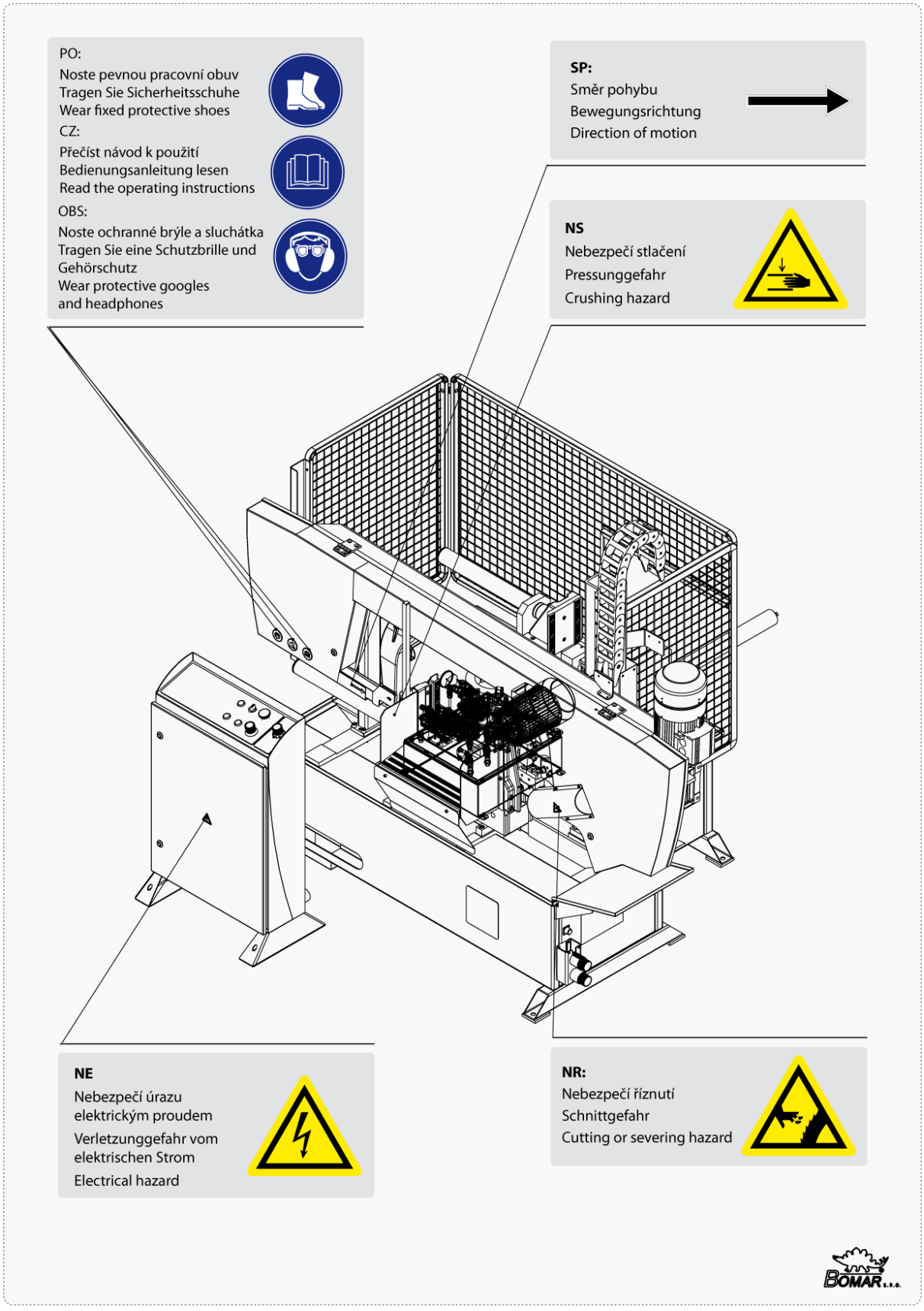
### 1.7.1. Instructions for first help

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

## 1.8. Position of machine label

Machine label is placed on saw frame.

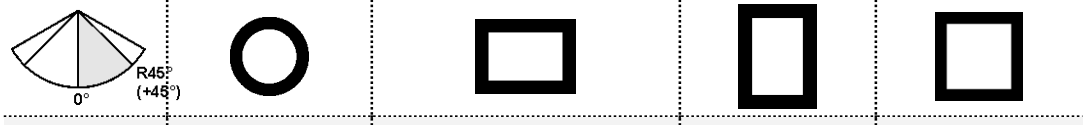
## 1.9. Position of safety symbols



# 2. Machine documentation

## 2.1. Technical data

| | |
|---|---|
| **Machine weight:** | |
| • Weight | 3,527.00 lb (1 600 kg) |
| **Machine size :** | |
| • Lenght | 9.843 ft. (3 000 mm) |
| • Width | 7.546 ft. (2 300 mm) |
| • Height | 8.530 ft.(2 600 mm) |
| **Electical equipment:** | |
| • Supply voltage | ~3×230 V, 50/60Hz, TN-C |
| • Total Input | 11 kVA |
| • Max. Fuse | 16 A |
| • Protection | IP 54 |
| Acoustic pressure**:** | |
| • Proline 520.450 Asx | $L_{Aeqv}$=76,3 dB |
| **Drive:** | |
| • Type | Lenze |
| • Supply voltage | ~3×230V, 50Hz |
| • Output | 7,5 kW |
| • Nominal speed | 1440 $min^{-1}$ |
| **Hydraulic equipment:** | |
| • Type | PPM-AC0,37-PG1/2,5-TM16-CB03-FR (92.001.070, FWM) |
| • Output | 6 MPa / 1,1 kW |
| **Cooling equipment:** | |
| • Type | 2COP1-12H1-4 |
| • Capacity | 10.567 gal. (40 l) |
| **Band size:** | |
| **237.008×1.614× 0.051 in (6 020×41×1,3 mm)** | |
| **One Upstroke::** | |
| **78.74 in (600 mm)** | |
| **Maximum material weight:** | |
| **7,628 lb (3460 kg)** | |
| **Cutting speed:** | |
| **1.094—6.562 ft/s (20–120 m/min.)** | |
| **Cutting size:** | |




| 0° | ∅17.717 in / 450 mm | 20.472×17.717 in / 520×450 mm | 20.472×17.717 in / 520×450 mm | 17.717 ×17.717 in / 520×520 mm |
|---|---|---|---|---|

**Warning:**

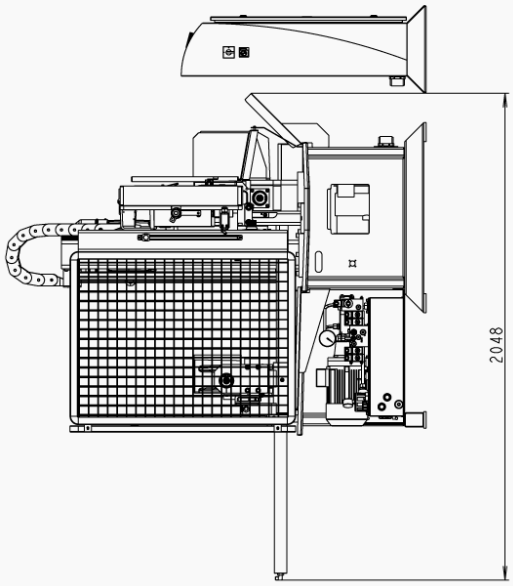
If the material detection device is installed on the machine then maximal workpiece height is 0,394 inches (10 mm) shorter.

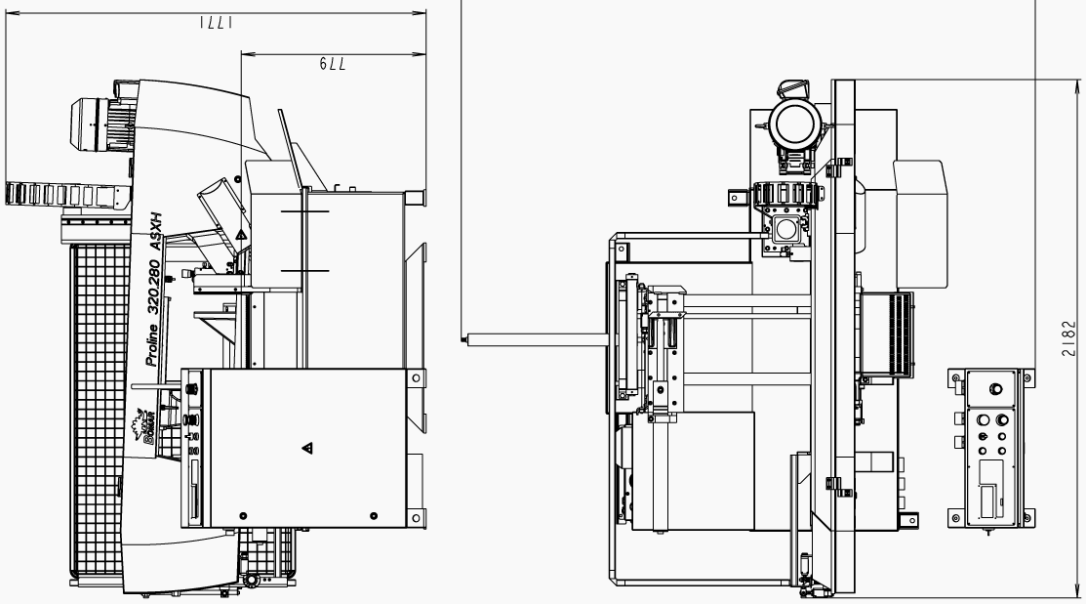
If machine has bundle device then material maximal height is half.

**Level of acoustic pressure:**

Equivalent level of acoustic pressure A (noise) at operator position are $L_{Aeqv}$=76,3 dB. Mentioned values are levels of emission which doesn't have to represent safe levels. Factors which influence real level of acoustic pressure on machine operator are: working place characteristics, cut material, saw band. These factors have significantly influence on acoustic pressure.

## 2.2. Installation diagram



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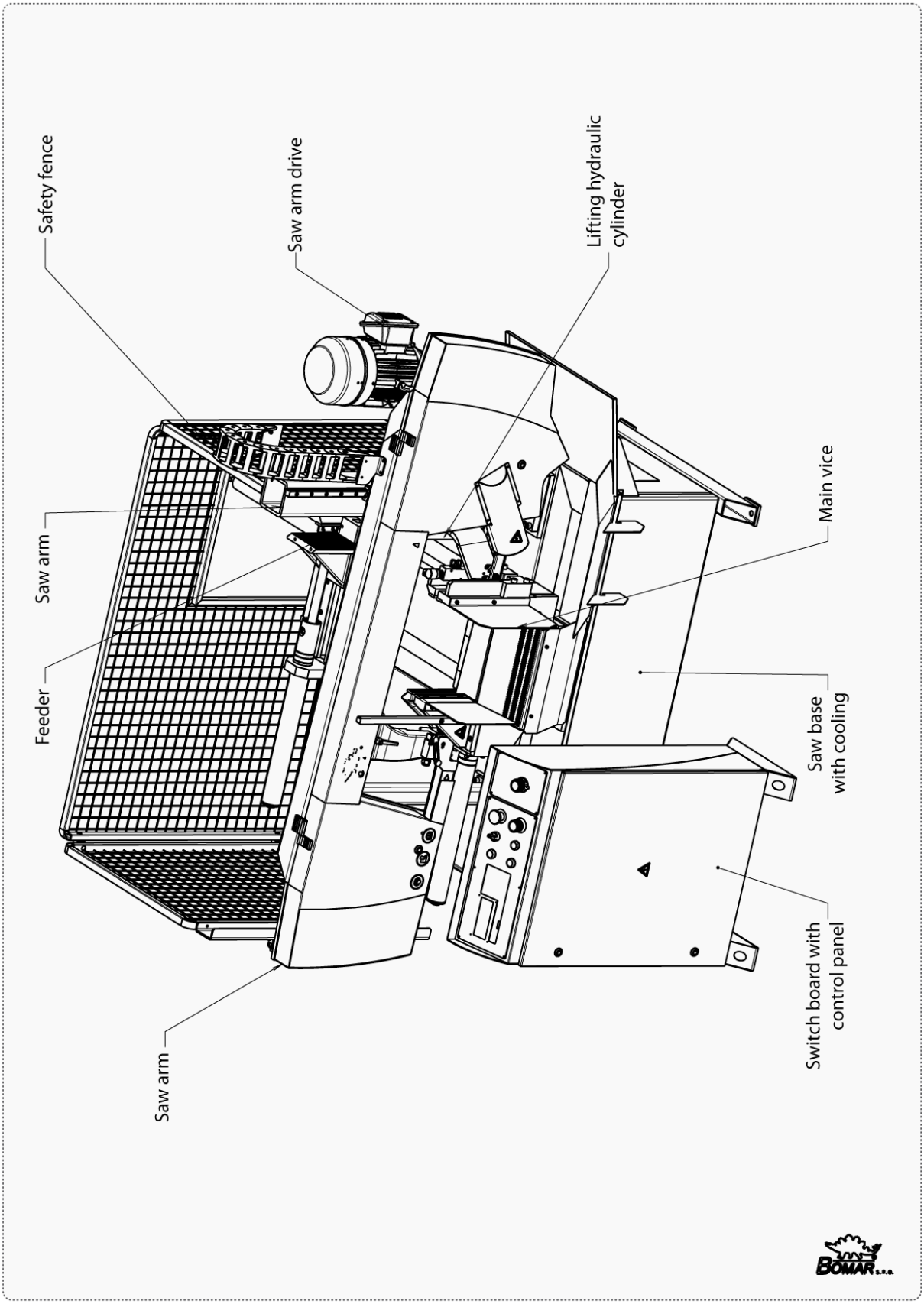
## 2.3. Description



## 2.4. Transportation and stocking

### 2.4.1. 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.

- Don't use a forklift truck for handling the machine, if you do not have license for it!
- Don't move under suspended loads! Fault in lifting device may cause serious injury.
- Keep a safe distance from the machine during the transport.
- Temperature of the air from *-13°F to 131°F (-25°C to 55°C)*, for a *short term* (max. 24 hours) temperature of the air until *158°F (70°C)*
- Do not expose the machine to radiation (for example microwave radiation, ultraviolet 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.

### 2.4.2. Transport and stocking preparations

Close the vice and thoroughly oil all blank surfaces.

Lower the saw frame to the lowest position.

Make sure to empty the machine of all traces of the cooling agent.

Fasten all loose parts securely to the machine.

Pack and wrap the control desk securely to avoid damage during transport.

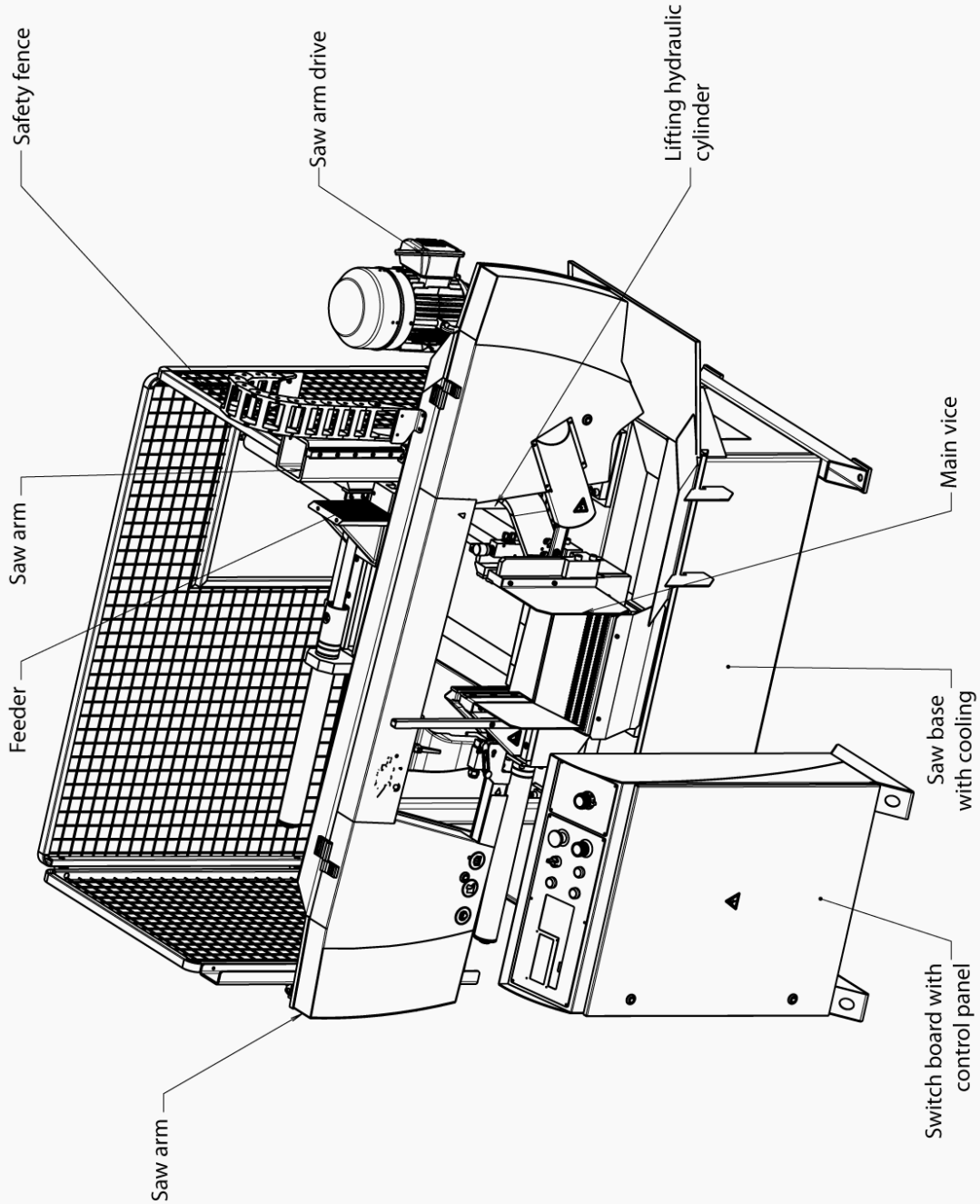
Fix the stickers stating the minimum approximate machine weight to at least five well visible places.

### 2.4.3. Transport and stocking

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. Store the machine only under conditions mentioned in the manual, to avoid damage of the machine.

It is forbidden to handle the machine any other way, than it is written in this operating instructions, the machine can be damaged.

### 2.4.4. Transport



## 2.5. Activation

### 2.5.1. 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 41***°F to 104°F (5°C to 40°C),*** the temperature average during 24 hours must ***not exceed over 95°F (35°C***.)
- At relative dampness of the air in the extend from 30% to 95% (not concentrate). Altitude lower than 3,281 ft. (1000 m).
- 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.

***Attention!***
*If the ambient temperature drops below 15 ˚ C is required before operating the machine to have switch on hydraulic unit around 10 minutes and then made several motion few times (for example, in manual mode) by all hydraulic cylinders. The reason is to heat hydraulic oil to the operating temperature for proper function of the pressure switches (and choke).*

## 2.6. Band saw unpacking and assembling

Remove the packing from the machine and unpack all parts.

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

If the hydraulic unit is outside the machine (the machine only connected hoses and cables), it needs to be placed and mounted on a solid basis (floors, etc.). The mounting holes are used on the bottom (bases) of the tank.

### 2.6.1. Machine installing and leveling

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 – Proline 520.450 Asx – 3,527.00 lb (1 600 kg)

+ weight of accessories

+ maximum weight of material

- The machine must be leveled at the horizontal position. All feet of the machine must touch with the floor after leveling
- The machine must be leveled 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 leveling, 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.

### 2.6.2. Machine disposal after lifetime

Blown out all service fluids (cooling liquid, hydraulic oil) into designated reservoir. Dismantle machine into separate parts and dispose them in accordance with valid directives.

### 2.6.3. First run of the power pack

**Before the first run check:**

- The direction of the Pump, while run the power pack for max. 2seconds.
- The cooling fan of the motor has to rotate in the same direction as the arrow on the top of the motor cowling indicates.
- In case of wrong rotational direction, the electrical phase in the connection box is to be changed. This check is required after every disconnection from the power source
- Wiring matches with electrical and hydraulic diagrams
- the electric motors (pump and cooler) are properly connected and have the prescribed rotation
- the hydraulic accumulator with nitrogen gas to the specified value
- aux. elements work right (thermometer, level gauge, heater)

**First run (Attention – working pressure on securing valve is set by producer in accoring the hydraulic diagram):**

- In the short intervals activate an electric pump
- check for leaks and noise
- Bleed the hydraulic circuit
- if possible, test the circuit function with minimum load
- test the electrical equipment
- during operation monitor measuring equipment, noise, height and temperature of oil in the tank
- During this time a careful bleeding off for the whole hydraulic system is necessary. In case there is no bleeder port, the power pack will bleed itself after a while via the air breather on the tank or the return line filter.
- After multiple start-up.

### 2.6.4. Filling the reservoir with hydraulic oil

Oil regulations and recommendations of the manufacturer in the technical documentation (appendix) are to be carefully observed. For standard power packs we recommend the oiltype OH-HM32 (DIN 51524) of all known oil manufacturers.

Power packs have to be filled up with clean, pre-filtered oil! The purity of the hydraulic fluid must correspond to the class 10 NAS 1638 (reachable with filter ß =75)!

Filling from container, such as barrels, backets, etc. is not recommended or permitted!

The maximum oil level will be shown on the upper marking at the dipstick or the sight level glass. Overfilling has to be prevent. The maximum filling rate of 15 l/min shouldn´t be exceed.

| Oil type | Kinematic viscosity v in mm²/s in relationship to the fluid temperature | | | | | Freezing point |
|---|---|---|---|---|---|---|
| | 32°F / 0°C | 68°F / 20°C | 104°F / 40°C | 140°F / 60°C | 176°F / 80°C | °F / °C |
| OH-HM 32 | 220 | 100 | 32 | 15 | 7 | -40 / -40 |
| OH-HM 46 | 400 | 170 | 46 | 18 | 11 | -22 / -30 |
| OH-HM 68 | 700 | 170 | 68 | 26 | 14 | -18,4 / -28 |
| OH-HV 32 | 180 | 67 | 32 | 17 | 11 | -40 / -40 |
| OH-HV 46 | 350 | 110 | 46 | 25 | 14 | -32.8 / -36 |



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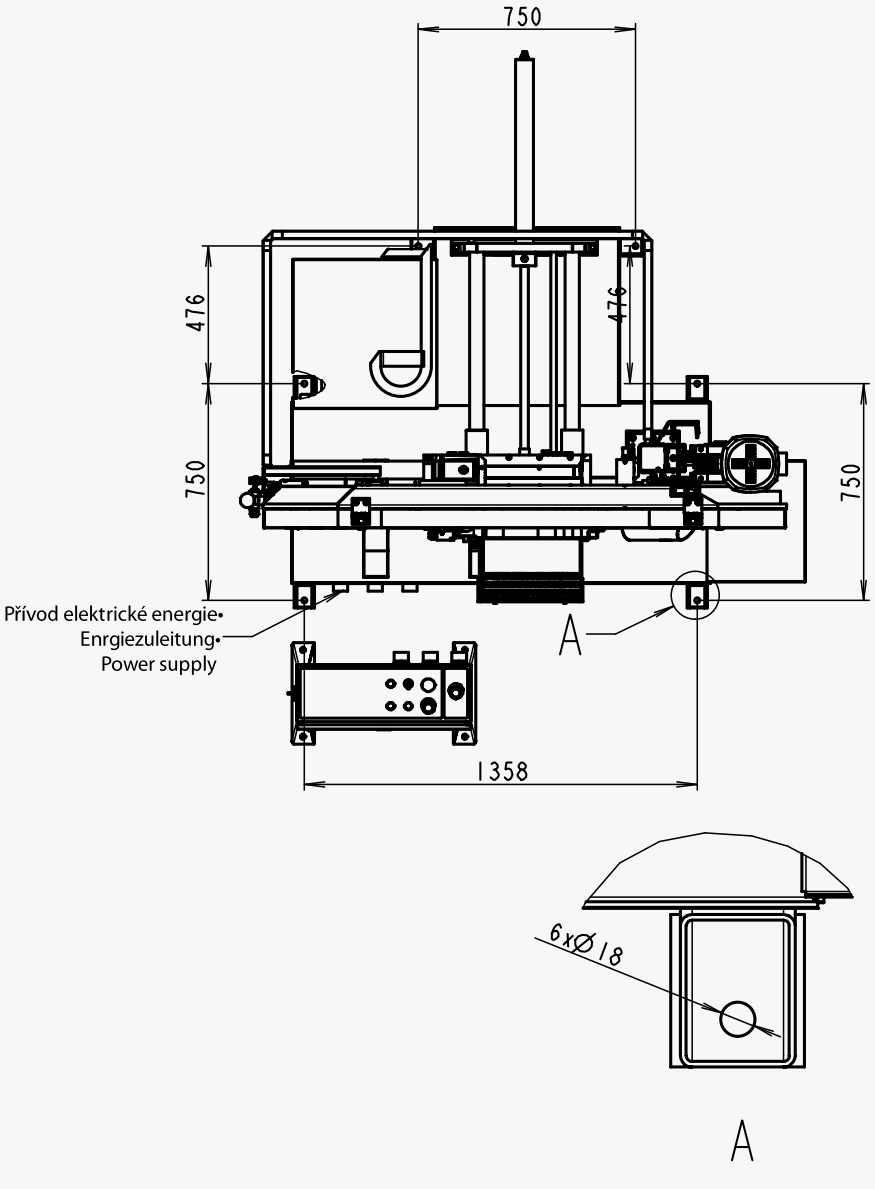
## 2.6.5. Grounding plan




### Kotvící materiál / Verankerungsmaterial / Grouding material

- 4× Hmoždina / Dübel / Plug – ø12 mm
- Vrtáno do hloubky / In die Tiefe gebohrt / Drilled to – 95 mm
- Šrouby / Schraube / Screws – M16×135

Šrouby podložit deskami o min. rozměrech P10×100-100
- Die Schrauben mit Platten mit Minimaldimensionen P10×100-100 u nterlegen
Screew must be bot tomed with pl ates (min. dimensions P10×100-100)

### Požadavky na rovinnost podlahy / Anforderungen an die Bodenebenheit / • Requirements for floor flatness

± 10 mm / 1 m

## 2.7. 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: ~ 3×230 V, 50/60 Hz, TN-C
- Total input / Max. fuse: 11 kVA / 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!

***Note:***
*The values of the crosscut of the conductor and the rated current are in the norms.*

*Service voltage must agree with the line voltage!* Crosscut of the supply line must respond with rated current for max. machine load.

***Note:***
*The socket with the fork can be used only at the machines with the rated current less than 16 A 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.*

### 2.7.1. 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.

### 2.7.2. Check machine connection into electrical network

***Attention!***
*When you connect the machine to the electrical network observe correct connection of all phases!*
***ENGINE IN IN HYDRAULIC AGGREGATE CANNOT BE OPERATED WITH REVERSE TURNING MORE THEN 10 SECONDS!!!***

## 2.8. Filling of the cooling system

Prepare the mixture of the water and the cooling liquid. Keep the concentration specified by manufacturer. Shift away the cover from the drainage hole. 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*.

Let the drainage hole opened and with the sieve during operation, because it secures the right work of the cooling system. 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.

***Note:***
*If machine is equipped with microniser, fill microniser with prescribed cooling liquid. This made the Microniser ready for use.*

## 2.9. Check machine function

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 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. Turn the saw frame of the band saw from one outer position to other outer position. Raise the saw frame to the top position and drop the saw frame to the lowest position.

Start the machine with the cooling pump and let it run without load until the cooling system will be filled with cooling liquid. As soon as the cooling liquid starts to escape from the nozzles of the cooling system, the cooling system is ready for the operation. Carry one cycle of cutting without material. Check, if the machine runs with no irregularities. If all machine functions are right, the machine is ready for operation..

## 2.10. Saw band

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

### 2.10.1. Saw band size

**237.008×1.614× 0.051 in (6 020×41×1,3 mm)**

### 2.10.2. 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.

***BOMAR recommended Variable tooth system for band saw.***

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:**

$Z_pZ$ – teeth number on one inch S – tooth with zero angle of the teeth K – tooth with positive angle of the teeth

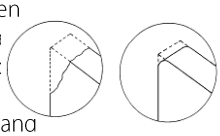
**Examples of the tooth system marking:**

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.

### 2.10.3. Saw band running-in

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



When cutting small pieces run the band until approximately 300 $cm^2$ of material has been cut. When cutting large pieces run the band for 15 minutes approximately. When the ba has been run, increase the lowering-speed to normal speed. The running in of the saw b 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.*



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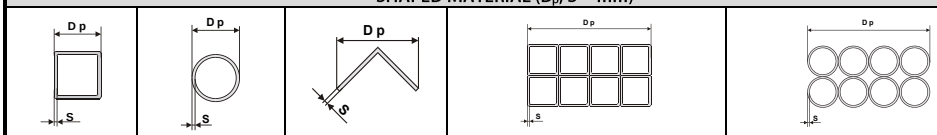
## 2.10.4. Tables for teeth selection

**SHAPED MATERIAL ($D_p$, S = mm)**

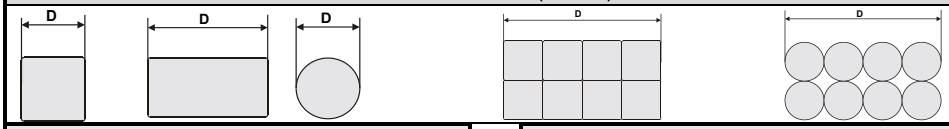



Note: Table shows tooth system selection for cutting one piece of the profile. For cutting of more pieces of the profiles (bundle), you must think of the size of the wall as double size of the wall of one profile (that means, size „S" equates to 2×S). In table, there are tooth systems constant and variable.

| Size of the wall S [mm] | Tooth system ($Z_p$,Z) Outer diameter of the profile $D_p$ [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 ($Z_p$,Z) Outer diameter of the profile $D_p$ [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)**



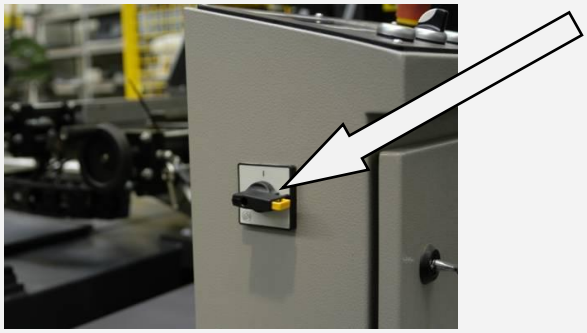

| Constant tooth system | |
|---|---|
| length of the cut D | tooth system ($Z_p$,Z) |
| to 3 mm | 32 |
| to 6 mm | 24 |
| to 10 mm | 18 |
| to 15 mm | 14 |
| 15–30 mm | 10 |
| 30–50 mm | 8 |
| 50–80 mm | 6 |
| 80–120 mm | 4 |
| 120–200 mm | 3 |
| 200–400 mm | 2 |
| 300–800 mm | 1,25 |
| 700–3000 mm | 0,75 |

| Variable tooth system | |
|---|---|
| length of the cut D | tooth system ($Z_p$,Z) |
| to 30 mm | 10 –14 |
| 20–50 mm | 8–12 |
| 25–60 mm | 6–10 |
| 35–80 mm | 5–8 |
| 50–100 mm | 4–6 |
| 70–120 mm | 4–5 |
| 80–150 mm | 3–4 |
| 120–350 mm | 2–3 |
| 250–600 mm | 1,4–2 |
| 500–3000 mm | 0,75–1,25 |

# 3. Machine control

## 3.1. Starting the band saw

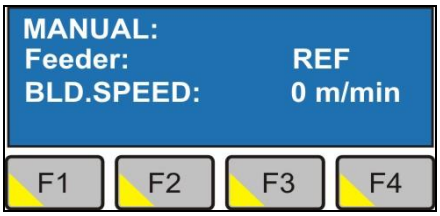
» • Switch on the main switch of the band saw. The main switch is placed on the switchboard side.



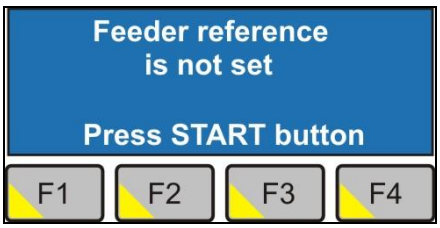
• Refer the machine

## 3.2. Machine referring

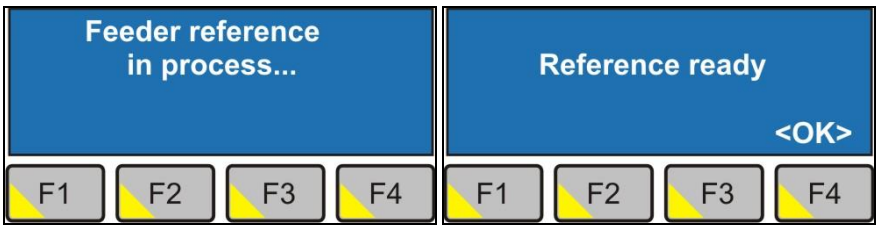
Before using the saw, you must refer machine. Referring is necessary for correct positioning of the saw feeders.



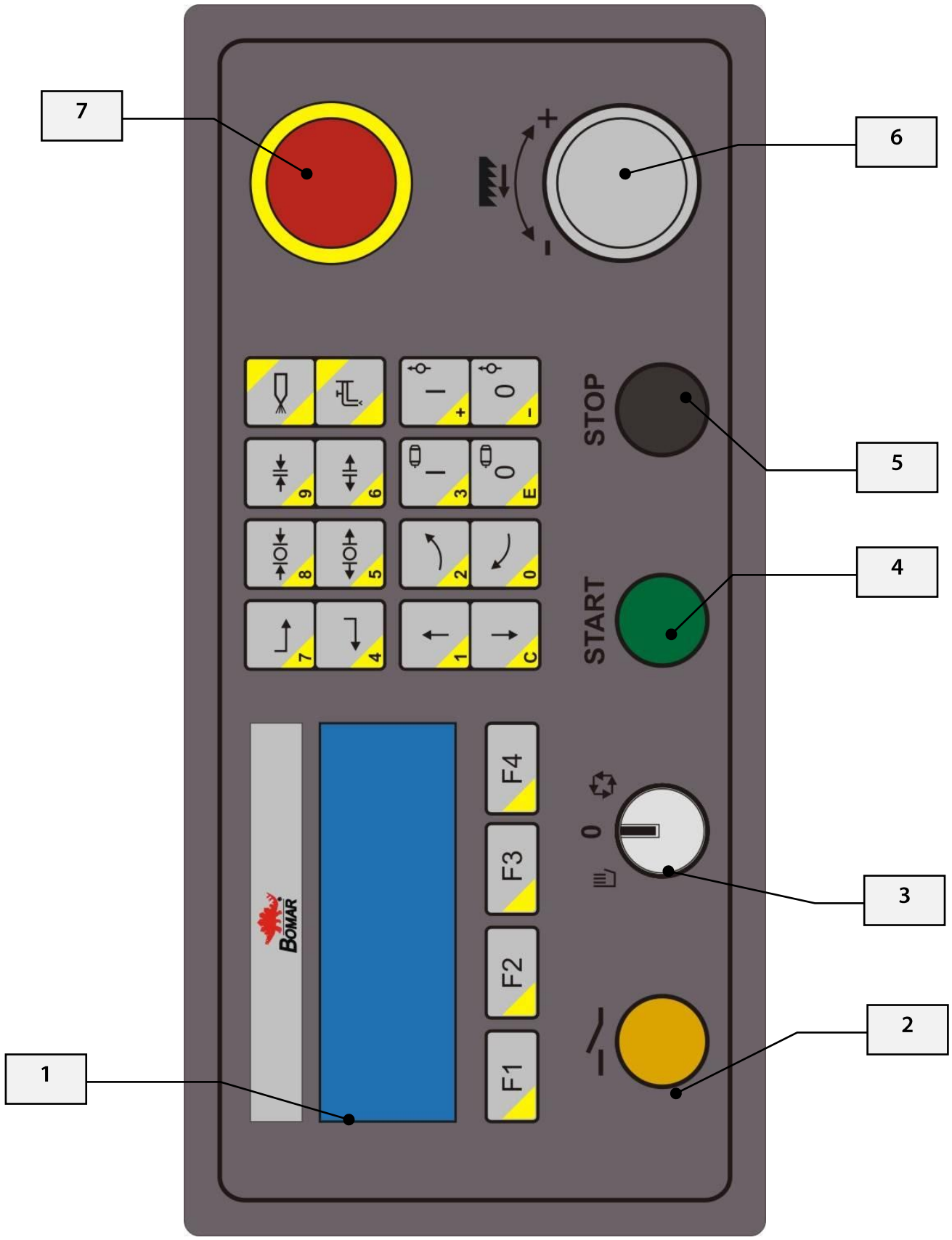

If the machine is not referred, it is not possible to move the feeder and on the LCD instead of a numeric value text REF.




Operator is informed that the machine is not referred after machine start. For machine referring switch into automatic mode. Then START button begin flash. Press START button for begin referring process. After this process press F4 to confirm.



## 3.3. Control panel



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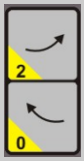
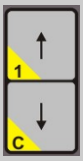
| | |
|---|---|
| 1 | **LCD**<br>LCD displays status information and menu. |
| 2 | **Safety circuit**<br>Switch on the safety circuit by pressing button. |
| 3 | **Machine mode**<br>0 for service and setup<br>  for manual mode<br>  for automatic mode |
| 4 | **START - Switch on the working cycle**<br>Button push starts the cutting cycle Button STOP stops cutting cycle. |
| 5 | **STOP - Switch off the working cycle**<br>Stop cutting cycle. |
| 6 | **Frequency convertor**<br>Turn to change the speed of the saw band. |
| 7 | **TOTAL – STOP button**<br>In emergency causes the machine must be immediately switched off. |
|  | **Feeder movement**<br>Pressing and holding button move with feeder to and from the machine (in manual mode) |
|  | **Open/Clamp feeder vice**<br>Pressing and holding button open or clamp feeder vice in manual mode. |
|  | **Open/Clamp main vice**<br>Pressing and holding button open or clamp full stroke vice in manual mode. |
|  | **Turn on / off saw blade**<br>Button with symbol „I“ turn on saw blade drive, button with symbol „0“ turn off saw blade. |
|  | no function |



**Move saw frame up/down**

Pressing and holding buttons rises or drops saw frame.

As you move down, you can activate the rapid moving by pressing F1 button simultaneously with  .

**Turn on /off hydraulic circuit**

Button with symbol „I" turn on hydraulic circuit, button with symbol „0" turn off hydraulic circuit. The hydraulic circuit is automatically switched on when needed.

**Cooling system selection**

Top – Cooling with Microniser (optional accessories)

Below – Cooling is switched on (even when the drive is not running).

**Governing valve**

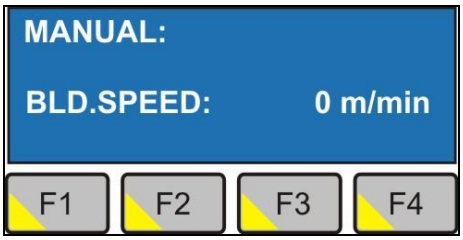
Adjust the speed of the arm sinking to the cut by governing valve.

**ATTENTION!**

**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.**

## 3.4. Machine control in manual mode

- Switch machine into manual mode – key switch on control panel on  .




- The LCD displays the following menu, where is information about the selected cutting speed.
- All movements are controlled by an operator using the control panel, see chapter Control panel.
- Manual mode serves primary for material loading into machine

**Procedure for material loading before automatic cycle:**

1. Before material insertion, open both vices into maximal to the position what is needed to insert material open.
2. Clamp material with both vices.

***Attention!***
***Feeder vice must be clamped before main vice.***

3. Switch the machine in automatic mode and follow the procedure for the automatic cycle.



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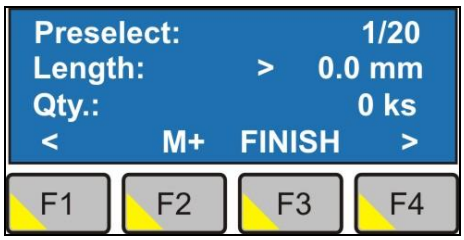
## 3.5. Machine control in automatic mode

***Attention!***
*Before the automatic cycle, the material must be clamped with both vices.*

1. Switch machine into automatic mode – key switch on control panel on  .

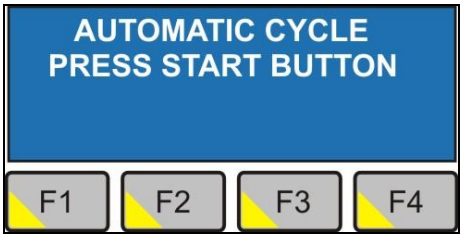



2. The LCD displays the following menu. The Preselect indicates the current program. The system can store up to 20 programs, move between them using the F1 and F4. F2 key (M +) saves all program values in the system. Press button F3 (Finish) on program what will be performed first in automatic mode.

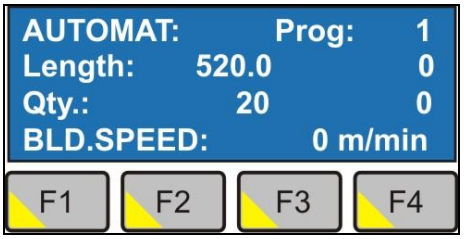

3. After entering the programs values and after F3 (Finish), the operator is asked to perform trim cut. F4 not perform trim cut.



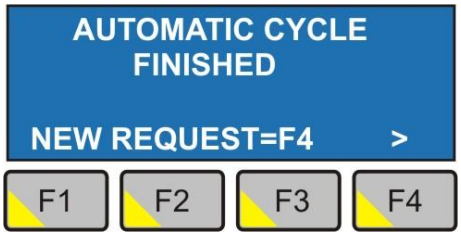
4. If the operator chose the trim cut on LCD is info about the progress. After the completion of trim cut, confirm by button F4.



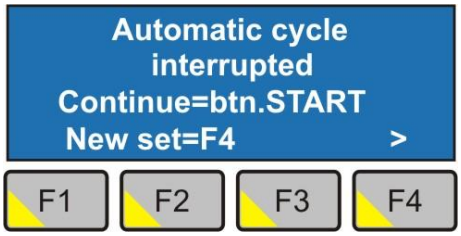

5. Now begins the automatic cycle. It begins by pressing the START button. The work cycle begins on the program, where was editing completed by button F3 (END) and ends on the last non-zero program. *Example: I edited program no. 2 last time (F3 was pushed on program no.2), program no. 3 and 4 has correct values, programs no. 5, and more are empty. Control system loads program no. 2 then program no. 3 and last performed program is no. 4.*




6. The operator is informed about the automatic cycle on the LCD.




7. After completing automatic cycle, operator may enter new values for the next cycle (F4).




8. In case of interruption cycle (STOP), operator can only pause the cycle and then press START to continue or press the F4 key for interrupting cycle and for enter a completely new working cycle parameters.



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### 3.5.1. Cycle breaking

- **STOP button**

  Semi-automatic cycle is interrupted by pressing button **5 – STOP** of the cycle

  The arm stops fall into cut and saw blade is stopped.

  By pressing button ***4 – START of the working cycle***, you can start the cycle.

- **TOTAL STOP button**

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

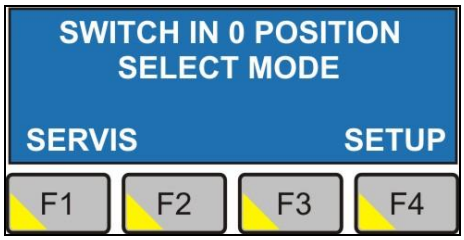
  After pressing **TOTAL STOP** button, saw band drive is immediately broken and the arm sinking is stopped.

- **Reactivation**

  1. Turn button **TOTAL STOP** according to the arrows (on the button).
  2. Lift saw arm above cut material and push START button.

## 3.6. Machine setup

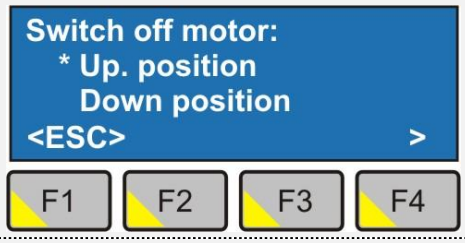
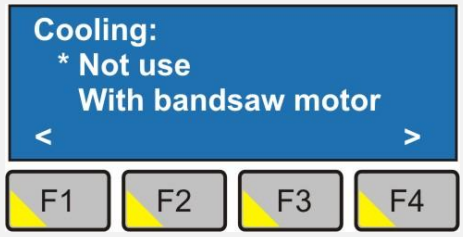
Setup mode is activated by switching mode selection switch to position 0. After the switch is in position 0 on LCD is displayed:

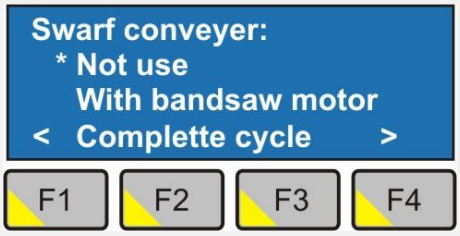
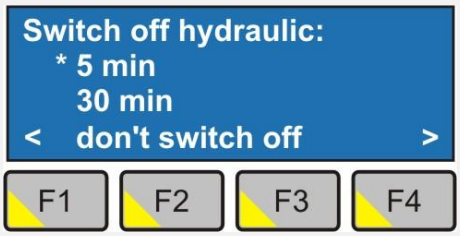
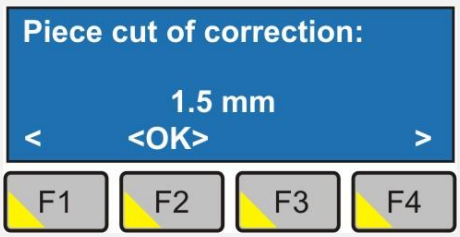
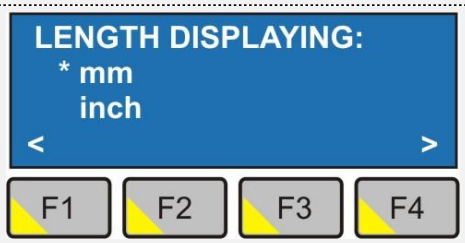



Parameters in the menu SERVICE are password protected. The parameters in the SETUP menu are common and are not password protected.

| Password: | 947 |
|---|---|

### 3.6.1. SETUP

| on LCD | Description |
|---|---|
|  | **Turn off saw blade drive** after cut:<br>• Up. position – saw blade lifts after cut and saw blade drive is turned off above material.<br>• Down position – saw blade drive is turned off immediately after cut.<br>• **F1** back, **F4** next option |
|  | **Cooling**<br>• Do not use – cooling is off, suitable for cutting special materials such as cast iron<br>• With saw blade engine – when the blade is running, also cooling pump is running.<br>• **F1** back, **F4** next option |

| on LCD | Description |
|---|---|
|  | **Swarf conveyer** (optional accessories)<br>• Do not use swarf conveyer<br>• With band saw motor – when the blade is running, also swarf conveyer is running.<br>• **F1** back, **F4** next option |
|  | **Switch of time for hydraulic unit**:<br>• 5 min. – 30 min. – do not turn off<br>• **F1** back, **F4** next option |
|  | **Piece cut off**<br>• The settings for the proper cut lengths in automatic mode<br>• Saw blade thickness<br>• **F1** back, **F4** next option |
|  | **Language:**<br>• Choose control menu language<br>• **F1** back, **F4** next option |
|  | **Units for saw blade speed**<br>• m/min or ft/min<br>• restart machine to apply change<br>• **F1** back, **F4** next option |
|  | **Units for lengths**<br>• mm or inches<br>• restart machine to apply change<br>• **F1** back, **F4** next option |



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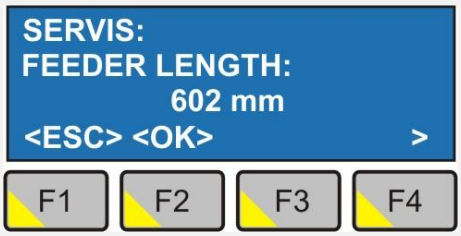
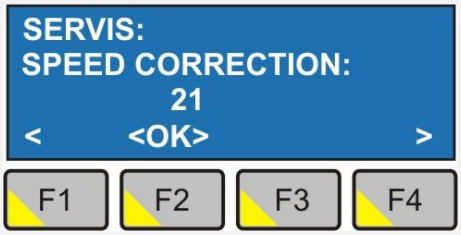
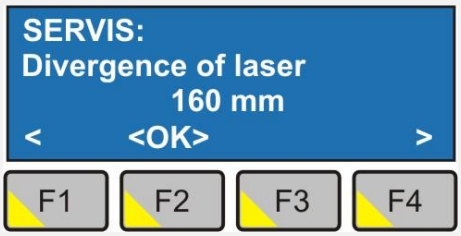
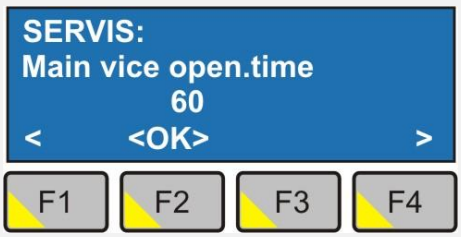
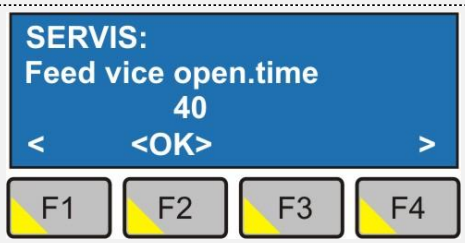
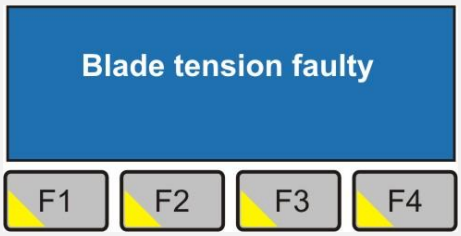
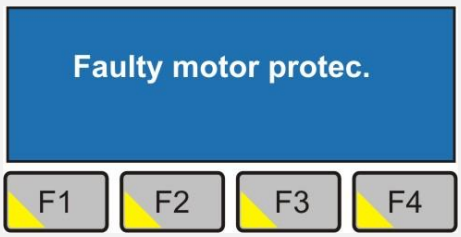
### 3.6.2. SERVIS (password)

| on LCD | Description |
|---|---|
|  | • **Feed length** – Specifies the length of the feeder. Do not change parameter – is set from the factory.<br>• **F1** back, **F4** next option, **F2** save current option |
|  | • **Speed correction** – could be set in range 0–250, displayed constant is for the calculation belt speed from the analog input.<br>• **F1** back, **F4** next option, **F2** save current option |
|  | • **ELGO** – feeder position admeasurement. **Do not change!**<br>• For service purposes. Displays a variable number of linear pulse measurements<br>• **F1** back, **F4** next option, **F2** save current option |
|  | • **Laser deviation**<br>• The laser is placed behind the feeder vise jaws<br>• The value affects multiple feeding. **Do not change!**<br>• **F1** back, **F4** next option, **F2** save current option |
|  | • **Opening time for main vice.**<br>• Opening time is in milliseconds.<br>• **F1** back, **F4** next option, **F2** save current option |
|  | • **Opening time for feeding vice**<br>• Opening time is in milliseconds.<br>• **F1** back, **F4** next option, **F2** save current option |

## 3.7. Error messages

| Error | Description |
|---|---|
|  | The safety circuit is not turned on (pos. 2 on control panel). Push safety circuit button (on pos. no. 2 on control panel) to remove error message. |
|  | Total Stop button is active – pushed. Turn TOTAL STOP button by the arrows, and disable it. Press F4 to confirm the disorder. |
|  | Saw belt not is properly tensioned. Remove the fault and press F4 to confirm. |
|  | Motor overload, thermal protection is activated. Do not overload blade engine! Remove the fault and press F4 to confirm. |



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## 3.8. Band saw adjusting

### 3.8.1. Adjusting band guides

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 stopping lever of the listel. Move the left part of the guide so that the left edge of the guide blocks is as close as possible cut material.
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.

### 3.8.2. Cutting speed adjusting

Blade speed is possible adjusted continuously in interval 1.094—6.562 ft/s (20–120 m/min.).


Use the frequency convertor on control panel (pos. 6) to adjust requested speed of the saw band.

### 3.8.3. Adjustment of pressure to the cut

The band saw ***Proline 520.450 Asx*** is equipped with cutting pressure regulation on the one guiding cube

> ***Notice***
> *The guide cubes are equipped with valves, which must be open during operation*

Pressure adjusting is performed with regulating screw on guiding cube.

- ***Lower pressure to the cut*** – turn the screw clockwise.
- ***Higher pressure to the cut*** – turn the screw contra-clockwise.

### 3.8.4. Speed adjustment of the arm lowering

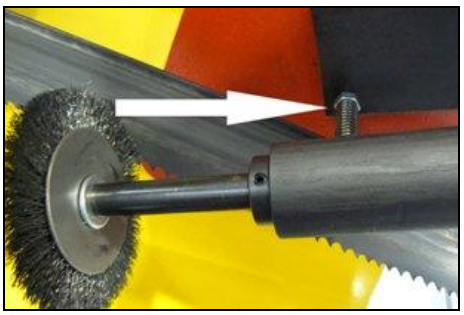
Speed of the arm lowering is adjusted by regulation valve on control panel

- 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.*

### 3.8.5. 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 the fixative screw of the brush. It is possible to move with the brush.
2. Set the brush to the saw band according to the picture.

***Attention!***
*The brush **must not** touch the bottom of the saw teeth!*

3. Tighten the fixative screw.
4. In case, that the brush is not turned right (driving wheel slips on the driving wheels of the saw band), push by means of the screw (see arrow) driving wheel of the brush to the driving wheel of the saw band.

***Attention!***
*The screw must not be tightened with heavy force, because driving wheel of the brush can be damaged or the lifetime of the bearings of the driving wheel of the band can be lowered!*

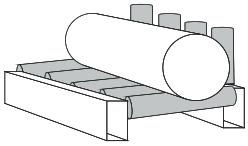
## 3.9. Material insertion

- 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!

### 3.9.1. Handling agent selection

- Use the strong handling agents to lift and transfer the material!
- Handle with the material only with the lift truck or use the suspension strands and the crane!
- Do not use the lift truck or crane in case that you do not have the license to handle with it!

### 3.9.2. Insertion



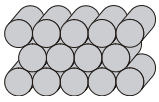
Insert material to the vice and ensure that the material cannot move in the vice or fall from the vice after the clamping. If you cut long pieces of the material (for example rod, tube), you must use the roller conveyors for material shifting to the band saw. Contact Bomar for more information about roller conveyors

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!

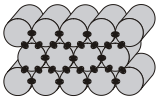
### 3.9.3. Bundle material cutting

***Attention:***
*Manual bundle clamping device is not standard equipment.*
*Without this device is a not possible cut bundle.*
***Attention!***
*If machine has bundle device then material maximal height is half.*



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.

Before welding always, switch the machine off at the main switch! The magnetic fields, which often occur during welding, may damage the controls!

***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.*

# 4. Machine service

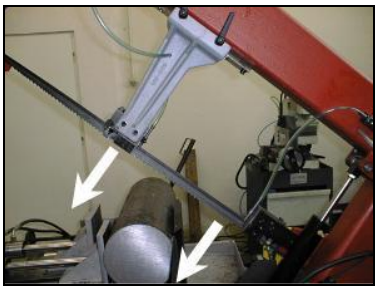
## 4.1. Saw band dismantling

During the dismantling, take care that you do not damage the limit switch if the saw band stretching.

1. Lift the saw frame to the top position. Stop the saw frame in top position by control valve.

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

3. Open the cover of the arm.
4. Turn by stretching star to the left side, release saw band stretching and pull saw band from blade wheels.

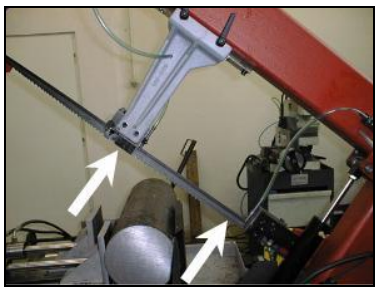


5. Pull up the saw band from the guiding cubes

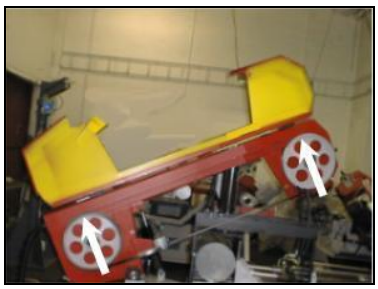
## 4.2. Saw band installation

During the installation, take care that you do not damage the limit switch if the saw band stretching!

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 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, you must turn the band round.



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## 4.3. 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.

### 4.3.1. Saw band stretching

1. The saw band must not fall from the wheels after setting.
2. Install the Tenzomat on the saw band and secure it with screws.

3. Stretch the saw band until it is stretched to the recommended value

## 4.4. 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.

### 4.4.1. Saw band run inspection

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

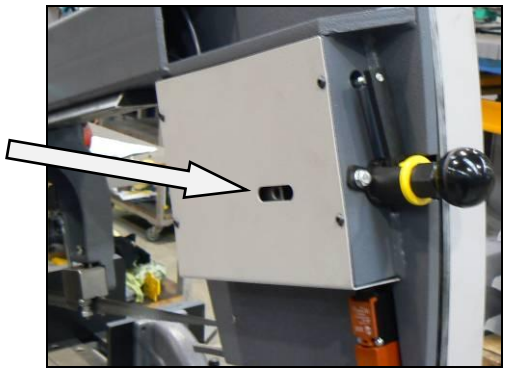
- **The saw band falls from the wheels** – The saw band and protective cover can be damaged.
- **The saw band runs on the wheel rim** – The saw band and wheel rim can be damaged

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.

### 4.4.2. 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 **0.039—0.118 in (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.

## 4.5. Saw frame lower stop position adjustment

The lower stop limits the lowest position of the saw frame. This stop point has to be checked at least once a month. If the lower stop point is incorrectly adjusted, the cutting table can be damaged or the material will not be cut completely

1. Lift the saw frame to the top position.
2. Release the nut of the screw and set it to the desired value.
3. Secure the screw with nut.
4. Set the limit switch of the saw frame lower position.

## 4.6. Limit switch of the saw frame lower position adjustment

If the lower stop of the saw frame was set, the limit switch must be set again.

### 4.6.1. 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.

### 4.6.2. 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.

## 4.7. Cooling agents and chips disposal

| The quality of the cooling agent will deteriorate due to: | If the solution is too weak: | If the solution is too strong: |
|---|---|---|
| • use of contaminated water<br>• impurity<br>• outside oil contamination (hydraulics, gears)<br>• high operating temperatures<br>• lack of air circulation<br>• wrong concentration | • corrosion protection is diminished<br>• lubrication decreases<br>• microbial attack is more likely | • the cooling ability is decreased<br>• foam behavior increases<br>• emulsions stability deteriorates<br>• sticky residue develops |

### 4.7.1. 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!***

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

**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<br>densimeter | too high<br>too low | refill water<br>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<br>chip test<br>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

### 4.7.2. 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.

## 4.8. Hydraulic, Greases and oils

### 4.8.1. 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.

***Attention:***
*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**

| Band saw | Gearbox oil | Capacity |
|---|---|---|
| Proline 520.450 Asx | Shell Tivela S 320 | 0.264 gal. / 1,0 l |
| Swarf conveyor | Shell Tivela S 320 | 0,02 gal. / 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<br>Alpha MW 100 | Alpha SP 220<br>Alpha MW 220 | |
| Elf | Reductelf SP 100 | Reductelf SP 220<br>Reductelf Synthese 220 | Reductelf SP 320 |
| Esso | Spartan EP 100 | Spartan EP 220 | Spartan EP 320 |
| Mobil | Mobilgear 627 | Mobilgear SHC 220<br>Mobilgear 630 | Mobilgear 632 |
| ÖMV | | PG 220 | |
| Paramo | PP 7 | Paramo CLP 220 | Paramo CLP 320 |
| Shell | Shell Omala 100 | Shell Omala 220<br>Shell Tivela S 220 | Shell Omala 320<br>Shell Tivela S 320 |
| Total | Carter EP 100 | Carter EP 220 | Carter EP 320 |

### 4.8.2. Lubricant greases

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

**Comparative table of the lubricant greases:**

| Manufacturer | Type of the lubricant grease |
|---|---|
| BP | Energrease LS - EP |
| DEA | Paragon EP1 |
| Esso | FETT EGL 3144 |
| | Beacon EP 1 |
| | Beacon EP 2 |



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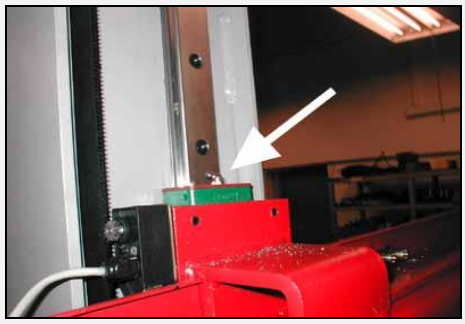
| Manufacturer | Type of the lubricant grease |
|---|---|
| FINA | FINA LICAL M12 |
| Klüber | Microlube GB0 |
| | Staburags NBU8EP |
| | Isoflex Spezial |
| Optimol | Optimol Longtime PD 0, PD1, PD2 |
| Shell Aseol AG | ASEOL Litea EP 806-077 |
| Texaco | Multifak EP1 |

### 4.8.3. Lubrication

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

| Lubrication place | Lubrication |
|---|---|
|  | 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. |

### 4.8.4. Hydraulic oils

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 4hy6 | 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 | | |

## 4.8.5. Hydraulic unit service

After 50 hours working time, or the latest 3 months after the first run, the first service should be carried out. This includes:

- checking off all screws and connections, fixing points, tubes and hoses for leakage
- Check hydraulic oil level
- During time of duty the oil temperature shouldn´t exceed 140—158°F (60-70°C)
- check function of signaling components (thermometer, level gauge, dirty filter indicator)
- Check the adjustment of working pressure


**To realize a high reliability of the power pack, the manufacturer lays down following inspection intervals**

| Interval | daily | weekly | monthly | three monthly | six monthly | annually |
|---|---|---|---|---|---|---|
| **Hydraulic fluid** | | | | | | |
| Level | - | • | - | - | - | - |
| Temperature | - | • | - | - | - | - |
| Condition | - | - | • | - | - | - |
| Change interval | - | - | - | - | - | • |



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| Interval | daily | weekly | monthly | three monthly | six monthly | annually |
|---|---|---|---|---|---|---|
| **Filter** | | | | | | |
| Change interval | - | - | - | - | - | - |
| **Other checks** | | | | | | |
| External Leakages | • | - | - | - | - | - |
| Contamination | • | - | - | - | - | - |
| Damages | • | • | - | - | - | - |
| Noise-(level) | • | - | - | - | - | - |
| Gauges | - | - | • | - | - | - |



## 4.9. 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 vice.
- The guiding of the feeder.
- Loading surface of the vice.

## 4.10. Worn pieces replacement

### 4.10.1. Hard metal guides replacement

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

1. Dismantle the saw band. Remove the hosepipe leading the cooling agent. Dismantle guide cube of the saw band.

2. Loosen the adjusting screws of the metal guide.

3. Loosen the binding screw of first metal guide. Remove adjustable hard metal guide.

4. Loosen the binding screw of second metal guide. Remove the hard metal guide
5. Insert new hard metal guides and fasten them tightly.
6. Mount the saw band. Adjust the hard metal guides.

### 4.10.2. Round brush replacement

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

1. Release the nut of the brush, exchange old brush to new brush and screw on the nut of the brush.
2. Set the brush to the saw band.

### 4.10.3. 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 pressure regulation. Let the 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.



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***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.

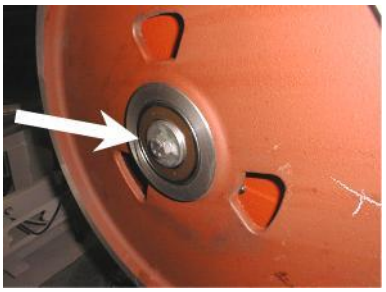
***ATTENTION!***
*Do not replace the eccentrics placing in the cube*

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

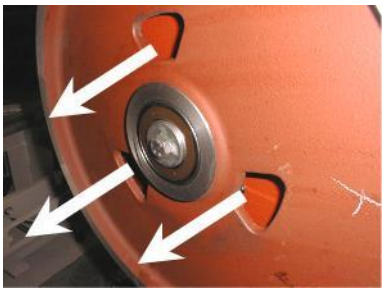
9. Insert the saw band to the guiding cube (ca. 15 – 20 cm). Set the eccentrics by means of the wrenches, the saw band must run in the centre. Guide pulleys must not press too much on the band, but must spin freely during the band run.
10. Tighten nuts on both eccentrics.
11. Remove the testing piece of saw band from the cube lead. Install the guiding cube on the machine and connect the pressure regulation to the cut and cooling. Install the saw band.

### 4.10.4. Stretching wheel replacement

1. Dismantle the saw band.

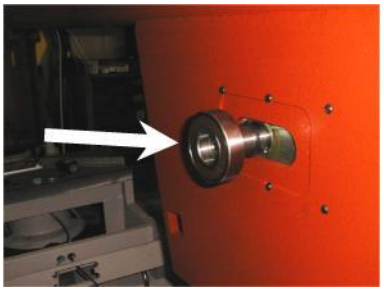


2. Screw off the screw and take down the washer.



3. Pull off the wheel from the shaft by means of the three-armed puller. If bearing stayed on the shaft, pull off 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.

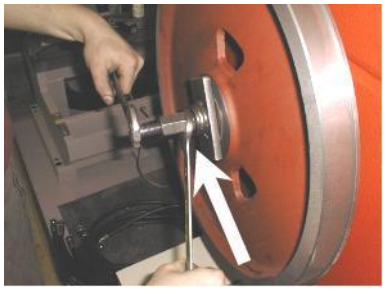


6. Install bearing on the shaft and move it to the retaining ring. Insert the distance ring on the shaft and move it to the bearing.

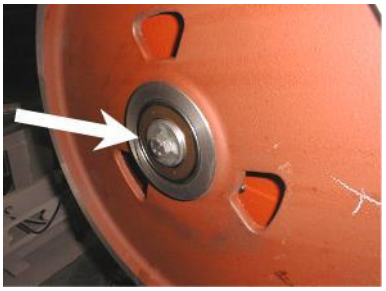
7. Insert the retaining ring to the hole in the wheel.

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 on the wheel on the shaft.

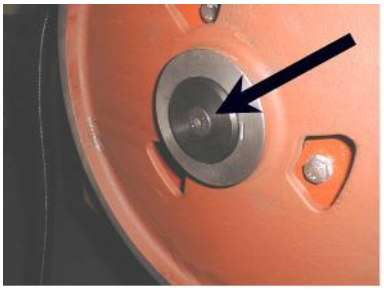


11. Screw on washer and screw back..

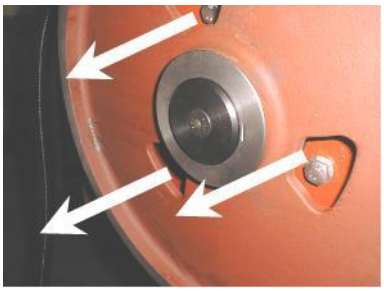
12. Install the saw band. Wheel replacement is ready.

### 4.10.5. Driving wheel replacement

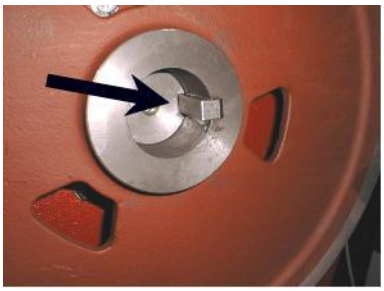
1. Dismantle the saw band



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.



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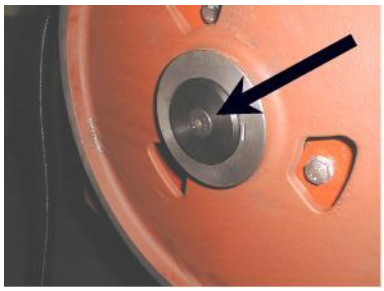
5. Screw on the preparation to the wheel stretching to the hole in the shaft. Pull on the wheel on the shaft.



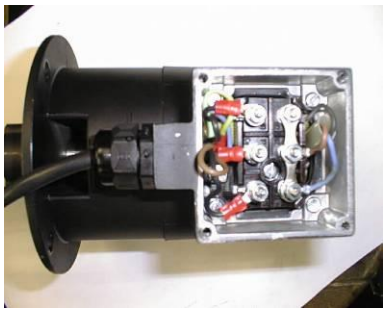
6. Screw on washer and screw back.
7. Install the saw band. Wheel replacement is ready.

### 4.10.6. Cooling pump replacement

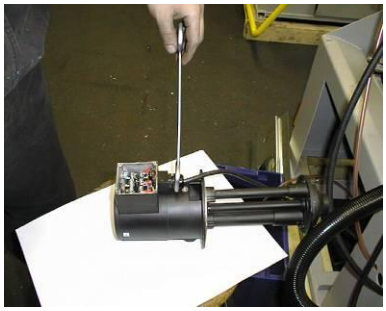
**Only a qualified worker can carry out the connection!**

**High-voltage shock may have fatal results**

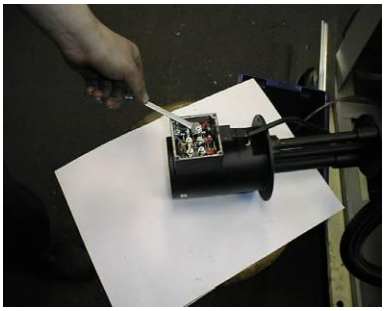
1. Pull the tank with the liquid from the pedestal..
2. Remove the hosepipe leading to the cooling agent from the plug on the pump. Screw off four screws from the cooling pump flange and pull out the pump from the sheet metal holder.



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.

# 5. Troubleshooting

## 5.1. Mechanical problems

| Problem | Possible causes | Repair |
|---|---|---|
| 1. Slanting cut | - Wrongly adjusted hard metal guides. | Set according to the chapter „Servicing and adjustment“ |
| | - Worn hard metal guides. | Replace to the chapter „Worn pieces replacement“ |
| | - Wrongly adjusted cubes of the saw band guiding. | Set according to the chapter „Servicing and adjustment“ |
| | - Worn bearings of the saw band guiding. | Replace according to the chapter „Worn pieces replacement“ |
| | - Wrongly adjusted swarf brush. | Set according to the chapter „Servicing and adjustment“ |
| | - Worn swarf brush. | Replace according to the chapter „Worn pieces replacement“ |
| | - Insufficient saw band stretching. | Rise the saw band stretching and set the limit switch. |
| | - Wrongly chosen tooth system of the saw band. | Replace the saw band and keep the instructions of manufacturer on new saw band choice. |
| | - Worn saw band. | Replace the saw band. |
| | - Wrongly balanced roller conveyor. | Set the roller conveyor. |
| | - Dirty feeding board. | Cleanse the feeding board from debris, chip and residue material. |
| | - Guiding arm and guiding cube are loosened. | Clamp the guiding arm. |
| | - Guiding arm and cube are too far from the material. | Set the guiding cube to the material. |
| | - Too fast cutting rate. | Lower the material feeding speed. |
| | - Unexpected oscillation in material quality. | Set the cut and feeding speed to the relevant material. |
| 2. The cut is not cut upon desired angle | - Securing lever is loosened. | Check the securing lever efficiency and carry out its adjustment according to chapter „Servicing and adjustment“. |
| | - Set angle does not match the cut angle. | Check the angle adjustment with a protractor and possibly set it according to chapter „Servicing and adjustment“. |
| | - Insufficient saw band stretching. | Stretch the saw band and set the limit switch according to chapter „Servicing and adjustment“. |
| | - Guiding arm and guiding cube are loosened. | Fasten the guiding arm and the cube. |
| | - Dirt between material and clamping jaw. | Cleanse the material and mating jaw. |
| 3. Short lifetime of the saw band | - Insufficient saw band stretching. | Raise the tightening of the saw band set the scanner of saw band tightening according to chapter „Servicing and adjustment“. |
| | - Worn swarf brush. | 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“ |



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| Problem | Possible causes | Repair |
|---|---|---|
| | - Worn hard metal guides of the saw band. | Check the condition of the hard metal guide and if it is too worn, replace hard metal guides according to chapter „Worn pieces replacement“ |
| | - Worn saw band guide bearings. | Check guiding bearings and if you notice some sort of excessive damage, replace them according to chapter„Worn pieces replacement“ |
| | - Wrongly adjusted guiding cubes of the saw band. | Set guiding cube according to chapter „Servicing and adjustment“ |
| | - Wrongly adjusted down feed and saw band speed. | Adjust the feeding and speed of a saw band according to values published by saw band manufacturer. |
| | - Different material quality. | Adjust feeding and speed of a saw band according to desired material (try cut-test). |
| | - Low-class saw band | Replace the saw band (contact your local accessory supplier for more information) |
| | - Wrongly chosen saw band tooth system. | Replace the saw band and keep instructions of the manufacturer on the choice. |
| | - Wrongly adjusted tracking. | Check the space between top of a saw band and driving wheel. Perhaps adjust the tracking as described in chapter „Servicing and adjustment“ |
| 4. Insufficient cut output. | - Worn saw band. | Replace the saw band and keep instructions of the manufacturer on the choice. |
| | - Wrong saw band tooth system. | Replace the saw band and keep instructions of the manufacturer on the choice. |
| | - Wrongly set down feed and speed of a saw band. | Set feed and speed of a saw band according to values published by saw band manufacturer. |
| 5. The cut is not finished. | - Wrongly adjusted lower stop point of the saw frame. | Check lower limit switch and screw. |
| | - Stop point surface is messed-up. | Cleanse stop point surface of the limit switch from debris and residue material. |
| 6. By choke is not possible turn | - Metal clamps between valve and panel. | Clamps must be removed and put on the shaft O-Ring about 10x2 mm. |
| | - Metal clams are in body of valve. | Valve must be cleared or changed. |
| 7. Saw band drive cannot be started. | - 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. |
| 8. The saw bands are cracked. | - In stretching wheel is wrong adjusting geometry. | Adjust distance band from recess wheel c.2 mm according to operating instructions. |
| | - Hard metal plates of circuit saw band are not adjusting. | Hard metal plates of circuit saw band must be adjusting according to operating instructions. |
| | - Guiding cubes are not adjusting (bearings + hard metal circuit) | Guiding cubes must be adjusting (bearings + hard metal circuit) according to operating instructions. |
| | - Bearings of guiding cubes are used (rolling elements are damaged or outside ring of bearing has conical form). | Bearings of guiding cubes must be replaced. Bearings must be adjusting according to operating instructions. |
| 9. Damage tooth system of the saw band | - In gripping the lifting cylinder is backlash. | |
| | - Squeezed pin upper or downer holder of the lifting cylinder. | Exchange complete upper or downer holder of lifting cylinder. |
| 10. The saw is cut downing. | - Geometry of hardmetal guiding cubes is wrong adjusted. | Hardmetal guiding cubes must be adjusted. |
| | - Bearings of guiding cubes are used. | Bearings of guiding cubes must be replaced. |
| 11. Cleansing of the saw band | - Elastic wheel of the brush drive is worn-down. | Elastic wheel of the brush must be changed. |

| Problem | Possible causes | Repair |
|---|---|---|
| is not functional. | | |
| | - Knurling of the driving wheel is worn-down. | Driving wheel must be changed. |
| | - The shaft of the brush drive is rusted. | The shaft of the brush must be cleaned and oiled. |
| | - The brush position and the brush cover is adjusted wrong – with the brush cannot be turned. | The brush cover must be posed, in order to the brush can be turned. |
| 12. The saw arm periodically rise and fall during the cut; this cause short lifetime of the saw band. | - Backslash in driving wheel lodgement on the shaft. | Change the driving shaft for a long one, new bearings, distance ring, new driving wheel, spring, two covers on the forehead of the shaft + screws. |
| | - Worn channel for spring. | |

## 5.2. Electric and hydraulic problems

| Problem | Possible causes | Repair |
|---|---|---|
| 1. Machine is not possible start. | - In socket is not voltage | Line voltage must be checked. |
| | - Transfer relay is closed (thermal protector) | Each FA relay must be checked. |
| | - Limit switch of saw band stretching, cover of frame or cover of saw band is not started. | Check of saw band stretching and covers closing. |
| 2. When cut is finished, the frame is not raising. | - Bottom limit switch is adjusted wrong. | Bottom limit switch must be adjusted according to chapter ADJUSTING. |
| | - In hydraulic (pneumatic) ring is error. HYTOS (BOSCH) is not acting to frame uplift. | Function of magnetic valve must be checked, valve must be closed, voltage of clamps and inductor must be checked. |
| 3. Electric motor and pump are without voltage. Between contactor and thermal protector is not voltage. | - Wrong contactor. | Replace contactor of engine. |
| 4. The indicator of speed saw band is not functional. | - Sensor of speed is not adjusted. | Sensor of speed must be adjusted. |
| | - Defective display | The display must be changed. |
| | - Wrong sensor – diode of indicator speed is not light. | Sensor must be changed and adjusted. |
| 5. Protector is switched off from engine hydraulic aggregate MA3 sometimes. | - Into hydraulic system is high working pressure. | Service engineer must reduce the pressure in hydraulic system. |
| 6. The hydraulic aggregate cannot be started | Auxiliary contact on thermo-relay FA1 is defective. | Replace the defective contact on motor starter FA1. |
| 7. Hydraulic aggregate is switched on but the saw arm or the main vice is not functional | - Wrong connection of electrical supply. The electrical phases are connected conversely. | The phases must be switched. Only service engineer can do this. |
| 8. Cooling is not active | Lack of cooling agent. | Fill the tank with cooling agent. |

| Problem | Possible causes | Repair |
|---|---|---|
| | - Thermal relay is defective | Change the thermal relay |
| | - Input hosepipe is broken or obstructed. | Check the cooling circuit and perhaps cleanse cooling system. |
| | - Cooling pump protection is defective | Check the protection of cooling pump if need change it. |
| | - Cooling pump is defective. | Replace the cooling pump. |



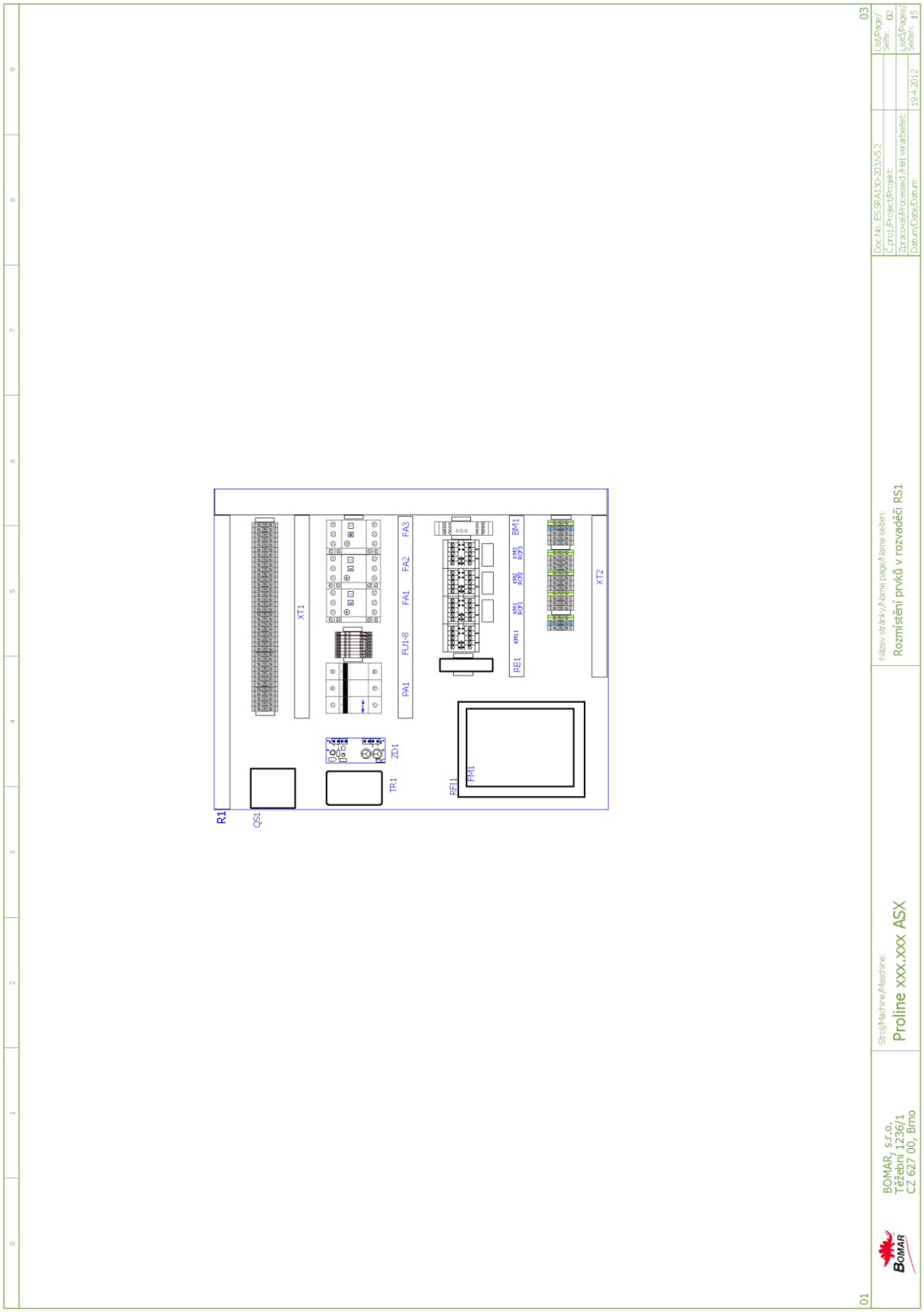
## 5.3. Hydraulic problems

| Problem | Possible causes | Repair |
|---|---|---|
| 9. Hydrogenerator not supplying oil | • reverse rotation | Check the connections of each phase. Reconnect properly connection of the electrical phases. |
| | • shortage of oil in the tank | Add hydraulic oil |
| | • Oil viscosity does not correspond prescribed viscosity value | Change hydraulic oil. |
| | • Hydrogenerator malfunction | Call service |
| | • Wrong power supply connection. | Check the connections of each phase. Reconnect properly connection of the electrical phases. |
| 10. Hydraulic oil contains bubbles | • Hydraulic circuit is not adequately deaerated | Make deaeration of hydraulic circuit. |
| | • Low oil level | Add hydraulic oil |
| | • the pump shaft seals damaged | Call service |
| 11. Increased mechanical noise | • damaged joint drive | Call service |
| | • damaged or destroyed motor bearings | Call service |
| | • air intake | Check for leaks. |
| 12. Low pressure, pump supplies oil | • problem in the safety valve | Wrong settings. Check the settings and adjust the safety valve. |
| | • pump wear | Call service |
| | • external or internal leakage | Call service |
| 13. Hydrogenerator is seized | • damage by solid particles in oil | Make oil filtration, or call the service. |
| | • non-prescribed oil | Change hydraulic oil. |
| | • wrong type of oil | Change hydraulic oil. |
| | • exceeding the life of the pump | Call service |

| | | | |
|---|---|---|---|
| 14. Overheating oil | • | cooler malfunction | Check the cooler function or call service. |
| | • | wear the pump, the energy is converted into heat | Call service |
| 15. Hydraulic valve can not be readjusted | • | electromagnet has no signal (voltage) - interrupted supply lines | Check again. |
| | • | Electromagnet coil burnt | Replace coil – Call service. |
| | • | spool valve sticking | Replace valve – Call service |

# 6. Diagrams

## 6.1. Wiring diagrams – 3×230 V, TN-C



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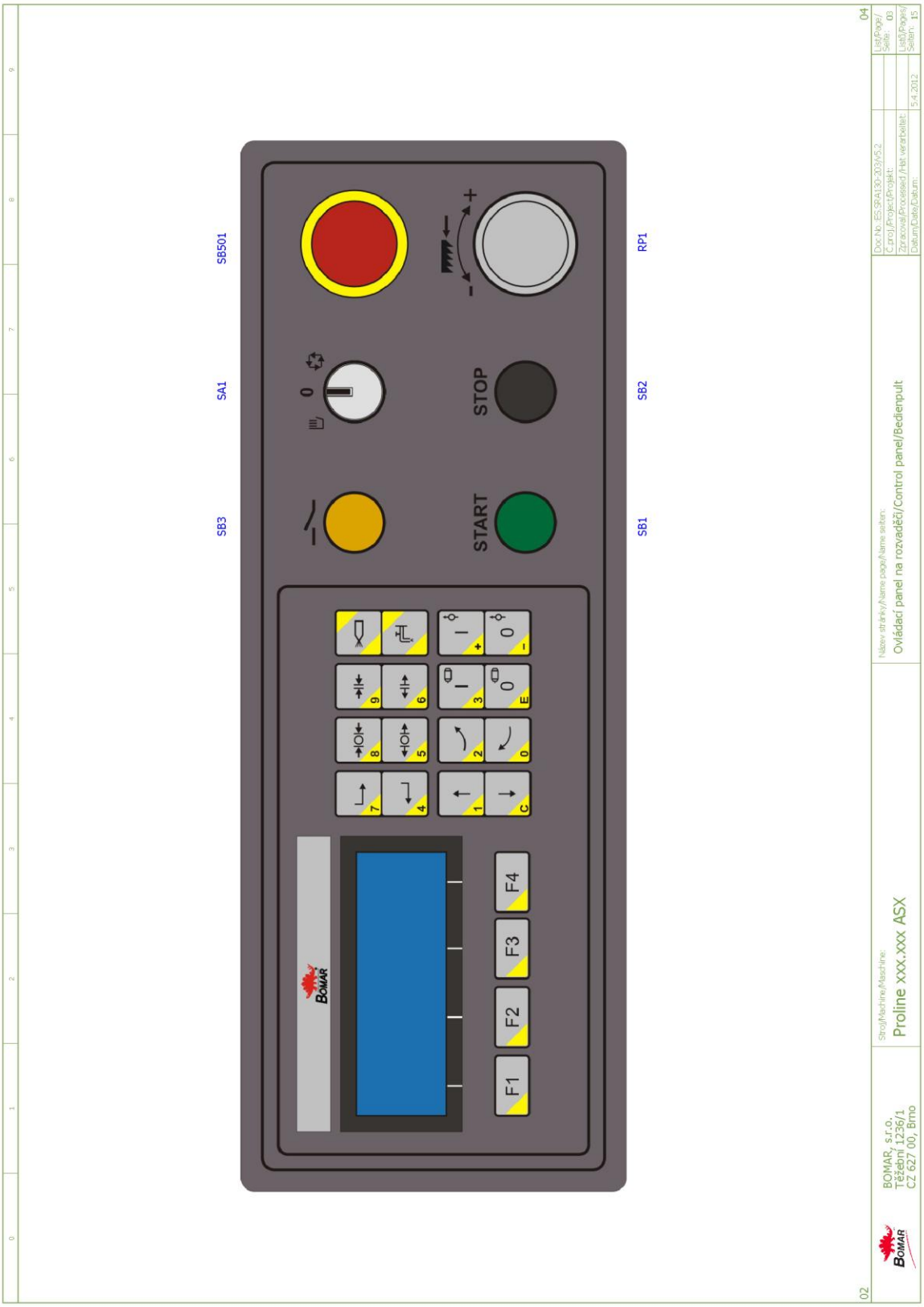
SB501
SA1
SB3
RP1
SB2
SB1
STOP
START
F1
F2
F3
F4
BOMAR, s.r.o.
Třešňová 1236/1
CZ 627 00, Brno
Stroj/Machine/Maschine:
Proline xxx.xxx ASX
Název stránky/Name page/Name seiten:
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Doc No.: ES.SPA130-2024/5.2
Číslo/Project/Projekt:
Zpracoval/Processed/Hat verarbeitet:
Datum/Date/Datum:
5.4.2012
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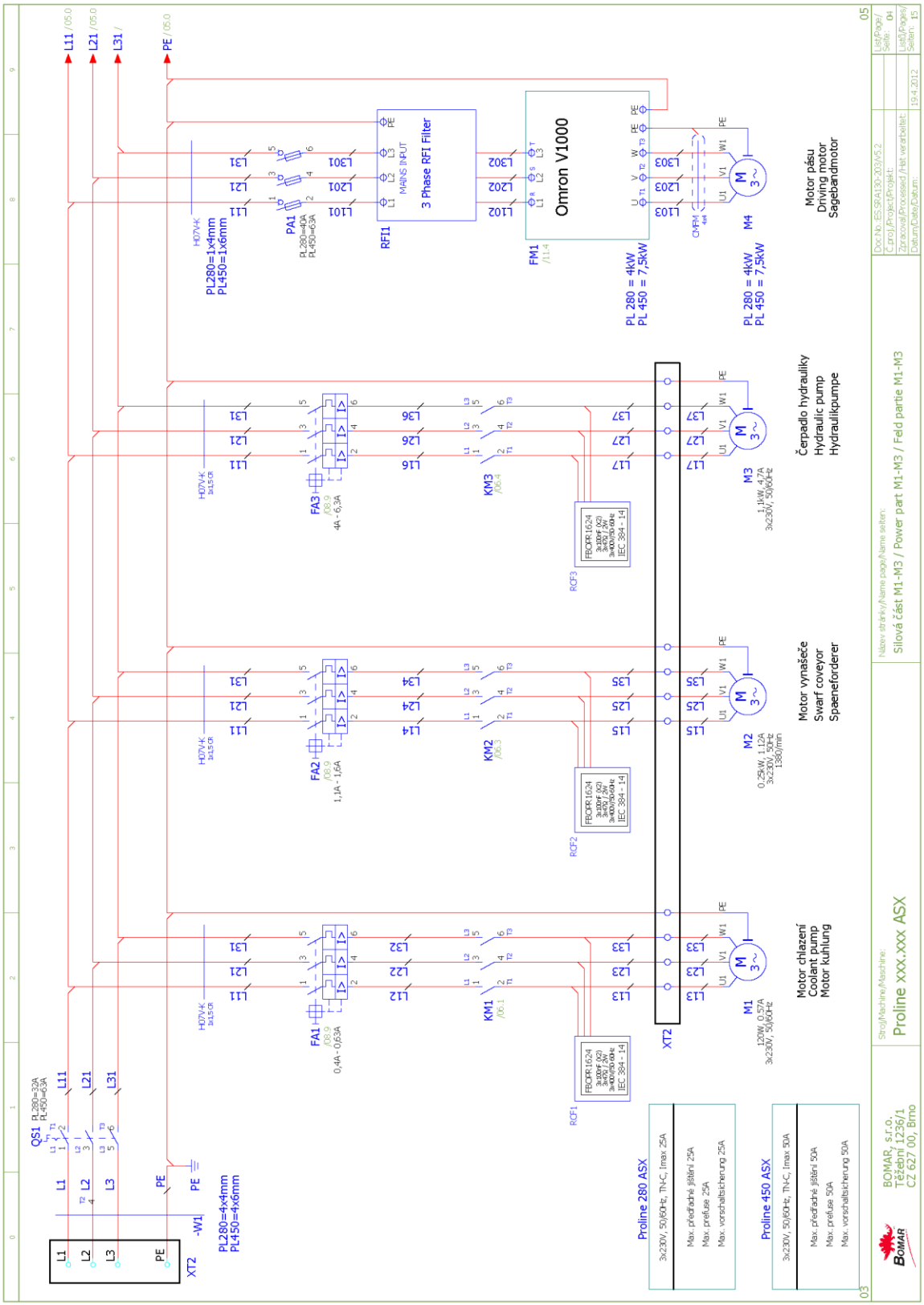
List/Pages/Seiten: 15
04
02



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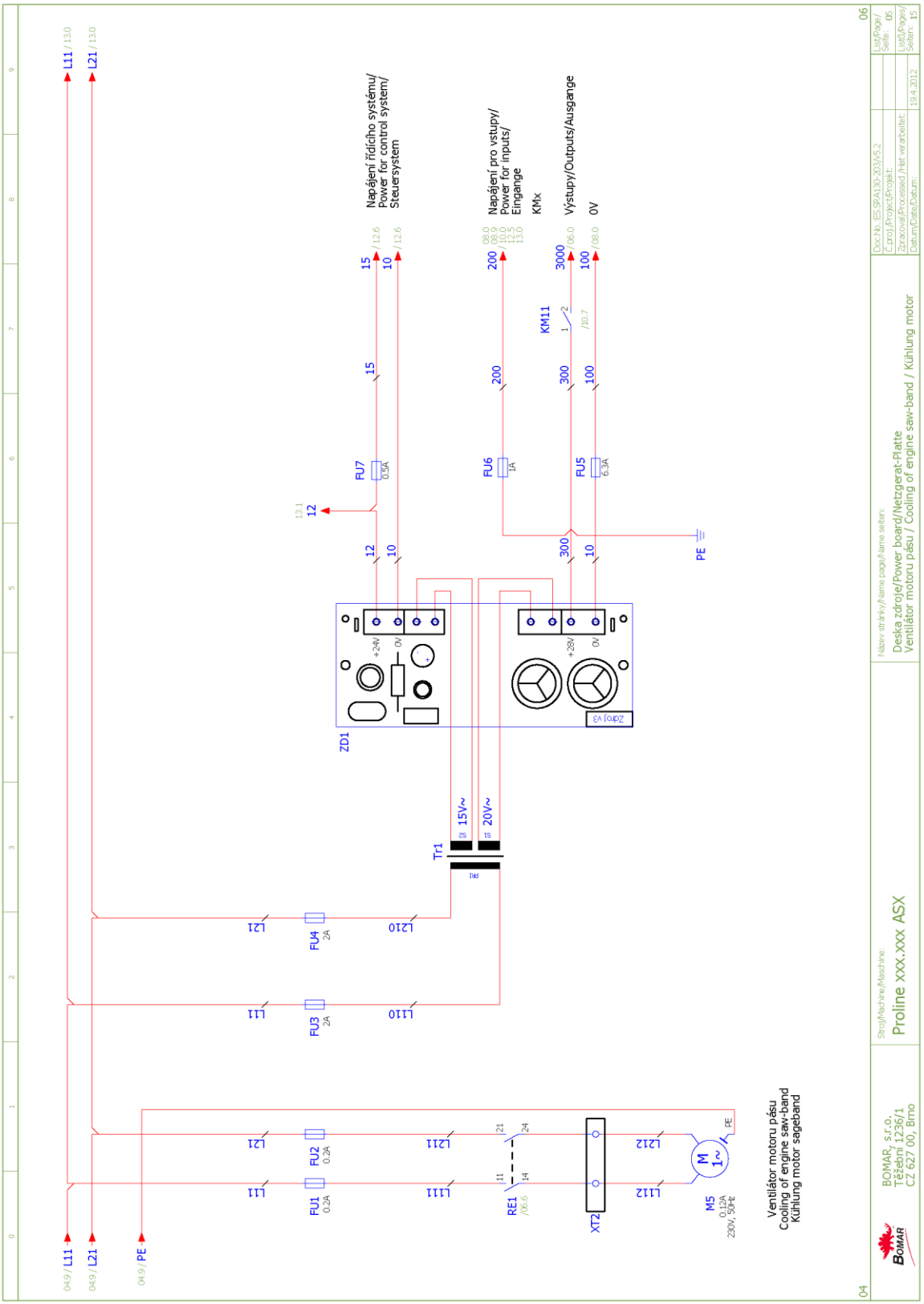
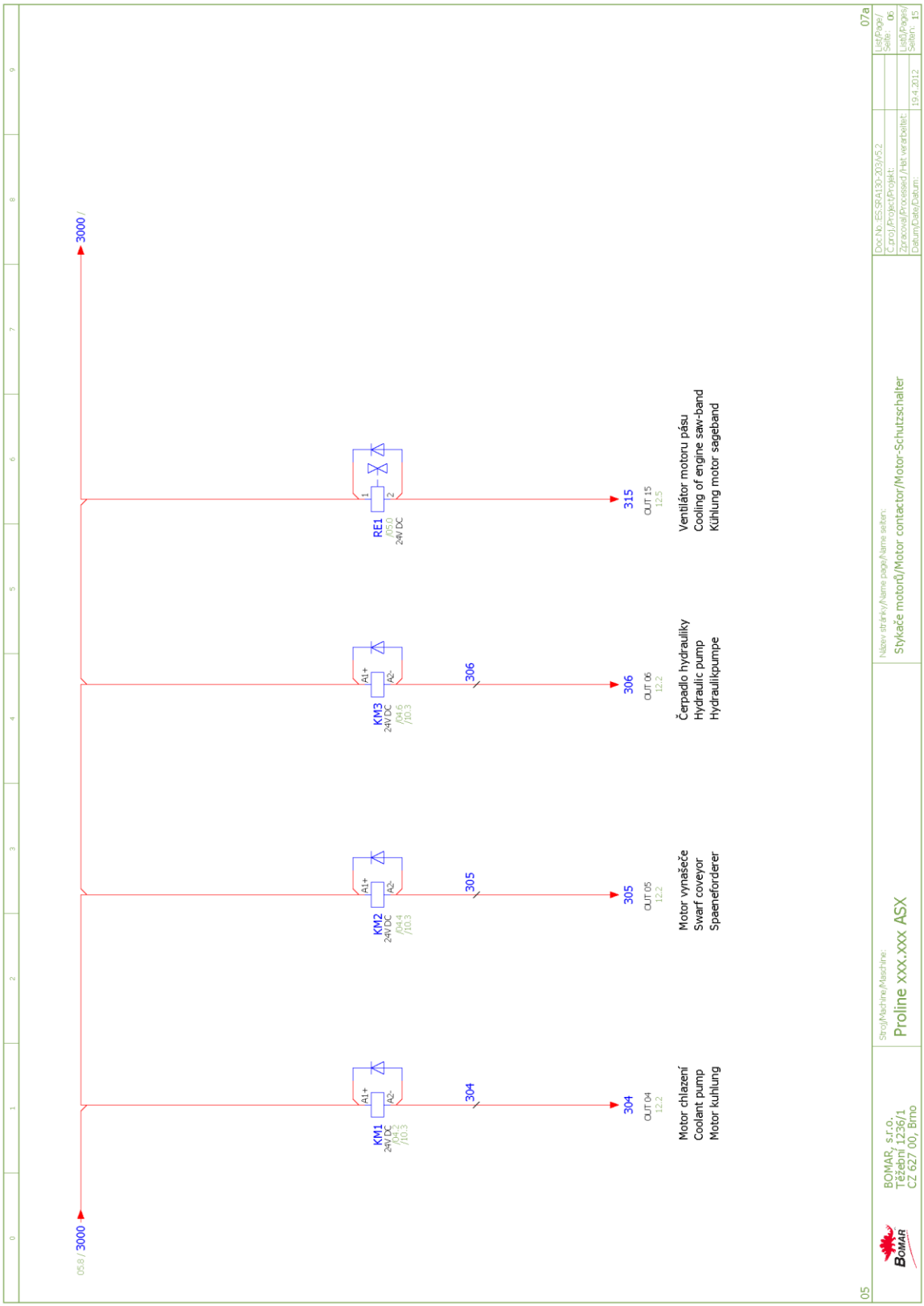

L11 / 13.0
L21 / 13.0
Napájení řídícího systému/
Power for control system/
Steuersystem
Napájení pro vstupy/
Power for inputs/
Eingange
KMx
Výstupy/Outputs/Ausgange
0V
FU7 0.5A
FU6 1A
FU5 6.3A
KM11
ZD1
Tr1
15V~
20V~
PE
FU4 2A
FU3 2A
FU2 0.2A
FU1 0.2A
RE1
XT2
M5 0.12A 230V, 50Hz
Ventilátor motoru pásu
Cooling of engine saw-band
Kühlung motor sageband
BOMAR, s.r.o.
Těžební 1236/1
CZ 627 00, Brno
Stroj/Machine/Maschine:
Proline xxx.xxx ASX
Deska zdroje/Power board/Netzgerat-Platte
Ventilátor motoru pásu / Cooling of engine saw-band / Kühlung motor
19.4.2012


3000 /
05.8 / 3000
KM1
24V DC
/04.2
/10.3
KM2
24V DC
/04.4
/10.3
KM3
24V DC
/04.6
/10.3
RE1
/05.0
24V DC
A1+
A2-
1
2
304
305
306
315
OUT 04
OUT 05
OUT 06
OUT 15
12.2
12.5
Motor chlazení
Coolant pump
Motor kuhlung
Motor vynašeče
Swarf coveyor
Spaneförderer
Čerpadlo hydrauliky
Hydraulic pump
Hydraulikpumpe
Ventilátor motoru pásu
Cooling of engine saw-band
Kühlung motor sageband
BOMAR, s.r.o.
Těžební 1236/1
CZ 627 00, Brno
Stroj/Machine/Maschine:
Proline xxx.xxx ASX
Název stránky/Name page/Name seiten:
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Zpracoval/Processed/Het verarbeitet:
Datum/Date/Datum:
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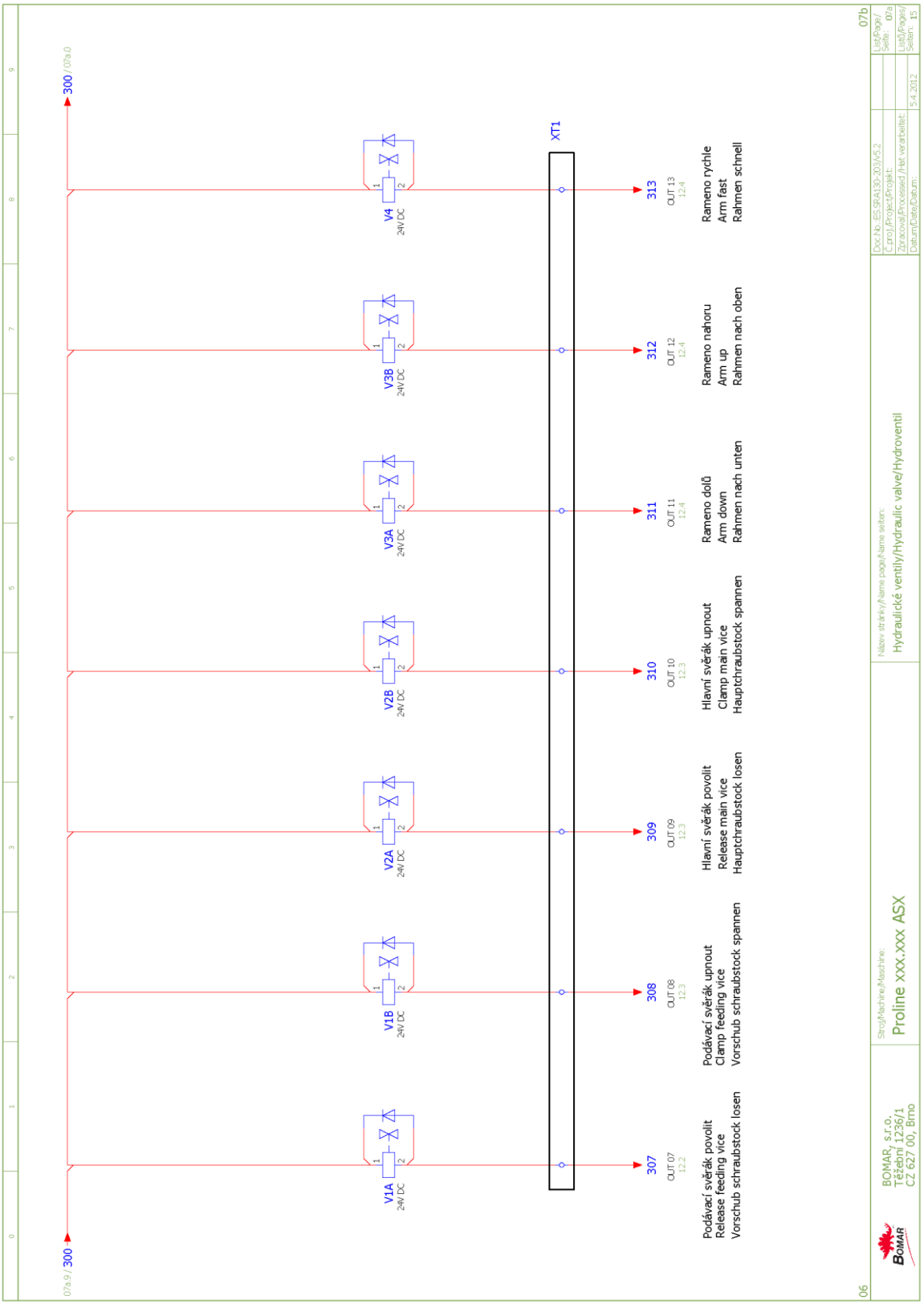
07a
05


07a.9 / 300
300 / 07a.0
V1A 24V DC
V1B 24V DC
V2A 24V DC
V2B 24V DC
V3A 24V DC
V3B 24V DC
V4 24V DC
XT1
307 OUT 07 12.2
308 OUT 08 12.3
309 OUT 09 12.3
310 OUT 10 12.3
311 OUT 11 12.4
312 OUT 12 12.4
313 OUT 13 12.4
Podávací svěrák povolit
Release feeding vice
Vorschub schraubstock losen
Podávací svěrák upnout
Clamp feeding vice
Vorschub schraubstock spannen
Hlavní svěrák povolit
Release main vice
Hauptschraubstock losen
Hlavní svěrák upnout
Clamp main vice
Hauptschraubstock spannen
Rameno dolů
Arm down
Rahmen nach unten
Rameno nahoru
Arm up
Rahmen nach oben
Rameno rychle
Arm fast
Rahmen schnell
BOMAR, s.r.o.
Těžební 1236/1
CZ 627 00, Brno
Stroj/Machine/Maschine:
Proline xxx.xxx ASX
Název stránky/Name page/Name seiten:
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Čísl./Projekt/Projekt:
Zpracoval/Processed/Het verarbeitet:
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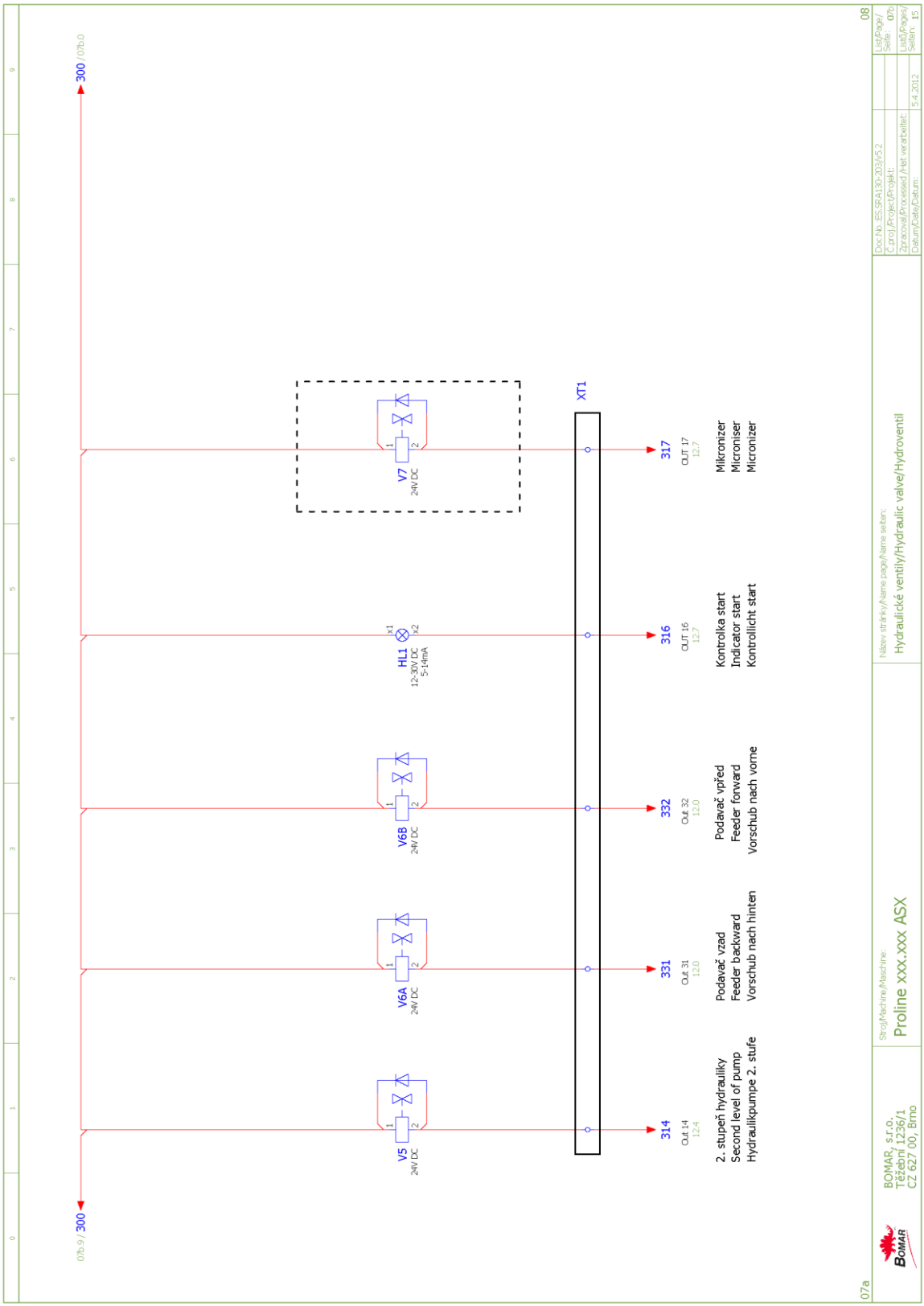




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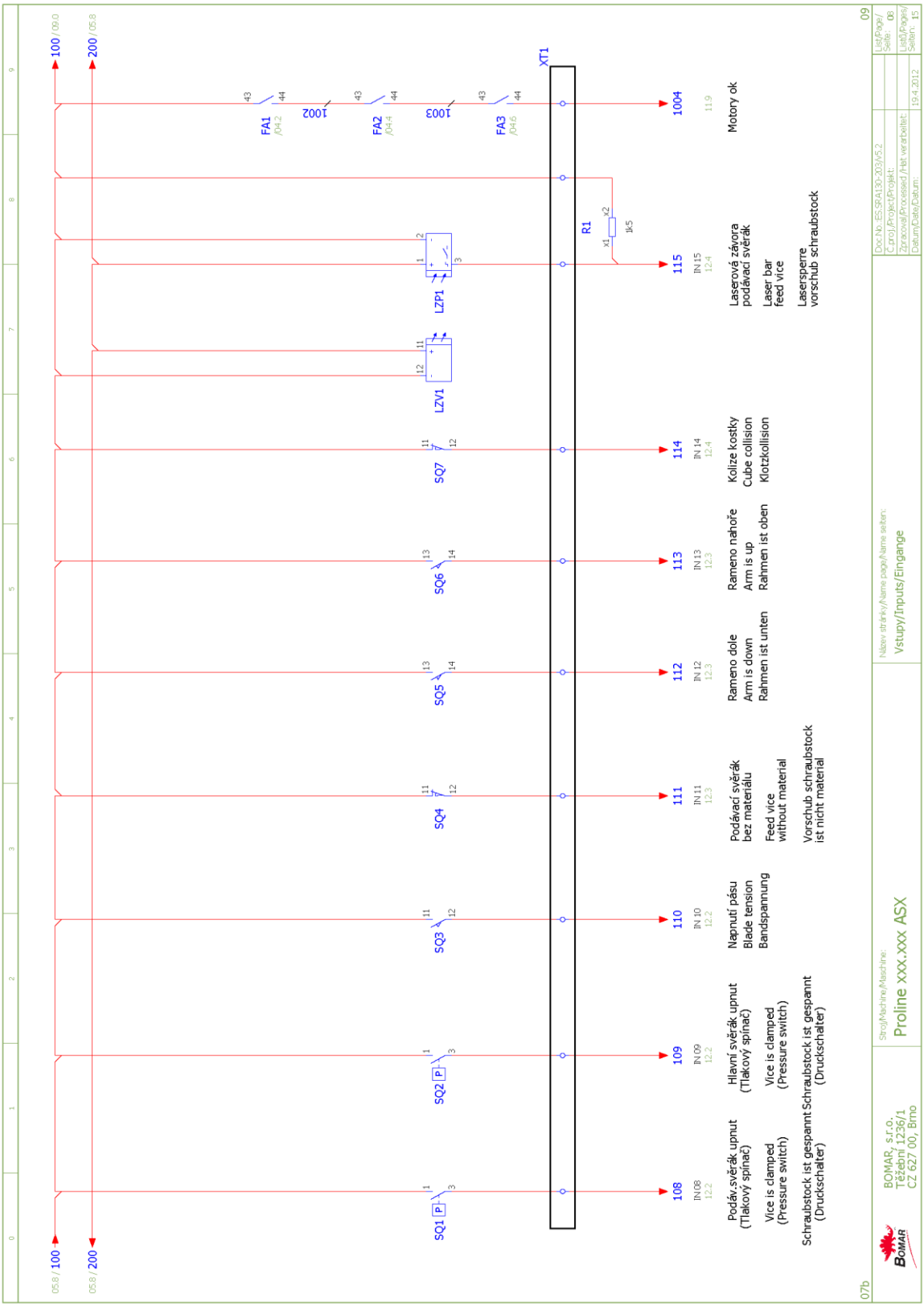
100 / 09.0
200 / 05.8
05.8 / 100
05.8 / 200
SQ1
SQ2
SQ3
SQ4
SQ5
SQ6
SQ7
LZV1
LZP1
R1
1K5
XT1
FA1 /04.2
FA2 /04.4
FA3 /04.6
1002
1003
108
109
110
111
112
113
114
115
1004
Podáv.svěrák upnut (Tlakový spínač)
Vice is clamped (Pressure switch)
Schraubstock ist gespannt (Druckschalter)
Hlavní svěrák upnut (Tlakový spínač)
Napnutí pásu Blade tension Bandspannung
Podávací svěrák bez materiálu
Feed vice without material
Vorschub schraubstock ist nicht material
Rameno dole Arm is down Rahmen ist unten
Rameno nahoře Arm is up Rahmen ist oben
Kolize kostky Cube collision Klotzkollision
Laserová závora podávací svěrák
Laser bar feed vice
Laersperre vorschub schraubstock
Motory ok
BOMAR, s.r.o.
Třebíčská 1236/1
CZ 627 00, Brno
Stroj/Machine/Maschine:
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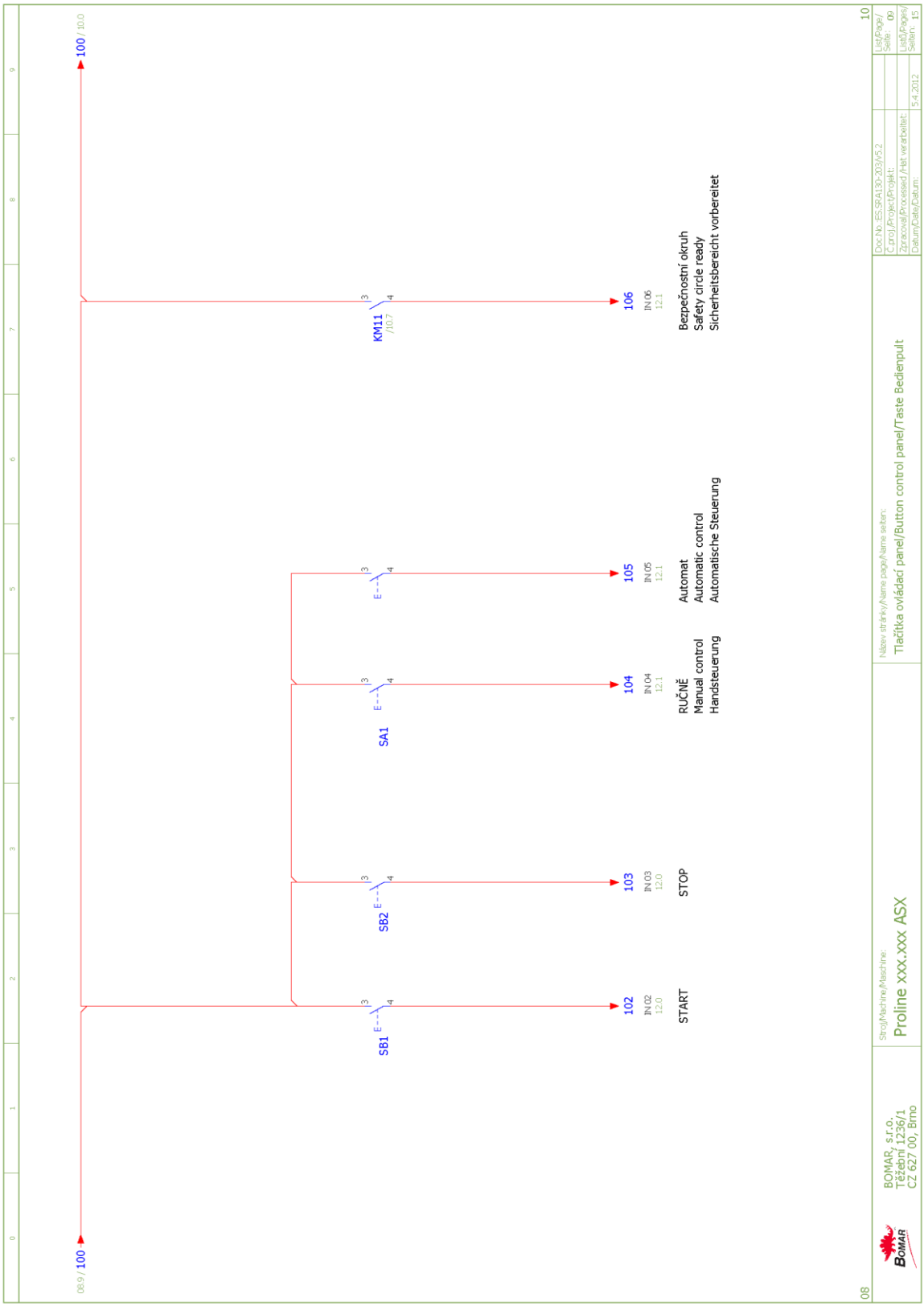
Název stránky/Name page/Name seiten:
Vstupy/Inputs/Eingange
07b
09



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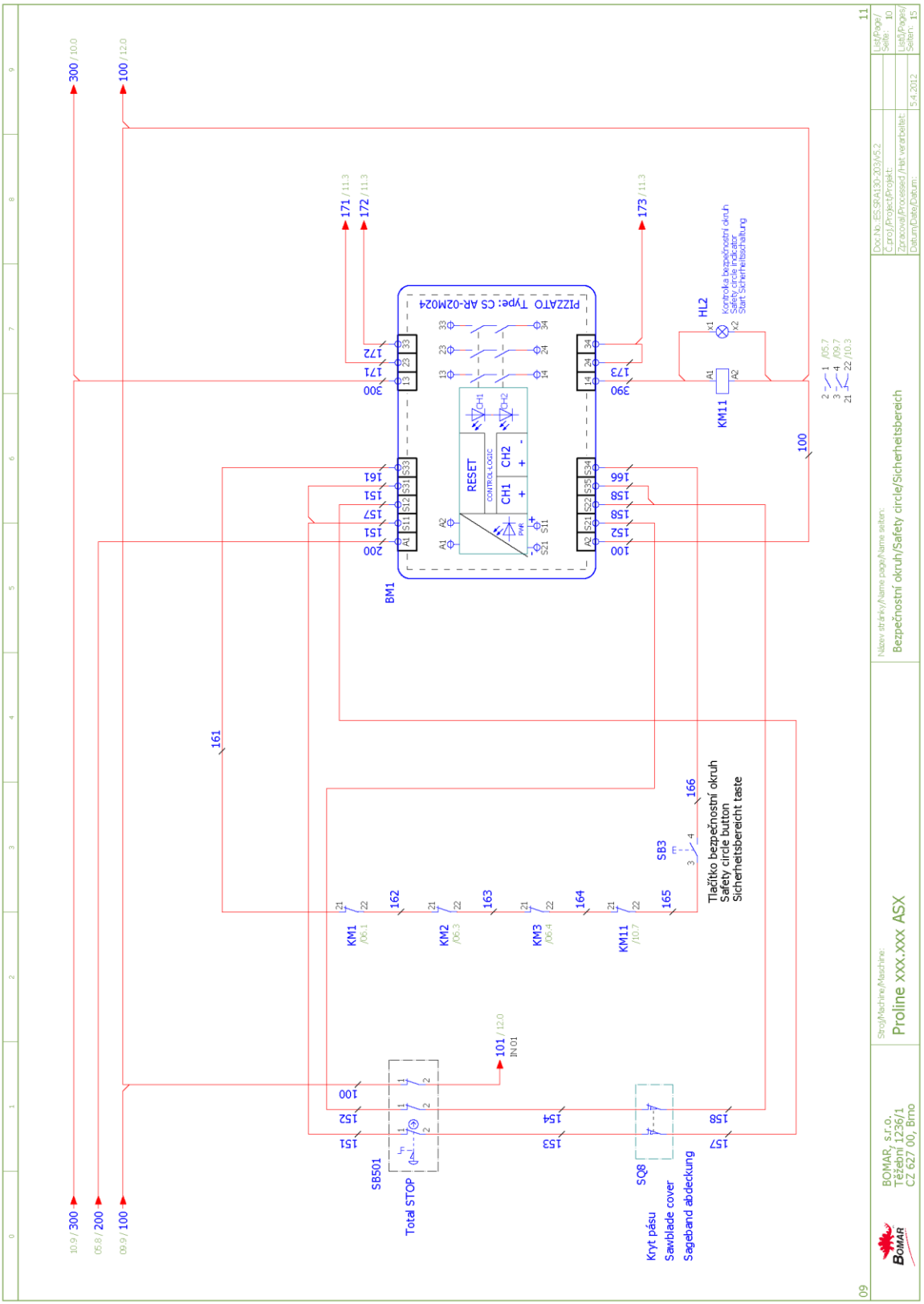
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Datum/Date/Datum:
5.4.2012
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CH1
CH2
BM1
HL2
Kontrolka bezpečnostní okruh
Safety circle indicator
Start Sicherheitsschaltung
KM11
KM1
KM2
KM3
SB3
Tlačítko bezpečnostní okruh
Safety circle button
Sicherheitsbereicht taste
SB501
Total STOP
SQ8
Kryt pásu
Sawblade cover
Sageband abdeckung
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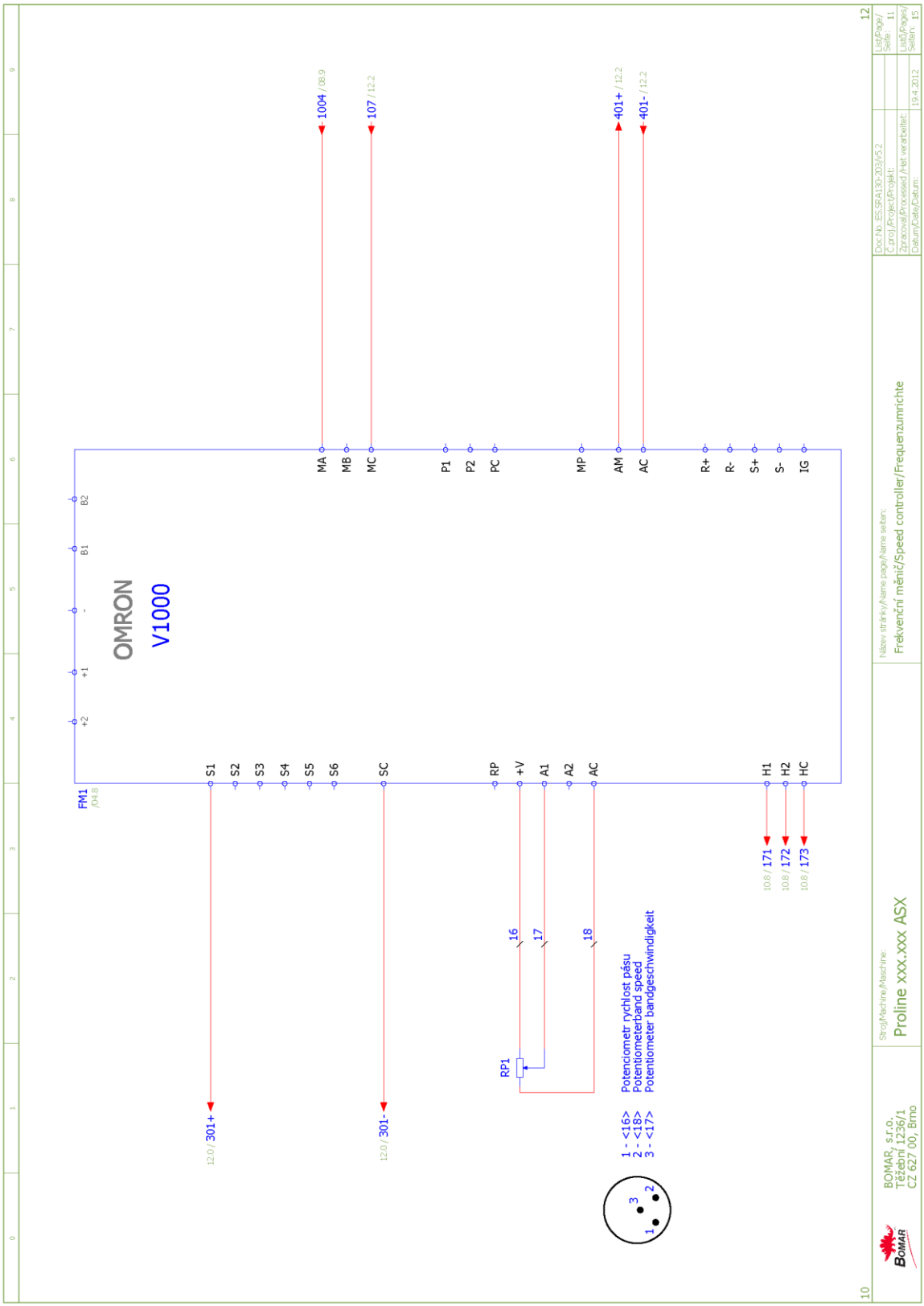
300 / 10.0
100 / 12.0
200 / 05.8
100 / 09.9
171 / 11.3
172 / 11.3
173 / 11.3



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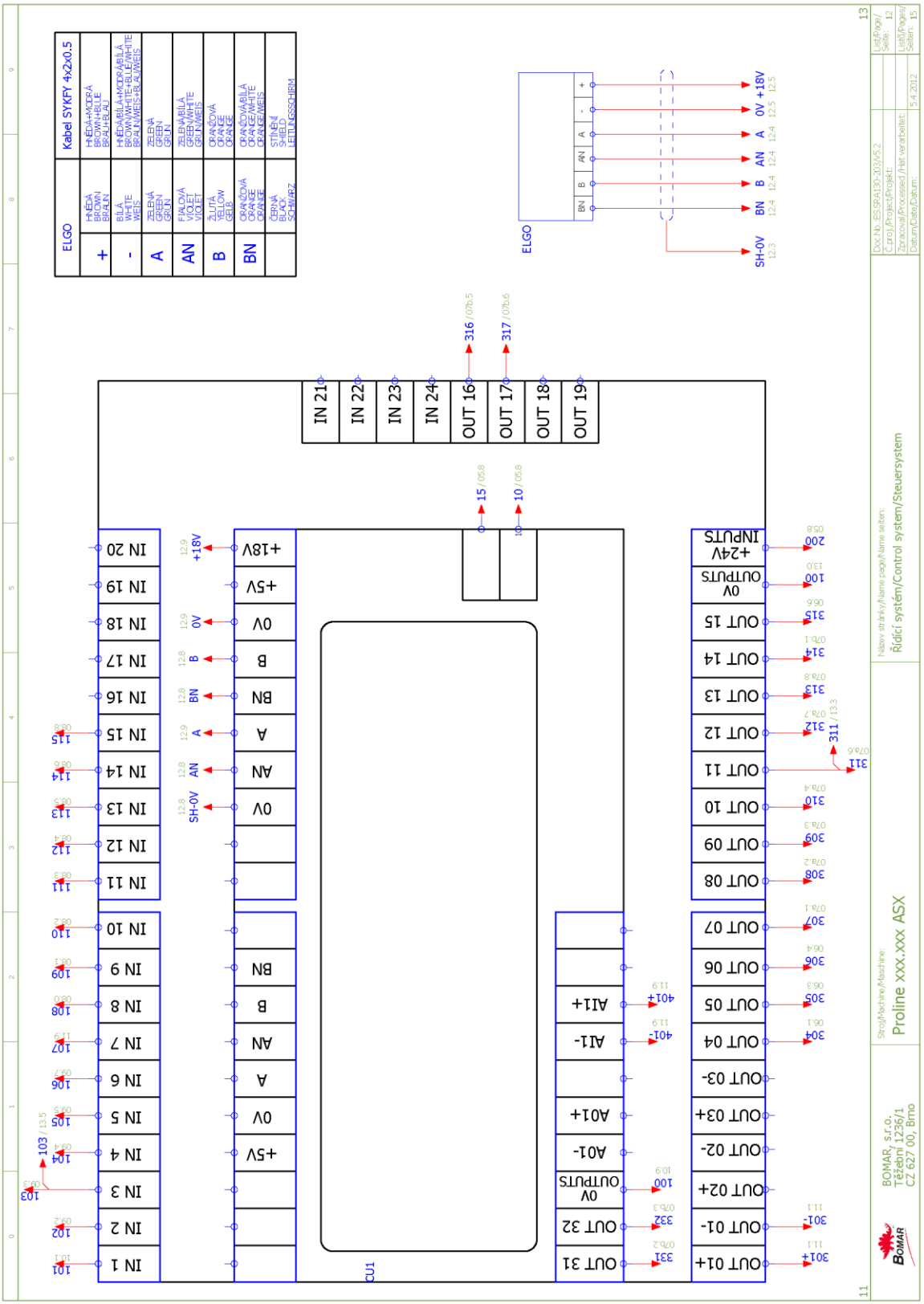
ELGO
Kabel SYKFY 4x2x0.5
+
HNĚDÁ
BROWN
BRAUN
HNĚDÁ+MODRÁ
BROWN+BLUE
BRAUN+BLAU
-
BÍLÁ
WHITE
WEISS
HNĚDÁ+BÍLÁ+MODRÁ+BÍLÁ
BROWN/WHITE+BLUE/WHITE
BRAUN/WEISS+BLAU/WEISS
A
ZELENÁ
GREEN
GRÜN
ZELENÁ+BÍLÁ
GREEN/WHITE
GRÜN/WEISS
AN
FIALOVÁ
VIOLET
VIOLET
B
ŽLUTÁ
YELLOW
GELB
ORANŽOVÁ
ORANGE
ORANGE
BN
ORANŽOVÁ+BÍLÁ
ORANGE/WHITE
ORANGE/WEISS
ČERNÁ
BLACK
SCHWARZ
STÍNĚNÍ
SHIELD
LEITUNGSSCHIRM
ELGO
BN
B
AN
A
-
+
SH-0V
BN
B
AN
A
0V
+18V
IN 21
IN 22
IN 23
IN 24
OUT 16
OUT 17
OUT 18
OUT 19
316
317
15
10
+18V
+5V
0V
B
BN
A
AN
0V
IN 20
IN 19
IN 18
IN 17
IN 16
IN 15
IN 14
IN 13
IN 12
IN 11
IN 10
IN 9
IN 8
IN 7
IN 6
IN 5
IN 4
IN 3
IN 2
IN 1
103
CU1
AI1+
AI1-
AI01+
AI01-
0V
OUTPUTS
OUT 32
OUT 31
+24V
INPUTS
0V
OUTPUTS
OUT 15
OUT 14
OUT 13
OUT 12
OUT 11
OUT 10
OUT 09
OUT 08
OUT 07
OUT 06
OUT 05
OUT 04
OUT 03-
OUT 03+
OUT 02-
OUT 02+
OUT 01-
OUT 01+
311
BOMAR, s.r.o.
Těžební 1236/1
CZ 627 00, Brno
Stroj/Machine/Maschine:
Proline xxx.xxx ASX
Název stránky/Name page/Name seiten:
Řídicí systém/Control system/Steuersystem
Doc No: ES.SPA130-203/v5.2
Čj.proj./Project/Projekt:
Zpracoval/Processed/Het verfaltelt:
Datum/Date/Datum:
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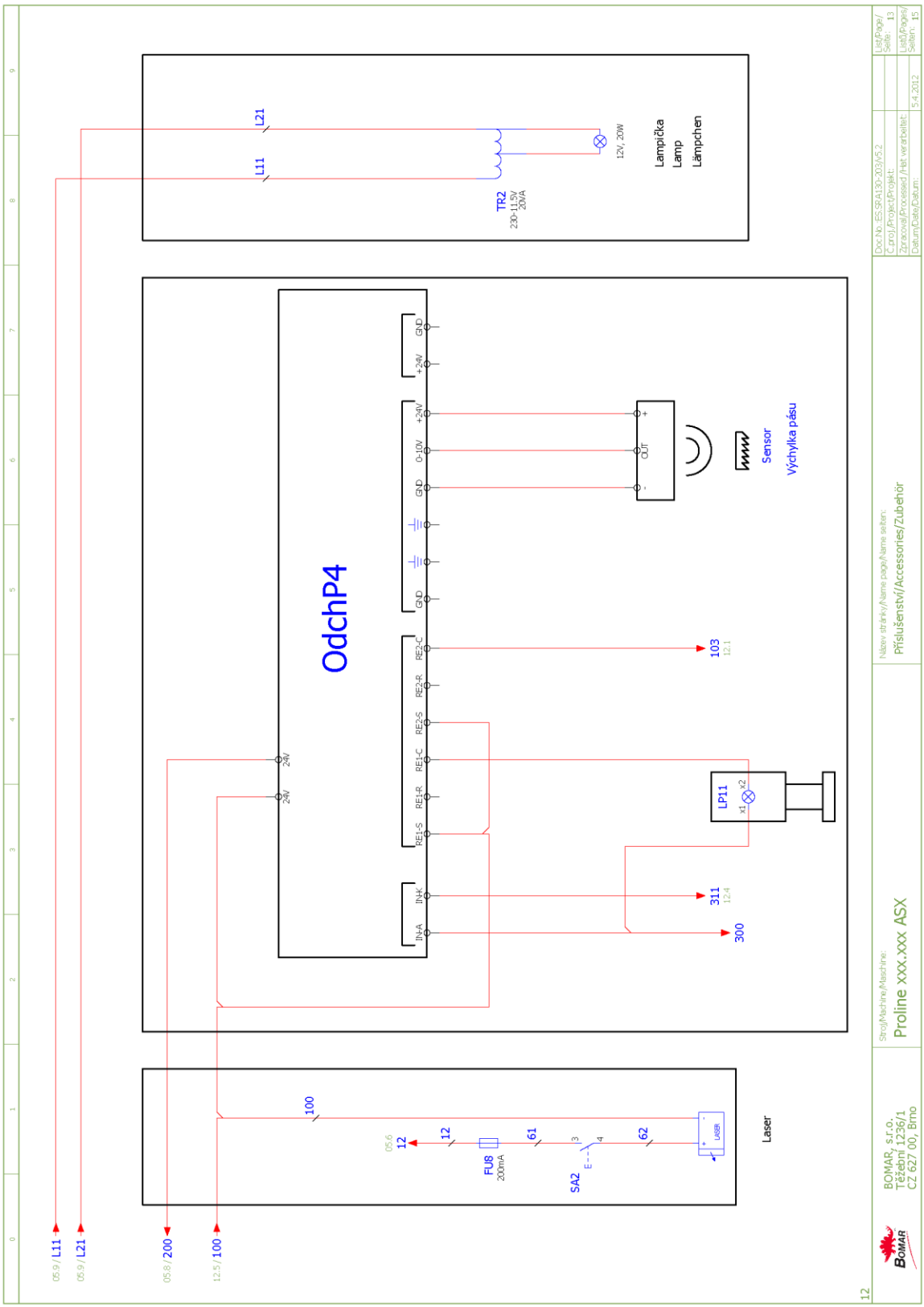




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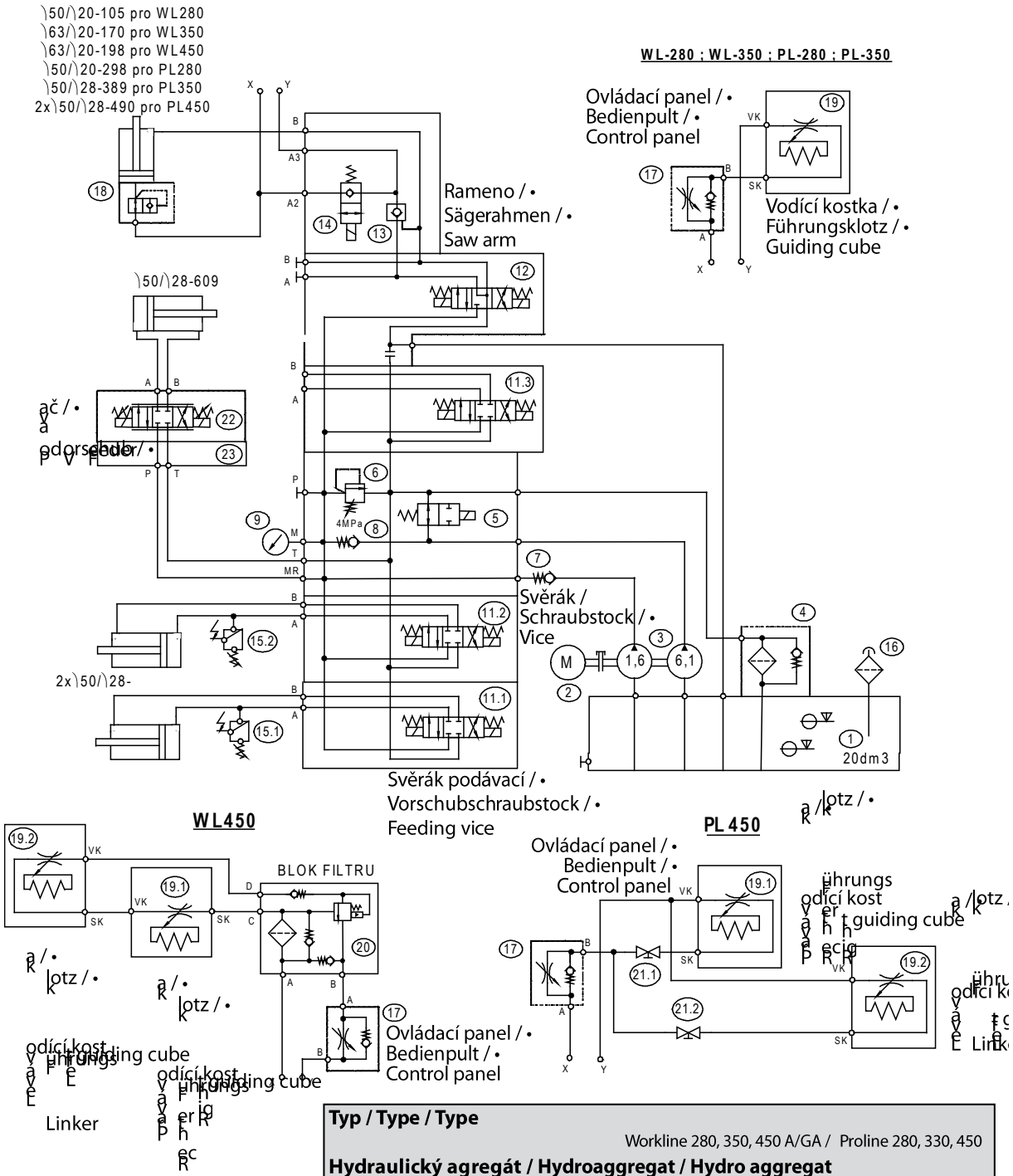
## 6.2. Hydraulic diagram




| | |
|---|---|
| **Typ / Type / Type** | |
| Workline 280, 350, 450 A/GA / Proline 280, 330, 450 | |
| **Hydraulický agregát / Hydroaggregat / Hydro aggregat** | |
| 92.001.070 ( FMW), 5001-058-1, P PM-AC13-PG11/61-1,6-TM20-CB03-FR | |
| **Neuvedené světlosti / Unerwähnt Lichtbreite / Unlisted inside diameters** | |
| JS6 | |
| **Výstupní šroubení / Ausgangschraubung / Output screewing** | |
| G1/4“ | |

| | |
|---|---|
| Pmax | 5,5 MPa |
| Q | 8+2,1 dm³/min |
| n | 1400 rpm |
| P | 1,1 kW |



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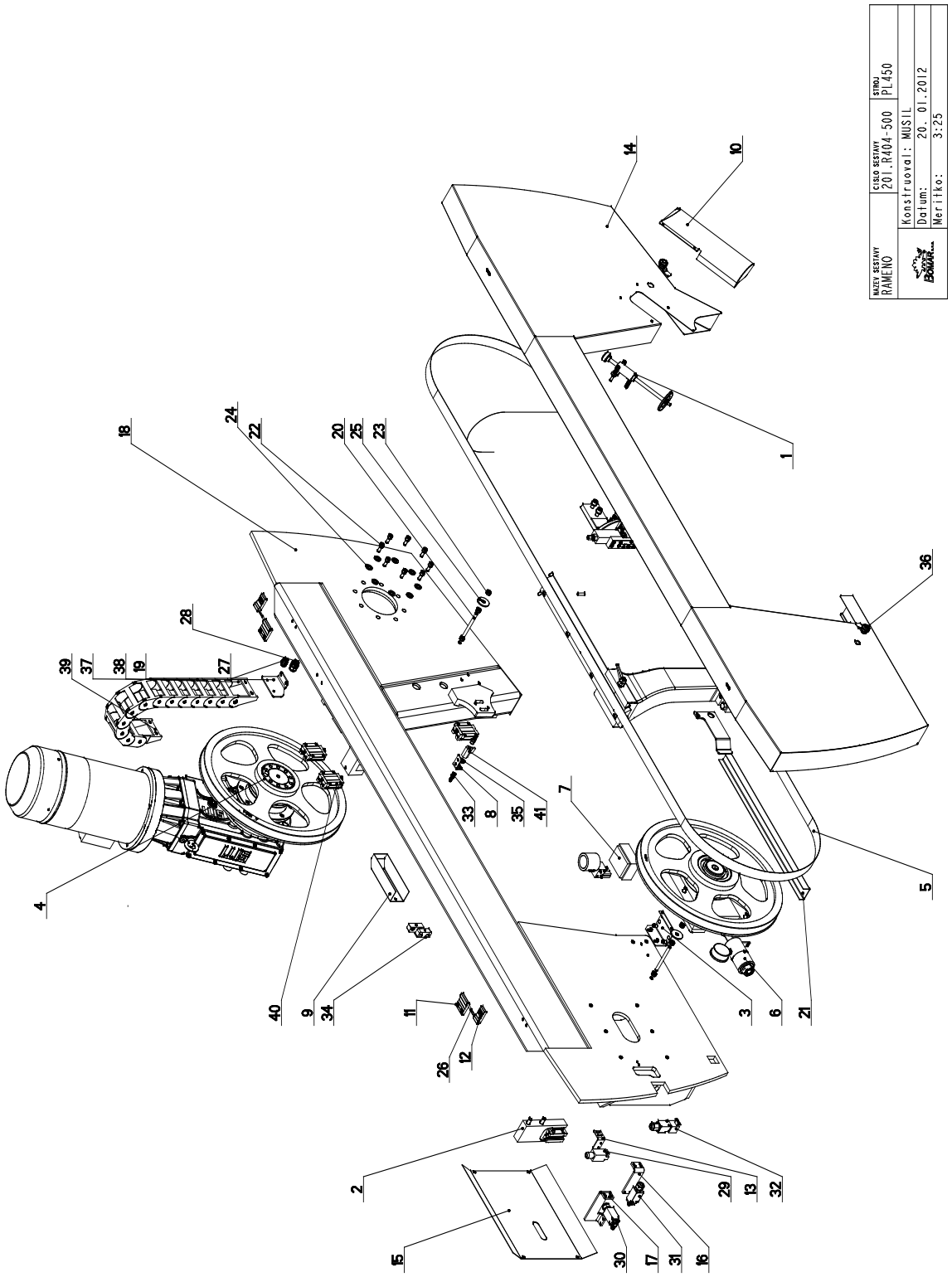
| Pos. | Item | | Pcs. |
|---|---|---|---|
| 1 | Nádrž / Behälter / Tank | TS20, S309-009-1-02<br>20 l | 1 |
| 2 | Elektromotor / Elektromotor / Electromotor | EM 90 1,1 kW/3 B34<br>400/230 V, 50 Hz | 1 |
| 3 | Hydrogenerátor / Hydraulikgenerator / Hydrogenerator | 11A10A6,1X181G/101,<br>6X182G, 1,6+6,1cm$^3$/rpm | 1 |
| 4 | Zpětný filtr / Filter / Filter | MPF0301AG1<br>P10NBP01 | 1 |
| 5 | Rozvaděč / Verteilungsventil / Distributor | SD2E-A2/S2I11<br>C13D-02400E1 | 1 |
| 6 | | | |
| 7 | Manometr / Manometer / Manometer | ∅68 0-10 MPa | 1 |
| 8 | | | |
| 9 | Hydraulický zámek / Hydraulisches Schloß / Hydraulic lock | RJV1-05-0 | 2 |
| 10 | Rozváděč / Schaltschrank / Switchboard | RPE3-04Y11/02400E1K1<br>92.101.005 | 4(3/2) |
| 11 | Rozváděč / Schaltschrank / Switchboard | ROE3-042S2/02400E1K1 | 1 |
| 12 | Hydraulický zámek / Hydraulisches Schloß / Hydraulic lock | VJR1-04/MC<br>92.103.003 | 2(1/0) |
| 13 | Nalévací zátka / Stopfen / Fill stopper | L1.0406 | 1 |
| 14 | Sací filtr / Filter / Suction filter | 2SF56/48-0,063<br>63 um | 3 |
| 15 | Jednosměrný ventil / Einwegventil / One-way valve | VJ01-06/SG-1 | 1 |
| 16 | Přepouštěcí ventil / Bypaßventil / By pass valve | VPN1-06/S-10S/M<br>27999700 | 1 |
| 17 | Pojistný ventil / Sicherungventil / Safety valve | VPNH ¼<br>92.151.001 | 2 |
| 18 | Redukční ventil / Reduktionventil / | VRN2-06/S-6R<br>92.154.001 | 2(1) |
| 19 | Manometr / Manometer / Manometer | ∅68, 0–6 MPa | 3(2) |
| 20 | Kostka regulace / Regulationklotz / Regulation cube | | 1 |
| 21 | Kulový ventil /Kugelventil / Globe valve | 99.260.004 | 1(0) |
| 22 | Tlakový spínač / Druckschalter / Pressure switch | 0166415031059<br>20–50 bar | 2(1) |
| 23 | Redukční ventil / Reduktionventil / | VRN2-06/S-6R | 1 |
| 24 | Škrtící ventil / Drosselventil / Throttle-valve | VS01-04/R2,5<br>92.152.001 | 2(1) |
| 25 | Krycí deska / Schutzplatte / Cover platte | DK 1-04/32-2 | 2/3(2/3) |
| 26 | Hydraulický zámek / Hydraulisches Schloß / Hydraulic lock | VJR1-04/MB<br>92.103.003 | 1(0) |
| 27 | Rozváděč / Schaltschrank / Switchboard | RPE3-043Z11/02400E1K1<br>92.101.010 | 1(0) |
| 28 | Jednosměrný ventil / Einwegventil / One-way valve | VJ01-04/MP-30<br>92.104.001 | 1(0) |
| 29 | Redukční ventil / Reduktionventil / | VRP2-04-PS/6,3<br>92.154.003 | 2(0) |
| 30 | Clona / Schürze / Shield | 0,8<br>92.153.022 | 1(0) |
| 31 | Rozváděč / Schaltschrank / Switchboard | SD2E-A3/S2D26<br>408-0328.003 | 1(0) |

# 7. Drawing assemblies for spare parts order

- For spare parts order, you must always to allege: type of machine (for example Proline 520.450 Asx), serial number (for example 125, see cover page) and year of construction (for example 1999).

## 7.3. Rameno / Sägerahmen / Saw arm



## 7.4. Kusovník / Stückliste / Piece list – Rameno / Sägerahmen / Saw arm

| Cislo Sestavy | Ver. | Nazev sestavy |
|---|---|---|
| 201.R404-500 | 0 | RAMENO/SAW ARM/SAGERAHMEN |

| Poz. | Objednaci cislo | Ver. | Nazev polozky | Rozmer | Ks |
|---|---|---|---|---|---|
| 1 | 201.9214-300 | 0 | KARTAC / BRUSH / BÜRSTE | | 1 |
| 2 | 201.R404-020 | 0 | KONZOLA / CONSOLE / KONSOLE | | 1 |
| 3 | 201.R404-070 | 0 | DRZAK / HOLDER / HALTER | | 1 |
| 4 | 201.R405-500 | 0 | POHON / DRIVE / ANTRIEB | | 1 |
| 5 | 201.R410-000 | 0 | VEDENI PASU / BELT GUIDE / SÄGEBANDFÜHRUNG | | 1 |
| 6 | 201.Y408-000 | 0 | NAPINANI / TENSIONING / SPANNUNG | | 1 |
| 7 | 202.6914-100 | 1 | KONTROLA VYCHYLENI PASU / BELT / KONTROLLE DER SÄGEBANDAUSLENKUNG | | 1 |
| 8 | 30.1814-011 | 1 | DRZAK / HOLDER / HALTER | P 3x76 | 1 |
| 9 | 30.8914-220 | 1 | KRYT / COVER / ABDECKUNG | P 1.5 - 153 | 1 |
| 10 | 30.M404-009 | 0 | KRYT KARTACKU / BRUSH COVER / BÜRSTENABDECKUNG | | 1 |
| 11 | 30.R304-006 | 2 | PANT / BOARD / PLATTE | PROFIL | 2 |
| 12 | 30.R304-007 | 1 | PANT / BOARD / PLATTE | PROFIL | 2 |
| 13 | 30.R404-003 | 0 | DRZAK / HOLDER / HALTER | P 3x30 | 1 |
| 14 | 30.R404-011 | 1 | KRYT / COVER / ABDECKUNG | | 1 |
| 15 | 30.R404-017 | 1 | KRYT NAPINANI / TENSIONING COVER / BANDSPANNUNGSABDECKUNG | P 1.5x361 | 1 |
| 16 | 30.R404-039 | 0 | DRZAK / HOLDER / HALTER | HR 40x6 | 1 |
| 17 | 30.R404-040 | 0 | DRZAK / HOLDER / HALTER | P6x85 | 1 |
| 18 | 30.R404-101 | 0 | RAMENO / SAW ARM / SÄGERAHMEN | | 1 |
| 19 | 30.T304-014 | 0 | DRZAK / HOLDER / HALTER | P 4-100 | 1 |
| 20 | 30.Y304-018 | 0 | TYC ZAVITOVA / THREADED POLE / GEWINDESTANGE | M10 | 2 |
| 21 | 30.Y404-009 | 1 | KRYT PASU / BELT COVER / BANDABDECKUNG | | 1 |
| 22 | 90.001.25.047 | 0 | SROUB IMBUS / ALLEN HEAD BOLT / IMBUSSCHRAUBE | M10X25 | 8 |
| 23 | 90.100.55.006 | 0 | MATICE / NUT / MUTTER | MATICE - M10 | 6 |
| 24 | 90.150.50.007 | 0 | PODLOZKA / WASHER / UNTERLEGSCHEIBE | PODLOZKA 13 | 8 |
| 25 | 90.151.50.002 | 0 | PODLOZKA / WASHER / UNTERLEGSCHEIBE | PODLOZKA 12 | 2 |
| 26 | 90.307.07.001 | 0 | KOLIK / PIN / BOLZEN | D6 | 2 |
| 27 | 91.070.011 | 0 | VYVODKA / BUSHING / TÜLLE | M16x1.5 | 1 |
| 28 | 91.070.012 | 0 | VYVODKA / BUSHING / TÜLLE | M20x1.5 | 1 |
| 29 | 91.173.007 | 0 | SPINAC KONCOVY / END SWITCH / ENDSCHALTER | | 1 |
| 30 | 91.173.009 | 0 | SPINAC KONCOVY / END SWITCH / ENDSCHALTER | | 1 |
| 31 | 91.173.010 | 0 | SPINAC KONC.S KLADK. / END SWITCH WITH PULLEY / ENDSCHALTER MIT ROLLE | FR 615 (PIZZATO) | 1 |
| 32 | 91.173.012 | 0 | SPINAC KONCOVY / END SWITCH / ENDSCHALTER | | 1 |
| 33 | 94.202.002 | 0 | REDUKCE / REDUCTION / ADAPTOR / REDUKTION | REDUKCE 6/R1/4" | 2 |
| 34 | 94.204.005 | 0 | DRZAK / HOLDER / HALTER | LBG 14/14-PP | 2 |

Cislo Sestavy/Number of assembly/Nummer der Baugruppe; Verze (Ver.)/Version/Version; Nazev sestavy/Assembly title/Name der Baugruppe; Pozice (Poz.)/Position/Position;
Objednaci cislo/Purchase order number/Bestellnummer; Nazev polozky/Volume title/Name der Position; Rozmer/Stock size/Abmessung



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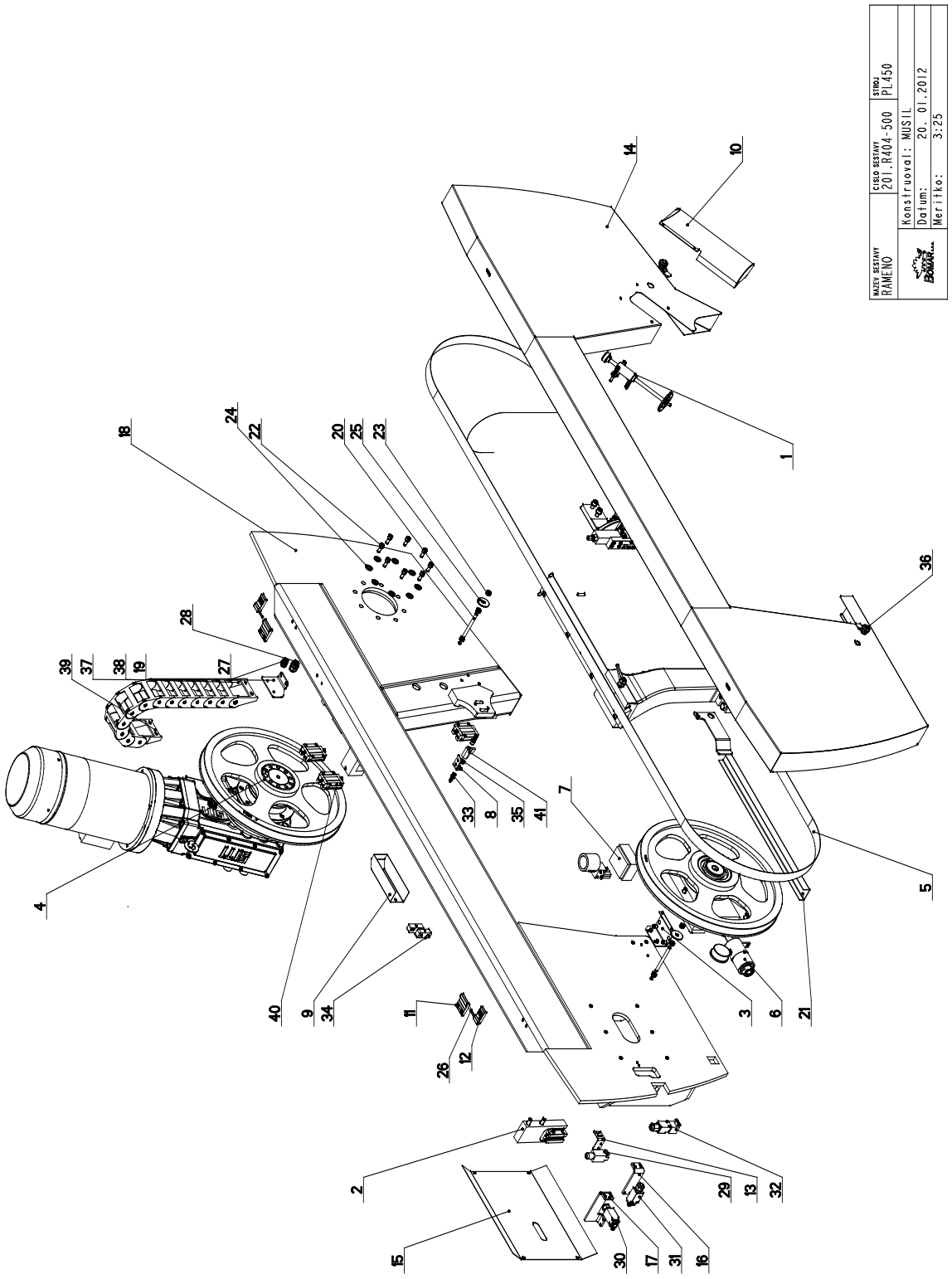
## 7.5. Rameno / Sägerahmen / Saw arm



## 7.6. Kusovník / Stückliste / Piece list – Rameno / Sägerahmen / Saw arm

| | | | | | |
|---|---|---|---|---|---|
| 35 | 96.081.001 | 0 | KROUZEK TESNICI / SEAL RING / DICHTUNGSRING | 23x15x3 | 1 |
| 36 | 99.104.002 | 0 | ZAMEK / LOCK / SCHLOSS | ZAMEK CINSKY | 2 |
| 37 | 99.170.001 | 0 | RETEZ ENERGII / ENERGY BELT / ENERGIEKETTE | 0555.030.075.100 | 12 |
| 38 | 99.173.001 | 0 | RETEZ ENERGII / ENERGY BELT / ENERGIEKETTE | KONCOVKA VNEJ | 1 |
| 39 | 99.173.002 | 0 | RETEZ ENERGII / ENERGY BELT / ENERGIEKETTE | KONCOVKA VNIT | 1 |
| 40 | 99.201.046 | 0 | VEDENI LINEARNI / LINEAR GUIDE / LINEARE FÜHRUNG | MSA25E SS FO N | 3 |
| 41 | 99.260.003 | 0 | VENTIL / VALVE / VENTIL | 1/4" | 1 |



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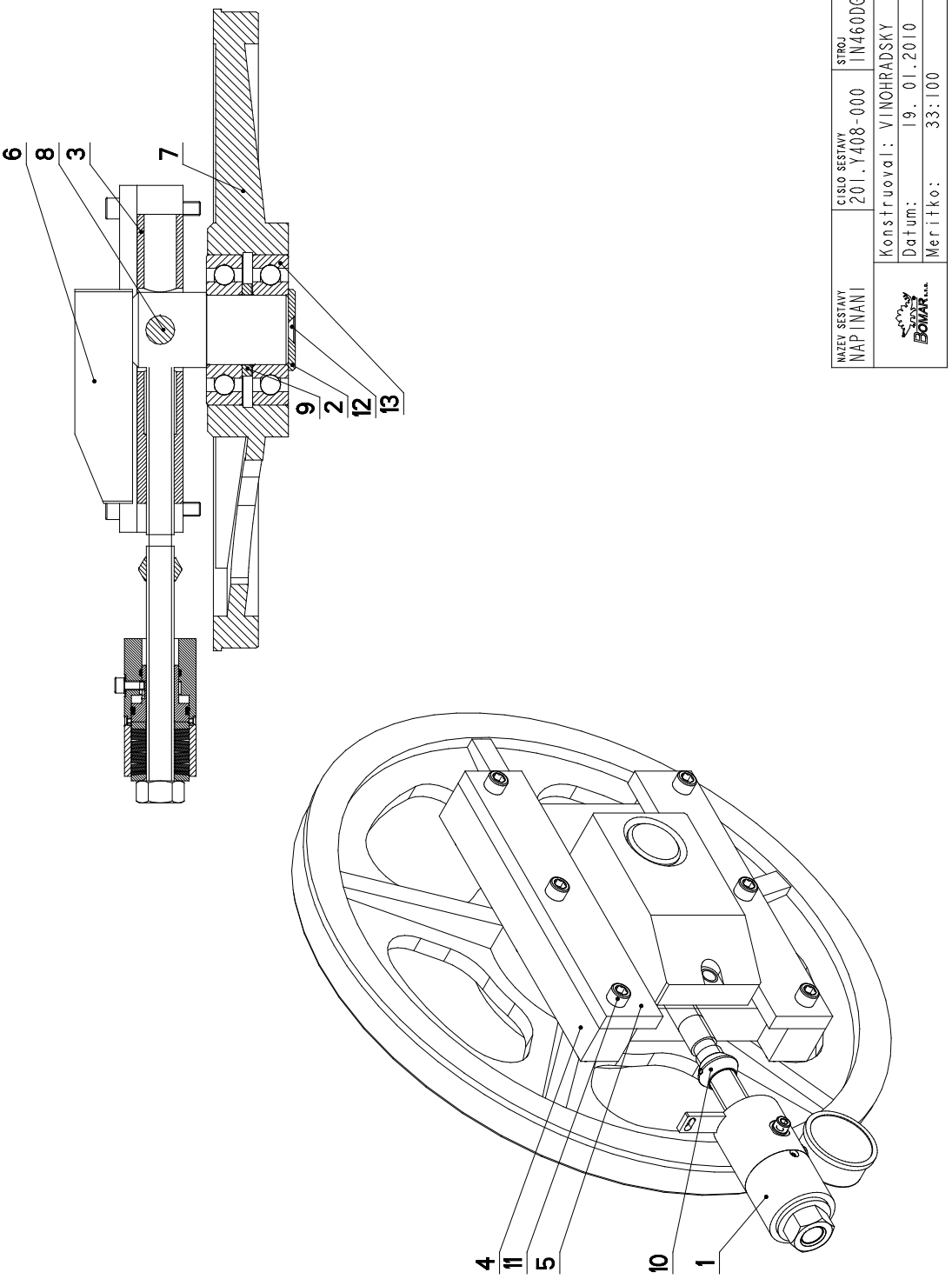
## 7.7. Napínání / Spannung / Tensioning

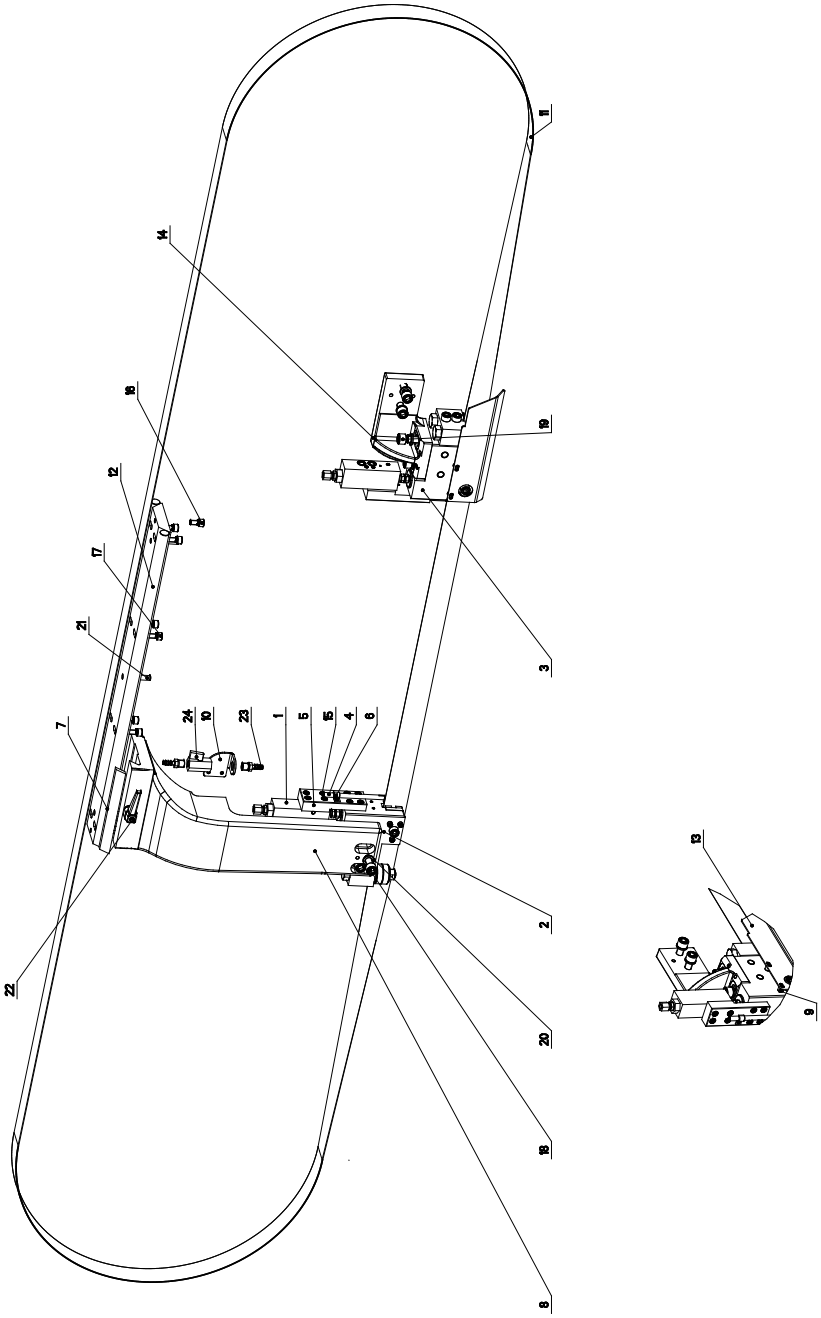


## 7.8. Kusovník / Stückliste / Piece list – Napínání / Spannung / Tensioning

| Cislo Sestavy | Ver. | Nazev sestavy |
|---|---|---|
| 201.Y408-000 | 0 | NAPINANI/TENSIONING/SPANNUNG |

| Poz. | Objednaci cislo | Ver. | Nazev polozky | Rozmer | Ks |
|---|---|---|---|---|---|
| 1 | 201.6107-350 | 2 | VALEC / ROLLER / ZYLINDER | SESTAVA | 1 |
| 2 | 30.1804-010 | 0 | PODLOZKA / WASHER / UNTERLEGSCHEIBE | d 70 | 1 |
| 3 | 30.6008-001 | 0 | KOSTKA NAPINANI / TENSIONING CUBE / BANDSPANNUNGSWÜRFEL | HR 160x40 | 1 |
| 4 | 30.6008-002 | 0 | LISTA VODICI / LEAD TRIM / FÜHRUNGSLEISTE | HR 40x40 | 2 |
| 5 | 30.6008-003 | 0 | LISTA VODICI / LEAD TRIM / FÜHRUNGSLEISTE | HR 60x15 | 2 |
| 6 | 30.6008-004 | 1 | NAPINANI / TENSIONING / SPANNUNG | | 1 |
| 7 | 30.6008-006 | 5 | KOLO NAPINACI / TENSIONING WHEEL / UMLENKRAD | | 1 |
| 8 | 30.6008-014 | 1 | CEP NAPINANI / TENSIONING LUG / SPANNUNGSBOLZEN | d 25 h6 | 1 |
| 9 | 30.6708-002 | 1 | KROUZEK DISTANCNI / DISTANCE RING / DISTANZRING | TRUBKA 82.5x12.5 | 1 |
| 10 | 30.7208-006 | 0 | DORAZ / STOP PIECE / ANSCHLAG | TYC 38 | 1 |
| 11 | 90.001.25.064 | 0 | SROUB IMBUS / ALLEN HEAD BOLT / IMBUSSCHRAUBE | M12X70 | 6 |
| 12 | 90.011.27.009 | 0 | SROUB ZAPUSTNY / COUNTERSINK BOLT / SENKSCHRAUBE | SROUB M12X20 | 1 |
| 13 | 95.001.041 | 0 | LOZISKO / BEARING / LAGER | 6312A | 2 |

## 7.9. Vedení pásu / Sägebandführung / Belt guide



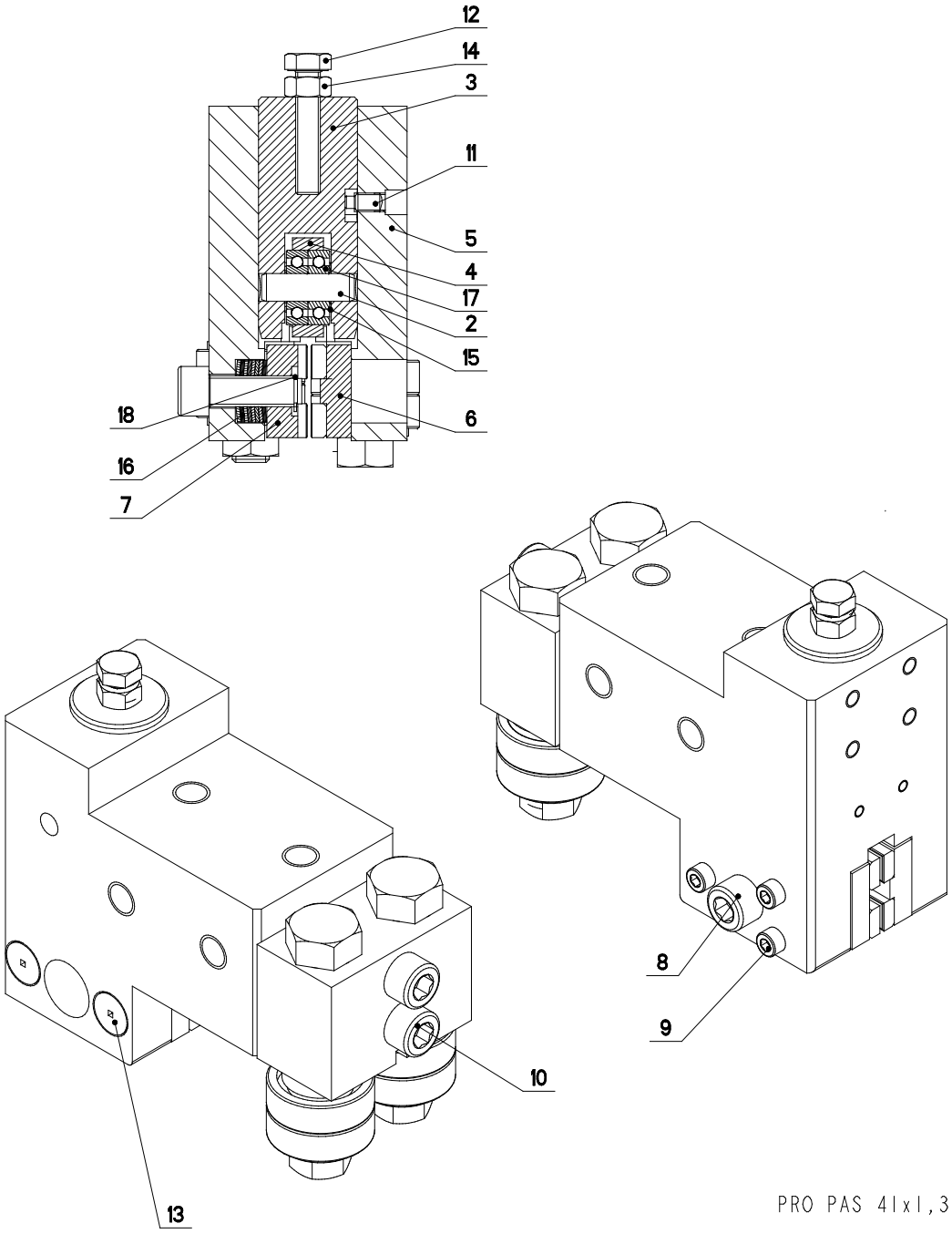
| NÁZEV SESTAVY | ČÍSLO SESTAVY | STROJ |
|---|---|---|
| VEDENÍ PÁSU | 201.A410-000 | PL450 |
| | Konstruoval: MUSIL | |
| | Datum: 21. 12.2010 | |
| | Měřítko: 1:5 | |

## 7.10. Kusovník / Stückliste / Piece list – Vedení pásu / Sägebandführung / Belt guide

| Cislo Sestavy 201.R410-000 | Ver. 0 | Nazev sestavy VEDENI PÁSU/BELT GUIDE/SÄGEBANDFÜHRUNG |
|---|---|---|

| Poz. | Objednaci cislo | Ver. | Nazev polozky | Rozmer | Ks |
|---|---|---|---|---|---|
| 1 | 201.6816-100 | 0 | KOSTKA REGULACE / REGULATION CUBE / REGELUNGSWÜRFEL | | 2 |
| 2 | 201.Y410-100 | 0 | KOSTKA VODICI / LEAD CUBE / FÜHRUNGSKLOTZ | | 1 |
| 3 | 201.Y410-200 | 0 | KOSTKA VODICI / LEAD CUBE / FÜHRUNGSKLOTZ | | 1 |
| 4 | 30.3510-004 | 0 | TRUBKA / TUBE / ROHR | TR 8x 1 | 2 |
| 5 | 30.6016-002 | 0 | DESKA / BOARD / PLATTE | HR 40x20 | 2 |
| 6 | 30.9010-003 | 0 | DRZAK / HOLDER / HALTER | P1.5x10 | 2 |
| 7 | 30.M410-008 | 0 | LISTA / TRIM / LEISTE | HR 25x6 | 1 |
| 8 | 30.R410-004 | 0 | KONZOLA / CONSOLE / KONSOLE | | 1 |
| 9 | 30.Y310-007 | 0 | KROUZEK / RING / RING | TR 10x2,5 | 2 |
| 10 | 30.Y310-008 | 0 | DRZAK / HOLDER / HALTER | P3-50 | 1 |
| 11 | 30.Y404-006 | 0 | PAS PILOVY / SAW BELT / SÄGEBAND | 41x1,3 | 1 |
| 12 | 30.Y410-003 | 0 | LISTA VODICI / LEAD TRIM / FÜHRUNGSLEISTE | HR 90x20 | 1 |
| 13 | 30.Y410-006 | 1 | KRYT PASU / BELT COVER / BANDABDECKUNG | P2-70 | 1 |
| 14 | 30.Y410-105 | 1 | DRZAK / HOLDER / HALTER | | 1 |
| 15 | 90.001.25.016 | 0 | SROUB IMBUS / ALLEN HEAD BOLT / IMBUSSCHRAUBE | M6X12 | 16 |
| 16 | 90.001.25.031 | 0 | SROUB IMBUS CERNENY / ALLEN HEAD BOLT / IMBUSSCHRAUBE | 8x16 | 2 |
| 17 | 90.001.25.032 | 0 | SROUB IMBUS CERNENY / ALLEN HEAD BOLT / IMBUSSCHRAUBE | 8x20 | 8 |
| 18 | 90.001.25.058 | 0 | SROUB IMBUS / ALLEN HEAD BOLT / IMBUSSCHRAUBE | M12X30 | 2 |
| 19 | 90.001.25.059 | 0 | SROUB IMBUS / ALLEN HEAD BOLT / IMBUSSCHRAUBE | M12X35 | 4 |
| 20 | 90.163.00.003 | 0 | PODLOZKA / WASHER / UNTERLEGSCHEIBE | NORD-LOCK | 6 |
| 21 | 90.302.07.002 | 0 | KUZEL. KOLIK S ZAV. / TAPER PIN + THREAD / KEGELBOLZEN + GEWINDE | KOLIK 8X30 | 3 |
| 22 | 94.008.003 | 0 | PAKA UPINACI / ATTACHMENT LEVER / SPANNHEBEL | M8x40 | 1 |
| 23 | 94.202.002 | 0 | REDUKCE / REDUCTION / ADAPTOR / REDUKTION | REDUKCE 6/R1/4" | 2 |
| 24 | 99.260.003 | 0 | VENTIL / VALVE / VENTIL | 1/4" | 1 |

## 7.11. Vodící kostka / Führungsklotz / Guiding cube




PRO PAS 41x1,3-1,6

| NAZEV SESTAVY | CISLO SESTAVY | STROJ |
|---|---|---|
| KOSTKA VODICI | 201.Y410-100 | IN460DGH |
| BOMAR s.r.o. | Konstruoval: DUFEK | |
| | Datum: 19. 01.2010 | |
| | Meritko: 3:5 | |

## 7.12. Kusovník / Stückliste / Piece list – Vodící kostka / Führungsklotz / Guiding cube

| Cislo Sestavy | Ver. | Nazev sestavy |
|---|---|---|
| 201.Y410-100 | 0 | KOSTKA VODICI/LEAD CUBE/FÜHRUNGSKLOTZ |

| Poz. | Objednaci cislo | Ver. | Nazev polozky | Rozmer | Ks |
|---|---|---|---|---|---|
| 1 | 201.6110-510 | 0 | VEDENI / GUIDE / BACKENFÜHRUNG | | 1 |
| 2 | 30.6710-108 | 1 | KOLIK / PIN / BOLZEN | TYC 10 | 1 |
| 3 | 30.6710-109 | 0 | PIST / PISTON / KOLBEN | d 32 | 1 |
| 4 | 30.6710-110 | 1 | KROUZEK / RING / RING | LH 240321 0 | 1 |
| 5 | 30.Y410-101 | 1 | KOSTKA VODICI / LEAD CUBE / FÜHRUNGSKLOTZ | HR 110x70 | 1 |
| 6 | 30.Y410-110 | 0 | DRZAK TVRDOKOVU / POA HOLDER / HM-HALTER | | 1 |
| 7 | 30.Y410-120 | 0 | DRZAK TVRDOKOVU / POA HOLDER / HM-HALTER | | 1 |
| 8 | 30.Y610-503 | 0 | SROUB IMBUS / ALLEN HEAD BOLT / IMBUSSCHRAUBE | M10X30 | 1 |
| 9 | 90.001.25.011 | 0 | SROUB IMBUS / ALLEN HEAD BOLT / IMBUSSCHRAUBE | M5X25 | 3 |
| 10 | 90.001.25.054 | 0 | SROUB IMBUS / ALLEN HEAD BOLT / IMBUSSCHRAUBE | M10X60 | 2 |
| 11 | 90.004.2D.002 | 0 | SROUB STAVECI / ADJUSTMENT BOLT / STELLSCHRAUBE | SROUB M6X12 | 1 |
| 12 | 90.005.55.019 | 0 | SROUB 6HRANNY / 6 SIDED BOLT / SECHSKANTSCHRAUBE | SROUB M8X40 | 1 |
| 13 | 90.011.27.016 | 0 | SROUB ZAPUSTNY / COUNTERSINK BOLT / SENKSCHRAUBE | SROUB M8X25 | 2 |
| 14 | 90.100.55.005 | 0 | MATICE / NUT / MUTTER | MATICE - M8 | 1 |
| 15 | 90.154.50.003 | 0 | PODLOZKA / WASHER / UNTERLEGSSCHEIBE | 10x16x0.50 | 2 |
| 16 | 90.350.02.005 | 0 | PRUZINA TALIROVA / DISC SPRING / TELLERFEDER | 20X10.2X1.1 | 8 |
| 17 | 95.001.044 | 0 | LOZISKO / BEARING / LAGER | 609 2RS | 2 |
| 18 | 95.800.002 | 0 | KROUZEK POJIST.VNEJS / OUTSIDE SAFETY RING / SICHERUNGSRING AUßEN | POJISTNY KROUZEK 8 | 1 |



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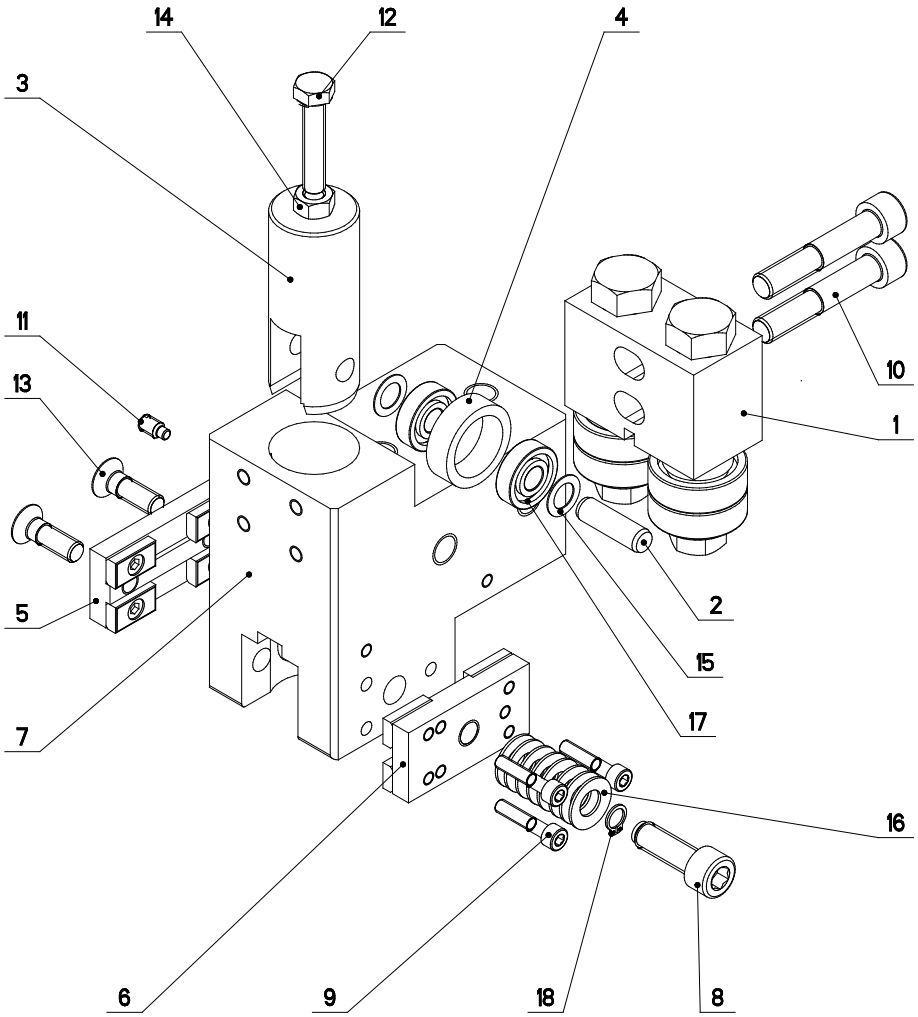
## 7.13. Vodící kostka / Führungsklotz / Guiding cube




| NAZEV SESTAVY | CISLO SESTAVY | STROJ |
|---|---|---|
| KOSTKA VODICI | 201.Y410-200 | IN460DGH |
| | Konstruoval: MUSIL | |
| | Datum: 19. 01.2010 | |
| | Meritko: 1:2 | |

## 7.14. Kusovník / Stückliste / Piece list – Vodící kostka / Führungsklotz / Guiding cube

| Cislo Sestavy 201.Y410-200 | Ver. 0 | Nazev sestavy KOSTKA VODICI/LEAD CUBE/FÜHRUNGSKLOTZ |
|---|---|---|

| Poz. | Objednaci cislo | Ver. | Nazev polozky | Rozmer | Ks |
|---|---|---|---|---|---|
| 1 | 201.6110-510 | 0 | VEDENI / GUIDE / BACKENFÜHRUNG | | 1 |
| 2 | 30.6710-108 | 1 | KOLIK / PIN / BOLZEN | TYC 10 | 1 |
| 3 | 30.6710-109 | 0 | PIST / PISTON / KOLBEN | d 32 | 1 |
| 4 | 30.6710-110 | 1 | KROUZEK / RING / RING | LH 240321 0 | 1 |
| 5 | 30.Y410-110 | 0 | DRZAK TVRDOKOVU / POA HOLDER / HM-HALTER | | 1 |
| 6 | 30.Y410-120 | 0 | DRZAK TVRDOKOVU / POA HOLDER / HM-HALTER | | 1 |
| 7 | 30.Y410-201 | 1 | KOSTKA VODICI LEVA / LEAD CUBE / FÜHRUNGSKLOTZ | HR 110x70 | 1 |
| 8 | 30.Y610-503 | 0 | SROUB IMBUS / ALLEN HEAD BOLT / IMBUSSCHRAUBE | M10X30 | 1 |
| 9 | 90.001.25.011 | 0 | SROUB IMBUS / ALLEN HEAD BOLT / IMBUSSCHRAUBE | M5X25 | 3 |
| 10 | 90.001.25.053 | 0 | SROUB IMBUS / ALLEN HEAD BOLT / IMBUSSCHRAUBE | M10X55 | 2 |
| 11 | 90.004.2D.002 | 0 | SROUB STAVECI / ADJUSTMENT BOLT / STELLSCHRAUBE | SROUB M6X12 | 1 |
| 12 | 90.005.55.019 | 0 | SROUB 6HRANNY / 6 SIDED BOLT / SECHSKANTSCHRAUBE | SROUB M8X40 | 1 |
| 13 | 90.011.27.016 | 0 | SROUB ZAPUSTNY / COUNTERSINK BOLT / SENKSCHRAUBE | SROUB M8X25 | 2 |
| 14 | 90.100.55.005 | 0 | MATICE / NUT / MUTTER | MATICE - M8 | 1 |
| 15 | 90.154.50.003 | 0 | PODLOZKA / WASHER / UNTERLEGSSCHEIBE | 10x16x0.50 | 2 |
| 16 | 90.350.02.005 | 0 | PRUZINA TALIROVA / DISC SPRING / TELLERFEDER | 20X10.2X1.1 | 8 |
| 17 | 95.001.044 | 0 | LOZISKO / BEARING / LAGER | 609 2RS | 2 |
| 18 | 95.800.002 | 0 | KROUZEK POJIST.VNEJS / OUTSIDE SAFETY RING / SICHERUNGSRING AUßEN | POJISTNY KROUZEK 8 | 1 |



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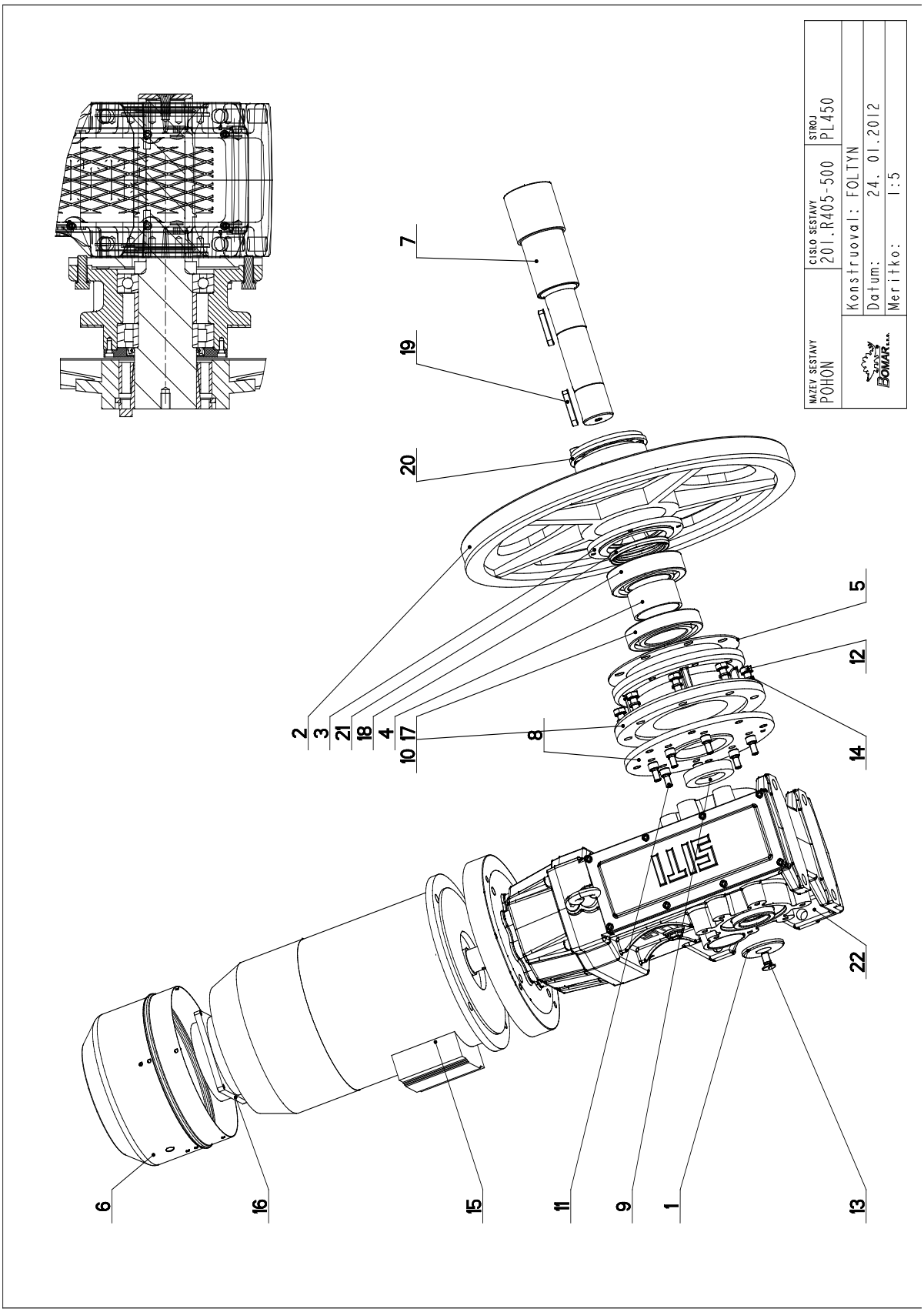
## 7.15. Pohon / Antrieb / Drive



| Cislo Sestavy | Ver. | Nazev sestavy |
|---|---|---|
| 201.R405-500 | 0 | POHON/DRIVE /ANTRIEB |

| Poz. | Objednaci cislo | Ver. | Nazev polozky | Rozmer | Ks |
|---|---|---|---|---|---|
| 1 | 30.1804-010 | 0 | PODLOZKA / WASHER / UNTERLEGSCHEIBE | d 70 | 1 |
| 2 | 30.6005-001 | 4 | KOLO HNACI / DRIVE WHEEL / ANTRIEBSRAD | ODLITEK | 1 |
| 3 | 30.6105-604 | 0 | VIKO / COVER / DECKEL | P 12x159 | 1 |
| 4 | 30.6105-605 | 0 | KROUZEK DISTANCNI / DISTANCE RING / DISTANZRING | TR 80x5 | 1 |
| 5 | 30.6105-607 | 0 | KROUZEK DISTANCNI / DISTANCE RING / DISTANZRING | P 4x220 | 1 |
| 6 | 30.6704-018 | 2 | VENTILATOR / VENTILATOR / VENTILATOR | | 1 |
| 7 | 30.R405-501 | 0 | HRIDEL / SHAFT / WELLE | d 90 | 1 |
| 8 | 30.R405-502 | 0 | PRIRUBA / FLANGE / FLANSCHE | P15x250 | 1 |
| 9 | 30.R405-503 | 0 | KROUZEK DISTANCNI / DISTANCE RING / DISTANZRING | d 80 | 1 |
| 10 | 30.R405-505 | 0 | PRIRUBA / FLANGE / FLANSCHE | ODLITEK | 1 |
| 11 | 90.001.25.046 | 0 | SROUB IMBUS / ALLEN HEAD BOLT / IMBUSSCHRAUBE | M10X20 | 7 |
| 12 | 90.005.55.033 | 0 | SROUB 6HRANNY / 6 SIDED BOLT / SECHSKANTSCHRAUBE | SROUB M12X35 | 8 |
| 13 | 90.011.27.025 | 0 | ZAPUSTNY IMBUS / COUNTERSINK BOLT / SENKSCHRAUBE | SROUB M12X25 | 1 |
| 14 | 90.158.50.009 | 0 | PODLOZKA PRUZNA / SPRING WASHER / FEDERSCHEIBE | PODLOZKA 12 | 8 |
| 15 | 91.001.167 | 0 | ELEKTROMOTOR / ELECTRIC MOTOR / ELEKTROMOTOR | 7,5kW,4P,B5,Vel132, 230_400V | 1 |
| 16 | 91.015.100 | 0 | VENTILATOR / VENTILATOR / VENTILATOR | | 1 |
| 17 | 95.001.064 | 0 | LOZISKO / BEARING / LAGER | 6214A | 1 |
| 18 | 95.201.007 | 0 | LOZISKO / BEARING / LAGER | VALECKOVA L. IRADA | 1 |
| 19 | 95.810.032 | 0 | PERO TESNE / SPRING / FEDER | PERO 14X9X60 | 2 |
| 20 | 95.825.001 | 0 | POUZDRO UPINACI / FIXING SLEEVE / SPANNHÜLSE | KTR210- 80x120 | 1 |
| 21 | 95.830.052 | 0 | GUFERO / GIT SEAL / DICHTUNG | GUFERO 80X100X10 | 1 |
| 22 | 99.003.025 | 0 | PREVODOVKA KUZELOCEL / CONICAL TRANSMISSION / KEGELRADGETRIEBE | MBH100C PAM132 | 1 |

Cislo Sestavy/Number of assembly/Nummer der Baugruppe; Verze (Ver.)/Version/Version; Nazev sestavy/Assembly title/Name der Baugruppe; Pozice (Poz.)/Position/Position;
Objednaci cislo/Purchase order number/Bestellnummer; Nazev polozky/Volume title/Name der Position; Rozmer/Stock size/Abmessung



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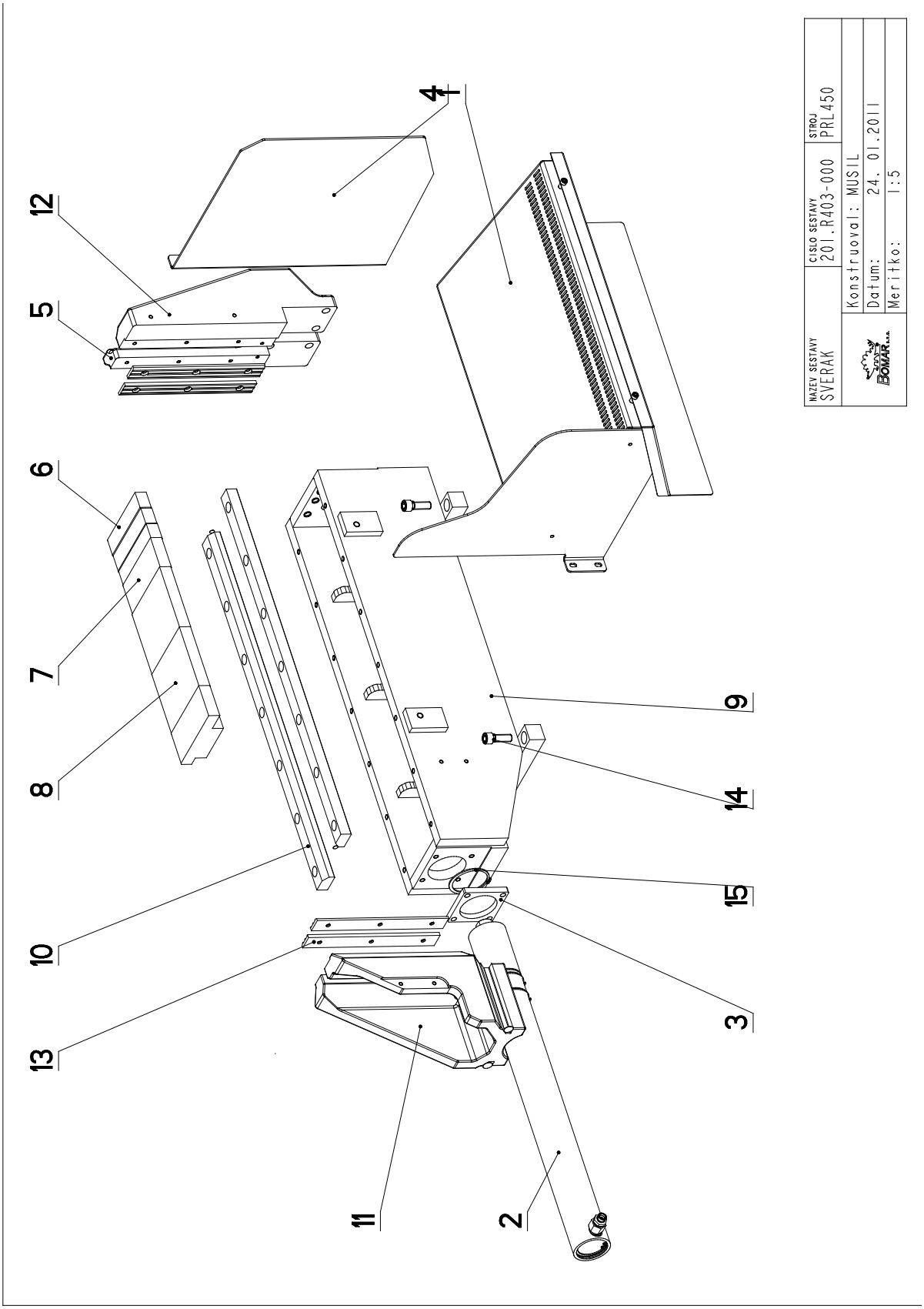
## 7.17. Svěrák / Schraubstock / Vice



## 7.18. Kusovník / Stückliste / Piece list – Svěrák / Schraubstock / Vice

| Číslo Sestavy<br>201.R403-000 | Ver.<br>0 | Název sestavy<br>SVĚRÁK/&NÁZEV_EN/&NÁZEV_DE |
|---|---|---|

| Poz. | Objednací číslo | Ver. | Název položky | Rozmer | Ks |
|---|---|---|---|---|---|
| 1 | 201.R403-050 | 0 | SKLUZ / SLIDE / RUTSCH | | 1 |
| 2 | 201.R407-030 | 0 | VÁLEC SVĚRÁKU / VICE CYLINDER / SCHRAUBSTOCKZYLINDER | | 1 |
| 3 | 30.2011-010 | | PŘÍLOŽKA / STRAP / LASCHE | HR 80x10 | 1 |
| 4 | 30.5503-014 | | BOČNICE / / | P 3-376 | 1 |
| 5 | 30.M403-012 | 0 | ČELIST PEVNÁ / SOLID JAW / FESTE BACKE | | 1 |
| 6 | 30.R303-016 | 0 | VLOŽKA / / | tyc40x30 | 3 |
| 7 | 30.R303-017 | 0 | VLOŽKA / / | TYC 60x40 | 2 |
| 8 | 30.R303-018 | | VLOŽKA / / | HR 120x40 | 2 |
| 9 | 30.R403-001 | 0 | SVĚRÁK / VICE / SCHRAUBSTOCK | | 1 |
| 10 | 30.R403-004 | 0 | VEDENÍ / GUIDE / BACKENFÜHRUNG | HR 40x25 | 2 |
| 11 | 30.R403-014 | 0 | ČELIST POHYBLIVÁ / MOVING JAW / BEWEGLICHE BACKE | ODLITEK | 1 |
| 12 | 30.R404-013 | 0 | ČELIST PEVNÁ / SOLID JAW / FESTE BACKE | | 1 |
| 13 | 30.R411-035 | 0 | LIŠTA ČELISTÍ / JAW TRIM / BACKENLEISTE | HR 30x10 | 4 |
| 14 | 90.001.25.059 | 0 | ŠROUB IMBUS / ALLEN HEAD BOLT / IMBUSSCHRAUBE | M12X35 | 4 |
| 15 | 95.860.021 | 0 | KROUŽEK POJIST.VNEJŠ / OUTSIDE SAFETY RING / SICHERUNGSRING AUßEN | POJISTNÝ KROUŽEK 62 | 1 |



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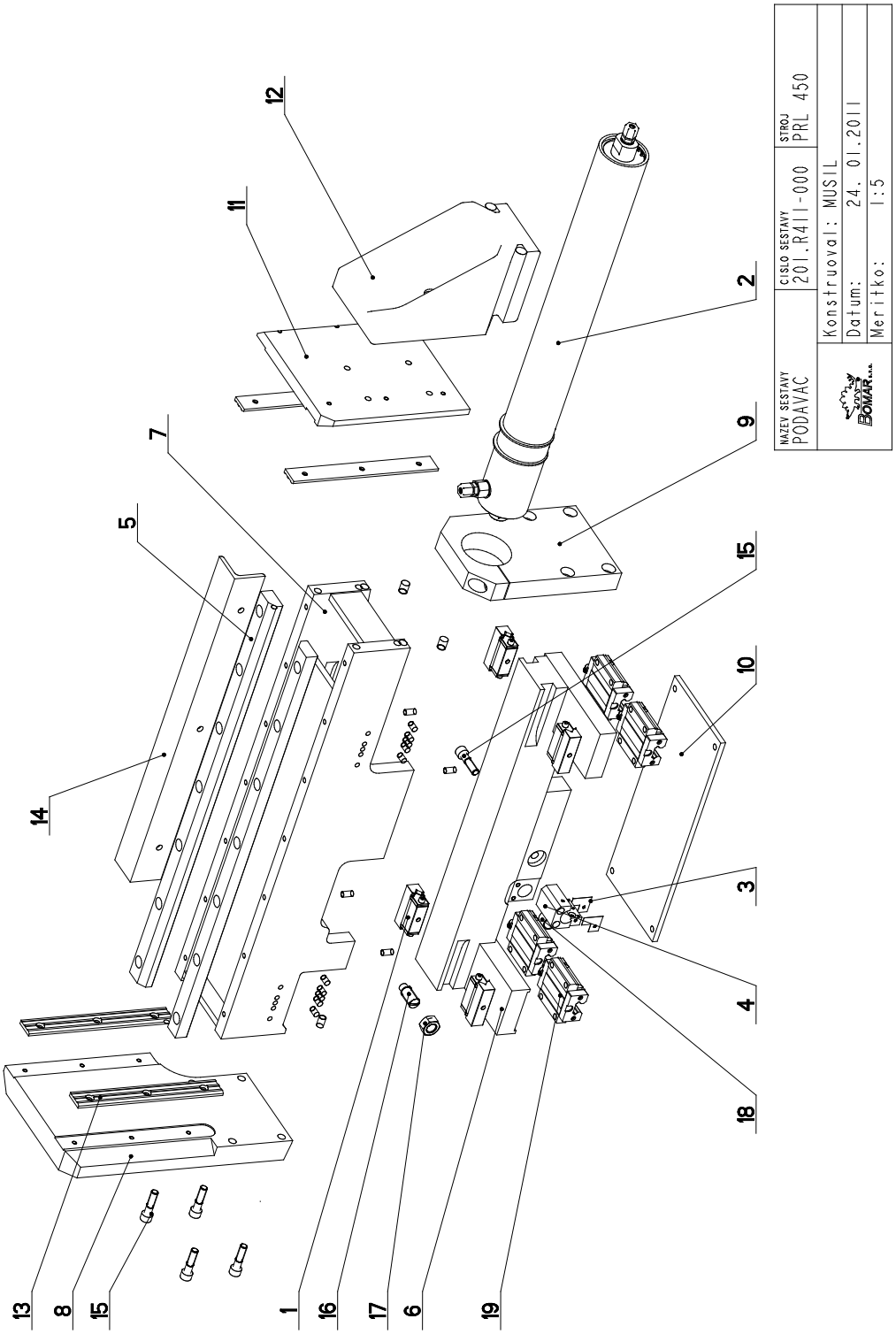
## 7.19. Podavač / Vorschub / Feeder



## 7.20. Kusovník / Stückliste / Piece list – Podavač / Vorschub / Feeder

| Číslo Sestavy<br>201.R411-000 | Ver.<br>0 | Název sestavy<br>PODAVAČ/FEEDER/VORSCHUB |
|---|---|---|

| Poz. | Objednací číslo | Ver. | Název položky | Rozmer | Ks |
|---|---|---|---|---|---|
| 1 | 201.931I-200 | 0 | VOZÍK / CART / WAGEN | | 4 |
| 2 | 201.R407-040 | 0 | VÁLEC PODAVAČE / FEEDER CYLINDER / VORSCHUBWALZE | | 1 |
| 3 | 30.291I-030 | 0 | STĚRAČ / WIPER / ABSTREIFER | P 0.2-26.5 | 2 |
| 4 | 30.K51I-110 | 2 | DRŽÁK / HOLDER / HALTER | HR 50x50 | 1 |
| 5 | 30.R403-004 | 0 | VEDENÍ / GUIDE / BACKENFÜHRUNG | HR 40x25 | 2 |
| 6 | 30.R41I-001 | 0 | PODAVAČ / FEEDER / VORSCHUB | | 1 |
| 7 | 30.R41I-002 | 0 | PODAVAČ / FEEDER / VORSCHUB | | 1 |
| 8 | 30.R41I-003 | 0 | ČELIST / BOARD / PLATTE | P 35x213 | 1 |
| 9 | 30.R41I-005 | 0 | ČELO / HEAD / STIRN | HR 150x 30 | 1 |
| 10 | 30.R41I-006 | 0 | DESKA / BOARD / PLATTE | HR 150x8 | 1 |
| 11 | 30.R41I-009 | 0 | ČELIST / JAW / BACKE | P 20x213 | 1 |
| 12 | 30.R41I-014 | 0 | ČELIST POHYBLIVÁ / MOVING JAW / BEWEGLICHE BACKE | ODLITEK | 1 |
| 13 | 30.R41I-035 | 0 | LIŠTA ČELISTI / JAW TRIM / BACKENLEISTE | HR 30x10 | 4 |
| 14 | 30.R41I-038 | 0 | STŮL / TABLE / TISCH | L 50X6 | 1 |
| 15 | 90.001.25.050 | 0 | SROUB IMBUS / ALLEN HEAD BOLT / IMBUSSCHRAUBE | M10X40 | 5 |
| 16 | 90.004.20.019 | 0 | SROUB STAVECÍ / ADJUSTMENT BOLT / STELLSCHRAUBE | SROUB M16X40 | 1 |
| 17 | 90.100.55.008 | 0 | MATICE / NUT / MUTTER | MATICE - M16 | 1 |
| 18 | 95.700.003 | 0 | POUZDRO / SLEEVE / BÜCHSE | 20X15 | 1 |
| 19 | 99.201.046 | 0 | VEDENÍ LINEÁRNÍ / LINEAR GUIDE / LINEARE FÜHRUNG | MSA25E SS F0 N | 4 |

Číslo Sestavy/Number of assembly/Nummer der Baugruppe; Verze (Ver.)/Version/Version; Nazev sestavy/Assembly title/Name der Baugruppe; Pozice (Poz.)/Position/Position;
Objednací číslo/Purchase order number/Bestellnummer; Nazev polozky/Volume title/Name der Position; Rozmer/Stock size/Abmessung



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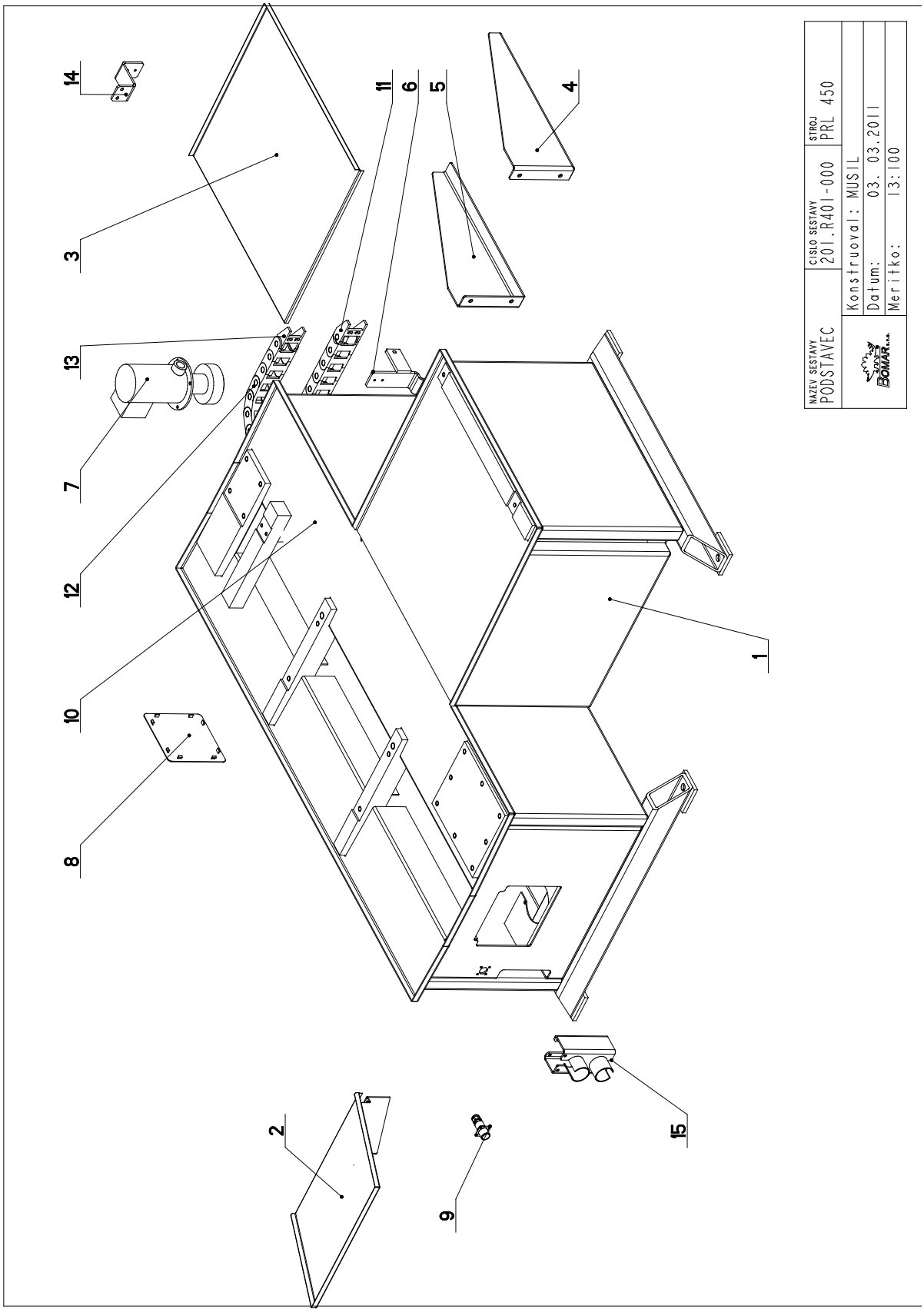
## 7.21. Podstavec / Untersatz / Base



## 7.22. Kusovník / Stückliste / Piece list – Podstavec / Untersatz / Base

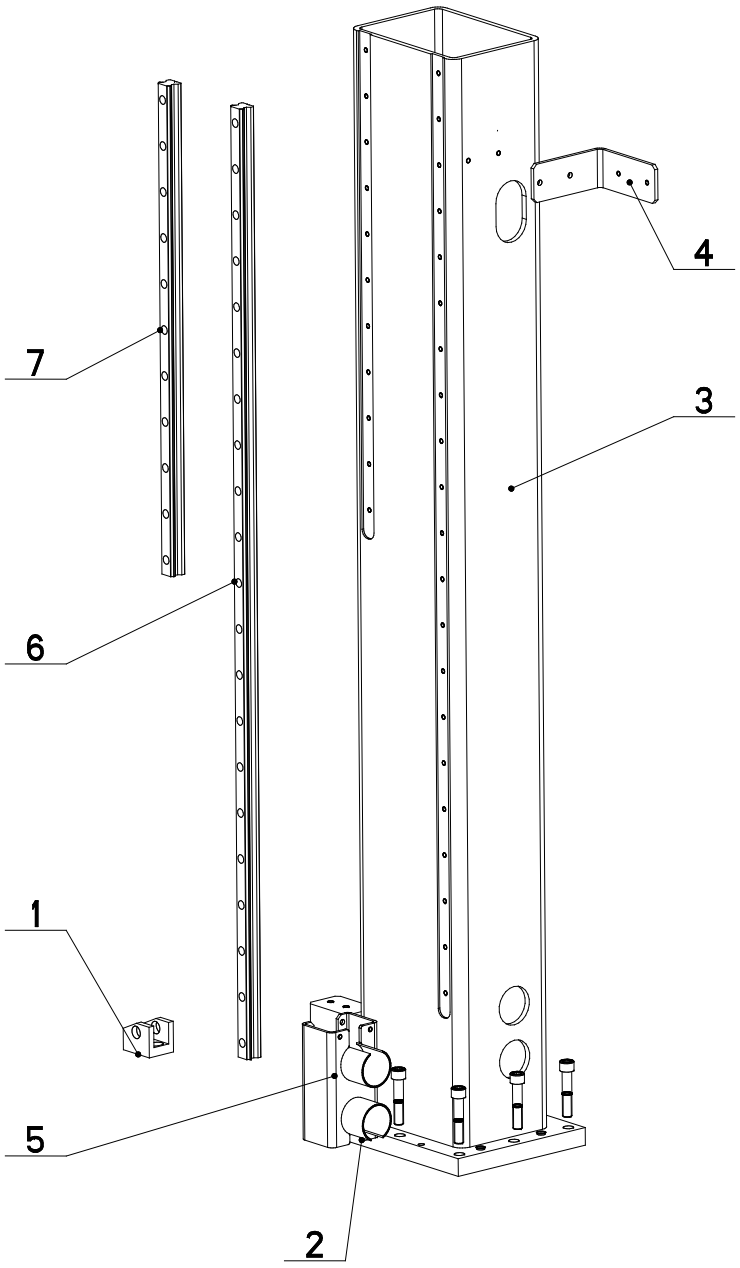
| Cislo Sestavy | Ver. | Nazev sestavy |
|---|---|---|
| 201.R401-000 | 0 | PODSTAVEC/&NAZEV_EN/&NAZEV_DE |

| Poz. | Objednaci cislo | Ver. | Nazev polozky | Rozmer | Ks |
|---|---|---|---|---|---|
| 1 | 30.R401-001 | 0 | PODSTAVEC / BASE / UNTERSATZ | | 1 |
| 2 | 30.R301-003 | 0 | KRYT / COVER / ABDECKUNG | | 1 |
| 3 | 30.R301-005 | 0 | KRYT / COVER / ABDECKUNG | | 1 |
| 4 | 30.R301-008 | 0 | DRZAK / HOLDER / HALTER | P4x212 | 1 |
| 5 | 30.R301-009 | 0 | DRZAK / HOLDER / HALTER | P4x212 | 1 |
| 6 | 30.R401-013 | 0 | DRZAK / HOLDER / HALTER | | 1 |
| 7 | 91.020.XXX | 0 | CERPADLO / PUMP / PUMPE | 3 COA 4-12 | 1 |
| 8 | 94.101.039 | 0 | ZASLEPKA / PLUG / BLINDFLANSCH | 154x154x4 | 1 |
| 9 | 262.007 | 0 | KONEKTOR / CONNECTOR / STECKVERBINDER | | 1 |
| 10 | 30.R401-006 | 0 | VANA / TANK / WANNE | | 1 |
| 11 | 99.171.021 | 0 | KONCOVKA / END / ENDSTÜCK | | 1 |
| 12 | 99.170.015 | 0 | RETEZ ENERGII / ENERGY BELT / ENERGIEKETTE | MP 3002 | 18 |
| 13 | 99.171.022 | 0 | KONCOVKA / END / ENDSTÜCK | | 1 |
| 14 | 30.R302-013 | 0 | DRZAK / HOLDER / HALTER | P 5-50 | 1 |
| 15 | 30.R302-012 | 0 | DRZAK / HOLDER / HALTER | | 1 |



Cislo Sestavy/Number of assembly/Nummer der Baugruppe; Verze (Ver.)/Version/Version; Nazev sestavy/Assembly title/Name der Baugruppe; Pozice (Poz.)/Position/Position;
Objednaci cislo/Purchase order number/Bestellnummer; Nazev polozky/Volume title/Name der Position; Rozmer/Stock size/Abmessung

## 7.23. Sloup / Säule / Pole – 1



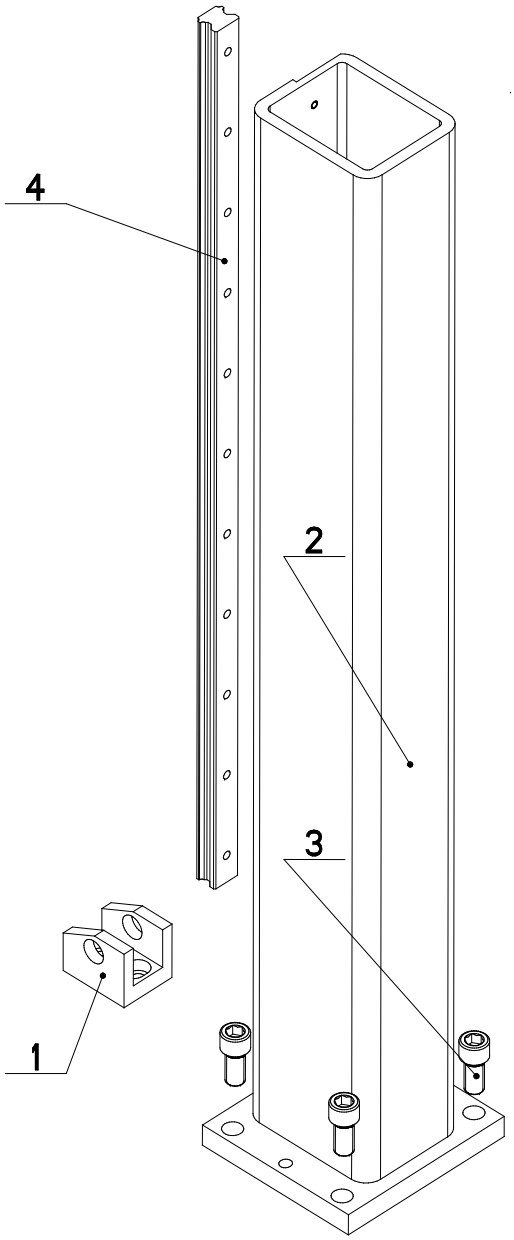

| NAZEV SESTAVY | CISLO SESTAVY | STROJ |
|---|---|---|
| SLOUP | 201.R402-010 | PRL 450 |
| | Konstruoval: MUSIL | |
| | Datum: 03. 03.2011 | |
| | Meritko: 7:50 | |

## 7.24. Kusovník / Stückliste / Piece list – Sloup / Säule / Pole – 1

| Cislo Sestavy | Ver. | Nazev sestavy |
|---|---|---|
| 201.R402-010 | 0 | SLOUP/POLE/SÄULE |

| Poz. | Objednaci cislo | Ver. | Nazev polozky | Rozmer | Ks |
|---|---|---|---|---|---|
| 1 | 30.0807-008 | 1 | DRZAK / HOLDER / HALTER | HR 40x40 | 1 |
| 2 | 30.R302-012 | 0 | DRZAK / HOLDER / HALTER | | 1 |
| 3 | 30.R402-011 | 0 | SLOUP / POLE / SÄULE | | 1 |
| 4 | 30.Y404-005 | 0 | DRZAK / HOLDER / HALTER | HR 50x5 | 1 |
| 5 | 90.001.25.063 | 0 | SROUB IMBUS / ALLEN HEAD BOLT / IMBUSSCHRAUBE | M12X60 | 8 |
| 6 | 99.200.205 | 0 | VEDENI LINEARNI / LINEAR GUIDE / LINEARE FÜHRUNG | MSA25R 1240-20/20 N | 1 |
| 7 | 99.200.206 | 0 | VEDENI LINEARNI / LINEAR GUIDE / LINEARE FÜHRUNG | MSA25R 640-20/20 N | 1 |

## 7.25. Sloup / Säule / Pole – 2




| NAZEV SESTAVY | CISLO SESTAVY | STROJ |
|---|---|---|
| SLOUP | 201.R402-020 | PRL 450 |
| | Konstruoval: MUSIL | |
| | Datum: 05. 01.2011 | |
| | Meritko: 3:10 | |

## 7.26. Kusovník / Stückliste / Piece list – Sloup / Säule / Pole – 2

| Cislo Sestavy<br>201.R402-020 | Ver.<br>0 | Nazev sestavy<br>SLOUP/POLE/SÄULE |
|---|---|---|

| Poz. | Objednaci cislo | Ver. | Nazev polozky | Rozmer | Ks |
|---|---|---|---|---|---|
| 1 | 30.0807-008 | 1 | DRZAK / HOLDER / HALTER | HR 40x40 | 1 |
| 2 | 30.R402-021 | 0 | SLOUP / POLE / SÄULE | | 1 |
| 3 | 90.001.25.057 | 0 | SROUB IMBUS CERNENY / ALLEN HEAD BOLT / IMBUSSCHRAUBE | M12x25 | 4 |
| 4 | 99.200.207 | | VEDENI LINEARNI / LINEAR GUIDE / LINEARE FÜHRUNG | MSA20R 640-20/20 N | 1 |

| Cislo Sestavy | Ver. | Nazev sestavy |
|---|---|---|
| 201.Y402-070 | 1 | ODMEROVANI/MEASURING/GEHRUNGSMESSUNG |

| Poz. | Objednaci cislo | Ver. | Nazev polozky | Rozmer | Ks |
|---|---|---|---|---|---|
| 1 | 30.6114-023 | 0 | DRZAK / HOLDER / HALTER | P 3x20 | 2 |
| 2 | 30.Y402-071 | 1 | TYC / POLE / STANGE | d 20 | 1 |
| 3 | 30.2014-001 | 0 | OBJIMKA / CLAMP / KLAMMERSTÜCK | Ø 30-32 | 1 |
| 4 | 90.001.25.092 | 0 | SROUB IMBUS / ALLEN HEAD BOLT / IMBUSSCHRAUBE | M6X14 | 4 |
| 5 | 94.007.001 | 0 | SROUB / BOLT / SCHRAUBE | M5x10 | 1 |
| 6 | 99.120.001 (1) | 0 | PRAVITKO / RULER / SKALENBANDMAß | 0.5m | 1 |

1.PRIDANO PRAVITKO 99.120.001. 138/ZM144 19.5.2010 SLEZACKOVA