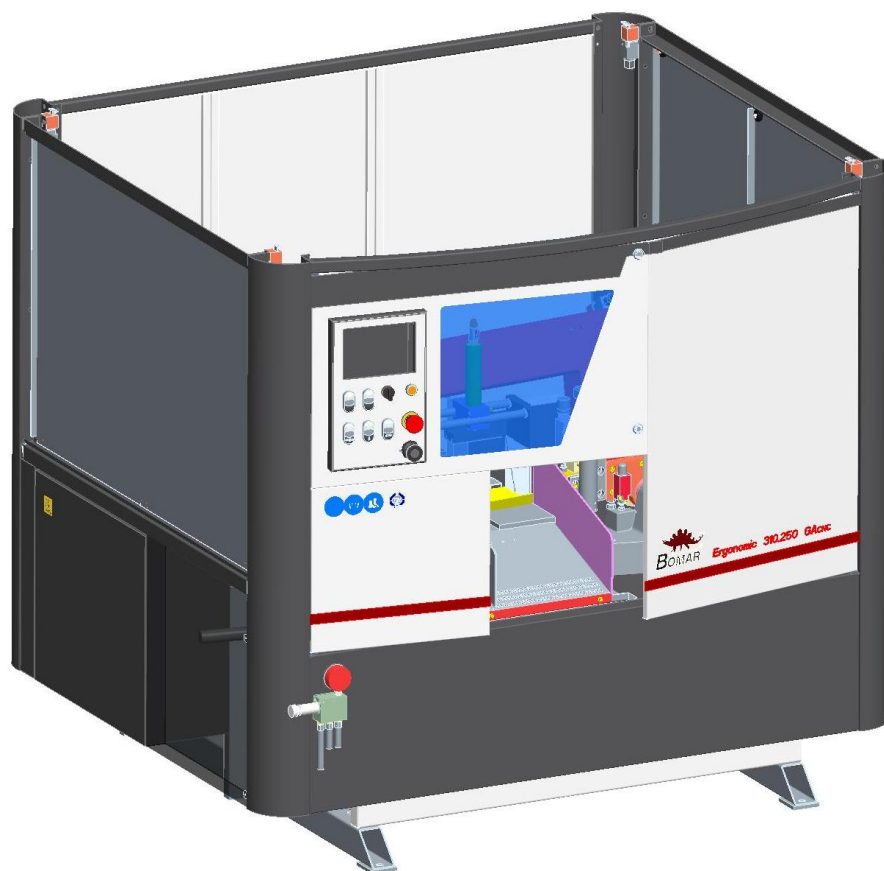


Series **Individual Automatic**



Ergonomic 310.250 GACNC

Operating instructions

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

Seriové číslo / Serien Nummer / Serial Number _____

Service and information

Your BOMAR dealer:

Direct BOMAR contact:

BOMAR spol. s r.o.
Těžební 1236/1
62700 Brno
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www: <http://www.bomar.cz>

We are available:

Mondays to Fridays

7⁰⁰ – 16⁰⁰

Version:

1.01 / Apr. 2013
rev. 1

BOMAR, spol. s r.o. © – Subject to modifications and amendments.

EC Declaration of Conformity

1) We

BOMAR, spol. s r.o.
Těžební 1236/1
627 00 Brno, The Czech Republic
 Id.no: 48908827

declare herewith,

that the following designated device based on its conception and construction as well as the design launched by us meets the relevant basic safety requirements of the decrees of the government. In the event of any device modification not approved by us this declaration shall lose its validity.

Name: **Band Saw**

Type range: **Ergonomic 310.250 GACNC**

Serial number:

Manufacturer: **BOMAR, spol. s r.o., Těžební 1236/1, 627 00 Brno**

Product data

Determination: for cross dividing and cutting of rolled and towed bars and profiles made of steel, stainless steel, non-ferrous metals and plastics.

Description: stand, table, cutting unit with the saw band and drive, clamping device, cooling system, el. switch board with control panel.

Hydraulic YES ☒ NO ☐ Control system YES ☒ NO ☐

Technical data: Cutting rate 40 – 80 m.min⁻¹
 Cutting angle: 0° – 60°
 Total dimensions in mm (l×w×h) 1776×1774×1600
 Supply voltage 400 V TN-C-S, 400 V TN-C or 230 V TN-C
 Total power requirement 3,3 kW
 Weight 800 kg

The applied decrees of governments: **No. 176/2008 Coll.** (Directive 2006/42/EC)
No. 616/2006 Coll. (Directive 2004/108/EC)

The applied harmonized standards, National standards and technical specifications:
 ČSN EN ISO 12100:2011, ČSN EN 13 898:A1:2009, ČSN EN ISO 13857:2008, ČSN EN ISO 4413:2011,
 ČSN EN 60204-1 ed.2:2007, ČSN EN 55 011 ed.2:2007, ČSN EN 61 000-6-4 ed.2:2007

The product is safe on condition of the common and determined usage.

The conformity judging was performed according to §12, par. 3, let. a), of the Law no. 22/1997 Coll. as amended

2) ²⁾ The declaration of conformity was carried out in the cooperation with the TÜV SÜD Czech s.r.o, Novodvorská 994, 142 21 Prague 4 – Czech Republic, Identification number: 63987121 - Inspection body no. 4002

The inspection certificate no . 05.329.141 was issued.

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

 Alfred Pichlmann, Managing Director

Alfred Pichlmann

Point of issue, datum

Name and function
 of the responsible subject

Signature

1) Name, address and identification number of the subject issuing the conformity declaration (producer of importer)

2) The authorized or accredited body co-operating on the conformity judging



If the equipment is installed without safety equipment offered by BOMAR, spol. s r.o or its agents and used by the customer (or buyer) then EC declaration loses validity.
 EC Declaration of conformity is valid only if customer (buyer) installed the BOMAR safety equipment with the machine or with some other with equivalent safety device in accordance with current applicable regulations and standards.
 All machine elements and components that were built into the device by BOMAR, spol. s r.o have been declared "identical" to a safety device, as offered by BOMAR, spol. s r.o or its agents.

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

Attention!

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

1.1. Machine determination

The band saw **Ergonomic 310.250 GACNC** is determined for cutting and shortening of rolled bars and drawn bars and profiles from steels, stainless steels, non-ferrous metals and plastics **with cutting angle:**

- In automatic mode from 0° to 45°
- In semi-automatic mode from 0° to 60°

When cutting over 45° need to open the cover band saws.

Combustible materials are excepted 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 jewellery and always tie back long hair! Moving machine parts can catch jewellery or loose hair and may cause serious injuries.

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

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*

Machine can be operated only by one person. 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!

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

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

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

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

Compliance with the 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.

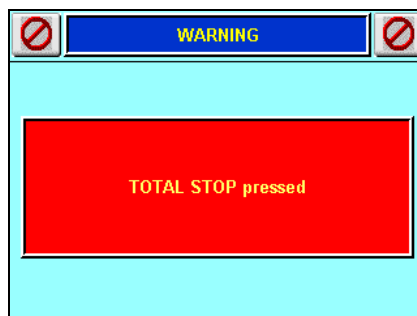
Enhanced risk!

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!



After push **TOTAL STOP** button is shown warning message on LCD.

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

1.6.2. Saw arm cover

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



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

1.6.3. Band saw cover

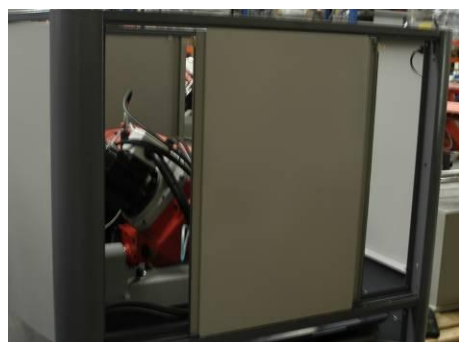
It covers the visible area of the saw band from left guiding cube to the frame.



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

1.6.4. Machine Protective covers

Protective covers prevents operator access to the moving parts of the machine during operation, thus preventing injury to the operator

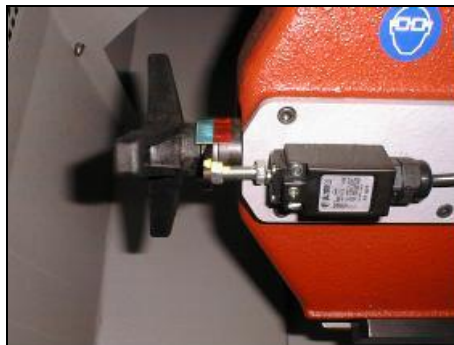


If the cover is opened during cutting, the limit switch is unfastened (see arrow), the machine is stopped. The band saw is not possible start in set mode.

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

1.6.5. 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.

1.7. 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.

1.7.2. Safety information for the chip remover

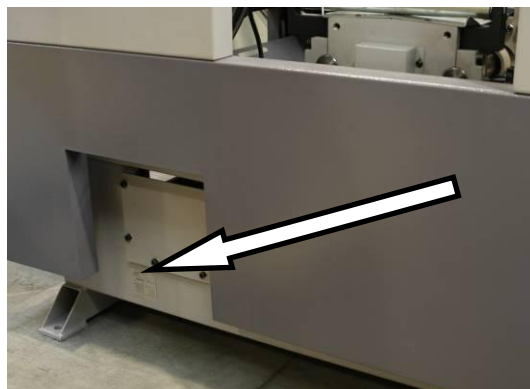
The chip remover is auxiliary equipment, following information applies only for equipment with this conveyor.

Attention!

It is forbidden to enter the swarf conveyor area if the saw is in operation. All maintenance and other works on the swarf conveyor could be done only on equipment which has been switched off.

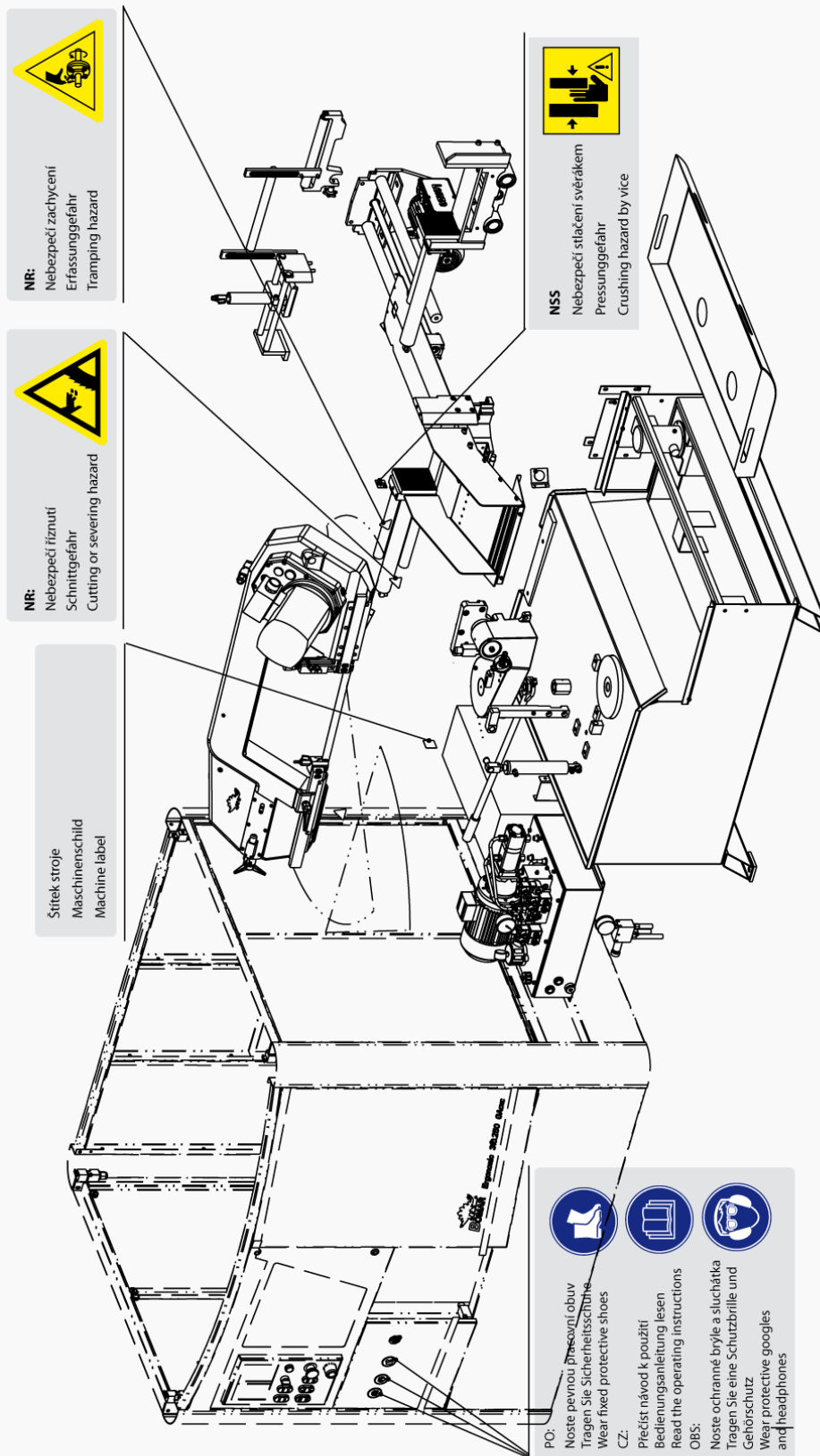
If the machine is switched on, operate it only using the control panel (see Chapter 3 Machine control).

**1.8. Umístění štítku stroje /
Maschinenschild position /
Position of machine label**



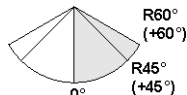




The machine label is located on the saw base near material input.

1.9. Umístění bezpečnostních značek / Verteilung der Sicherheitszeichen / Position of safety symbols



2. **Machine documentation**

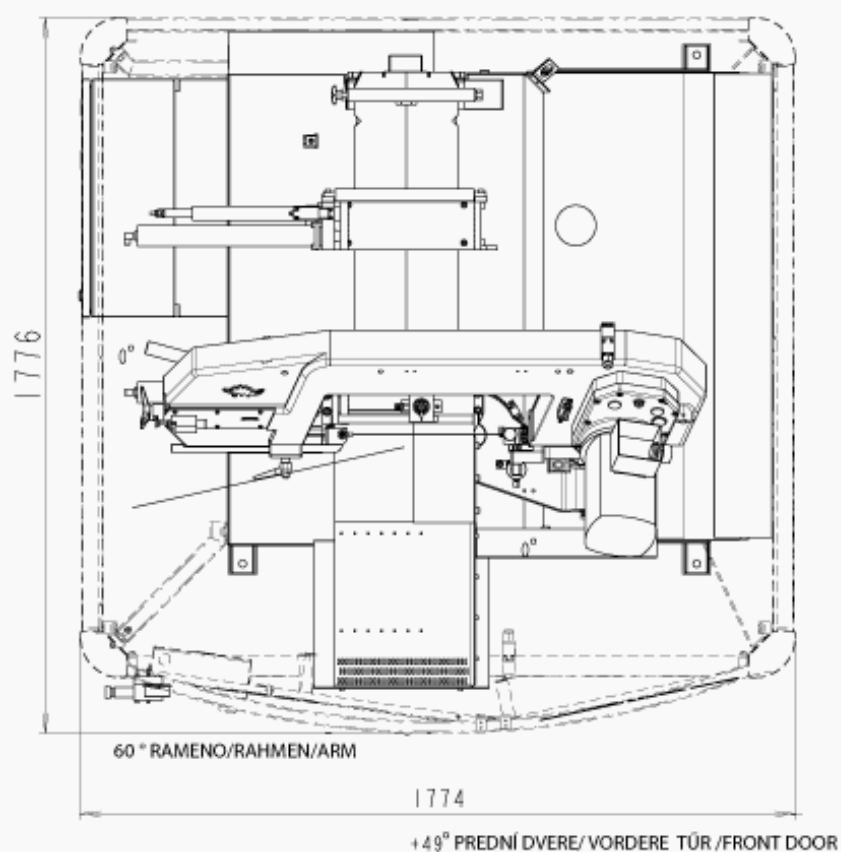
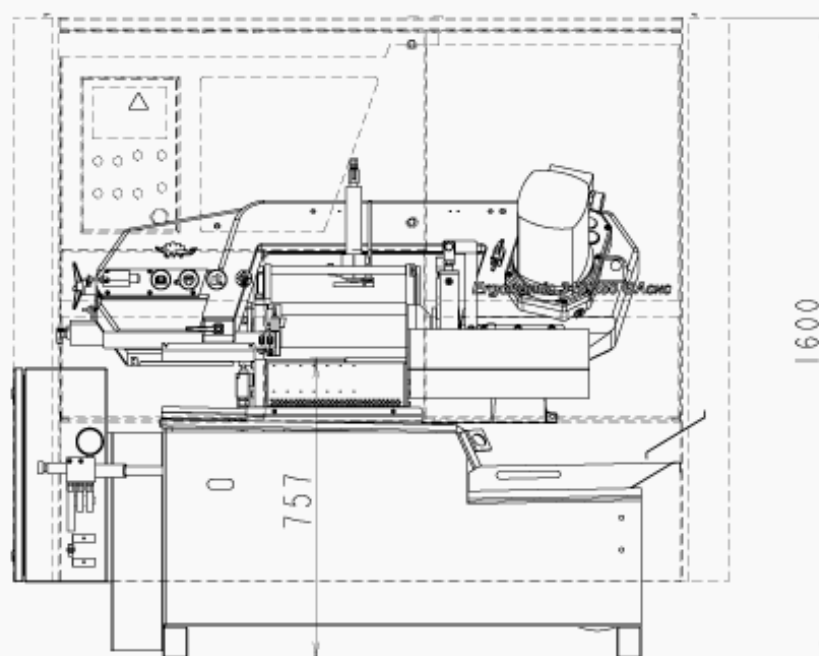
2.1. Technická data / Technische Daten / Technical data

Hmotnost stroje / Maschinengewicht / Machine weight:				
<ul style="list-style-type: none">Hmotnost / Gewicht / Weight	800 kg			
Rozměry stroje / Maschinengröße / Machine size:				
<ul style="list-style-type: none">Délka / Länge / Length	1776 mm			
<ul style="list-style-type: none">Šířka / Breite / Width	1774 mm			
<ul style="list-style-type: none">Výška / Höhe / Height	1600 mm			
Elektrické vybavení / Elektrische Ausrüstung / Electrical equipment:				
<ul style="list-style-type: none">Napájení / Versorgungsspannung / Supply voltage	~ 3×400V, 50H			
<ul style="list-style-type: none">Příkon / Gesamtschlusswert / Total Input	3,3 kVA			
<ul style="list-style-type: none">Max.jištění / Max. Vorschaltsicherung / Max. Fuse	16 A			
<ul style="list-style-type: none">Krytí / Schutzart / Protection	IP 54			
Akustický tlak / Schalldruckpegel / Acoustic pressure:				
<ul style="list-style-type: none">Ergonomic 310.250 GACNC	L _{Aeq} = 65 dB			
Pohon / Antrieb / Drive:				
<ul style="list-style-type: none">Typ / Typ / Type	TM90-2 45 B5			
<ul style="list-style-type: none">Napájení / Versorgungsspannung / Supply voltage	~ 3×400 V/230 V, 50 Hz			
<ul style="list-style-type: none">Výkon / Leistung / Output	1,5/1,1 kW			
<ul style="list-style-type: none">Jmenovité otáčky / Motornenndrehzahl / Nominal speed	2800/1100 min ⁻¹			
Chladicí zařízení / Kühlmiteleinrichtung / Cooling equipment:				
<ul style="list-style-type: none">Výkon / Leistung / Output	0,05 kW			
<ul style="list-style-type: none">Obsah nádrže / Volumen vom Kühlmittel / Capacity	28 dm ³			
Rozměr pásu / Sägebanddimension / Band size:				
2910×27×0,9 mm				
Řezná rychlost / Schnittgeschwindigkeit / Cutting speed:				
standard version (w/o freq. conv.) 40/80 m/min; with freq. conv. 20–120 m/min				
Jedno podání / Ein Hub / One upstroak:				
0° – 500 mm				
15° – 500 mm				
45° – 450 mm				
60° – 330 mm				
Nejmenší řezaný materiál / Kleinste Materials / Smallest material:				
10×10 mm/Ø10 mm				
Řezné rozsahy / Schnittbereiche / Cutting size:				
				
0°	Ø250 mm	310×230 mm	310×230 mm	240×240 mm
R 15° (+15°)	Ø250 mm	280×230 mm	280×230 mm	230×230 mm
R 45° (+45°)	Ø210 mm	220×100 mm	190×230 mm	190×190 mm
R 60° (+60°)	Ø130 mm	130×90 mm	130×90 mm	100×100 mm

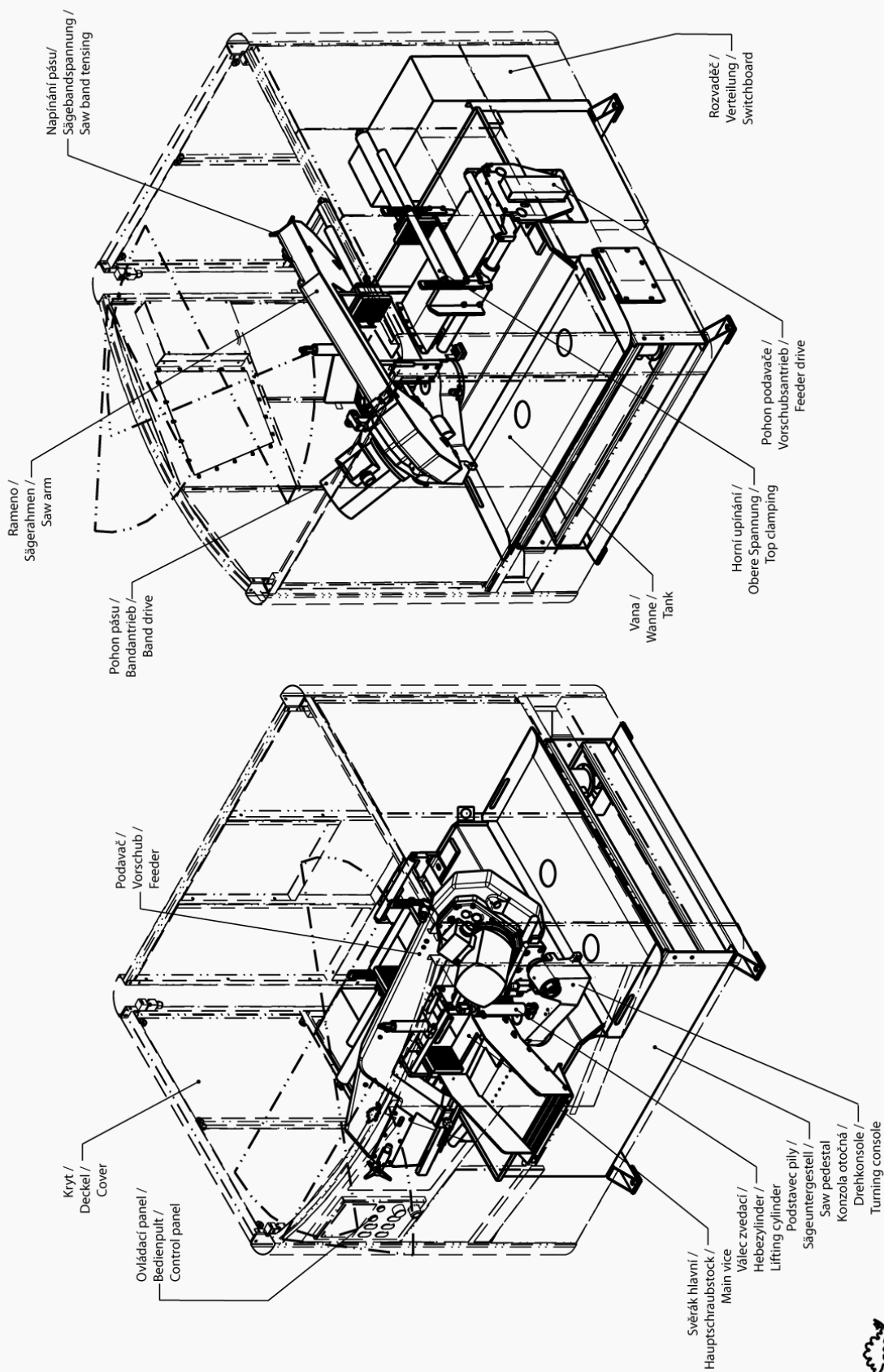
Acoustic pressure level:

The equivalent level of the acoustic pressure A (noise) in the position of the operator is L_{Aeq} = 76,3 dB. The values are indicating the emission levels and may not present safety working levels. Among the factors, which influence the real values of the operator exposure, are properties of the workshop room, cut material and used saw bands – which may significantly influence the exposure levels.

2.2. Rozměrové schéma / Aufstellzeichnung / Installation diagram



2.3. Popis / Beschreibung / 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 -25°C to 55°C, for a *short term* (max. 24 hours) temperature of the air until 70°C
- Do not expose the machine to radiation (for example microwave radiation, 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.

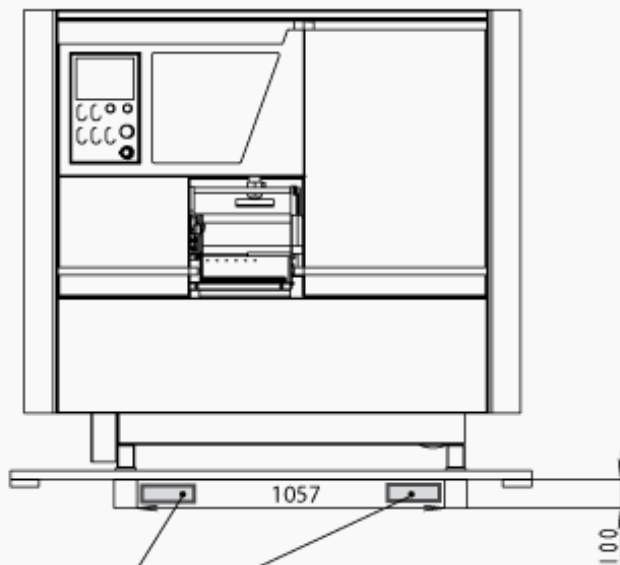
Fix the stickers stating the minimum approximate machine weight to at least five well visible places.

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. Transportní schéma / Transport schema / Transport scheme

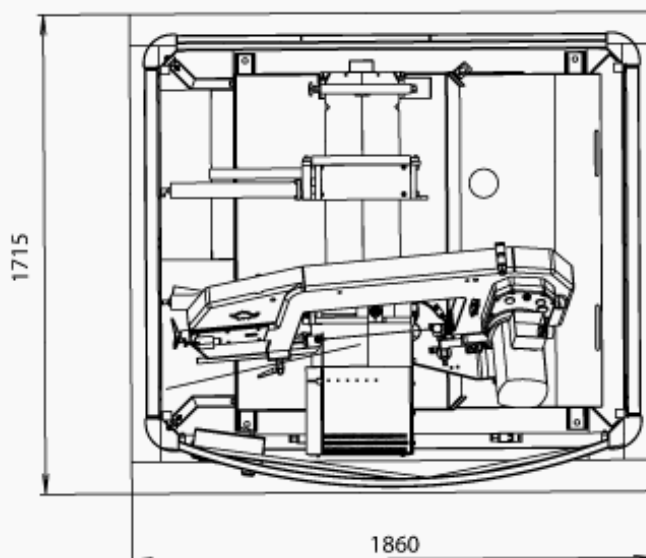


Místo pro ližiny
vysokozdvízného vozíku
Die Stelle für Greifen mit
der Gabel des Gabelstaplers
Place for forklift's skides

Ližiny musejí mít délku
nejméně 1700 mm.

Die Langschwellen müssen mindestens
1700 mm lang sein.

Forklift's skides must be long
at least 1700 mm.



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 **5°C to 40°C**, the temperature average during 24 hours must **not exceed over 35°C**.
- At relative dampness of the air in the extend from 30% to 95% (not concentrate). Altitude lower than 1000 metres.
- Do not expose the machine to the radiation (for example microwave radiation, ultra-violet radiation, laser radiation, x-ray radiation). Radiation can cause problems with the machine function and deteriorating condition of the isolation.

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 levelling

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

Minimal requirement:

machine weight – Ergonomic 310.250 GACNC – 800 kg

+ weight of accessories

+ maximum weight of material

- The machine must be levelled at the horizontal position. All feet of the machine must touch with the floor after levelling
- The machine must be levelled by means of the calibrated spirit level. Spirit level is put on the vice area. Set the roller conveyors according to the spirit level.
- For machine levelling, take care that there is sufficient available space for operation, repair work, servicing of the machine and handling the material..
- The machine including appended parts and accessories must be visible from the place of operation.

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.

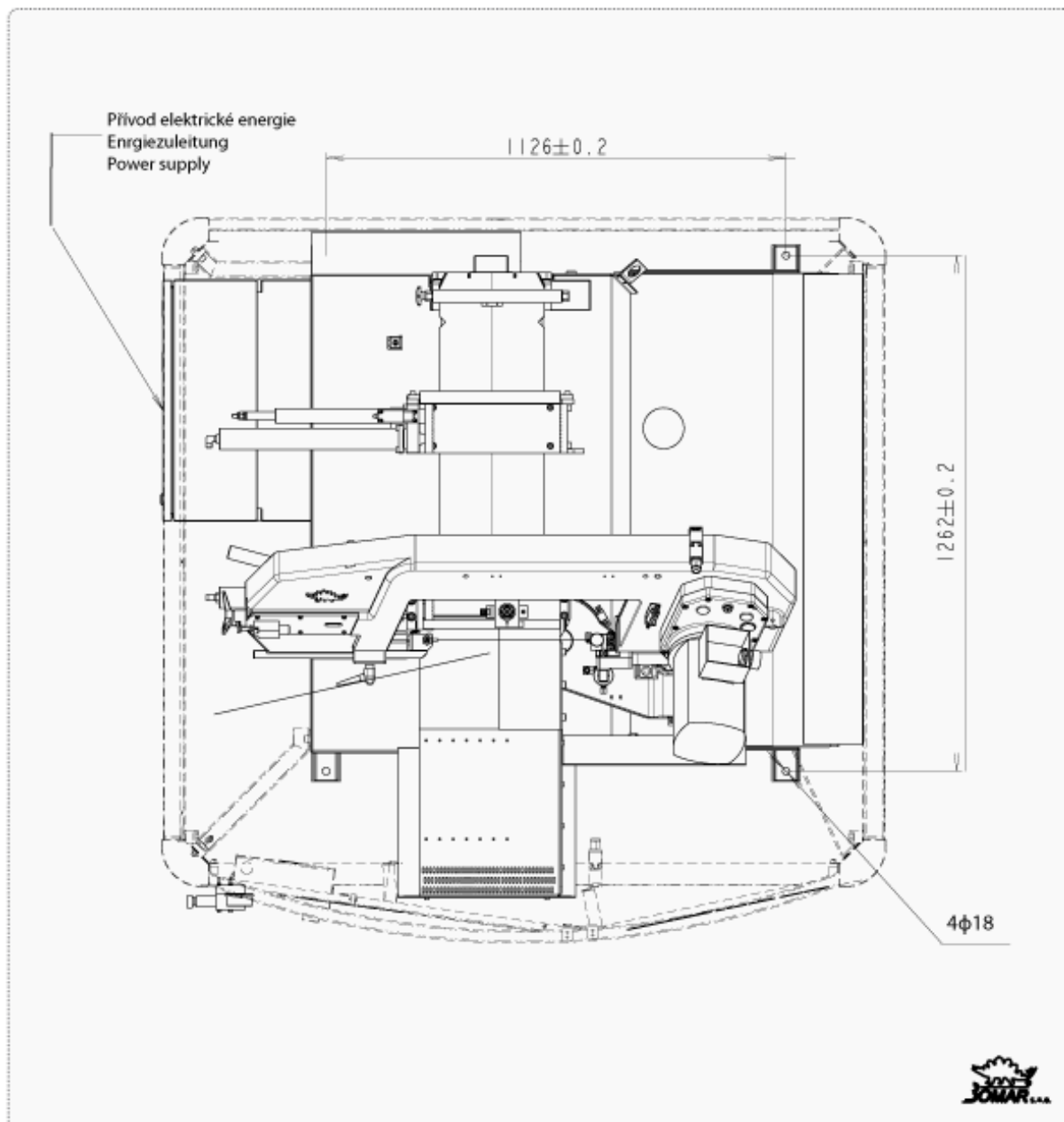
Power packs have to be filled up with clean, pre-filtered oil! The purity of the hydraulic fluid must correspond to the class 10 NAS 1638 (reachable with filter $\beta = 75$)!

Filling from container, such as barrels, buckets, 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 ν in mm ² /s in relationship to the fluid temperatur					Freezing point
	0°C	20°C	40°C	60°C	80°C	°C
OH-HM 32	220	100	32	15	7	-40
OH-HM 46	400	170	46	18	11	-30
OH-HM 68	700	170	68	26	14	-28
OH-HV 32	180	67	32	17	11	-40
OH-HV 46	350	110	46	25	14	-36

2.6.5. Kotevní plan / Verankerungsplan / Grounding plan



Kotvicí materiál / Verankerungsmaterial / Grounding material

- 4x Hmoždina / Dübel / Plug – $\phi 12$ mm
- Vrtáno do hloubky / In die Tiefe gebohrt / Drilled to – 95 mm
- Šrouby / Schraube / Screws – M16x135

- Šrouby podložit deskami o min. rozměrech P10x100-100
- Die Schrauben mit Platten mit Minimaldimensionen P10x100-100 unterlegen
- Screw must be bottomed with plates (min. dimensions P10x100-100)

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: $\sim 3 \times 400 \text{ V}$, 50 Hz, TN-C-S
- Total input / Max. fuse: 3,3 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!

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

Note:

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

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.

Attention!

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

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

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.

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

2910×27×0,9 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 for 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:

Z₁Z₂ – 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:

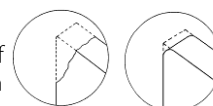
32 S – number „32“ means 32 teeth on one inch (that means constant tooth system), letter „S“ marks teeth with zero angle of the tooth.

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

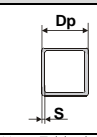
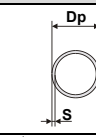
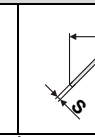
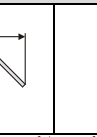
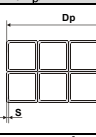

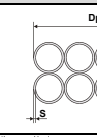
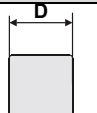
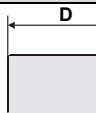
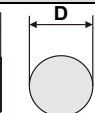

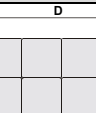
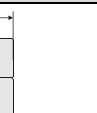
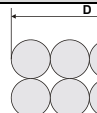
Running-in: Cut the material with the frame lowering reduced to 50% only. When vibrations occur increase or decrease the band speed.

When cutting small pieces run the band until approximately 300 cm² of material has been cut. When cutting large pieces run the band for 15 minutes approximately. When the band has been run, increase the lowering-speed to normal speed. The running in of the saw band avoids micro-breaks on the cutting edges of new saw band ensuing from first excessive stress. This would decrease service life substantially. The optimal running in of the saw band produces ideal rounded cutting edges and therefore the conditions for an optimal service life.



Note: Run regrinding saw bands too.

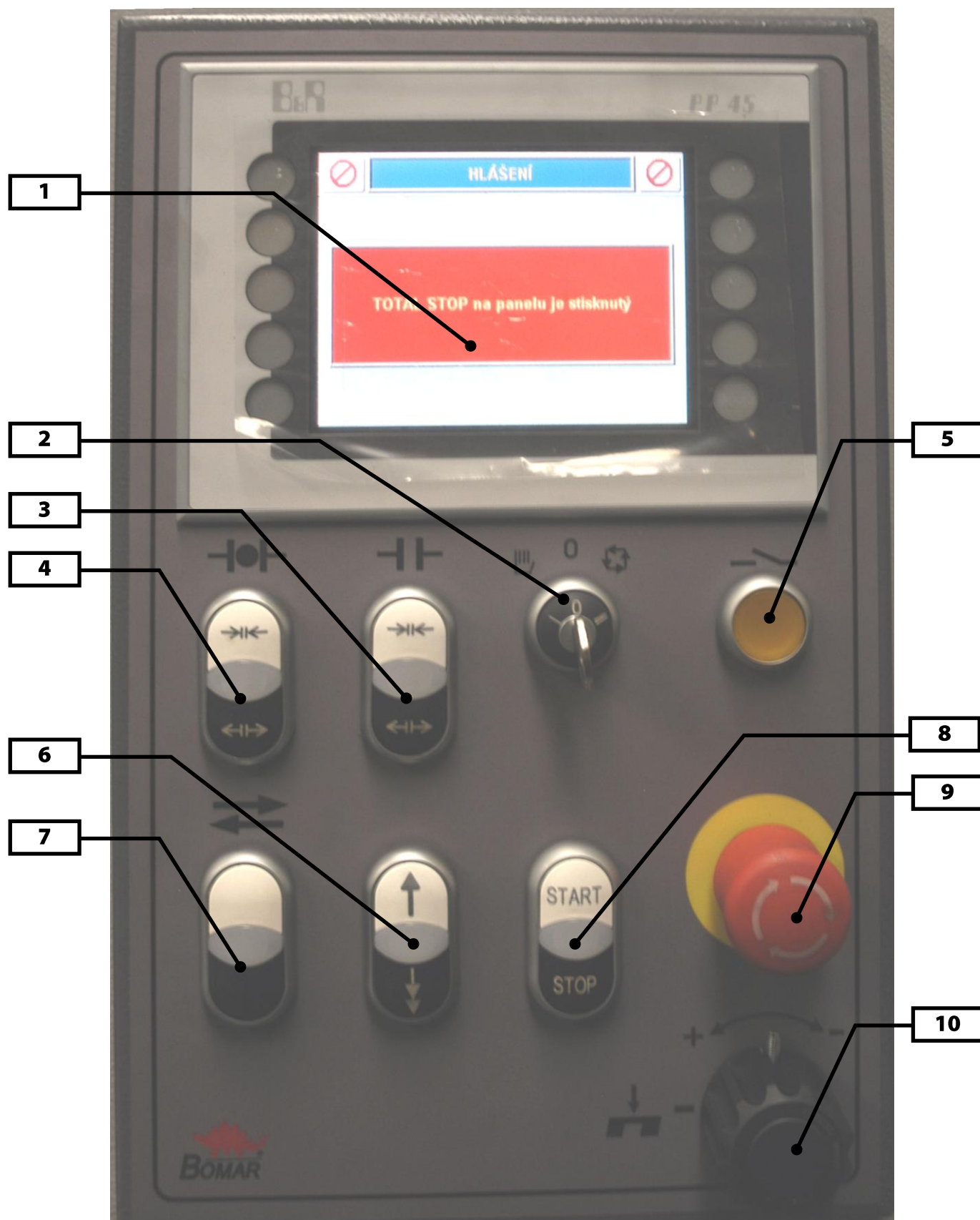
2.10.4. Tables for teeth selection




SHAPED MATERIAL ($D_p, S = \text{mm}$)						
						
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 2xS). 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 ($D = \text{mm}$)						
						
Constant tooth system		Variable tooth system				
length of the cut D	tooth system (Z_p, Z)	length of the cut D	tooth system (Z_p, Z)			
to 3 mm	32	to 30 mm	10-14			
to 6 mm	24	20-50 mm	8-12			
to 10 mm	18	25-60 mm	6-10			
to 15 mm	14	35-80 mm	5-8			
15-30 mm	10	50-100 mm	4-6			
30-50 mm	8	70-120 mm	4-5			
50-80 mm	6	80-150 mm	3-4			
80-120 mm	4	120-350 mm	2-3			
120-200 mm	3	250-600 mm	1,4-2			
200-400 mm	2	500-3000 mm	0,75-1,25			
300-800 mm	1,25					
700-3000 mm	0,75					

3. **Machine control**

3.1. Control panel

Ovládání stroje
Bedienung der Maschine
Machine control

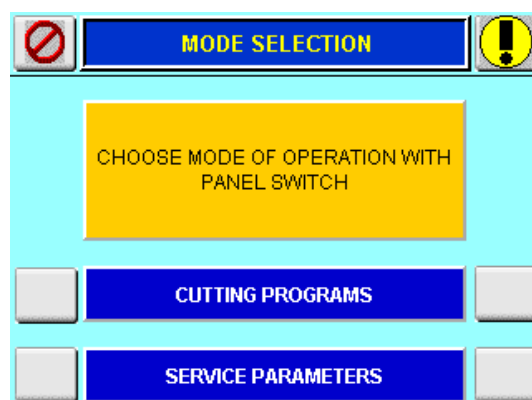


1	Touch screen LCD Displays current state of the operation. Function keys F1 to F10 are located along both sides of LCD.
2	Volba režimu Můžete zvolit ze tří možností: <div style="display: flex; align-items: center;">  <div style="margin-left: 10px;">Adjustment mode</div> </div> <div style="display: flex; align-items: center;">  <div style="margin-left: 10px;">Machine setting mode – service param. And programs</div> </div> <div style="display: flex; align-items: center;">  <div style="margin-left: 10px;">Machine operation mode – semi-automatic mode and automatic mode.</div> </div>
3	Main vice Buttons to tighten / release the main vice jaws
4	Feeder vice Buttons to tighten / release the feeder vice jaws
5	Safety circuit Press button to start the safety circuit
6	Frame up / down If both buttons are pressed at the same time, the frame moves faster
7	Feeder movement Feeder movement to / from saw Rapid move of feeder – first press the button to move the feeder (determine direction) then press the second button (the button for the opposite direction) Slow move of feeder – for precise positioning and slow feeding, first press the button for the desired direction of micro-and at the same time press the STOP button.
8	STOP button Interrupts the cycle, to restart press START button. START button Press to start the work cycle. Press STOP to stop the cycle..
9	TOTAL – STOP button Immediately stops the machine in emergency.
10	Regulation valve Regulation valve sets the lowering speed of the frame into the cut. The speed is limited by the adjustment of the pressure regulation in the cut on the guiding cubes. Note: If the throttle valve is closed too tightly, the valve seat may be damaged and may start to leak. Tighten the valve lightly.

If machine is equipped by frequency converter then on control panel is placed potentiometer for saw blade speed change.

3.2. Saw band start

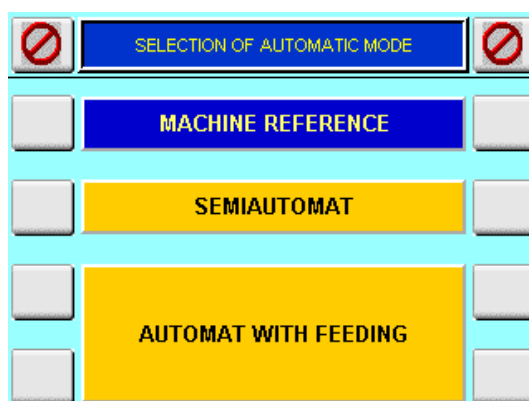
1. Turn the main switch of the saw into **position 1 – ON**. The main switch is placed on the saw switchboard.



2. After start of the control system the initial window appears on LCD. The operator may select:

1.	Select <i>machine operation with key switch</i> , see next point
2.	Make changes in <i>the cutting modes</i> , see chapter <i>Machine control</i>
3.	Make changes in the maintenance parameters, see Maintenance parameters chapter.

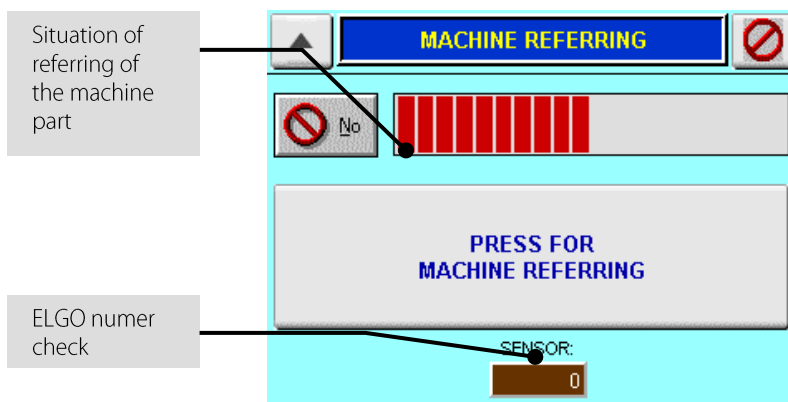
3. Turn on the safety circuit by yellow button.
4. Select the machine mode by the key on the control panel



5. Machine referring (see chapter Machine referring) must be made before machine use.

3.2.1. Machine referring

Machine referring is necessary for correct operation of the saw in automatic mode.




ELGO – linear sensor on the feeder check; does not measure any particular value, just checking the sensor operation.

3.3. Cutting procedure – Semi-automatic mode

Attention!

In semiautomatic mode is possible set-up cutting angles in interval from 0° to 60°. When is set angle above 15° safety doors in front the saw must be opened. With opened doors machine cannot be switched into automatic mode.

Cutting progress in "One cut automatic mode":

1.	Prepare the cutting material, load it to the saw and clamp into vice
2.	Switch machine into working cycle by key-switch. 
3.	Set the semiautomatic mode on LCD

Attention!

In semiautomatic mode is NOT watched possible collision situation between main vice and feeder. **Possible collision must be watched by machine operator.**

Maximal one-upstroke depends on the saw arm angle:

- 0° – 500 mm
- 15° – 500 mm
- 45° – 450 mm
- 60° – 330 mm

Preparation before cut:

All cutting parameters are set in this screen.

SEMIAUTOMAT			
START button = start of cycle			
Type of cooling:		End of cycle:	
<input type="checkbox"/>	Without cooling	<input type="checkbox"/>	End on top
Turn. off the band after cut:		Vice after cutting:	
<input type="checkbox"/>	Do not turn off saw band	<input type="checkbox"/>	Stays clamped
Turn off cooling after cutting:		Use of scavenger:	
<input type="checkbox"/>	Do not turn off cooling	<input type="checkbox"/>	Do not use scavenger

Nabídka	Popis
Type of cooling: <input type="checkbox"/> Without cooling	What saw blade cooling is used during cut <ul style="list-style-type: none"> By cooling liquid Microniser (optional accessories) Without cooling
Turn. off the band after cut: <input type="checkbox"/> Do not turn off saw band	Turn off saw blade after cut – Saw blade is stop immediately after cut (at bottom) / Saw blade in not turn off after cut.

Nabídka	Popis
<div>Turn off cooling after cutting:</div> <div>Do not turn off cooling</div>	Turn ON/OFF cooling liquid pump after cut
<div>End of cycle:</div> <div>End on top</div>	After the cut the frame: <ul style="list-style-type: none"> ends up, drive to upper limit switch position drive over the material
<div>Vice after cutting:</div> <div>Stays clamped</div>	After the cut the main vice: <ul style="list-style-type: none"> stays clamped releases the clamped material
<div>Use of scavenger:</div> <div>Do not use scavenger</div>	Use the chip remover during cutting – YES/NO.

Window showing progress of the semiautomatic cycle:

SEMIAUTOMAT

STOP button = end of cycle

Cycle time:
0.0 min

Number of pieces:
0 St

Type of cooling:
Without cooling

Turn. off the band after cut:
Do not turn off saw band

Turn. off cooling after cut:
Do not turn off cooling

End of cycle:
End on top

Vice after cutting:
Stays clamped

Use of scavenger:
Do not use scavenger




Item	Description
<div>Speed of band:</div> <div>0 m/min</div>	Saw band speed set by frequency changer – control panel, position 7
<div>Cycle time:</div> <div>0.0 min</div>	Total time of the One cut automatic mode duration.
<div>Number of pieces:</div> <div>0 St</div>	Number of pieces cut in the One cut automatic mode.
<div>Type of cooling: Without cooling</div> <div>Turn. off the band after cut: Do not turn off saw band</div> <div>Turn. off cooling after cut: Do not turn off cooling</div> <div>End of cycle: End on top</div> <div>Vice after cutting: Stays clamped</div> <div>Use of scavenger: Do not use scavenger</div>	Individual parameters set in menu Preparation before cut

3.4. Machine control – automatic cycle

3.4.1. Cutting programs

The cutting programs are important part of the automatic cycle. It is possible to define up to 20 programs. It is always started from program no. 1. All sequence of the programs is performed, until the first program without any parameters set (both values are zero).





To enter the cutting parameters selection mode:





1.	Turn the key switch into position 0 – machine adjustment.	
2.	Select Cutting modes item on LCD List of 20 programs is displayed; see section below <i>Setting of the cutting parameters</i> .	
3.	The other way to display the Cutting parameters selection mode is to use Preset item in automatic cycle selection.	

Entering of the cutting parameters:

<div>EXIT</div>		<div>CUTTING PROGRAMS</div>						<div><div></div></div>	
		<div>Nr.</div>	<div>LTH:</div>	<div>QTY:</div>	<div>Nr.</div>	<div>LTH:</div>	<div>QTY:</div>	<div>Move</div>	
<div>◀</div>		<div>1</div>	<div>99999.9</div>	<div>99999</div>	<div>2</div>	<div>99999.9</div>	<div>99999</div>	<div></div>	
		<div>3</div>	<div>99999.9</div>	<div>99999</div>	<div>4</div>	<div>99999.9</div>	<div>99999</div>	<div>Insert</div>	
<div>▶</div>		<div>5</div>	<div>99999.9</div>	<div>99999</div>	<div>6</div>	<div>99999.9</div>	<div>99999</div>	<div></div>	
		<div>7</div>	<div>99999.9</div>	<div>99999</div>	<div>8</div>	<div>99999.9</div>	<div>99999</div>	<div>Editing</div>	
<div>▲</div>		<div>9</div>	<div>99999.9</div>	<div>99999</div>	<div>10</div>	<div>99999.9</div>	<div>99999</div>	<div></div>	
		<div>11</div>	<div>99999.9</div>	<div>99999</div>	<div>12</div>	<div>99999.9</div>	<div>99999</div>	<div>Remove</div>	
<div>▼</div>		<div>13</div>	<div>99999.9</div>	<div>99999</div>	<div>14</div>	<div>99999.9</div>	<div>99999</div>	<div></div>	
		<div>15</div>	<div>99999.9</div>	<div>99999</div>	<div>16</div>	<div>99999.9</div>	<div>99999</div>	<div></div>	
		<div>17</div>	<div>99999.9</div>	<div>99999</div>	<div>18</div>	<div>99999.9</div>	<div>99999</div>	<div></div>	
		<div>19</div>	<div>99999.9</div>	<div>99999</div>	<div>20</div>	<div>99999.9</div>	<div>99999</div>	<div></div>	

Function keys for Cutting programs selection:

Button	Description
	To move left in the values of Cutting programs table.
	To move right in the values of Cutting programs table.
	To move up in the values of Cutting programs table.
	To move down in the values of Cutting programs table.

Button	Description
	To move any program to different position in the list.
	To enter the program to a new place in the list.
	To edit the values of the program.
	To remove any program (reset the values).

The active field in the program list is displayed in red.


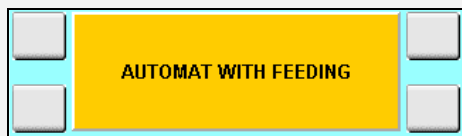
Nr.	LTH:	QTY:
1	99999.9	99999
3	99999.9	99999
5	99999.9	99999

Two values are set for each program:

- Length of individual pieces
- Number of individual pieces

3.4.2. Automatic cycle

To enter the automatic cycle:

1.	<p>Turn the key switch into position 2 – Working mode</p> 
2.	<p>Select the item Automat with feed on LCD</p> 
3.	<p>The menu to enter the new values for automatic cycle or menu allowing proceeding with started automatic mode follows.</p>

Preparation before start of the automatic mode:

This menu allows entering the start program and parameters adjusting the automatic mode.

Select the menu item **Presets** to enter the Cutting mode, see previous chapter **Cutting modes**.

⊘
AUTOMATIC CYCLE
⊘

Number of program: 0

Quantity entered: 99999

Already cut: 0

Remains to be cut: 0

Presets

Length of cut: 99999.9

Number of pieces: 99999

Turning off the band after cut:

Do not turn off saw band

Type of cooling:

Without cooling

Turning off cooling after cutting:

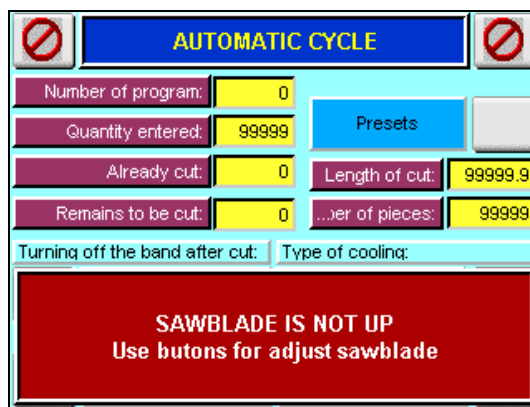
Do not turn off cooling

Use of scavenger:

Do not use scavenger

Button	Description
<div style="border: 1px solid black; padding: 2px;"> <div style="background-color: cyan; padding: 2px;">Turning off the band after cut</div> <div style="display: flex; justify-content: space-between;"> Do not turn off saw band </div> </div>	Switch off the saw band drive after cut – Switch off the band / do not switch off the band.
<div style="border: 1px solid black; padding: 2px;"> <div style="background-color: cyan; padding: 2px;">Turning off cooling after cutting</div> <div style="display: flex; justify-content: space-between;"> Do not turn off cooling </div> </div>	Switch off the cooling pump after cut – Switch off the pump / do not switch off the pump.
<div style="border: 1px solid black; padding: 2px;"> <div style="background-color: cyan; padding: 2px;">Type of cooling:</div> <div style="display: flex; justify-content: space-between;"> Without cooling </div> </div>	Cooling method during cutting: <ul style="list-style-type: none"> • Cooling liquid • Micronization (optional accessory) • No cooling
<div style="border: 1px solid black; padding: 2px;"> <div style="background-color: cyan; padding: 2px;">Use of scavenger:</div> <div style="display: flex; justify-content: space-between;"> Do not use scavenger </div> </div>	Use the chip remover during cutting – YES/NO.
<div style="border: 1px solid black; padding: 2px;"> <div style="background-color: blue; color: white; padding: 2px 10px;">Presets</div> </div>	Enter the cutting parameters
<div style="border: 1px solid black; padding: 2px;"> <div> <p>Number of program: 0</p> <p>Quantity entered: 99999</p> <p>Already cut: 0</p> <p>Remains to be cut: 0</p> </div> <div> <p>Length of cut: 99999.9</p> <p>Number of pieces: 99999</p> </div> </div>	Parameters: <ul style="list-style-type: none"> • Program no. – number of the start program • Set number – loads the number of pieces from program(s) • Finished cut – number of pieces cut before the last interruption of the program • Remains to be cut – number of pieces remaining to be cut • Cut length – length of one piece • Number of pieces – already cut

If the measurement frame (for detection of clamped material for cutting) is not installed, the operator is before the start of the automatic mode requested to set the saw frame into its highest position to the upper limit switch.



Adjust position to the upper limit switch by buttons on the control panel in position 7.

Procedure for One cut automatic cutting:

1. Prepare the cut material
2. Set the automatic cycle, see *Preparation before start of the automatic cut*
3. After **START** button is pressed, the software asks if the material in the first cut should be cut.
4. The following menu appears on LCD, the frame starts to descend to the cut – semiautomatic cycle starts.

3.4.3. Work cycle interruption

Attention!

When **STOP** button is pressed during movement of some parts of the machine (frame, feeder...), the operation is finished and after that the machine is stopped. **For emergency stop use TOTAL-STOP button.**

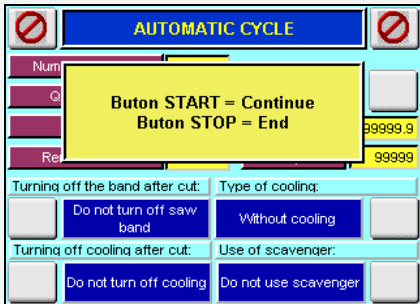
Possibilities for stopping:

» Stopping of the automatic cycle by **TOTAL-STOP**




TOTAL-STOP button activation is indicated on LCD.

» **Interruption of the automatic cycle by STOP:**




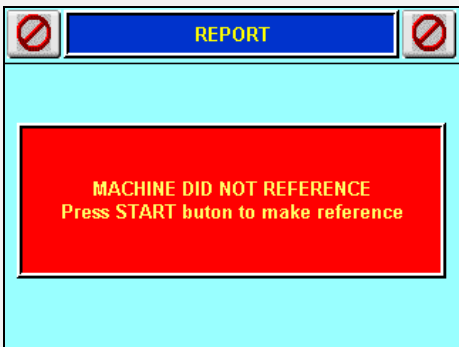
If the operator presses the **STOP** button, the cutting process is stopped. When **START** button is pressed, the cutting continues. Repeated pressing of **STOP** button stops the automatic cycle.

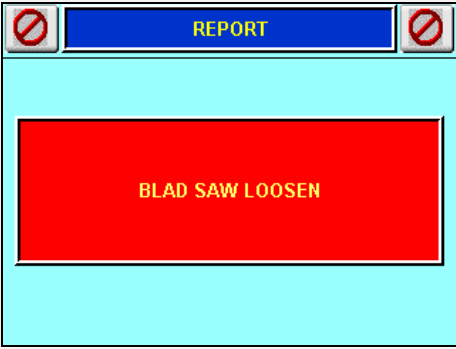

» **Continue in automatic cycle**



The process interrupted in this way can be continued – if the operator returns to the Automatic mode, the following menu is displayed. Press the function button **Continue** to continue with the automatic cycle from the position of interruption. Select item **Stop** to finish the automatic process; the operator may start the new process with new values.

3.5. System error messages

Error message	Description
	Safety circuit <ul style="list-style-type: none"> The safety circuit is not switched on; the machine cannot be used. Press the safety circuit button on the control panel (pos. 10)
	Machine reference <ul style="list-style-type: none"> The machine cannot start without referencing – see chapter Referencing of the machine. Proceed according to directions in message – turn the key to position 0 and select Machine referencing in the menu.


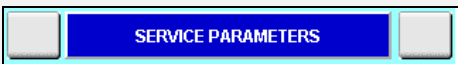

Error message	Description
	Saw band <ul style="list-style-type: none"> The system monitoring saw band stretching level detected insufficient stretching. Stretch the band to recommended level.
	Total Stop <ul style="list-style-type: none"> TOTAL-STOP has been pressed.

3.6. Service parameters

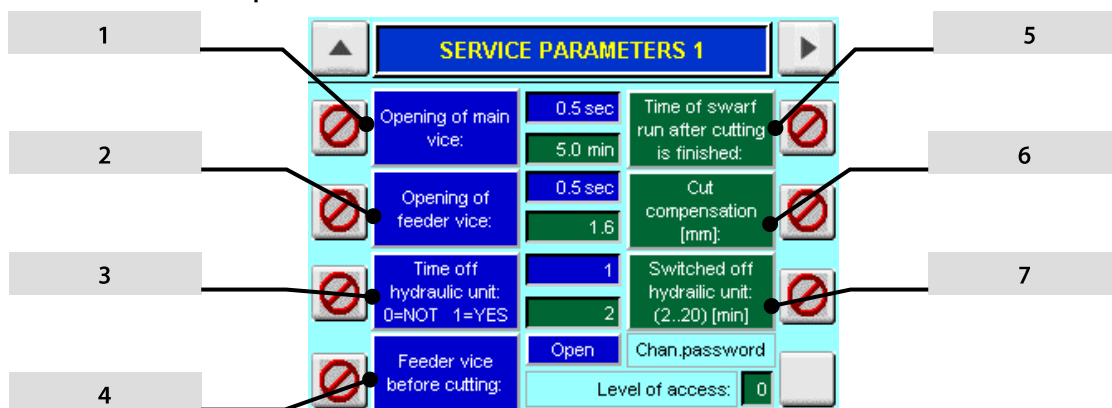
Attention!

Wrong setting of following parameters may damage the machine. **Change the values reasonably!**

Enter the service parameters menu:

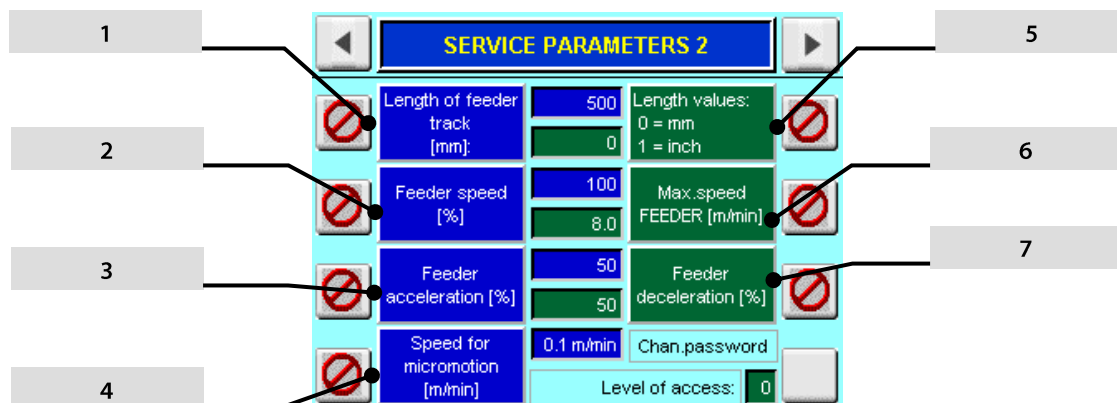
1.	Turn the key switch into position 0	
2.	Select the item Service parameters on LCD	
3.	To leave the menu:	<ul style="list-style-type: none"> Turn the key switch to different position Press  button

3.6.1. Service parameters 1



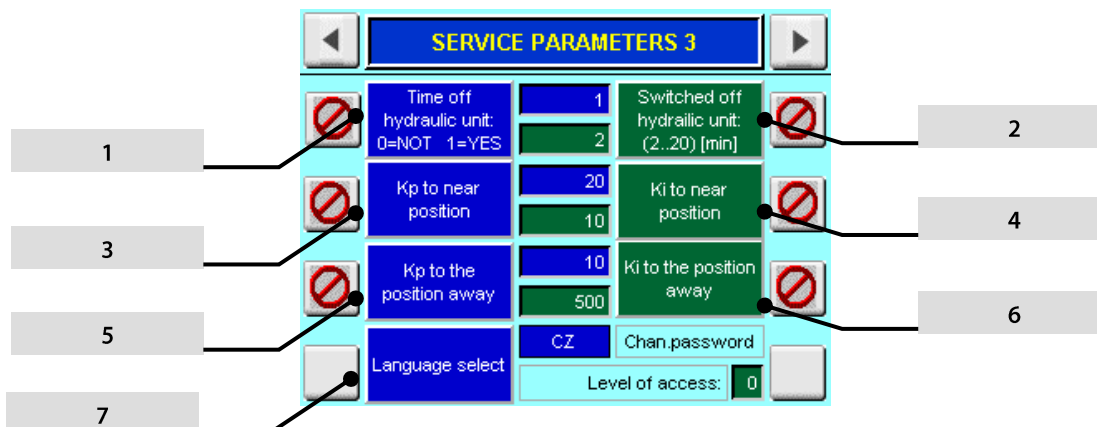
Pos.	Function
1.	Main vice opening time – vice opening time. The vice opens only for this period of time, does not opens fully to save the time.
2.	Feeding vice opening time – Guarding time of the hydraulics to open the feeding vice.
3.	Switch off the hydraulic system of the machine after certain period: <ul style="list-style-type: none"> YES – the system switches off after selected period NOT – the hydraulic circuit will run until the machine is switched off
4.	Feeding vice prior to cutting – Setting of the feeding vice prior to cutting – open / closed.
5.	Operation time of the remover after cutting – Time of operation of the remover after the cut has been finished. Note: Chip remover is auxiliary accessory.
6.	Offcut correction – width of the saw band, important value for calculation of the lengths in automatic mode.
7.	The parameter sets the time for hydraulic system switch of.

3.6.2. Service parameters 2



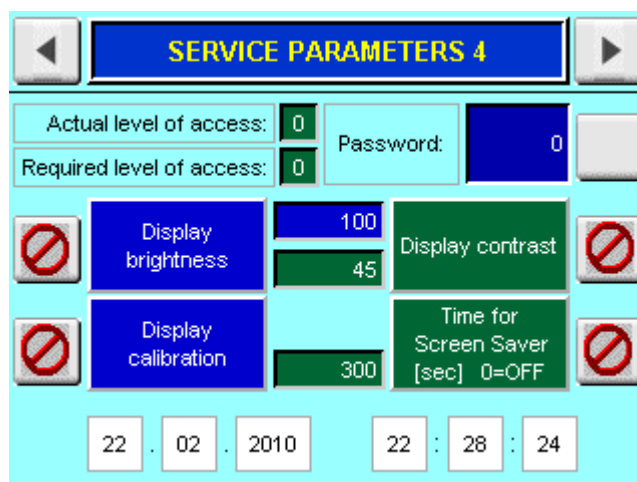
Pos.	Function
1.	Feeder travel length – parameter of the maximum feeder length for multiple feeds.
2.	Feeder speed – maximum speed of feeder
3.	Feeder acceleration – value of the feeder acceleration. The parameter is suitable for feeding heavy and unstable material (due to base shape and dimensions). These values are used only for movement with loaded feeder.
4.	Feeder deceleration – value of the feeder deceleration (breaking). The parameter is suitable for feeding heavy and unstable material (due to base shape and dimensions). These values are used only for movement with loaded feeder.
5.	Selection of the units for length in control system – <ul style="list-style-type: none"> metric (mm) imperial (inches)
6.	Selection of the units for speed in control system <ul style="list-style-type: none"> m.min⁻¹ ft.min⁻¹
7.	Selection of electromotor pooling time after cut – Drive of saw blade will run for a fixed period and will be cooled

3.6.3. Service parameters 3



Pos.	Function
1.	Switch off the hydraulic system of the machine after certain period: <ul style="list-style-type: none"> YES – the system switches off after selected period NOT – the hydraulic circuit will run until the machine is switched off
2.	The parameter sets the time for hydraulic system switch of.
3.	Constants for feeder moving. Do not change!
4.	Constants for feeder moving. Do not change!
5.	Constants for feeder moving. Do not change!
6.	Constants for feeder moving. Do not change!
7.	Language selection – displays following selection of the control software languages.

3.7. Service parameters 4



Pos.	Function
1.	Access levels: Level 0 – operator level, lowest access rights Level 1 – service level, for most service activities, password 1234 Level 2 – BOMAR level, highest access rights, call service


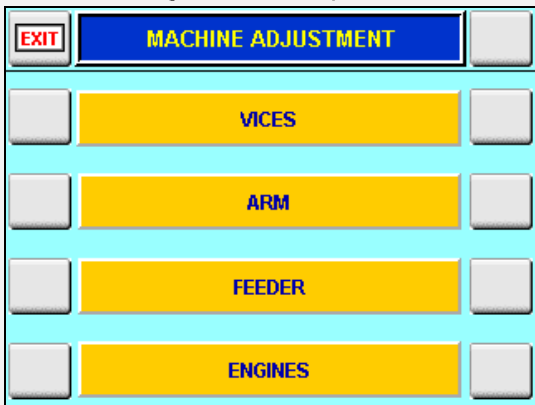

Pos.	Function
2.	Display setting
3.	Touchscreen calibration. Influence of temperature can cause false detection touch. Do not use gloves during calibration.

3.8. Band saw adjustment

The machine is able to perform the special adjustment code, which allows the operator to test and set the main peripherals of the machine.

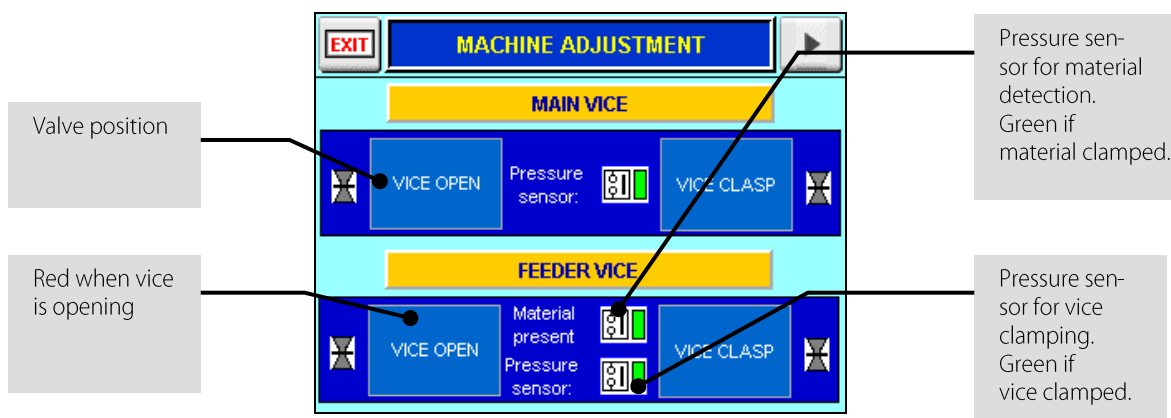
Further setting of the band saw, like setting of the cutting angle and others, is performed in the machine itself without the control software.

Entry to the Machine adjustment mode:

1.	<p>Turn the key switch to position 1 – Machine adjustment.</p> 
2.	<p>LCD panel shows the following menu with four parts of the band saw.</p>  <p><i>Machine adjustment</i> mode allows operators to test parts of the machine, e.g. after replacement of parts or adjustments.</p>
3.	<p>To leave the menu:</p> <ul style="list-style-type: none"> Turn the key switch to other position Press  button

3.8.1. Vice adjustment

This menu allows testing both vices of the saw Ergonomic 310.250 GACNC.



The diagram shows the 'Vice adjustment' menu with two sections: 'MAIN VICE' and 'FEEDER VICE'. Each section has 'VICE OPEN' and 'VICE CLASP' buttons. Annotations include:

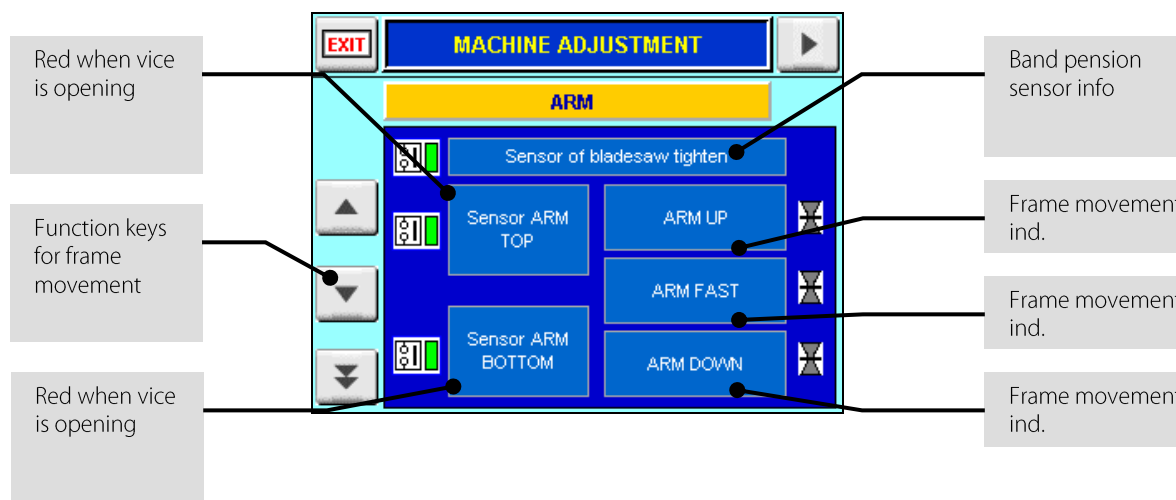
- Valve position:** Points to the valve icon next to the 'VICE OPEN' button in the 'MAIN VICE' section.
- Red when vice is opening:** Points to the 'VICE OPEN' button in the 'FEEDER VICE' section.
- Pressure sensor for material detection. Green if material clamped.** Points to the 'VICE CLASP' button in the 'MAIN VICE' section.
- Pressure sensor for vice clamping. Green if vice clamped.** Points to the 'VICE CLASP' button in the 'FEEDER VICE' section.

Each button also displays a status indicator (a small green bar) and a label: 'Pressure sensor:' for the 'MAIN VICE' and 'Material present Pressure sensor:' for the 'FEEDER VICE'.




Vice movement is controlled by the respective buttons on the control panel (positions 1 and 2.).

3.8.2. Frame adjustment

This menu allows to check the band saw frame movement. The menu **Frame parameters** is also suitable for testing of the limit positions of the frame and adjustment of the limit switches.



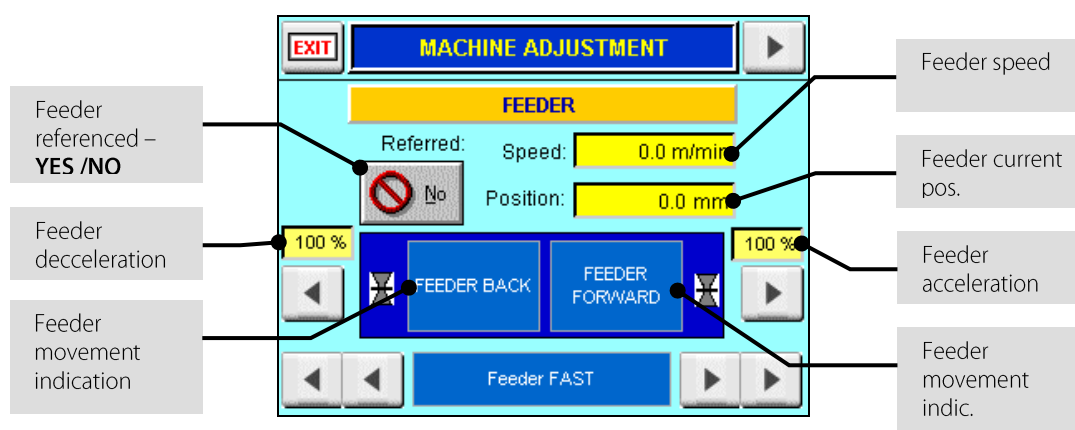
Function keys for frame movement:

Button	Description
	Frame movement up , the same movement is initiated by black part of the button on position 4 on the control panel.
	Frame movement down , the same movement is initiated by white part of the button on position 4 on the control panel.
	Frame movement fast down , the same movement is initiated by both buttons on position 4 on the control panel.







3.8.3. Feeder adjustment

This menu shows all parameters concerning the machine feeder. The operator can test all possible movements of the feeder either by function keys on LCD or by buttons for feeder movement on the control panel – position 3.

During feeder movement its speed and position is displayed as well as information about its correct referencing.



Function keys for feeder movement:

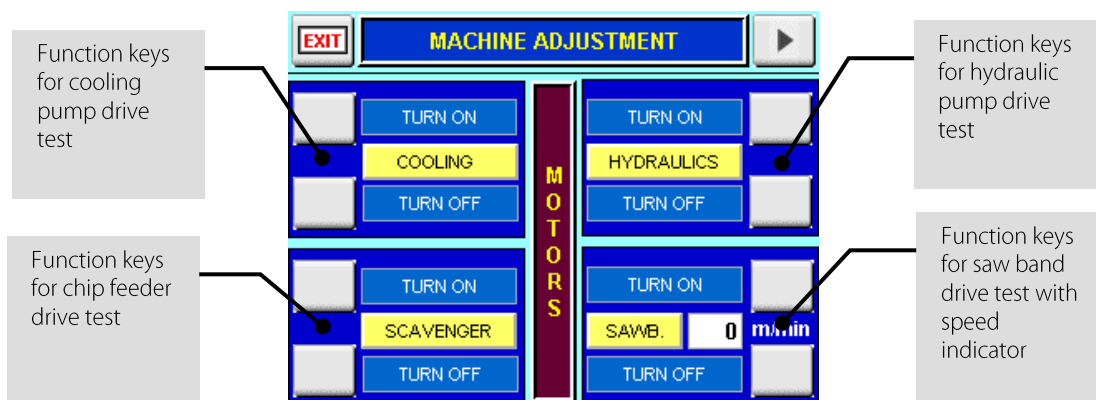
Button	Description
 	<i>Normal speed feeder movement.</i>
 	<i>Higher speed feeder movement</i>
 	

3.8.4. Drive adjustment

The last item of the Machine adjustment menu allows to test individual drives.

The drives are as follows:

- Cooling pumps
- Hydraulic aggregates (hydraulic pump)
- Chip remover movement (chip remover is optional part of the machine)
- Band saw movement



3.8.5. Setting of the frame lowering speed



Frame lowering speed is set on the control panel – see position 10.

- Turn clockwise to decrease frame lowering speed.
- Turn counterclockwise to increase frame lowering speed.

Note:

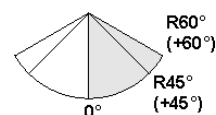
If the throttle valve is closed too tightly, the valve seat may be damaged and may start to leak. Tighten the valve lightly.

3.8.6. Setting of the cutting speed

Picture	Information
	<p>By switch set desired speed. Switch is placed on saw blade drive.</p> <p>Position 1 – 40 m/min</p> <p>Position 2 – 80 m/min</p>
	<p>If the machine is equipped with a frequency converter, its controller to adjust the saw blade speed is located on the control panel. The speed of the saw band can be gradually adjusted from 20 to 120 m.min⁻¹.</p>

3.8.7. Cutting angle setting

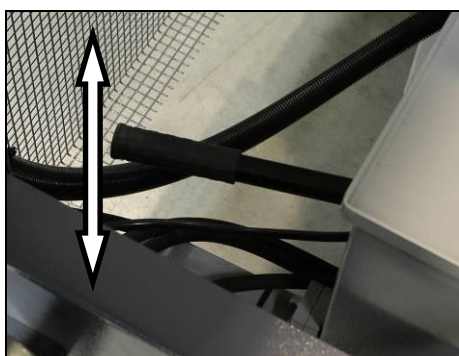
Band saw **Ergonomic 310.250 GACNC** allows to make cuts in angles between **0°** to **60°**. For easy setting of the positions **0°** – **60°** the machine is equipped with stops.



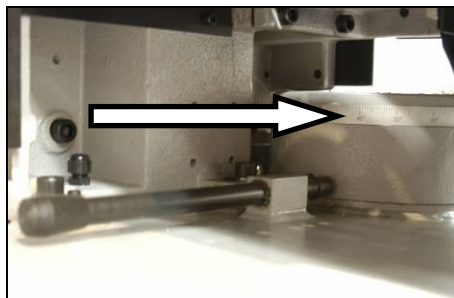
ATTENTION!

In automatic mode is possible setup cutting angle only in interval 0° to 15°.

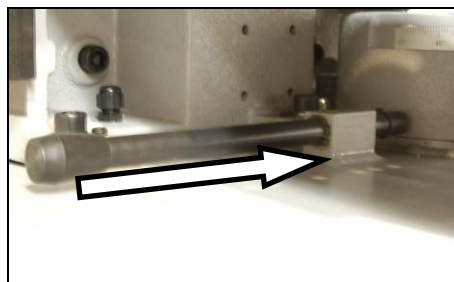
1. Lift saw arm into upper position by buttons on control panel.



2. Release the fastening lever.
3. Swivel the frame to the desired angle by pulling the saw arm.

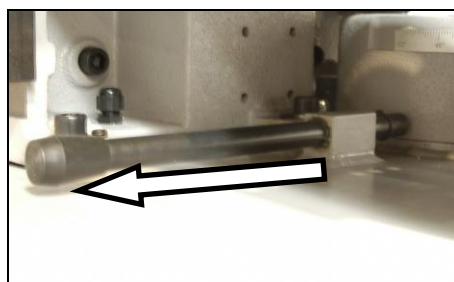


4. Angle is shown on scale
5. After cutting angle setup tighten securing lever.



If the angle is less than 45°, the pin does not have to be pulled out. Release securing lever only and turn the frame to the desired position.

If you want to set the angle at 45° using the default stop, do not pull out the pin and turn the frame to the default stop.



It is needed to pull the pin as much as possible and to move the saw frame over the default stop to the angle 45°, if the angle is greater than 45°. Then adjust desired angle.

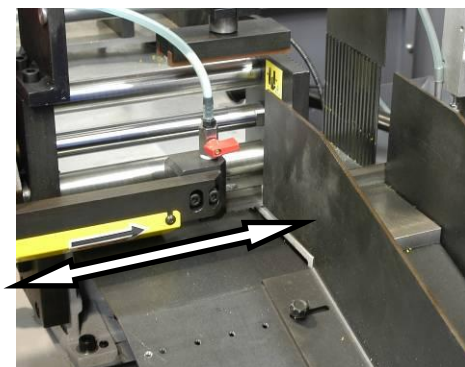
If the desired angle is 60° using the default stop, pull out the pin as much as possible and turn the saw frame over the default stop of the 45° angle. Then turn the frame to the default stop at the 60° angle

3.8.8. Setting of optimum distance of the guiding cubes

In order to maintain stable cut and sufficient precision, it is necessary to place the left guiding cube as close to the cut material as possible.



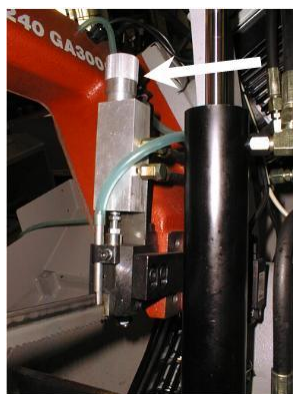
1. Press **STOP** button for 2 seconds to switch off the hydraulics.
2. Release guiding listel lever.



3. Move left part of the guiding so the edge of the left guiding cube is as close to the cut material as possible.
4. Tighten the levers and check position of the guiding cube.

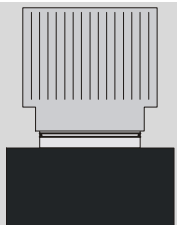
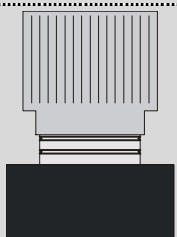
3.8.9. Pressure adjusting to the cut

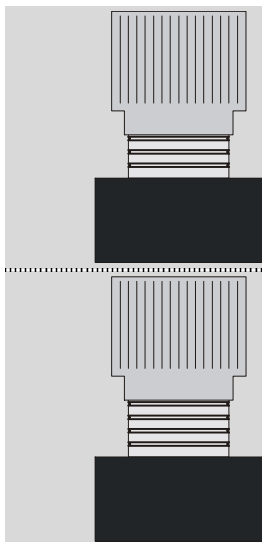
The band saw ergonomic is equipped with cutting pressure regulation on the right guiding cube.



Pressure setting is performed with regulation wheel on the guiding cube.

- Screw on the wheel – downfeed pressure is bigger.
- Screw off the wheel – downfeed pressure is smaller.

	<p>One visible neck</p> <ul style="list-style-type: none"> • Solid material over Ø200 mm
	<p>Two visible necks</p> <ul style="list-style-type: none"> • Plný materiál do Ø80 - Ø200 mm.



Three visible necks

- Pipes and shaped material with surface from 10 - 15 mm
- I - shaped material from 200 - 280 mm
- Solid material to Ø80 mm



Four visible necks

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

3.9. Upper pressure adjustment

Attention!

If the machine is equipped with upper pressure, bundle cutting is possible

1. Open both vices by pressing buttons **Feeding vice opening** and button **Main vice opening**.



2. Release levers of the vice cubes and open the vice to the maximum bundle width.



3. Release the clamping cube of the vertical clamping cylinder, pull the cylinder to the top position limit and tighten the clamping cube again.



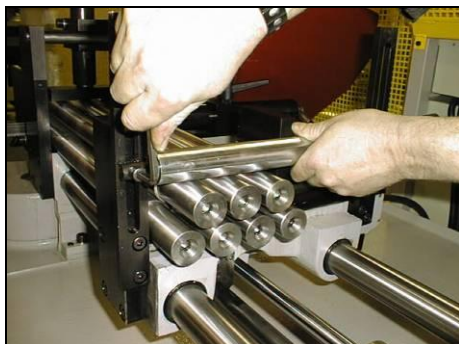
4. Insert the first layer of the material, set the vices at a distance of 3 mm from material, and fasten the levers of gripping cubes.



Attention!

If the distance is too large, the machine displays „no material inserted“

5. Insert residual layers of the material. Release again the fastening cube of the vertical pushing cylinder and adjust its jaw to distance 3 mm from the material.
6. Fasten the clamping cube of the vertical cylinder.



7. Release the pressure roller and adjust it to press the bundle from the upper side on the feeder vice.

Make sure the roller is not too loose. The roller has to touch the material while moving; the material must be in contact with the roller and not move about freely.

Make sure the roller does not have too much pressure on it.

It is recommended to weld the layers together on the rear side during bundle cuts. Main switch must be switched off during welding.

3.10. 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!

3.10.1. Handling agent selection

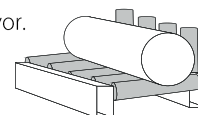
- Use the strong handling agents to lift and transfer the material!
- Handle with the material only with the lift truck or use the suspension strands and the crane!
- Do not use the lift truck or crane in case that you do not have the license to handle with it!

3.10.2. 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.

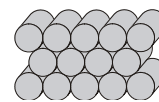
Be especially careful with round materials that it always stays on two vertical rollers and that it cannot fall off the conveyor!



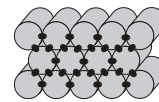
3.10.3. Bundle material cutting

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

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

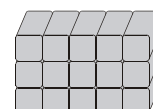


Always weld the material at the rear end of the bundle to secure it from moving.



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

Square material bundle:



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 maintenance

4.1. Saw band dismantling

1. Lift the saw arm to the top position and stop it by control valve..



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



3. Open the rear arm cover.



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



5. Remove the band from the guiding cubes. Then remove saw blade from both wheels.

4.2. Saw band installation



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



2. Insert new saw band in the guide cubes. Make sure the saw band runs between both guide rollers and it is pushed all the way to the top.



3. Put the saw band on both guide wheels. Make sure that the saw band ridge fits tightly to the wheel rim. Then push the saw band as far back as possible.



4. By turning the stretching star to the right, you will stretch the saw band slightly. Remove the plastic cover of the saw band teeth.
5. Close the rear cover of the arm.
6. Install the yellow protective cover of the band. The arrow on the cover must match the direction of the arrow on the band. If it does not match, you must turn the band round.

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

The saw band must not fall from the wheels after setting.



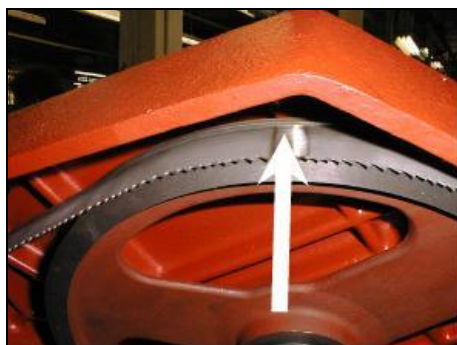
- Install Tenzomat on the saw band and secure it with screws.
- Stretch the saw band until it is stretched to the recommended value.

4.3.2. Saw band inspection

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

1. Check, if the saw band is right in the guiding cubes..

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



4. Open cover(s) of the wheels and check position of the saw band on the both wheels..
 - If the distance between backside of the saw band and the offset wheel is **1 mm**, setting is right..
 - If the distance is bigger than **1 mm**, or the saw band is on the offset of the wheel, set the saw band.
5. Close cover of the saw band.

4.4. Saw band adjustment

4.4.1. 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 **1mm**.



- 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.

4.4.2. Hard metal guides adjustment

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



1. Tighten the stop screw on the rear side of guide cube so that the band cannot move.



2. Release the stop screw and at the same time grip the saw band by hand and check if the hard metal guide does not put up to much resistance against the movement of the band. As soon as it is possible to move the band without resistance the hard metal guides are adjusted.

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

4.4.3. Guide cube adjustment

Cutting quality and saw band life is also dependent on guide cubes adjustment. Therefore this adjustment has to be checked periodically.



1. Loosen both tightening screws of the guide cubes and push it carefully to the band. Make sure the saw band is not bent; otherwise this cube will push on the band and damage it.
2. Fasten both tightening screws again.
3. If the guide cube is correctly adjusted, upper cube edge and the ruler are parallel.

4.4.4. Adjusting the limit switch of the saw band stretching

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



1. Stretch the band by means of TENZOMAT–on the optimal value.
2. Release the nut on the stop screw.
3. Start the driving engine. **Two scenarios may occur:**
 - If the engine is switched on, but it does not run, turn the screw to the left until the engine starts to run.
 - If the engine runs turn the screw to the right until it stops to run, then turn the screw shortly to the left until the engine starts to run again.
4. Secure the stop screw with nut and check the switch setting once more.

Attention!

If the band is stretched to the value according the TENZOMAT but the holder of the stop screw is not situated on the boundary of the red and green colour, it is necessary to stick the sticker in the correct place.

4.4.5. Saw frame lower position stop 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 wrongly adjusted, the cutting table can be deeply cut or the material will not be cut completely.

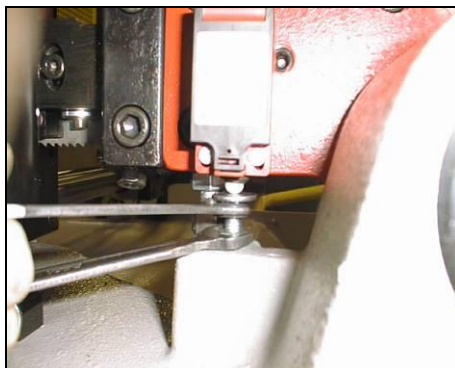


1. Move the saw frame to the upper position.
2. Release the nut of the adjusting screw and adjust the stop point by adjusting the screw.
3. Fasten the adjusting screw with the nut again.
4. Set the limit switch of the lower arm position.

4.4.6. Limit switch of the saw frame lower position adjustment

Check setting

Lower the saw frame to the lowest position. If the saw frame is on the lower stop and the limit switch responds, the limit switch adjustment is correct. Make the limit switch adjustment in failing which.



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.

4.4.7. Pressure switch adjustment

Attention!

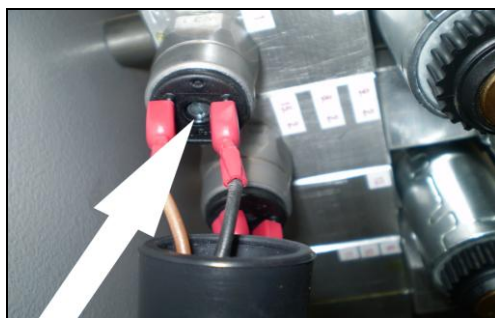
Pay attention while working on the hydraulic system! In hydraulic system is residual pressure after hydraulic aggregate is stopped!

The pressure switches are in the block of the hydraulic aggregate.

The pressure switch of vice is marked with yellow band **SQ xx** or pressure switch of feeding vice with yellow band **SQ 1** must be adjusted on occasion:



Pull off the elastic cover of the pressure switch (carefully – outlets must not be broken).



Set the sensitivity of the pressure switch by means of the screwdriver.

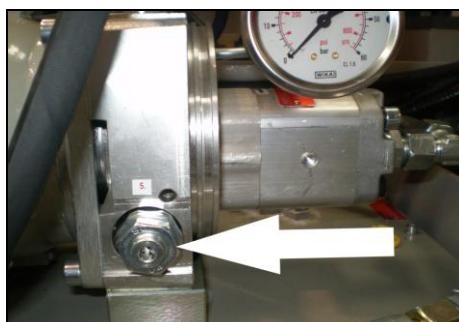
Turn by screwdriver to the left, the sensitivity is bigger. Turn by screwdriver to the right, the switch will be clip with higher pressure.

Check limit switches adjustment.

- **The vice is clamped** – The pilot light of the control system is lighted
- **The vice is opened** – The pilot light of the c. system in not lighted
- **The vice is on the move** – The pilot light is not lighted, they are not winked

4.4.8. Pressure adjustment of the hydraulic system

- Pull off the black cover of the pressure valve.
- Release the nut of the pressure valve.



- *Higher pressure* – turn the pressure valve to the clock's direction
- *Lower pressure* – turn the pressure valve against the clock's direction

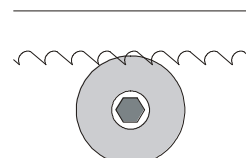
Set the pressure by means of the pressure valve and manometer. If the pressure is adjusted, tighten the nut.

4.4.9. Brush adjustment

The brush has essential influence on cutting performance, saw band lifetime and lifetime of wheels and hard metal guides and finally cut accuracy. Therefore the brush has to be checked during every shift.



1. Release the tightening screw of the brush so that it is possible to move with the brush.



2. Get the brush closer to the saw band teeth. **Attention!** After the brush is set, its ends must not reach the saw band teeth bottoms.
3. Tighten the screw again and turn on the band driver. If the chip removing brush is correctly fastened the brush moves and turns smoothly with the saw band.

4.4.10. 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:
<ul style="list-style-type: none"> • use of contaminated water • impurity • outside oil contamination (hydraulics, gears) • high operating temperatures • lack of air circulation • wrong concentration 	<ul style="list-style-type: none"> • corrosion protection is diminished • lubrication decreases • microbial attack is more likely 	<ul style="list-style-type: none"> • the cooling ability is decreased • foam behaviour increases • emulsions stability deteriorates • sticky residue develops

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

* According to manufacturers' instructions

4.4.12. 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.

4.5. Hydraulic, Greases and oils

4.5.1. 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.



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!

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

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

Band saw	Gearbox oil	Capacity
Ergonomic 310.250 GACNC	Shell Tivela S 320	1 l
Swarf conveyor	Shell Tivela S 320	0,075 l

Comparative table of the gearbox oils

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

4.5.2. Lubricant greases

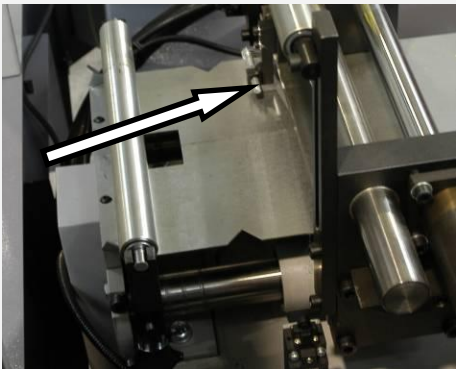
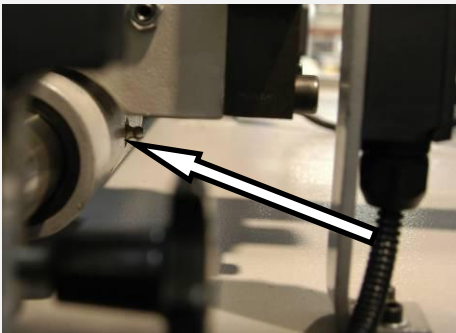
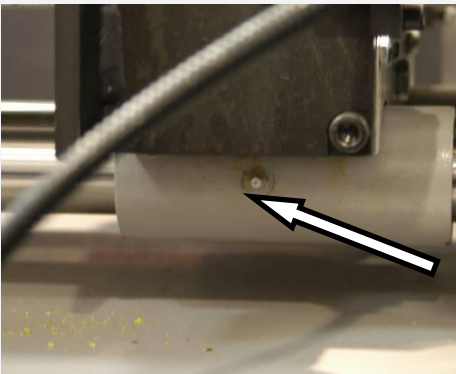
We recommend using lithium based saponified grease, class NGLI-2 for lubrication. Different greases are mixable, if their oil bases and consistence type are identical.

Comparative table of the lubricant greases:

Manufacturer	Type of the lubricant grease
BP	Energrease LS - EP
DEA	Paragon EP1
Esso	FETT EGL 3 144
	Beacon EP 1
	Beacon EP 2
FINA	FINA LICAL M12
Klüber	Microtube GB0
	Staburags NBU8EP
	Isoflex Spezial
Optimol	Optimol Longtime PD 0, PD1, PD2
Shell Aseol AG	ASEOL Litea EP 806-077
Texaco	Multifak EP1

4.5.3. 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
	<p>Ball screw nut (under the cover)— 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 1–3 times whole line of the linear guiding during lubrication.</p>
	<p>Grease guiding for feeding vice – 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 1–3 times whole line of the linear guiding during lubrication.</p>
	

4.5.4. 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:

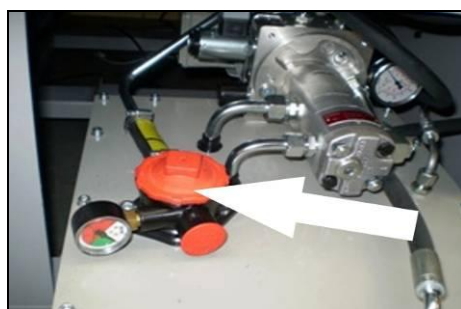
When replacing, use oils recommended by BOMAR or oils, which has comparable parameters from the other manufacturers. Do not forget, that mineral and synthetic oils may not be mixed!

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		

4.5.5. Hydraulic unit service

After 50 hours working time, or the latest 3 month 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 60-70°C
- check function of signaling components (thermometer, level gauge, dirty filter indicator)
- Check the adjustment of working pressure

To realise 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	-	-	-	-	-	•
Filter						
Change interval	-	-	-	-	-	-
Other checks						
External Leakages	•	-	-	-	-	-
Contamination	•	-	-	-	-	-
Damages	•	•	-	-	-	-
Noise-(level)	•	-	-	-	-	-
Gauges	-	-	•	-	-	-

4.6. Machine cleaning

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

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

Attention!

*When you use rinsing gun make sure that water not get into the engines and into rotation sensor arm. **Water in these parts could damage the saw.***

Rinse with water only chips from the board table.

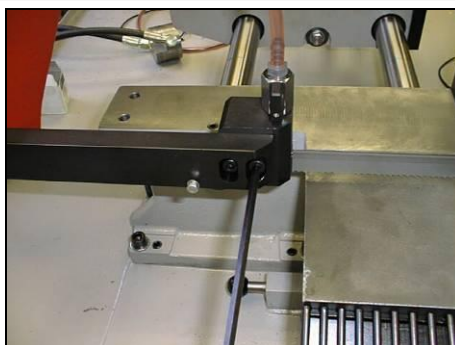
Attention!

Do not use compressed air for machine cleaning.

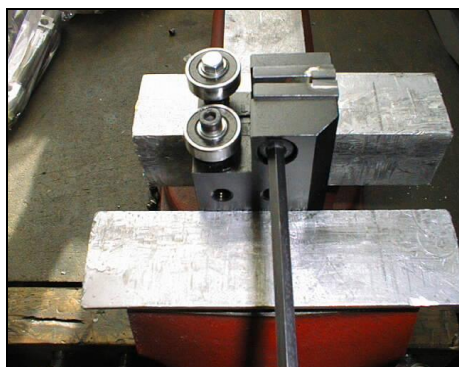
4.7. Worn pieces replacement

4.7.1. Hard metal guides replacement

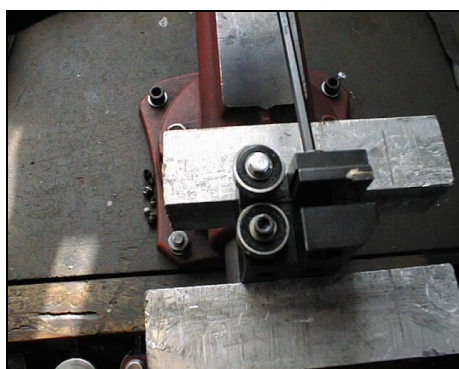
If it is impossible to adjust the bundle gripping assembly and the pushing bearing is worn, it needs to be replaced.



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



2. Grip the guide cube in the vice and screw out the screws of both the hard metal desks.



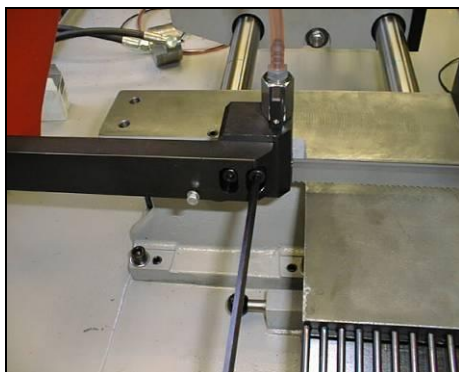
3. Screw out the adjusting screw of the adjustable guiding desk as far from the guide cube so that it is not possible to see it from the inner side.
4. Now insert new hard metal guides and fasten them tightly and fasten the guide cube to the gib.
5. Install the saw band and adjust guide cube and hard metal guides.

4.7.2. Saw band guiding rollers replacement

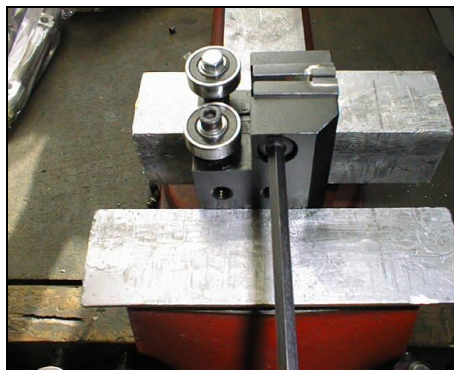
If the chip removing brush is so worn, that it does not fulfil its function, the brush must be replaced.

Attention!

Rollers must be replaced on both guiding cubes at once!



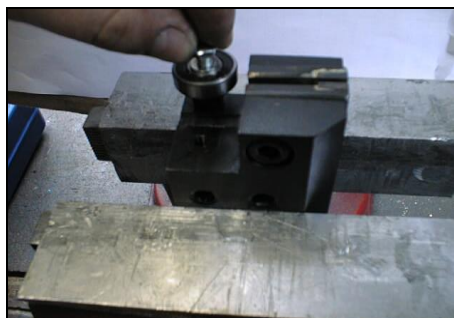
1. Remove the hosepipe leading to the cooling agent and dismantle saw band and saw band guide cube.



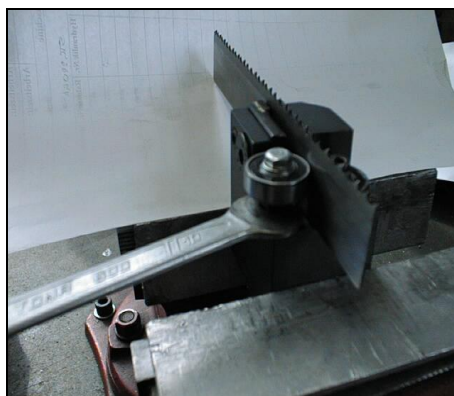
2. Grip the guide cube in the vice and screw out both fastening screws of the eccentrics.



3. Pull both guide rollers from their eccentrics.



4. Put new guide rollers on the eccentrics and screw the eccentrics to the guide cube.



5. Now insert a test piece of saw band (cca 15 - 20 cm) into the guide cube. Adjust both eccentrics so that the band runs in the middle of milled groove. This groove is located between both eccentrics.

Guide rollers may not press too much on the band, but they must spin freely.
Optimal distance between band and roller is 0,05mm.

6. Install the cube on the gib. Install the saw band and adjust guiding cubes.

4.7.3. Hard metal guides replacement

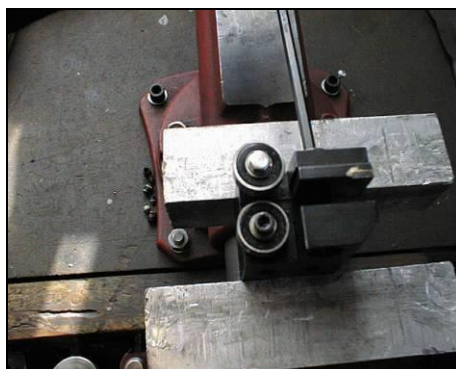
If the hard metal guides cannot be adjusted, they have to be replaced.



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



2. Fasten the guiding cube to the vice and screw out the screws of both the hard metal desks.



3. Screw out the adjusting screw of the adjustable guiding desk as far from the guide cube so that it is not possible to see it from the inner side.
4. Now insert new hard metal guides and fasten them tightly and fasten the guide cube to the gib.
5. Install the saw band and adjust guide cube and hard metal guides.

Attention!

Vice must have aluminum jaws or should be placed in a vice aluminum product, that avoid damage to the pin during clamping.

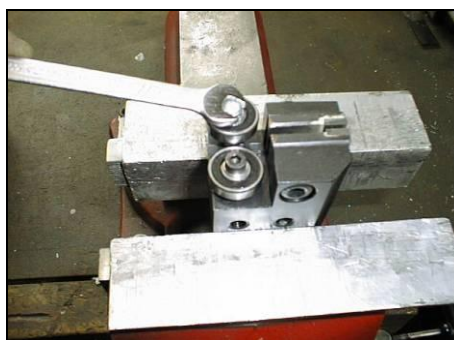
4.7.4. Saw band guiding rollers replacement

If the saw band is not sufficiently guided by guiding rollers and/or if the rollers are obviously worn, the rollers should be replaced.

Attention! Guiding rollers must be replaced together on both guide cubes!



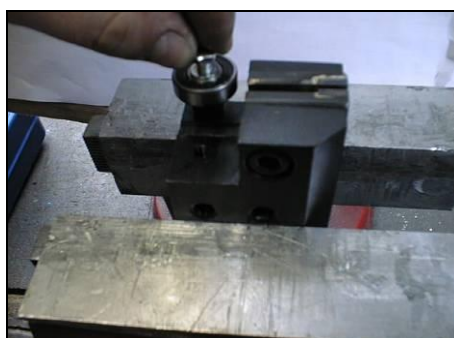
1. Remove the hosepipe leading to the cooling agent and dismantle saw band and saw band guide cube.



2. Grip the guide cube in the vice and screw out both fastening screws of the eccentrics.



3. Pull both guide rollers from their eccentrics.



4. Put new guide rollers on the eccentrics and screw the eccentrics to the guide cube.



5. Now insert a test piece of saw band (cca 15 - 20 cm) into the guide cube. Adjust both eccentrics so that the band runs in the middle of milled groove. This groove is located between both eccentrics. Guide rollers may not press too much on the band, but they must spin freely.

Optimal distance between band and roller is 0,05mm.

6. Install the cube on the gib. Install the saw band and adjust guiding cubes.

Attention!

Vice must has aluminum jaws or should be placed in a vice aluminum produc, that avoid damage to the pin during clamping.

4.7.5. Round brush replacement

If the chip removing brush is so worn, that it does not fulfil 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.

4.7.6. Stretching wheel replacement

1. Dismantle the saw band.



2. Screw off the screw of the stretching wheel and pull off the washer.

3. Screw on the auxiliary screw to the shaft of the stretching wheel.



4. Put on the three-leg puller on the stretching wheel and pull off it from the shaft.



5. If the lower bearing stays on the shaft, pull of it from the shaft with two-leg puller. Check both bearings; eventually replace them for a new.



6. Insert the retaining ring to the hole in the new stretching wheel.
7. Insert the bearing to the hole in the wheel and push it to the retaining ring.



8. Clean the shaft and oil it. Install the new stretching wheel on the shaft.



9. Install the distance ring on the shaft and push it to the lower bearing.



10. Install second bearing on the shaft and push it to the distance ring.



11. Install the washer and screw on the stretching wheel.
12. Install the saw band. Wheel replacement is ready.

4.7.7. Driving wheel replacement

1. Dismantle the saw band.



2. Screw of the fastening screw of the driving wheel and pull off the washer.



3. Screw on the auxiliary screw to the driving shaft.



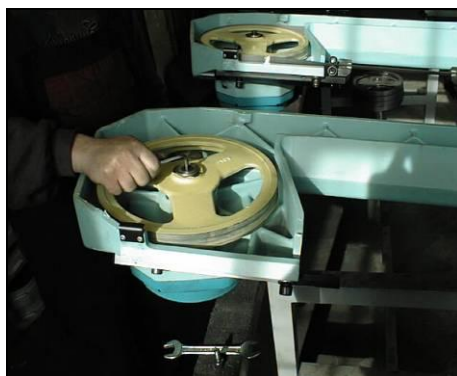
4. Install the three-leg puller on the driving wheel and pull off it from the shaft.



5. Check, if the feather and the driving shaft are not damaged. Contact your supplier for parts replacement.



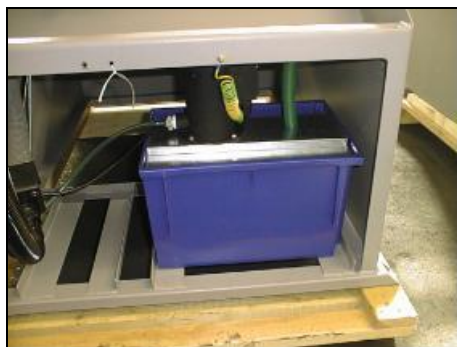
6. If the shaft and the feather are in good order, clean them, oil them and install them on the driving shaft.



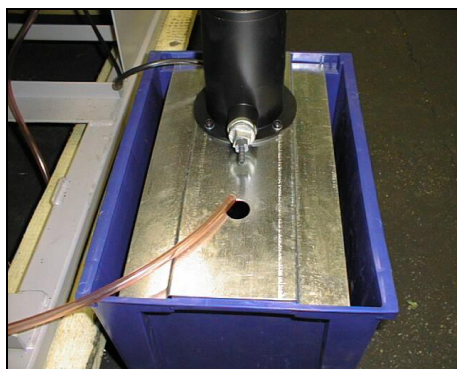
7. Install the washer and screw on the driving wheel.
8. Install the saw band.

4.7.8. Cooling pump replacement

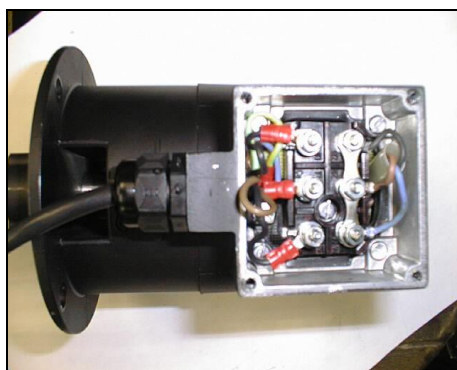
Only a qualified worker can carry out the connection! High-voltage shock may have fatal results.



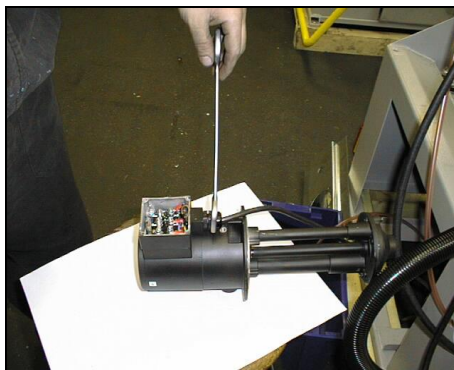
1. Pull out the cooling agent tank from the machine base as far as possible.



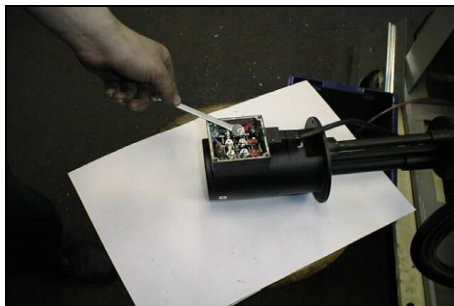
2. Remove the hosepipe leading the cooling agent from the connection on the pump. Unscrew four screws on the cooling pump flange and pull out the pump from the metal sheet holder.



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.

5. **Troubleshooting**

5.1. Mechanical problems

Problem	Possible causes	Repair
6. 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.
7. 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.
8. 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“
	- 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“

Problem	Possible causes	Repair
	- 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“
9. 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.
10. 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.
11. 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.
12. 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.
13. 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.
14. 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.
15. 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.
16. Cleansing of the saw band is not functional.	- Elastic wheel of the brush drive is worn-down.	Elastic wheel of the brush must be changed.
	- 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.

Problem	Possible causes	Repair
	- 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.
17. The saw arm periodically rise and fall during the cut; this cause short lifetime of the saw band.	- Backlash 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 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.
	- 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.

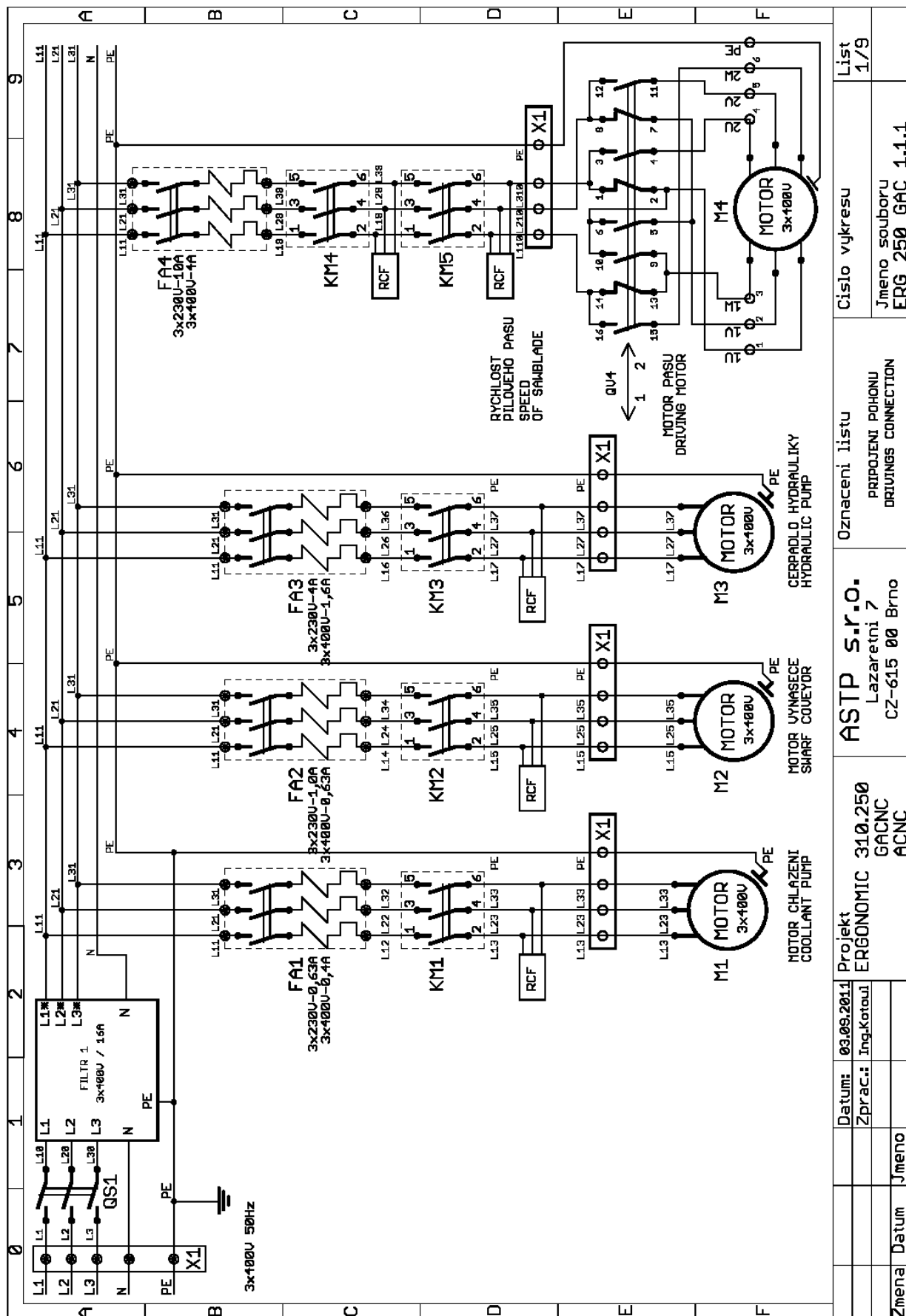
5.3. Hydraulic problems

Problem	Possible causes	Repair
1. 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.
2. 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
3. Increased mechanical noise	• damaged joint drive	Call service
	• damaged or destroyed motor bearings	Call service
	• air intake	Check for leaks.
4. 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
5. 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
6. Overheating oil	• cooler malfunction	Check the cooler function or call service.
	• wear the pump, the energy is converted into heat	Call service
7. Hydraulic valve can not be readjusted	• electromagnet has no signal (voltage) - interrupted supply lines	Check agin.
	• Electromagnet coil burnt	Replace coil – Call service.
	• spool valve sticking	Replace valve – Call service

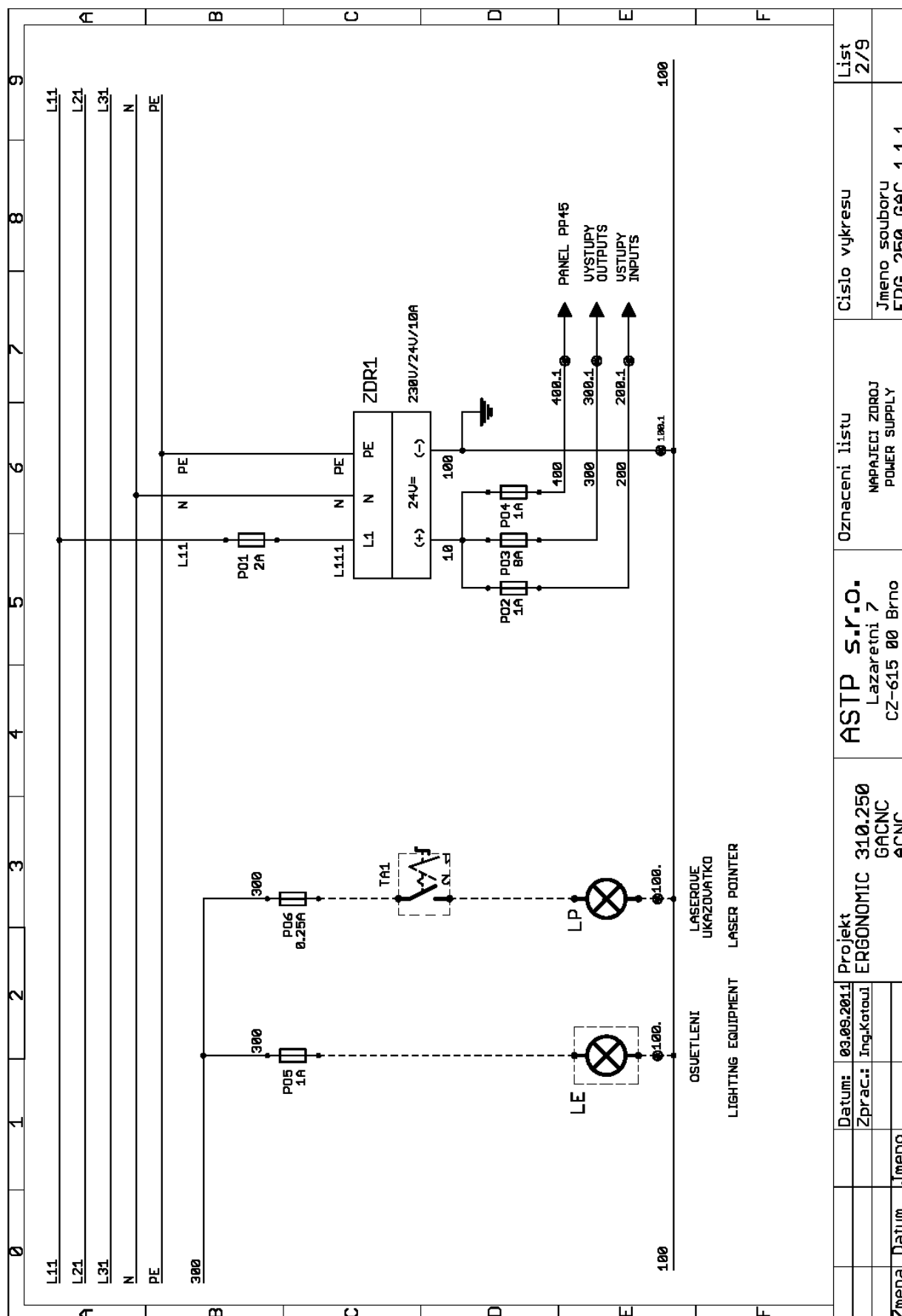
6. **Schémata / Schemas / Schematics**

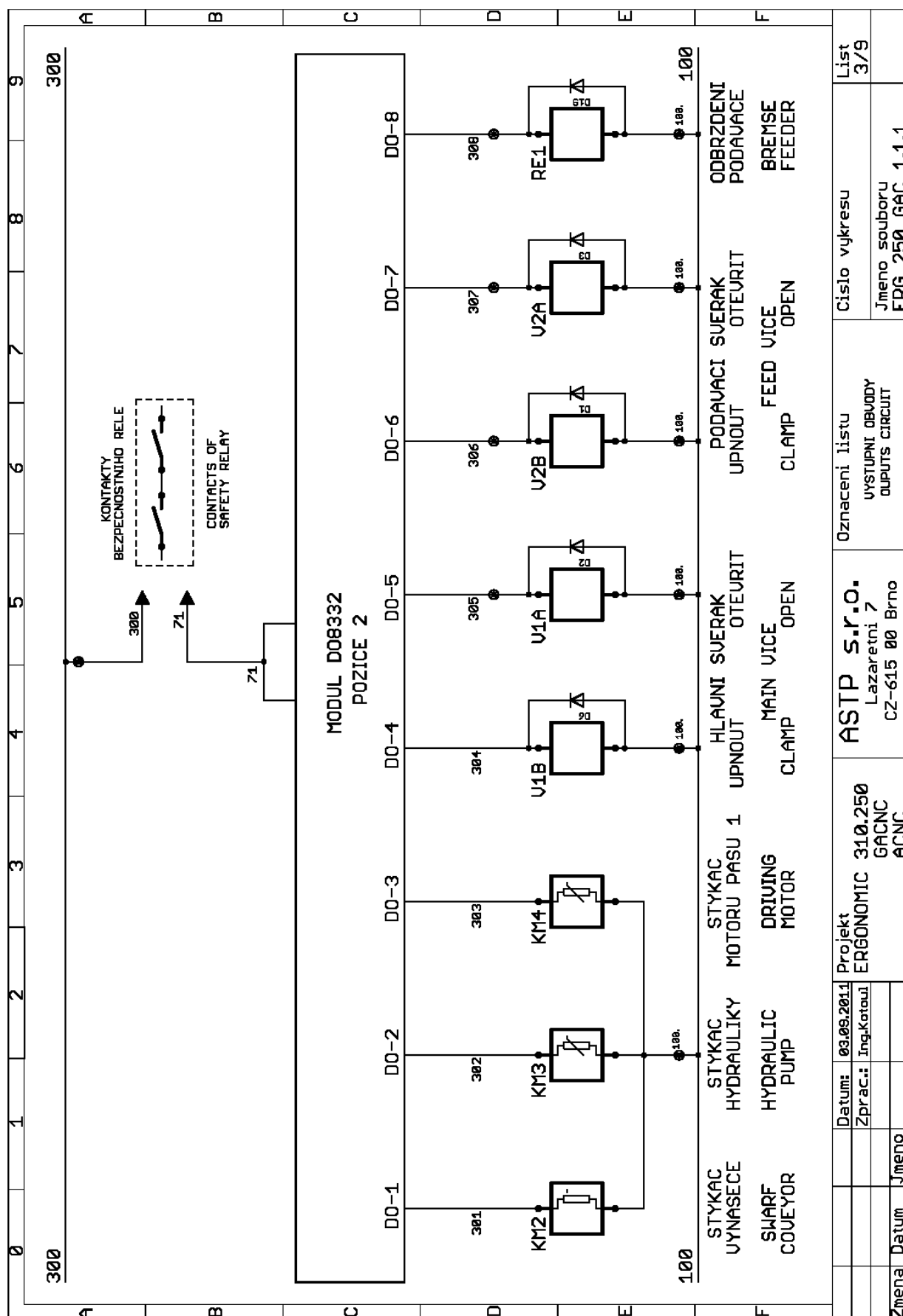
6.1. Elektrické schema / Elektroschema / Wiring diagrams

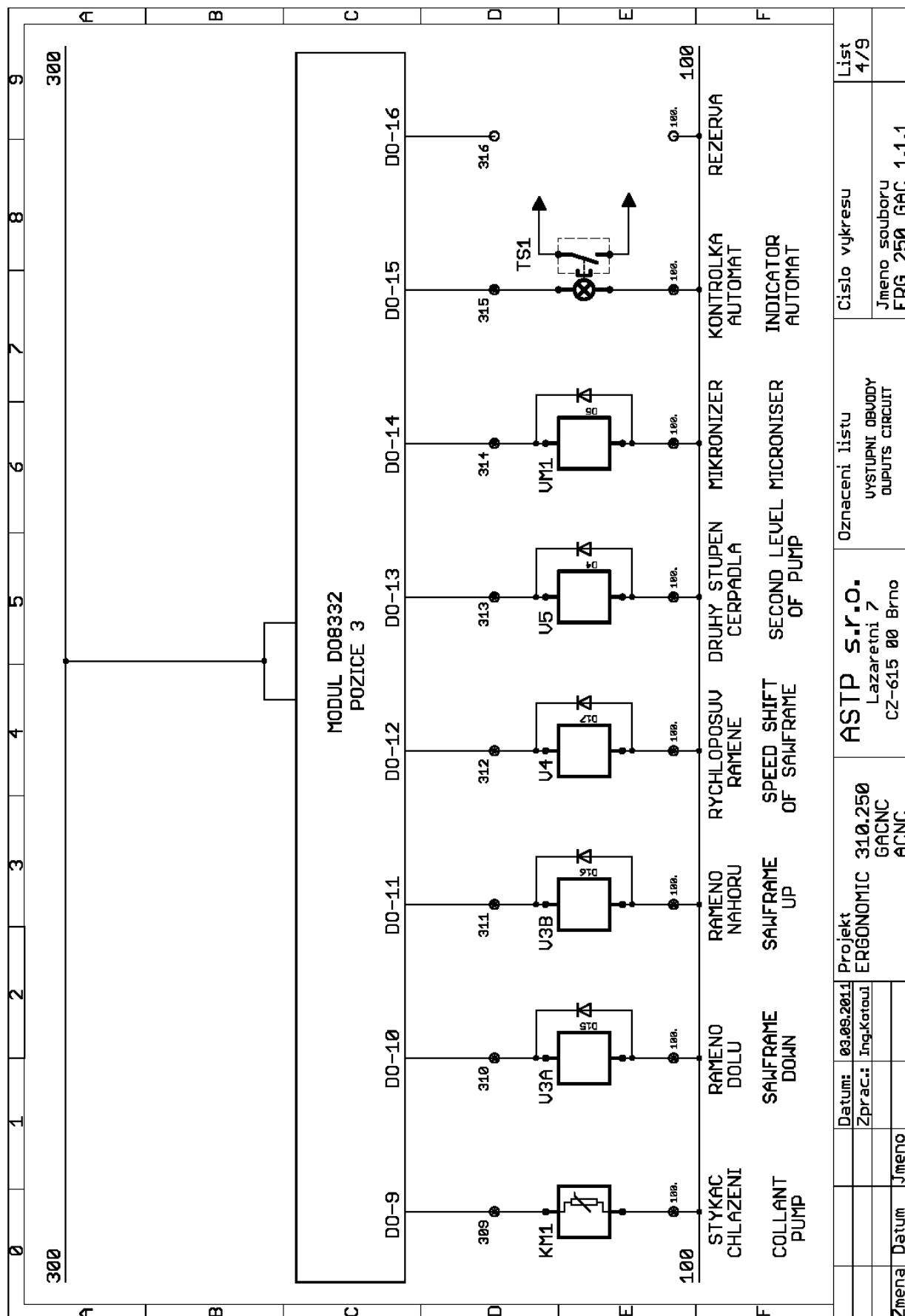
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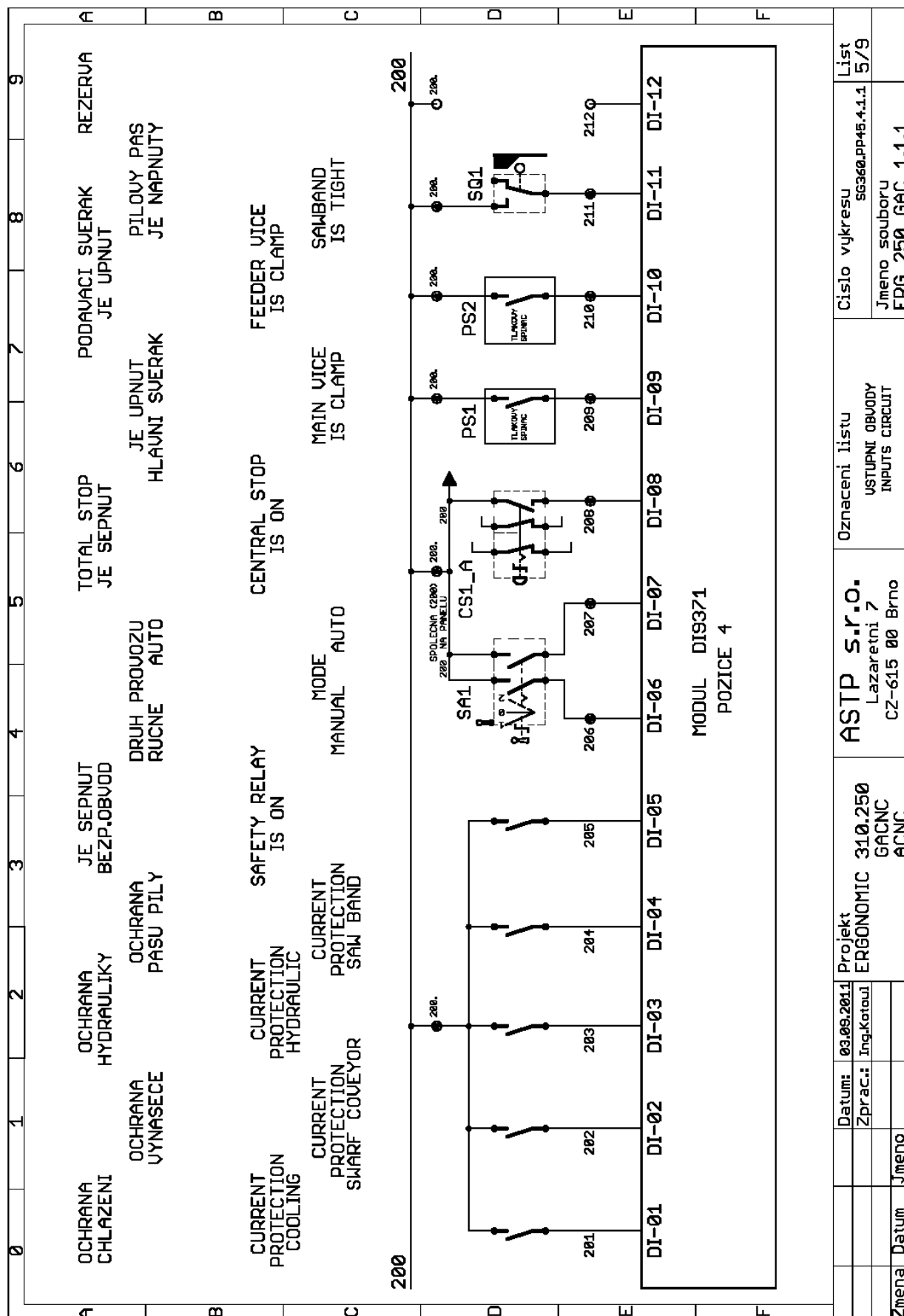


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Zmena	Datum	Jmeno							Jmeno souboru ERG_250_GAC_1.1.1		









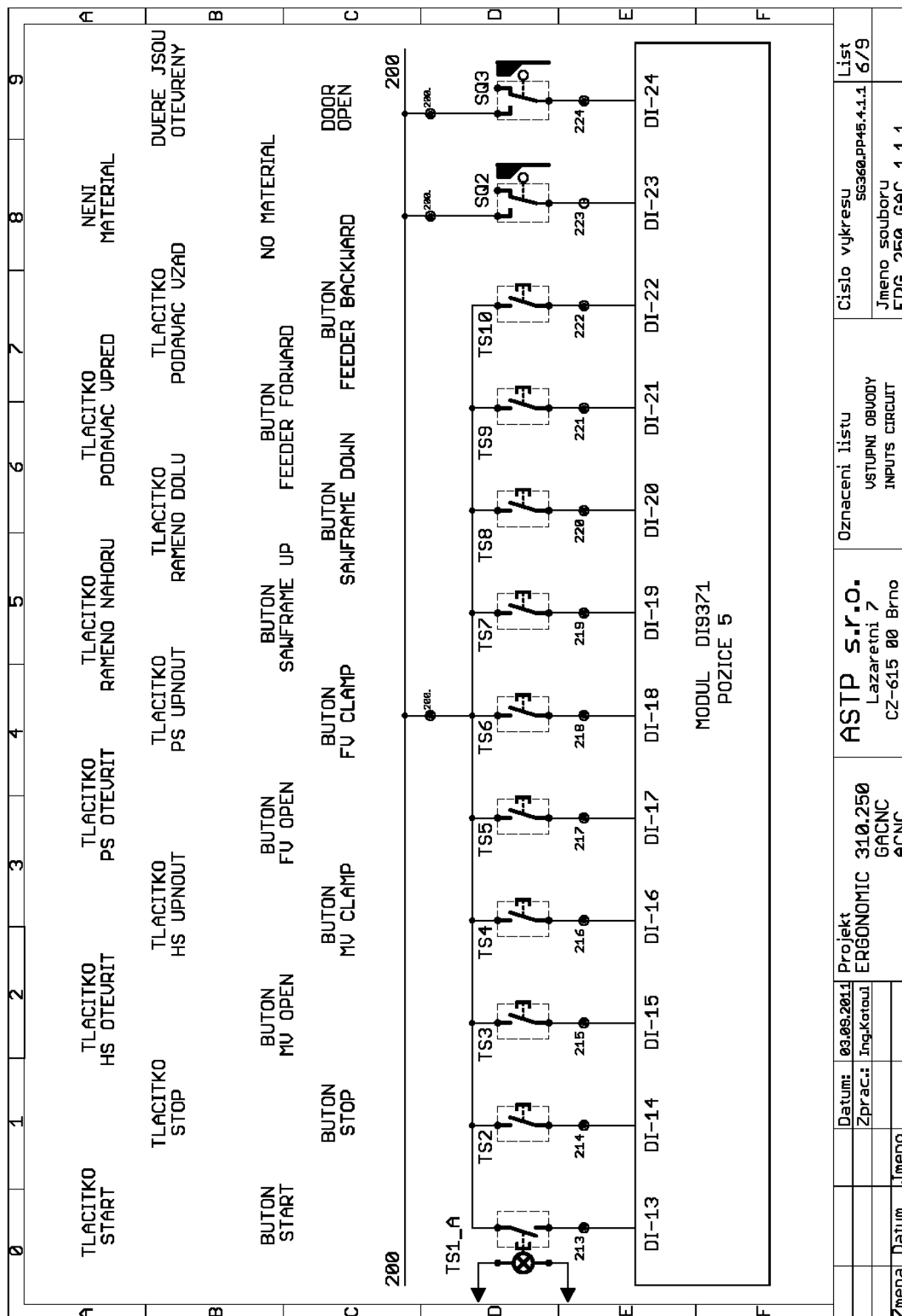
Oznaceni listu		Cislo vykresu	List
USTUPNI OBUODY		SG360.PP45.4.1.1	5/9
INPUTS CIRCUIT		Jmeno souboru	ERG_250_GAC_1.1.1

ASTP s.r.o.
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CZ-615 00 Brno

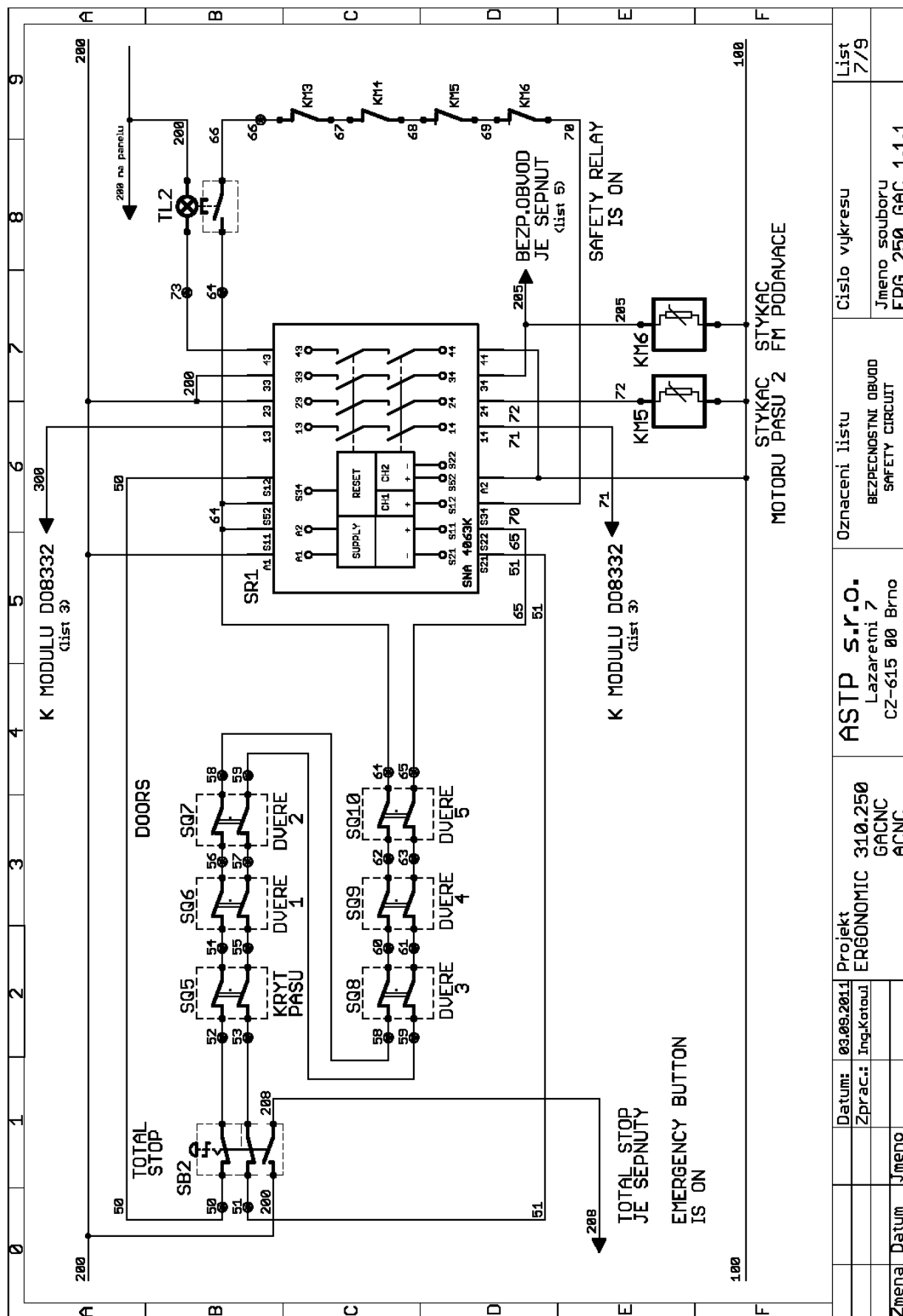
Projekt
ERGONOMIC 310.250
GACNC
ACNC

Datum: 03.09.2011
Zprac.: Ing.Kotau1

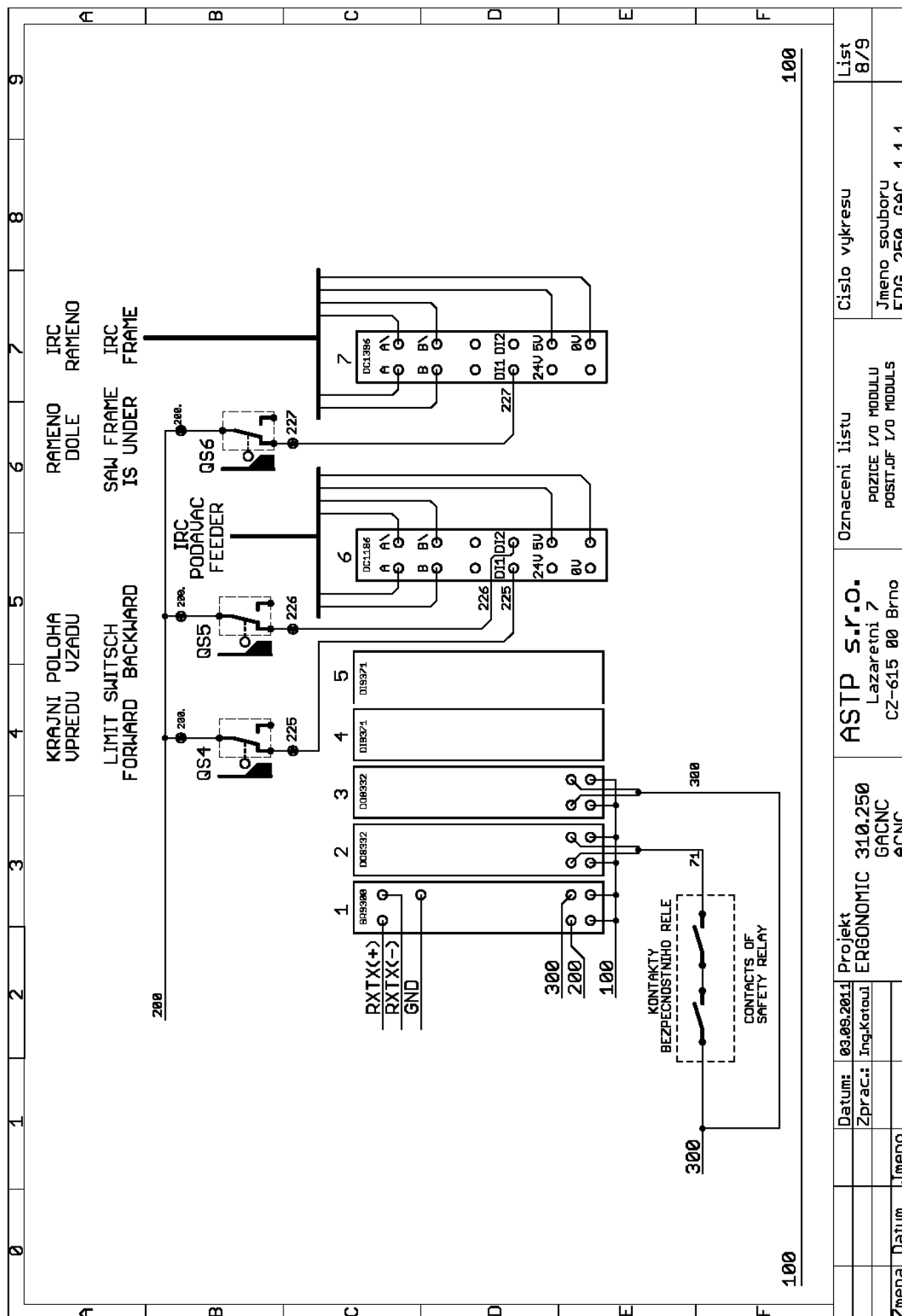
Zmena Datum Jmeno

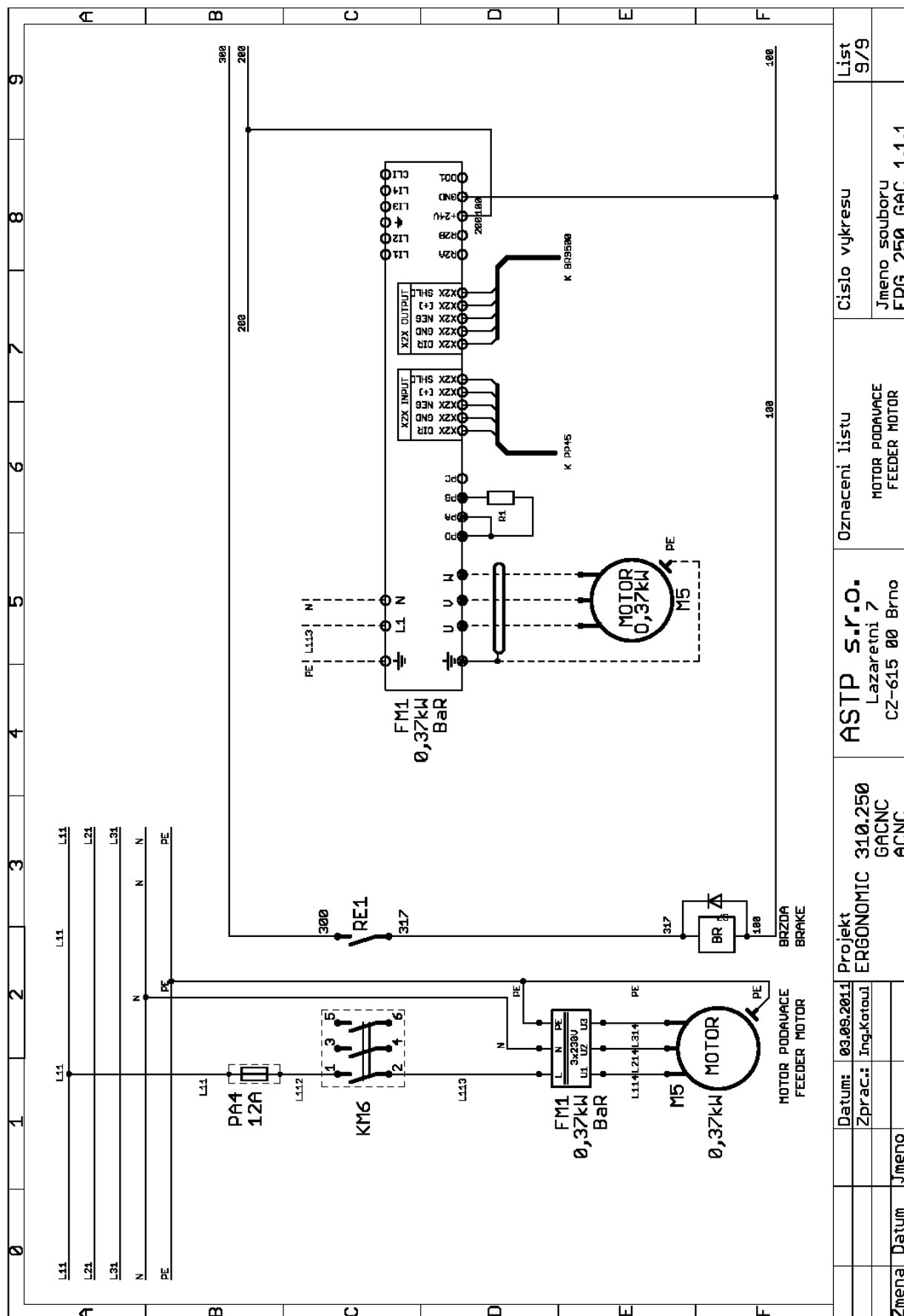


Zmena		Datum	Jmeno	Projekt		ASTP s.r.o.		Oznaceni listu		Cislo vukresu		List	
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				Zprac.: Ing.Kotau1		Lazaretni 7		VSTUPNI OBUODY		Jmeno souboru			
						CZ-615 00 Brno		INPUTS CIRCUIT		ERG_250_GAC_1.1.1			

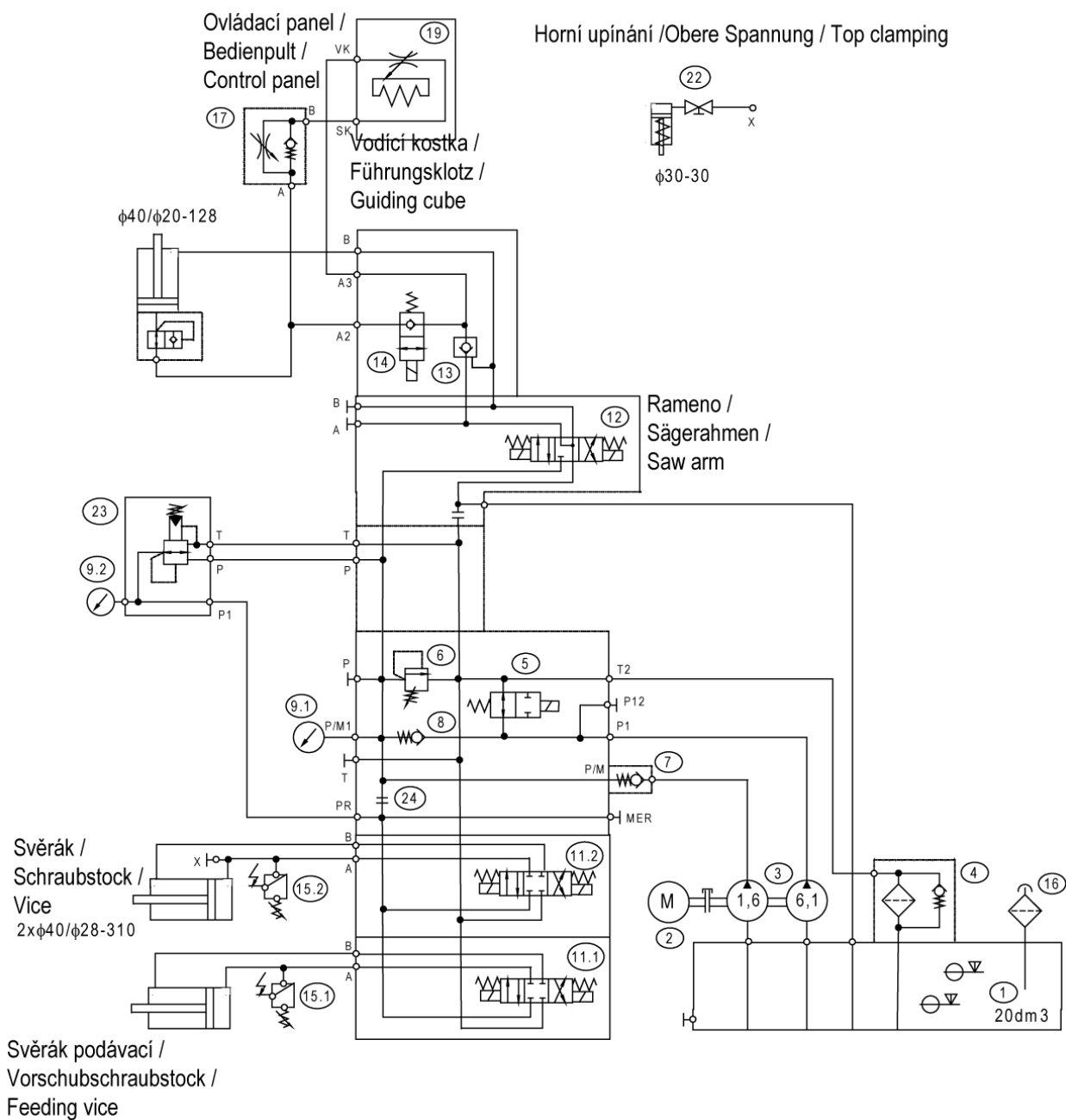


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6.2. Hydraulické schéma Hydraulisches Schéma Hydraulic diagram



Typ / Type / Type

Ergonomic 310.250 GACNC/ACNC

Hydraulický agregát / Hydroaggregat / Hydro aggregat

92.001.070 (FMW), S001-058-1, PPM-AC13-PG11/61-1,6-TM20-CB03-FR

Neuvedené světlosti / Unerwähnt Lichtbreite / Unlisted inside diameters

JS6

Výstupní šroubení / Ausgangsschraubung / Output screwing

G1/4"

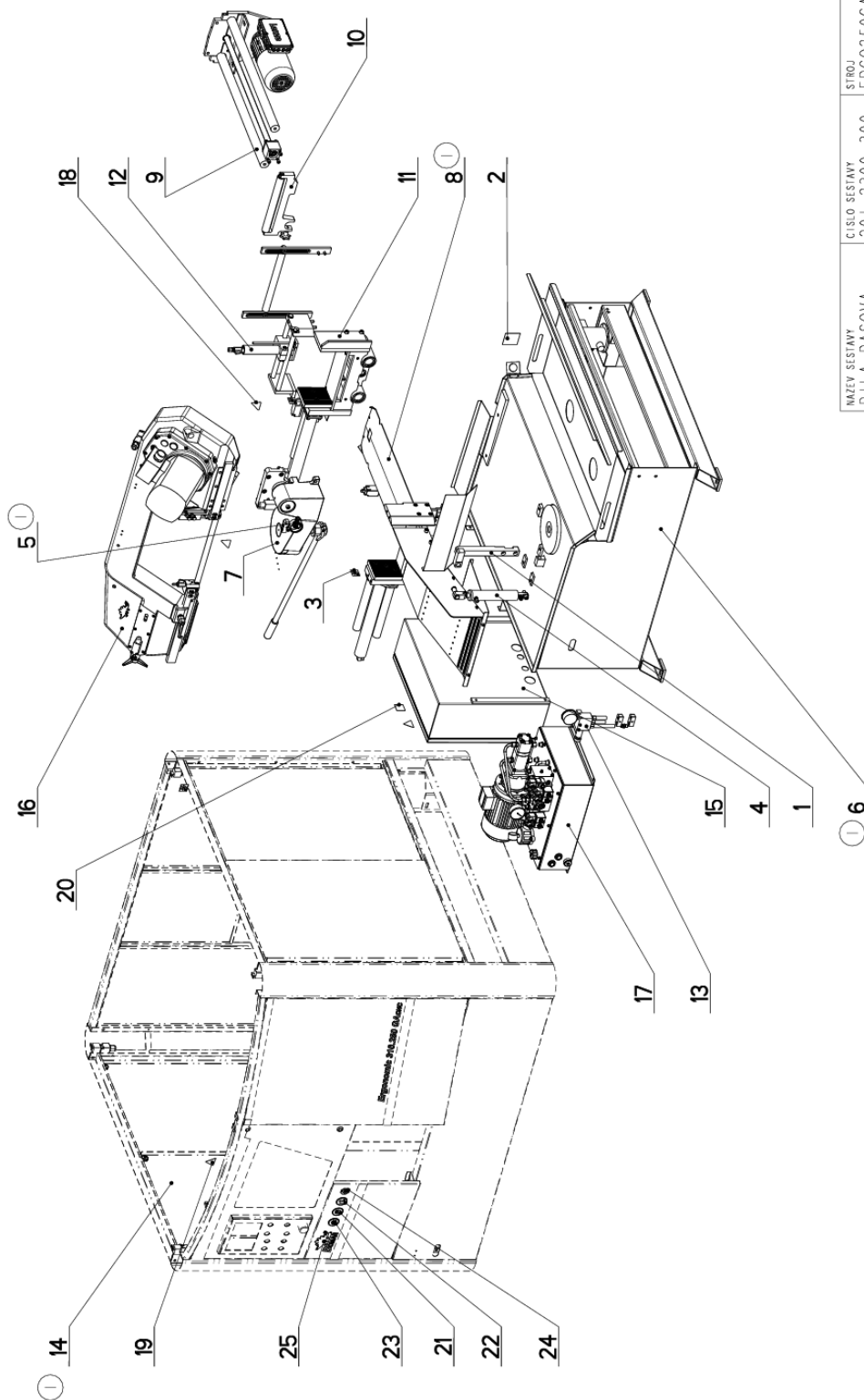
Pmax	4 Mpa
Q	8+2,1 dm³/min
n	1400 rpm
P	1,1 kW

POZ.	NÁZEV	TYP	POPIS	POZNÁMKA	POČET
1	NÁDRŽ	TS20	S309-009-1-02 (20dm3)	HRANATÁ, PLECH.	1
2	ELEKTROMOTOR	EM 90 1,1kW/3 B34 (big)	400/230V 50Hz	PROUD=2,7A	1
3	HYDROGENERÁTOR	11A10A6,1X181G/101,6X182G	1,6+6,1 cm3/ot.	ZUBOVÝ, 2-STUPŇOVÝ	1
4	ZPĚTNÝ FILTR	MPF0301AG1	+ P10NBP01	S INDIKÁTOREM	1
5	ROZVADĚČ	SD2E-A2/S2I11+C13D-02400E1		ŠOUPÁTKOVÝ	1
6	PŘEPOUŠTĚCÍ VENTIL	SR1A-A/S10		nastavit 40 bar	1
7	JEDNOSMĚRNÝ VENT.	RVZ-10LR	V205-008-1		1
8	JEDNOSMĚRNÝ VENT.	SC1F-A2/H005	V205-007-1-01		1
9	MANOMETR	d68, S GLYCERINEM		MINIM.ROZSAH:0-60bar	2/1
10	neobsazeno	---	---	---	-
11	ROZVADĚČ	RPEK1-03G3Z11/02400E1			2
12	ROZVADĚČ	RPEK1-03G3Y11/02400E1 AB		S PÁTEŘ.VÝVODY A,B	1
13	HYDRAULICKÝ ZÁMEK	PC08-30-0-N			1
14	ROZVADĚČ	SD3E-A2/S2L2+C13D-02400E1	SEDLOVÝ	RYCHLOPOSUV	1
15	TLAKOVÝ SPINAČ	rozsah:10-20bar	92.201.003	VÝROBCE: SUCO	2
16	NALÉVACÍ ZÁTKA	CPT-MD-FA/1"			1
17	ŠKRTICÍ VENTIL	VS01-04/R2,5-O	92.152.001		1
18	neobsazeno	---	---	---	1
19	KOSTKA REGULACE	HYDRAULICKÝ PŘÍTLAK	NA PILOVÉM PÁSU	MECHANICKÝ PŘÍTLAK	1
20	neobsazeno	---	---	---	---
21	neobsazeno	---	---	---	---
22	KULOVÝ VENTIL			RUČNÍ OVLÁDÁNÍ	1/0
23	REDUKČNÍ VENTIL	VRN2-06/S-6R	92.154.001		2/0
24	ZÁSLEPKA	IMBUS M6x10 - UPRAVENÝ	30.M216-201	V KANÁLE P	1/0
25					
26					

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

- Při objednávání náhradních dílů vždy uvádějte: typ stroje (např. practix Ergonomic 310.250 GACNQ) , výrobní číslo (např. 125) a rok výroby (např. 1999).
- In die Bestellung der Ersatzteile führen Sie immer an: Maschinentyp (z. B. Ergonomic 310.250 GACNQ, Serien Nr. (z. B. 125) und Baujahr (z. B. 1999).
- For spare parts order, you must always to allege: type of machine (for example Ergonomic 310.250 GACNQ, serial number (for example 125, see cover page) and year of construction (for example 1999).

7.1. Ergonomic 310.250 GACNC



NAZEV SESTAVY PILA PASOVA	CISLO SESTAVY 201.2300-300	STROJ ERG0250GACNC
Konstruoval: FOTLYN		
Datum: 01. 03. 2013		
Meritko: 3:50		

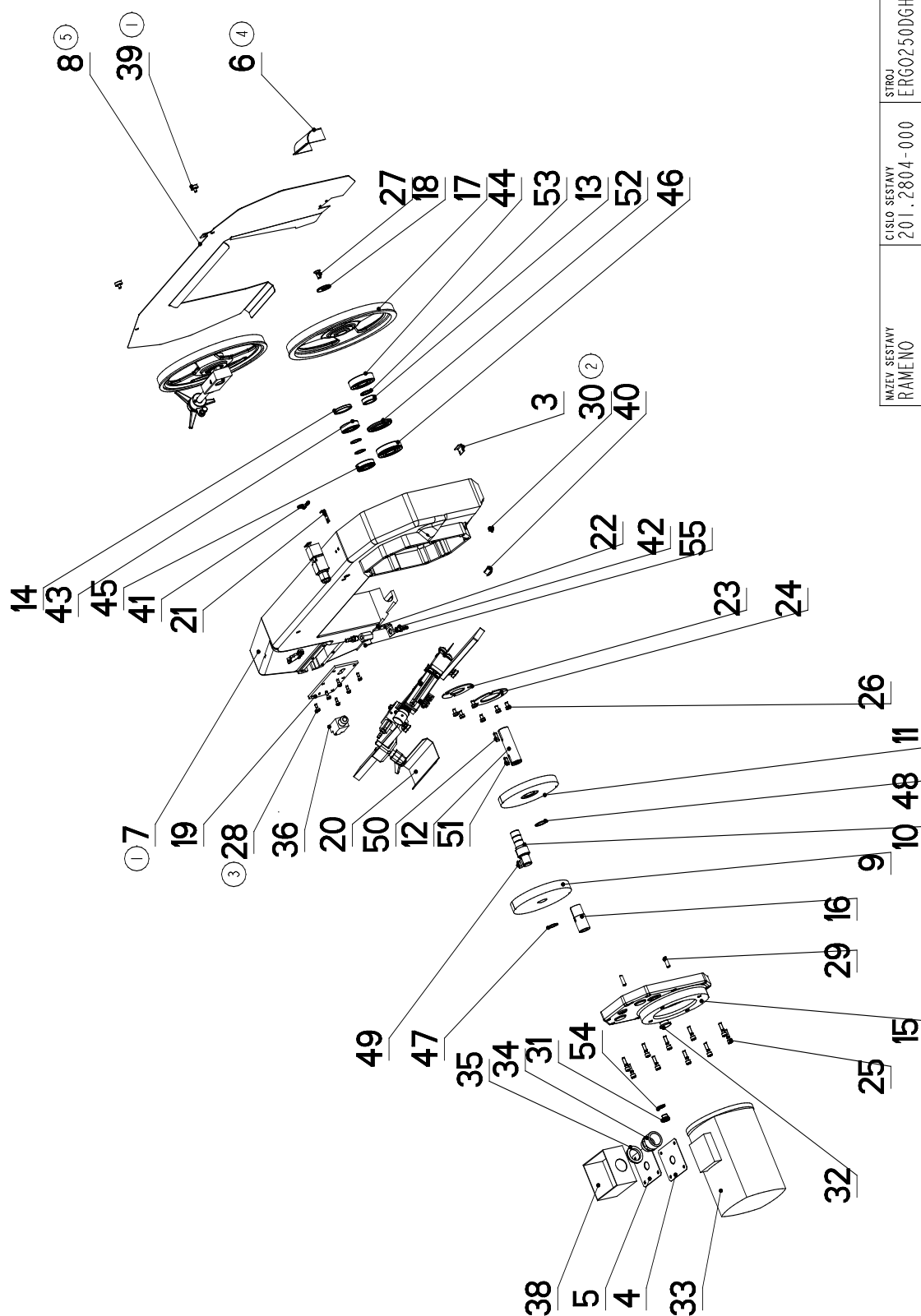
7.2. Kusovník / Stückliste / Piece list – Ergonomic 310.250 GACNC

Císlo Sestavy 201.2300-300		Ver. 1	Název sestavy PILA PASOVA/BAND SAW/BANDSAGE		
Poz.	Objednací číslo	Ver.	Název položky	Rozměr	Ks
1	30.0507-401	1	DRŽAK / HOLDER / HALTER		1
2	30.2399-300	0	STÍTEK TYPOVÝ / MACHINE LABEL / MASCHINE SCHILD	P 0.5x65	1
3	31.3199-005	0	SAMOLEPKA / STICKER / AUFKLEBER		3
4	201.0507-910	2	VALEC ZVEDACÍ / LIFTING CYLINDER / HEBEZYLINDER	251.231	1
5	201.0614-200	0	ODMEROVÁNÍ / MEASURING / GEHRUNGSMESSUNG		1
6	201.2301-300	0	PODSTAVEC / BASE / UNTERSATZ		1
7	201.2302-000	0	KONZOLA OTOČNÁ / TURNABLE CONSOL / DREHKONSOLE		1
8	201.2303-500	0	SVERAK / VICE / SCHRAUBSTOCK		1
9	201.2304-300	0	POHON / DRIVE / ANTRIEB		1
10	201.2311-310	0	DRŽAK / HOLDER / HALTER		1
11	201.2311-350	1	PODAVAC / FEEDER / VORSCHUB		1
12	201.2314-300	1	UPÍNÁNÍ HORNÍ / TOP CLAM / SPANNVORRICHTUNG OBEN		1
13	201.2314-370	0	REGULACE TL. SVERAKU / VICE PRESSURE REGULATION / SCHRAUBSTOCK-DRUCKREGELUNG		1
14	201.2314-700	0	KRYTY / COVERS / ABDECKUNGEN		1
15	201.2330-690	0	ROZVADEC / DISTRIBUTOR / VERTEILER		1
16	201.2804-000	4	RAMENO / SHOULDER / SÄGERAHMEN		1
17	92.001.070	0	AGREGAT HYDRAULICKÝ / HYDRAULIC GENERATOR / HYDRAULIKAGGREGAT	FMV	1
18	99.900.040	0	SAMOLEPKA / STICKER / AUFKLEBER		2
19	99.900.045	0	SAMOLEPKA / STICKER / AUFKLEBER		2
20	99.900.046	0	SAMOLEPKA / STICKER / AUFKLEBER		1
21	99.900.047	0	SAMOLEPKA / STICKER / AUFKLEBER		1
22	99.900.048	0	SAMOLEPKA / STICKER / AUFKLEBER		1
23	99.900.049	0	SAMOLEPKA / STICKER / AUFKLEBER		1
24	99.901.032	0	SAMOLEPKA / STICKER / AUFKLEBER	CETIFIKACNÍ SAMOLEPKA	1
25	99.901.046	0	SAMOLEPKA / STICKER / AUFKLEBER		1

1. ZRUS. SOUC. 30.2301-301, 30.2314-688, 91.020.004, 31.7217-032, 201.2314-360, 30.7906-104, 30.2314-683 A NAHR. MONTAZNÍ SESTAVOU
201.2301-300, ZRUS. PLECH 30.2301-308 A DAN DO PODSTAVCE 30.2301-301, ZRUS. KRYTÍ 201.2314-600 A NAHRÁZENÝ 201.2314-700
ZRUS. SVERAK 201.2303-300 A NAHR. 201.2303-500, ZRUS. KONZOLA 201.0702-000 A NAHR. 201.2302-000, ZRUS. MATICE 30.2301-303
A DANA DO KONZOLY 201.2302-000. 026/ZM045 1.3.2013 SLEZACKOVA

Císlo Sestavy/Number of assembly/Nummer der Baugruppe; Verze (Ver./Version/Version; Název sestavy/Assembly title/Name der Baugruppe; Pozice (Poz./Position/Position;
Objednací číslo/Purchase order number/Bestellnummer; Název položky/Volume title/Name der Position; Rozměr/Stock size/Abmessung

7.3. Rameno / Sägerahmen / Saw arm -1

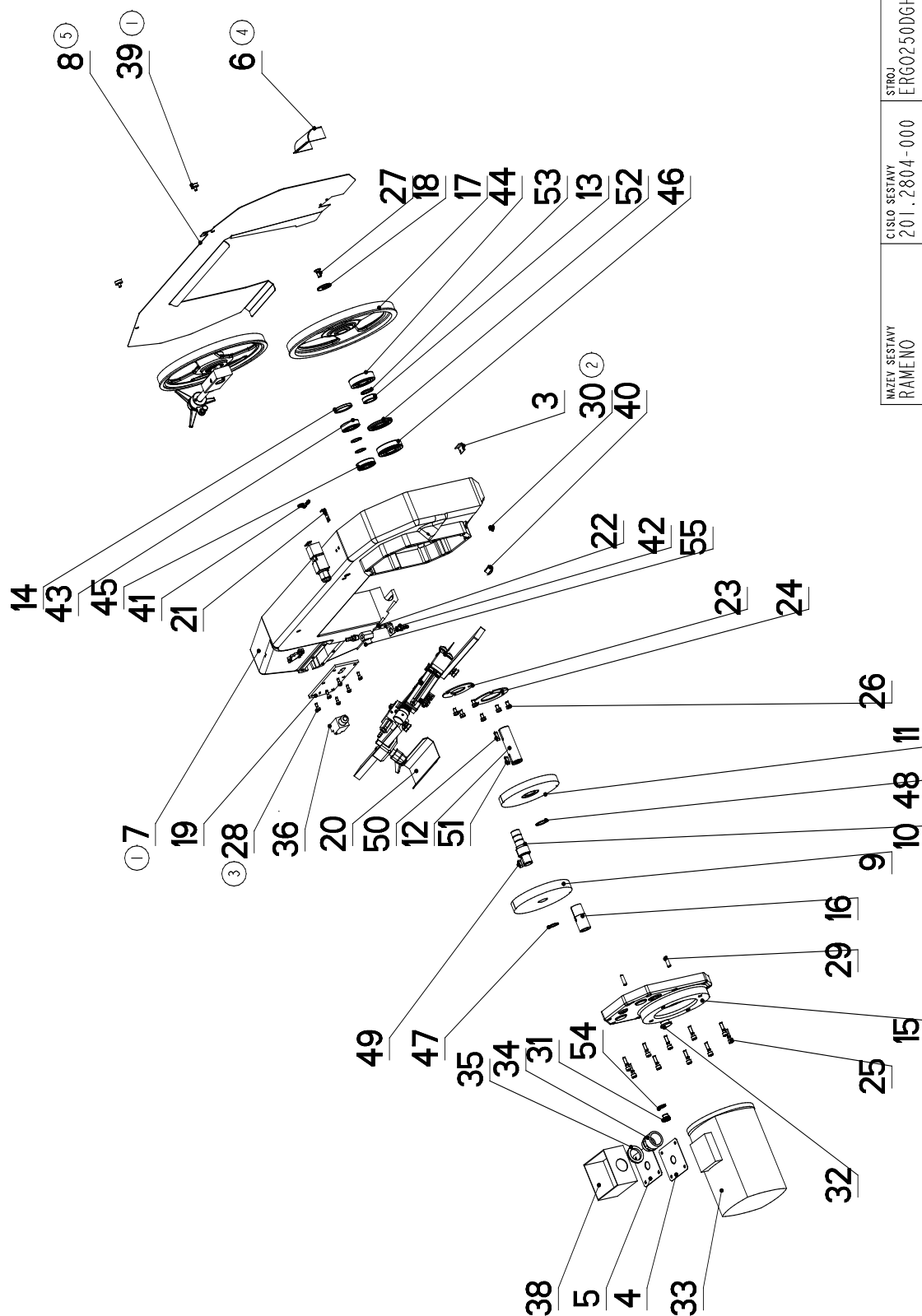


NAZEV SESTAVY RAMENO	ČÍSLO SESTAVY 201.2804-000	STROJ ERG0250DGH
Konstruoval: STASTNY		
Datum: 12. 04. 2010		
Meritko: 1:10		

7.4. Kusovník / Stückliste / Piece list – Rameno / Sägerahmen / Saw arm -1

Císlo Sestavy 201.2804-000		Ver. 4	Název sestavy RAMENO/SHOULDER/SÄGERAHMEN		
Poz.	Objednací číslo	Ver.	Název položky	Rozměr	Ks
1	201.0508-000	0	NAPINANI / TENSIONING / SPANNUNG		1
2	201.2810-000	0	VEDENÍ PASU / BELT GUIDE / SÄGEBANDFÜHRUNG		1
3	30.0104-029	0	UCHYTKA / CLIP / HALTER	P 2- 36	1
4	30.0504-010	1	DESKA ELEKTRO / ELECTRIC BOARD / PLATINE	P 1.5 - 95	1
5	30.0504-011	0	GUMA / RUBBER / GUMMI	TL.2-95	1
6	30.0504-604	0	KRYT / COVER / ABDECKUNG	P 1.5x84	1
7	30.0504-751	0	RAMENO / SHOULDER / SÄGERAHMEN	80.0504-701	1
8	30.0504-753	1	KRYT NAPINANI / TENSIONING COVER / BANDSPANNUNGSABDECKUNG	P 1.5-492	1
9	30.0505-003	1	KOLO OZUBENÉ / COG WHEEL / ZAHNRAD	D 176	1
10	30.0505-004	1	HRIDEL / SHAFT / WELLE	D40	1
11	30.0505-005	0	KOLO OZUBENÉ / COG WHEEL / ZAHNRAD	D 180	1
12	30.0505-007	1	HRIDEL / SHAFT / WELLE	TYC 35	1
13	30.0505-009	1	KROUZEK / RING / RING	Tr 44,5x8	1
14	30.0505-013	0	ZATKA / PLUG / STOPFEN	d 55	1
15	30.0505-201	1	VÍKO / COVER / DECKEL	C.M.80.0705-001	1
16	30.0505-202	1	PASTOREK / PINION / RITZEL	d 32	1
17	30.0505-701	0	KOLO HNACÍ / DRIVE WHEEL / ANTRIEBSRAD		1
18	30.0508-002	0	PODLOŽKA / WASHER / UNTERLEGSCHIEBE	d 40	1
19	30.0704-007	2	KRYT NAPINANI / TENSIONING COVER / BANDSPANNUNGSABDECKUNG	VYPALEK	1
20	30.0704-021	1	KRYT PASU / BELT COVER / BANDABDECKUNG	P 1.5-101	1
21	30.0704-032	2	PRÍLOŽKA / STRAP / LASCHE	P 2 - 15	1
22	30.1814-011	0	DRŽÁK / HOLDER / HALTER	P 3- 76	1
23	81.0105-007	0	PRÍLOŽKA / STRAP / LASCHE	P2.5-90	1
24	81.0505-010	0	PRÍLOŽKA / STRAP / LASCHE	P 2.5- 108	1
25	90.001.25.034	0	SROUB IMBUS / ALLEN HEAD BOLT / IMBUSSCHRAUBE	M8x30	10
26	90.005.55.013	0	SROUB 6HRANNÝ / 6 SIDED BOLT / SECHSKANTSCHRAUBE	SROUB M8x12	6
27	90.011.27.008	0	SROUB ZAPUSTNÝ / COUNTERSINK BOLT / SENKSCHEAUBE	SROUB M10x20	1
28	90.013.27.008	0	SROUB PULKULATÝ / HALF ROUND BOLT / HALBRUNDSCHRAUBE	M6x16	6
29	90.302.07.002	0	KOLÍK KUŽELOVÝ / TAPER PIN / KEGELBOLZEN	KOLÍK 8x30	2
30	90.400.57.001	0	ZATKA / PLUG / STOPFEN	M10x1	1
31	90.400.57.002	0	ZATKA / PLUG / STOPFEN	M16x1.5	1
32	90.400.57.003	0	ZATKA / PLUG / STOPFEN	M 24x1.5	1
33	91.001.007	0	ELEKTROMOTOR / ELECTRIC MOTOR / ELEKTROMOTOR		1
34	91.071.004	0	VÝVODKA / BUSHING / TÜLLE	VÝVODKA	1
35	91.072.007	0	MATICE / NUT / MUTTER	MATICE	1
36	91.173.007		SPÍNACÍ KONEC / END SWITCH / ENDSCHALTER	-RIWK	1

7.5. Rameno / Sägerahmen / Saw arm -2



NAZEV SESTAVY RAMENO	ČÍSLO SESTAVY 201.2804-000	STROJ ERG0250DGH
Konstruoval: STASTNY		
Datum: 12. 04. 2010		
Meritko: 1:10		

7.6. Kusovník / Stückliste / Piece list – Rameno / Sägerahmen / Saw arm -2

Císlo Sestavy 201.2804-000		Ver. 4	Název sestavy RAMENO/SHOULDER/SÄGERAHMEN		
Poz.	Objednací číslo	Ver.	Název položky	Rozměr	Ks
37	91.173.012	0	SPINAC KONCOVÝ / END SWITCH / ENDSCHALTER		1
38	91.190.004	0	KRABICE ELEKTRO / ELECTRO BOX / ELEKTRODOSE		1
39	94.007.002	0	SROUB / BOLT / SCHRAUBE		2
40	94.102.002	0	UCPAVKA / PLUG / STOPFEN	22	1
41	94.200.001	0	REDUKCE / REDUCTION / ADAPTOR / REDUKTION	6	1
42	94.202.002	0	REDUKCE / REDUCTION / ADAPTOR / REDUKTION	GES 6/R1/4"	2
43	95.001.018	0	LOŽISKO / BEARING / LAGER	6205 2RS	1
44	95.001.025	0	LOŽISKO / BEARING / LAGER	6306 2RS	1
45	95.003.002	0	LOŽISKO / BEARING / LAGER	6205AN	1
46	95.003.003	0	LOŽISKO / BEARING / LAGER	6306AN	1
47	95.800.012	0	KROUZEK POJIST.VNEJS / OUTSIDE SAFETY RING / SICHERUNGSRING AUßEN	POJISTNY KROUZEK 25	3
48	95.800.013	0	KROUZEK POJIST.VNEJS / OUTSIDE SAFETY RING / SICHERUNGSRING AUßEN	POJISTNY KROUZEK 30	1
49	95.810.006	0	PERO / SPRING / FEDER	PERO 8X7X20	1
50	95.810.007	0	PERO / SPRING / FEDER	PERO 8X7X25	1
51	95.810.023	0	PERO / SPRING / FEDER	PERO 8X7X22	1
52	95.830.005	0	GUFERO / GIT SEAL / DICHTUNG	GUFERO 40X72X7	1
53	96.002.034	0	KROUZEK O DYNAMICKY / DYNAMIC O RING / O-RING DYNAMISCH	30X2	1
54	96.081.001	0	KROUZEK TESNICI / SEAL RING / DICHTUNGSRING	23x15x3	1
55	99.260.003	0	VENTIL / VALVE / VENTIL	1/4"	1

1.VYMENA RAMENE A KRYTU RAMENE - ZRUSENA SOUCAST 30.0504-701 A NAHR. 30.0504-751,ZRUSENA SOUC.30.0504-702 A NAHR. 30.0504-752.
558/ZM281 19.10.2006 SLEZACKOVA

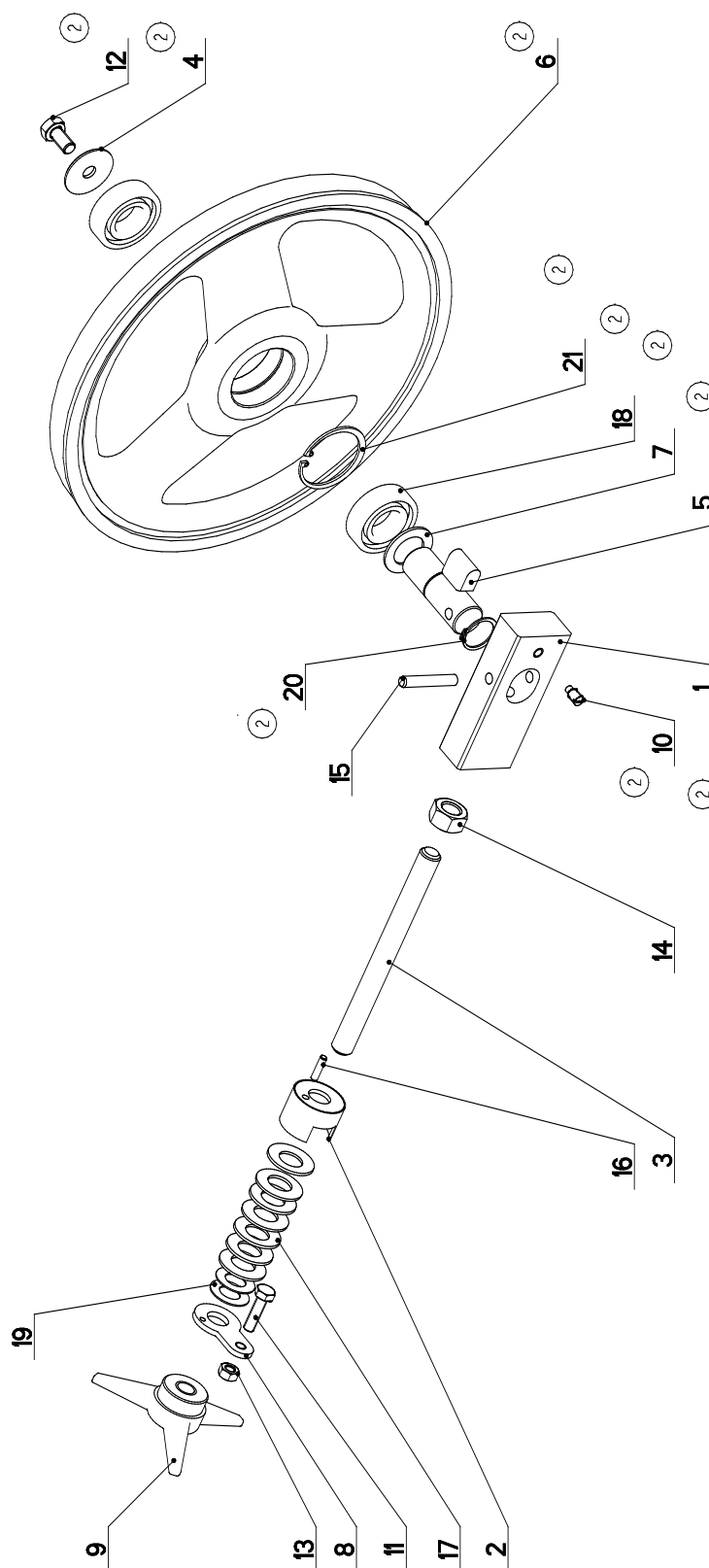
2.PRIDAN OLEJOZNAK 90.400.5Z.003. 633/ZM021 12.2.2007 SLEZACKOVA

3.ZRUS.KARTACEK 201.0704-100,PRIDAN KRYT 30.0504-603,ZRUS.SROUB IMBUS M6X16 (90.001.25.017)
A NAHRAZEN SROUBEM S PULKULATOU HLAVOU M6x16 (90.013.27.008). 183/ZM211 26.11.2009 SLEZACKOVA

4.ZRUSEN KRYT KARTACKU 30.0504-603 A NAHRAZEN 30.0504-604. 052/ZM050 22.2.2010 SLEZACKOVA

5.ZRUSEN KRYT 30.0504-752 A NAHRAZEN 30.0504-753. 036/ZM095 12.4.2010 SLEZACKOVA

7.7. Napínání / Spannung / Tensioning



NAZEV SESTAVY NAPÍNÁNÍ	ČÍSLO SESTAVY 201.0508-000	STROJ ERGO 250GA
Konstruoval:		
Datum: 06. 11. 2009		
Meritko: 33:100		

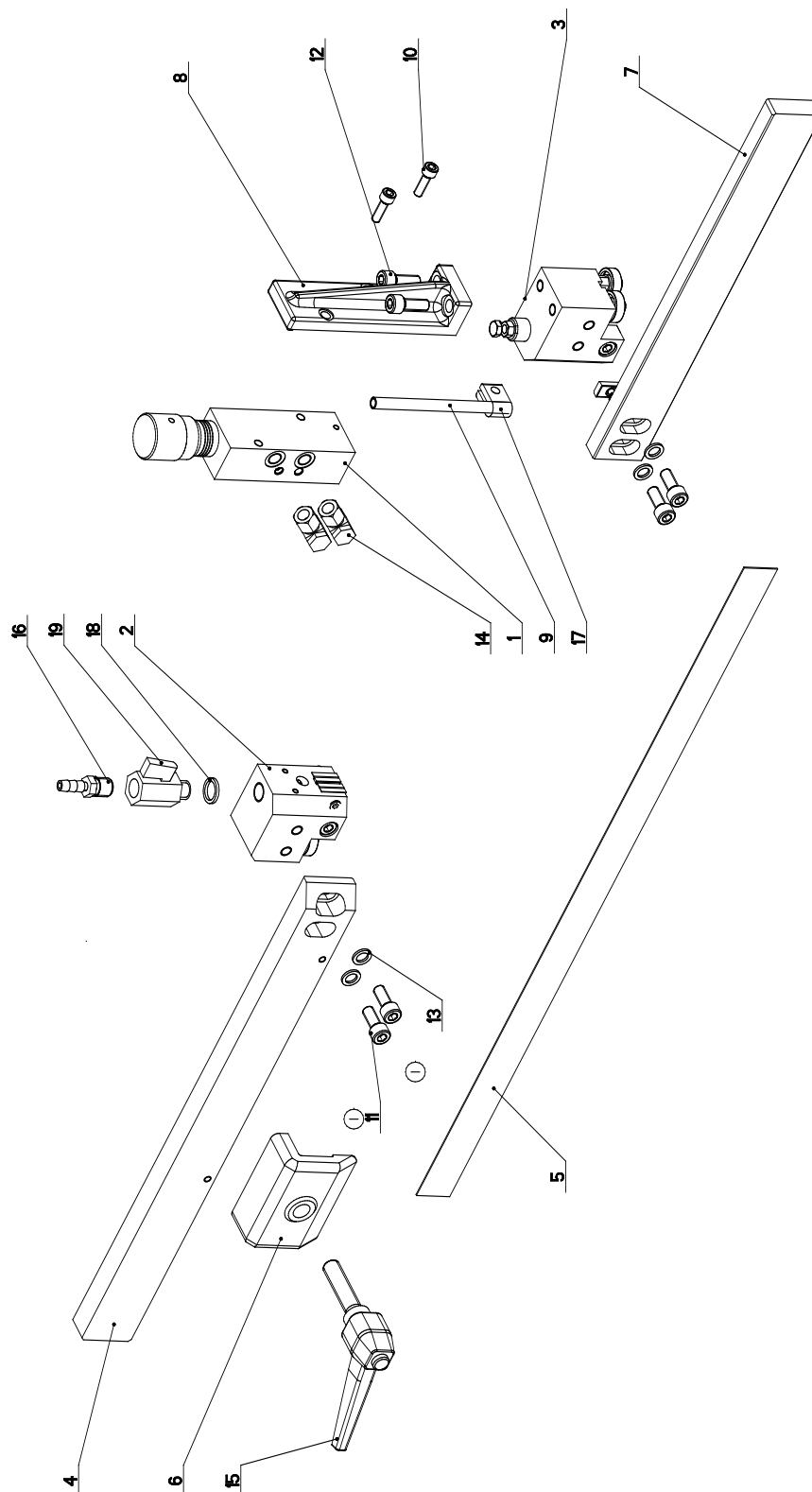
7.8. Kusovník / Stückliste / Piece list – Napínání / Spannung / Tensioning

Číslo Sestavy 201.0508-000		Ver. 0	Název sestavy NAPÍNÁNÍ / TENSIONING / SPANNUNG		
Poz.	Objednací číslo	Ver.	Název položky	Rozměr	Ks
1	30.0104-002	0	HRANOL / BLOCK / PRISMA	HR 50x 30	1
2	30.0104-004	2	DRŽAK / HOLDER / HALTER		1
3	30.0303-005	0	SROUB / BOLT / SCHRAUBE	M16	1
4	30.0505-011 (2)	0	PODLOŽKA / WASHER / UNTERLEGSCHIEBE	TYC 40	1
5	30.0508-004 (2)	0	CEP NAPÍNÁNÍ / TENSIONING LUG / SPANNUNGSBOLZEN		1
6	30.0508-701 (2)	4	KOLO NAPÍNÁNÍ / TENSIONING WHEEL / UMLENKRAD		1
7	30.0702-023 (2)	0	KROUZEK DISTANČNÍ / DISTANCE RING / DISTANZRING		1
8	30.0704-025	3	DRŽAK / HOLDER / HALTER	P 4x 36	1
9	31.0104-006	0	HVEZDICE / STAR WHEEL / STERN	PLAST	1
10	90.004.20.008 (2)	0	STAV SR S CIP / ADJUSTMENT BOLT / STELLSCHRAUBE	SROUB M8x16	1
11	90.005.55.017	0	6 HR SROUB ZIN / 6 SIDED BOLT / SECHSKANTSCHRAUBE	SROUB M8x30	1
12	90.005.55.023	0	6 HR SROUB ZIN / 6 SIDED BOLT / SECHSKANTSCHRAUBE	SROUB M10x20	1
13	90.100.55.005	0	MATICE DIN 934 / NUT / MUTTER	MATICE – M8	1
14	90.100.55.008	0	MATICE DIN 934 / NUT / MUTTER	MATICE – M16	1
15	90.300.07.012	0	KOLIK VALC. KAL. / PIN / BOLZEN	KOLIK 8x50	1
16	90.303.07.008	0	KOLIK PRUŽNÝ / PIN / BOLZEN	KOLIK 5x20	1
17	90.350.07.002	0	PRUŽINA TALIROVA / DISC SPRING / TELLERFEDER	35,5x18,3x2,0x2,8	7
18	95.001.018 (2)	0	LOŽISKO / BEARING / LAGER	6205 2RS	2
19	95.750.001	0	KROUZEK KU / KU RING / KU-RING	16x1	2
20	95.800.012	0	KROUZEK POJIST.VNEJS / OUTSIDE SAFETY RING / SICHERUNGSRING AUBEN	POJISTNÝ KROUZEK 25	1
21	95.801.009 (2)	0	SEGR DIRA / INSIDE SAFETY RING / SICHERUNGSRING INNEN	POJISTNÝ KROUZEK 52	1

① ZMENA 30.0702-023 NA 30.0508-006, 0508-701 NA 0508-102, 0508-004 NA 0508-007, 0104-002 NA 0508-008, 95.001.018 NA 95.001.036
0505-011 NA 0508-002, 95.801.009 NA 95.801.010 14.5.2004 URICAR

2.ZRUSENA ZMENA 1. NEBYLA REALIZOVANA. 266/ZM255 28.7.2008 SLEZACKOVA

7.9. Vedení pásu / Sägebandführung / Belt guide



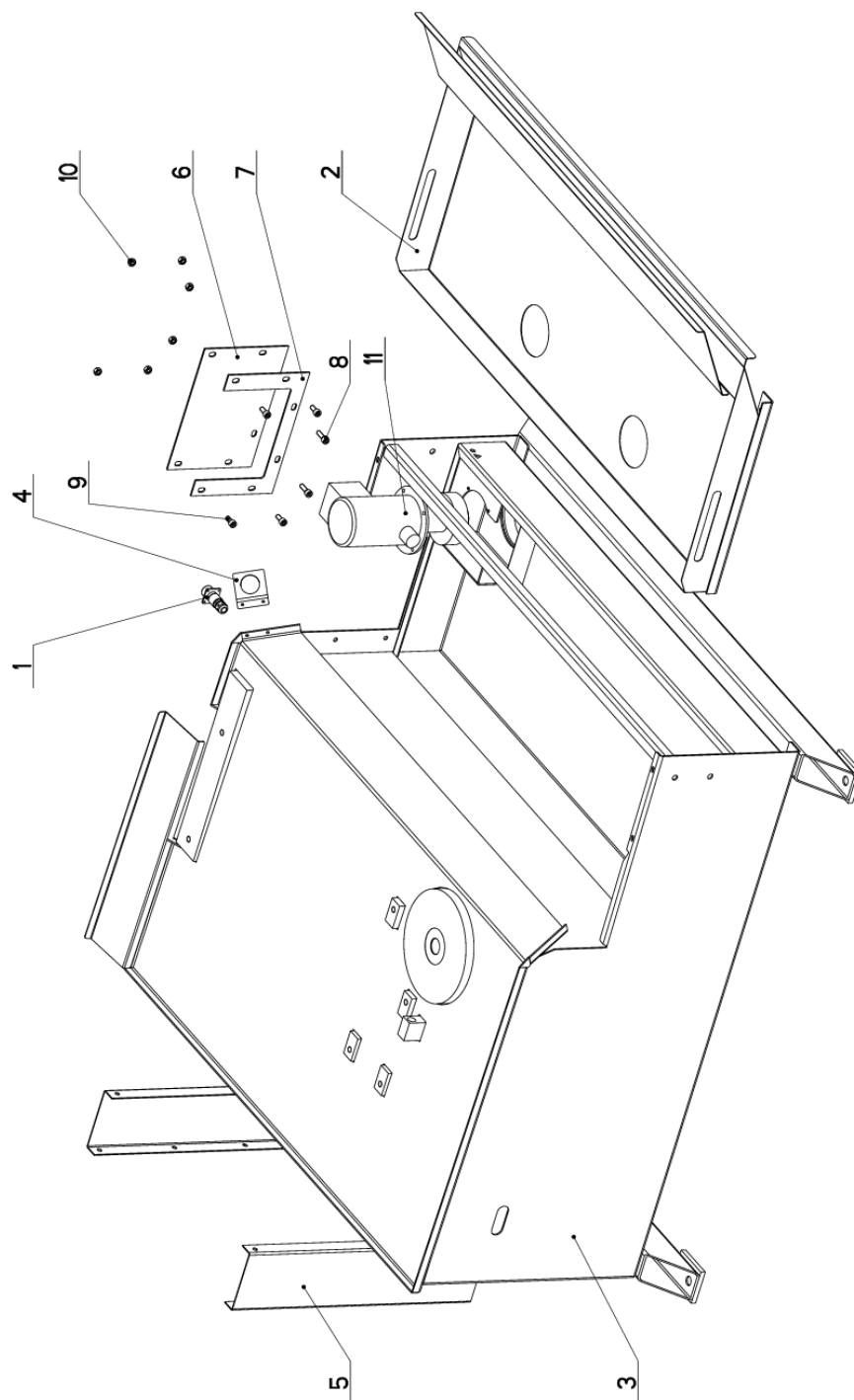
NAZEV SOUSTAVY VEDENÍ PÁSU	ČÍSLO SOUSTAVY 201.2810-000	STŘEJ STG 240A/GA
Konstruoval:	Datum:	27. 11. 2009
Meritko:	1:2	

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

Číslo Sestavy 201.2810-000		Ver. 0	Název sestavy VEDENÍ PASU/BELT GUIDE / SÄGEBANDFÜHRUNG		
Poz.	Objednací číslo	Ver.	Název položky	Rozměr	Ks
1	251.218	0	REGULACE PRITLAKU / PRESSURE REGULATION / SCHNITTDRUCKREGULATION		1
2	201.0110-100	0	KOSTKA VODICI / LEAD CUBE / FÜHRUNGSKLOTZ		1
3	201.2810-200	0	KOSTKA VODICI / LEAD CUBE / FÜHRUNGSKLOTZ		1
4	30.0104-015	0	LISTA / TRIM / LEISTE	TYC 40x20	1
5	30.0504-961	0	PAS PÍLOVÝ / SAW BELT / SÄGEBAND	2910x25(7)x0.90	1
6	30.0704-010	0	UPÍNKA / FASTENER / SPANNEISEN	ODLITEK	1
7	30.0704-014	0	LISTA / TRIM / LEISTE	TYC 40x15	1
8	30.2804-001	0	DRŽÁK / HOLDER / HALTER		1
9	30.3510-004	0	TRUBKA / TUBE / ROHR	TR 8x 1	1
10	90.001.25.018	0	SROUB IMBUS / ALLEN HEAD BOLT / IMBUSSCHRAUBE	M6x20	2
11	90.001.25.032	0	SROUB IMBUS CERNÝ / ALLEN HEAD BOLT / IMBUSSCHRAUBE	8x20	4
12	90.001.25.104	0	SROUB IMBUS / ALLEN HEAD BOLT / IMBUSSCHRAUBE	M8x22	2
13	90.163.00.002	0	PODLOŽKA / WASHER / UNTERLEGSCHIEBE	PODLOŽKA 8	4
14	92.003.104	0	SROUBENÍ / BOLTING / VERSCHRAUBUNG	607002	2
15	94.008.009	0	PAKA UPÍNACÍ / ATTACHMENT LEVER / SPANNHEBEL	M12x50	1
16	94.202.002	0	REDUKCE / REDUCTION / ADAPTOR / REDUKTION	GES 6/R1/4"	1
17	94.204.001	0	DRŽÁK / HOLDER / HALTER		1
18	96.080.001	0	KROUZEK / RING / RING	17.8x13.5x2	1
19	99.260.001	0	VENTIL / VALVE / VENTIL		1

I. PRID. 4xPODLOŽKA NORD LOCK M8 90.163.00.002, ZRUS. 4xSROUB M8x16 A NAHRZEN SROUBEM M8x20 . 161/ZMI48 13.5.2008 SLEZACKOVA

7.11. Podstavec/Untersatz/Base



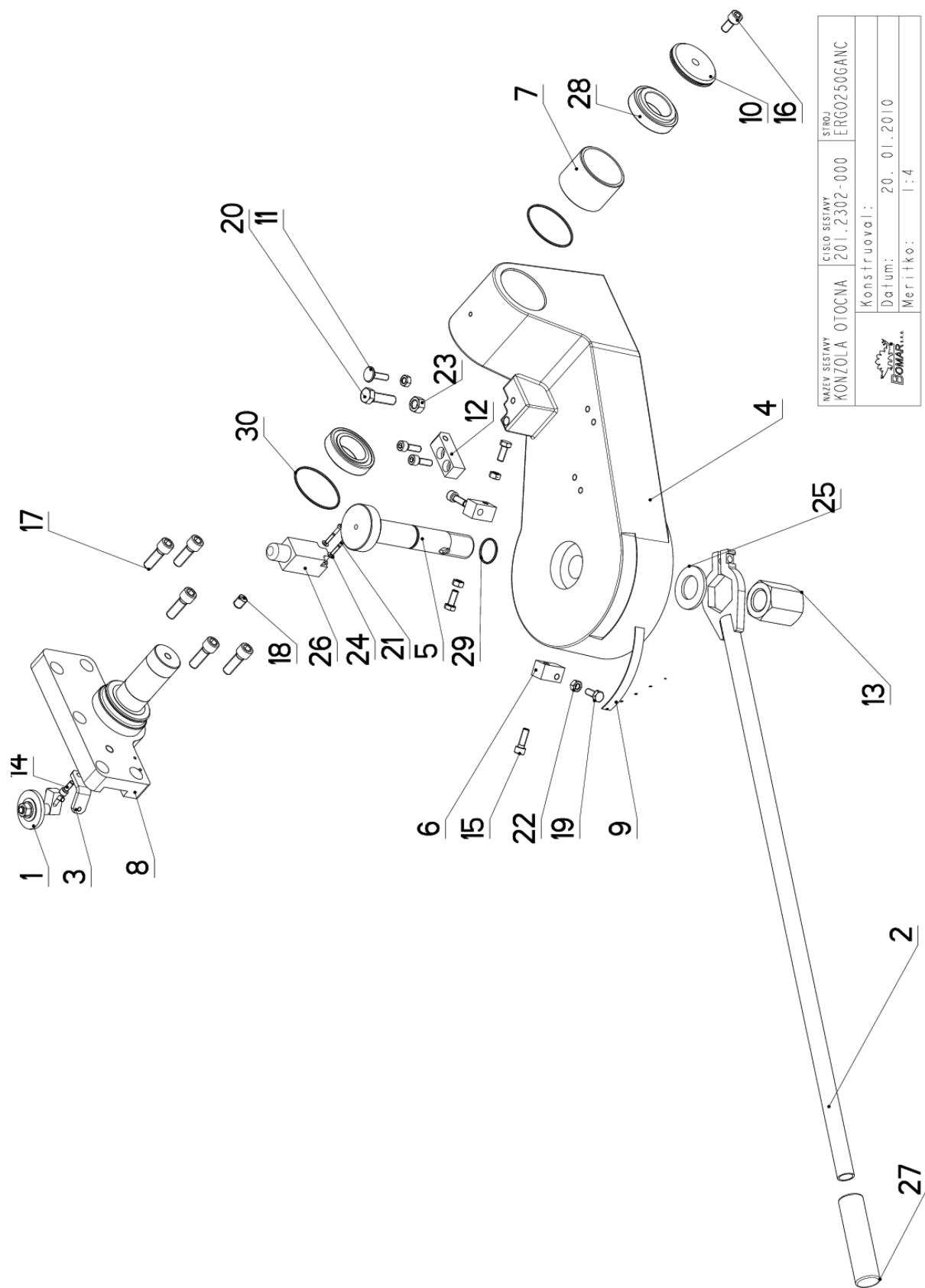
NAZEV SESTAVY PODSTAVEC	ČÍSLO SESTAVY 201.2301-300	STROJ ERG0250GANC
Konstruoval:		
Datum: 28. 02. 2013		
Meritko: 13:100		

7.12. Kusovník / Stückliste / Piece list – Podstavec/Untersatz/Base

Císlo Sestavy 201.2301-300		Ver. 0	Název sestavy PODSTAVEC/BASE/UNTERSATZ		
Poz.	Objednací číslo	Ver.	Název položky	Rozměr	Ks
1	262.007	0	KONEKTOR / CONNECTOR / STECKVERBINDER		1
2	201.2314-360	0	VANA / TANK / WANNE		1
3	30.2301-301	1	PODSTAVEC / BASE / UNTERSATZ		1
4	30.2314-683	0	PLECH / PLATE / BLECH	P 4x60	1
5	30.2314-688	0	PLECH / PLATE / BLECH	P 2x181.3	2
6	30.7906-104	0	VÍKO / COVER / DECKEL	P3-184	1
7	31.7217-032	1	TESNĚNÍ / SEALING / DICHTUNG	TL4	1
8	90.001.25.033	0	ŠROUB IMBUS ČERNÝ / ALLEN HEAD BOLT / IMBUSSCHRAUBE	8x25	2
9	90.001.25.105	0	ŠROUB IMBUS / ALLEN HEAD BOLT / IMBUSSCHRAUBE	M8X18	4
10	90.100.55.005	0	MATICE / NUT / MUTTER	MATICE - M8	6
11	91.020.004	0	CERPADLO CHLAZENÍ / COOLING PUMP / KÜHLMITTELpumpe	230/400V	1

Císlo Sestavy/Number of assembly/Nummer der Baugruppe; Verze (Ver./Version/Version; Název sestavy/Assembly title/Name der Baugruppe; Pozice (Poz./Position/Position;
Objednací číslo/Purchase order number/Bestellnummer; Název položky/Volume title/Name der Position; Rozměr/Stock size/Abmessung

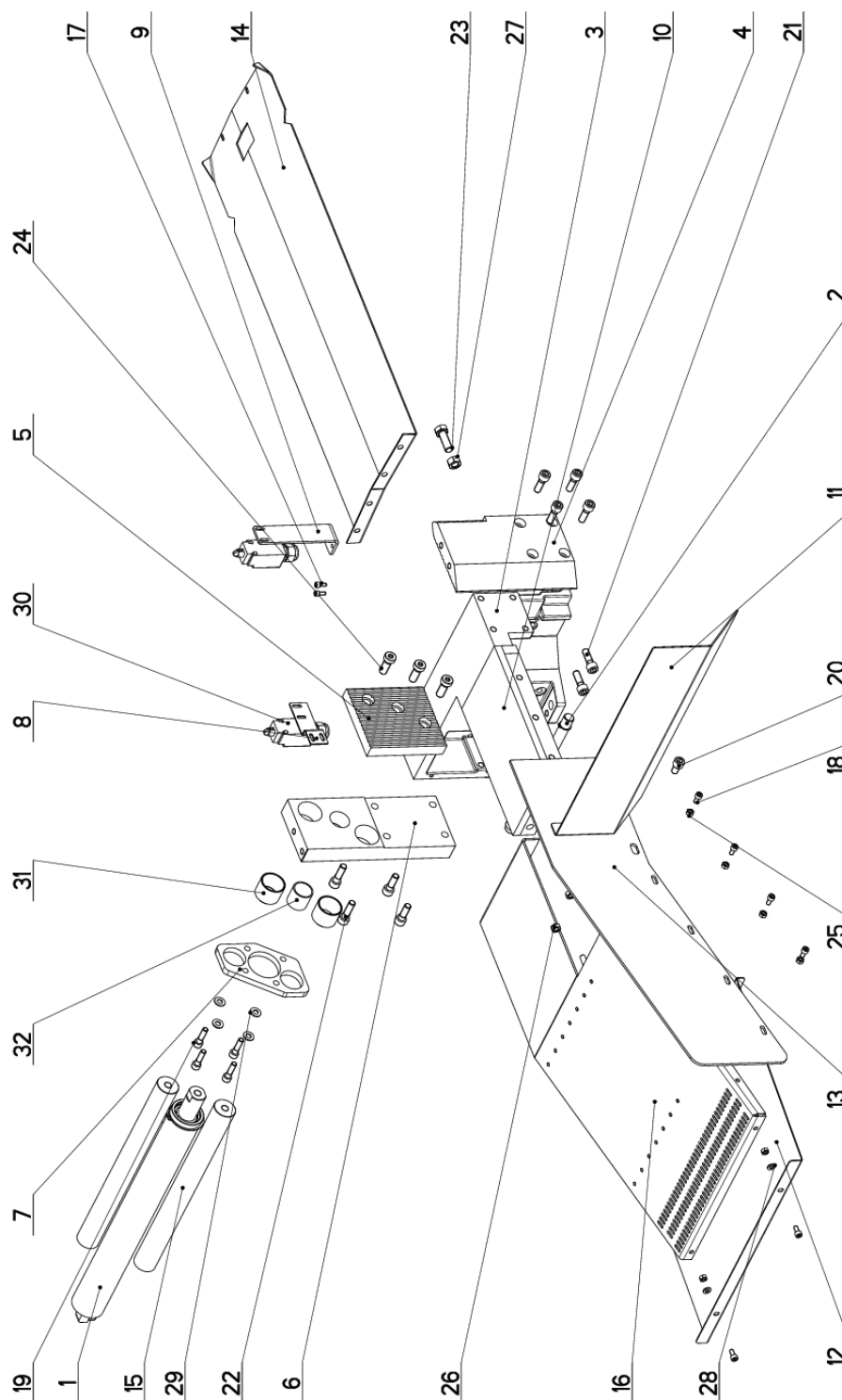
7.13. Konzola / Konzole / Console



7.14. Kusovník / Stückliste / Piece list – Konzola / Konsole / Console

Císlo Sestavy 201.2302-000		Ver. 0	Název sestavy KONZOLA OTOCNA/TURNABLE CONSOL/DREHKONSOLE		
Poz.	Objednací číslo	Ver.	Název položky	Rozměr	Ks
1	201.0704-100	0	KARTAC / BRUSH / BÜRSTE		1
2	30.0502-004	1	PAKA / LEVER / HEBEL	SVARENO	1
3	30.0514-603	0	DRŽAK / HOLDER / HALTER	HR20x5	1
4	30.0702-001	2	KONZOLA / CONSOLE / KONSOLE		1
5	30.0702-002	2	ČEP / LUG / BOLZEN	M30x173	1
6	30.0702-006	0	DORAZ / STOP PIECE / ANSCHLAG	TYC 20x20	2
7	30.0702-008	0	POUZDRO / SLEEVE / BÜCHSE	TR 70x5	1
8	30.0702-010	1	DRŽAK / HOLDER / HALTER		1
9	30.0702-011	0	STUPNICE / SCALE / SKALA	P1-15	1
10	30.0702-012	0	VÍKO / COVER / DECKEL	d 70	1
11	30.0702-013	0	SROUB / BOLT / SCHRAUBE	M8	1
12	30.0707-011	1	DRŽAK / HOLDER / HALTER	TYC 20x20	1
13	30.2301-303	0	MATICE / NUT / MUTTER	6HR 46	1
14	90.001.25.017	0	SROUB IMBUS ČERNÝ / ALLEN HEAD BOLT / IMBUSSCHRAUBE	M6x16	1
15	90.001.25.033	0	SROUB IMBUS ČERNÝ / ALLEN HEAD BOLT / IMBUSSCHRAUBE	8x25	4
16	90.001.25.046	0	SROUB IMBUS / ALLEN HEAD BOLT / IMBUSSCHRAUBE	M10x20	1
17	90.001.25.059	0	SROUB IMBUS / ALLEN HEAD BOLT / IMBUSSCHRAUBE	M12x35	5
18	90.002.20.017	0	SROUB STAVEČI / ADJUSTMENT BOLT / STELLSCHRAUBE	SROUB M12x16	1
19	90.005.55.015	0	SROUB 6HRANNÝ / 6 SIDED BOLT / SECHSKANTSCHRAUBE	SROUB M8x20	3
20	90.005.55.034	0	SROUB 6HRANNÝ / 6 SIDED BOLT / SECHSKANTSCHRAUBE	SROUB M12x40	1
21	90.012.50.007	0	SROUB / ROLLER BOLT / ZYLINDERSCHRAUBE	SROUB M4x30	2
22	90.100.55.005	0	MATICE / NUT / MUTTER	MATICE _ M8	4
23	90.100.55.007	0	MATICE / NUT / MUTTER	MATICE _ M12	1
24	90.150.50.002	0	PODLOŽKA / WASHER / UNTERLEGSCHIEBE	PODLOŽKA 4,3	2
25	90.150.50.018	0	PODLOŽKA / WASHER / UNTERLEGSCHIEBE	PODLOŽKA 31	1
26	91.173.007	0	SPÍNAC KONCOVÝ / END SWITCH / ENDSCHALTER	-RIWK	1
27	94.004.502	0	RUKOJET / HANDLE / GRIFF	D22	1
28	95.300.002	0	LOŽISKO KUŽELIK / BEARING / LAGER	32008AX	2
29	96.001.008	0	O-KROUZEK STATIK / STATIC O RING / O-RING STATISCH	26x2 NBR 70SH	1
30	96.001.018	0	O-KROUZEK STATIK / STATIC O RING / O-RING STATISCH	63X2	2

7.15. Svěrák / Schraubstock / Vice



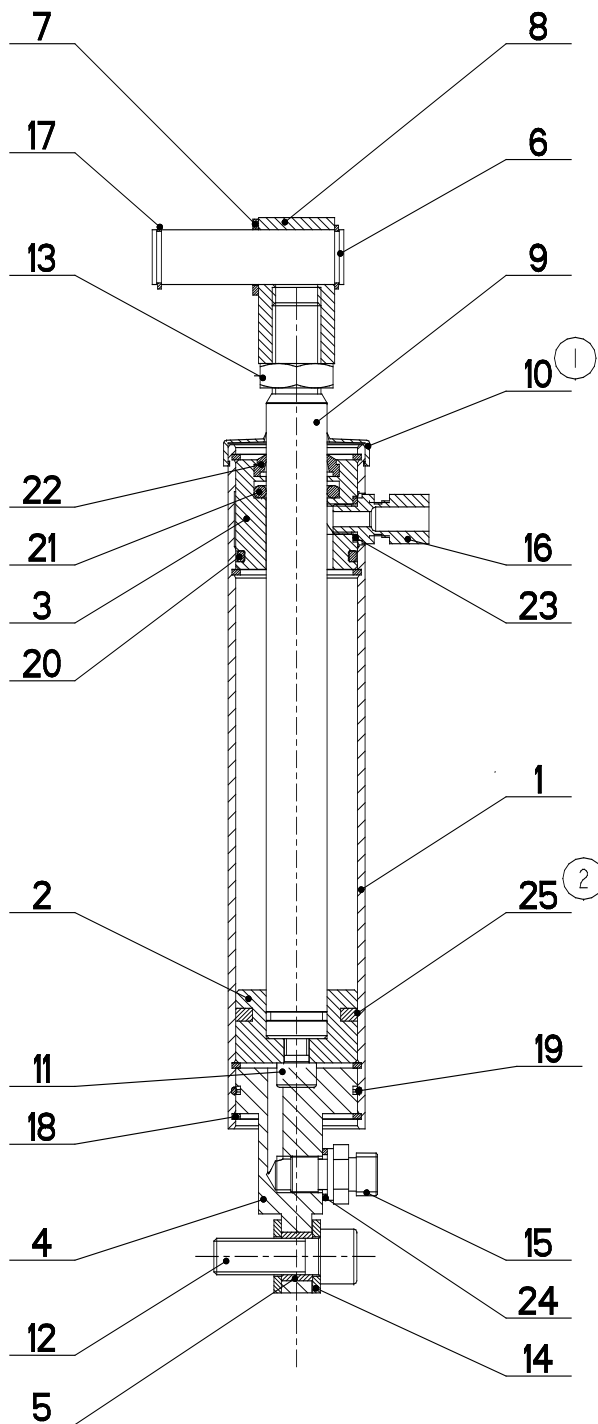
NAZEV SESTAVY SVĚRÁK	ČÍSLO SESTAVY 201.2303-500	STROJ GAC 250
Konstruoval: FOTYN		
Datum: 25. 01. 2013		
Meritko: 17:100		


7.16. Kusovník / Stückliste / Piece list – Svěrák / Schraubstock / Vice

Číslo sestavy 201.2303-500		Ver. 0	Název sestavy SVĚRÁK/VICE/SCHRAUBSTOCK		
Poz.	Objednací číslo	Ver.	Název položky	Rozměr	Ks
1	201.2311-360	0	VALEČ PODNÁVCE / FEEDER CYLINDER / VORSCHUBWALZE		1
2	201.2311-370	0	DOKAZ / STOP PIECE / ANSCHLAG		1
3	30.2303-301	0	PODSTAVEC SVĚRÁKU / VICE BASE / SCHRAUBSTOCKUNTERSATZ	ODLITEK	1
4	30.2303-302	1	CELIST / JAW / BACKE	HR 130x25	1
5	30.2303-303	0	DESKA / BOARD / PLATTE	HR 120x20	1
6	30.2303-304	0	KOSTKA / CUBE / WÜRFEL	HR 100x30	1
7	30.2303-305	0	PLECH / PLATE / BLECH	P 10x100	1
8	30.2303-306	0	PLECH / PLATE / BLECH	P 2x30	1
9	30.2303-307	0	PLECH / PLATE / BLECH	P 4x33	1
10	30.2303-308	0	PODLOŽKA / WASHER / UNTERLEGSCHEIBE		1
11	30.2303-318	0	PLECH / PLATE / BLECH	P 21x199	1
12	30.2303-509	0	SKLIZ / SLIDE / RUTSCH	P 1.5x400	1
13	30.2303-510	0	CELIST / JAW / BACKE	P 4x272	1
14	30.2311-306	0	PLECH / PLATE / BLECH	P 2x258	1
15	30.2311-358	1	HRIDEL / SHAFT / WELLE	Ø 35x6	2
16	30.2311-507	0	ROST / GRILL / GITTER		1
17	90.001.25.008	0	SHROUB IMBUS ČERNÝ / ALLEN HEAD BOLT / IMBUSSCHRAUBE	M5x12	2
18	90.001.25.016	0	SHROUB IMBUS / ALLEN HEAD BOLT / IMBUSSCHRAUBE	M6x12	6
19	90.001.25.034	0	SHROUB IMBUS / ALLEN HEAD BOLT / IMBUSSCHRAUBE	M6x30	4
20	90.001.25.045	0	SHROUB IMBUS / ALLEN HEAD BOLT / IMBUSSCHRAUBE	M10x16	3
21	90.001.25.048	0	SHROUB IMBUS / ALLEN HEAD BOLT / IMBUSSCHRAUBE	M10x30	8
22	90.001.25.049	0	SHROUB IMBUS / ALLEN HEAD BOLT / IMBUSSCHRAUBE	M10x35	2
23	90.005.55.033	0	SHROUB 6HRANNÝ / 6 SIDED BOLT / SECHSKANTSCHRAUBE	SHROUB M12x35	1
24	90.015.25.023	0	SHROUB IMBUS / ALLEN HEAD BOLT / IMBUSSCHRAUBE	M12x30	3
25	90.100.55.004	0	MATICE / NUT / MUTTER	MATICE - M6	6
26	90.100.55.005	0	MATICE / NUT / MUTTER	MATICE - M8	2
27	90.100.55.007	0	MATICE / NUT / MUTTER	MATICE - M12	1
28	90.150.50.004	0	PODLOŽKA / WASHER / UNTERLEGSCHEIBE	PODLOŽKA 6,4	2
29	90.150.50.005	0	PODLOŽKA / WASHER / UNTERLEGSCHEIBE	PODLOŽKA 8,4	4
30	91.173.010	0	SPÍNACÍ KROKOVÝ / END SWITCH / ENDSCHALTER		2
31	95.700.020	0	POUZDRO / SLEEVE / BÜCHSE	KU 35x30	2
32	95.720.008	0	KROUZEK KU / KU RING / KU-RING	KU 32x28	1

Číslo Sestavy/Number of assembly/Nummer der Baugruppe; Verze (Ver./Version/Version; Název sestavy/Assembly title/Name der Baugruppe; Pozice (Pos./Position/Position;
Objednací číslo/Purchase order number/Bestellnummer; Název položky/Volume title/Name der Position; Rozměr/Stock size/Abmessung

7.17. Válec zvedací / Hebezyylinder / Liftink cylinder



NAZEV SESTAVY VALEC ZVEDACI	CISLO SESTAVY 201.0507-910	STROJ ERGO250GH, DGH
	Konstruoval: ZAJIC	
	Datum: 11. 01.2011	
	Meritko: 1:2	

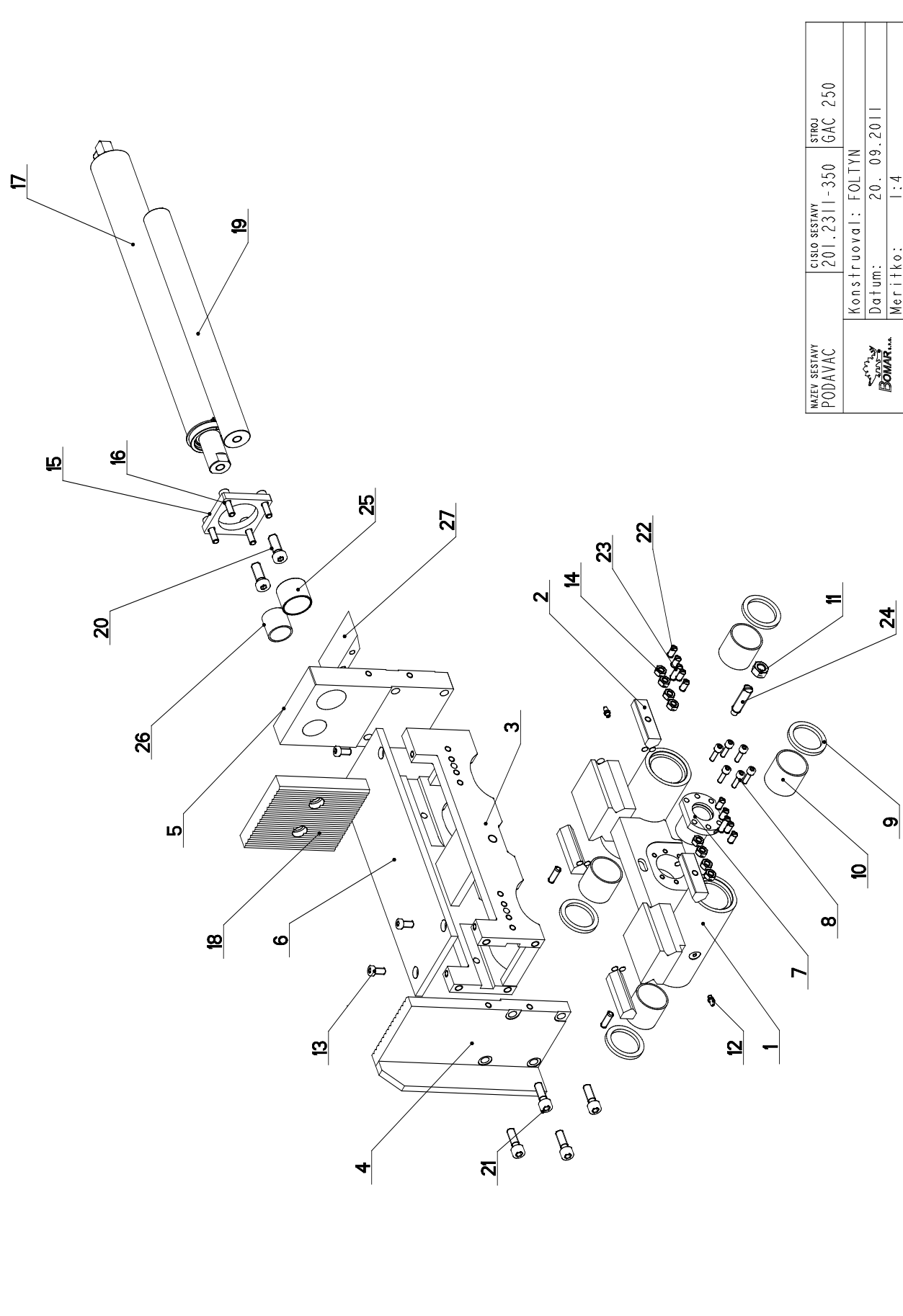
7.18. Kusovník / Stückliste / Piece list – Válec zvedací / Hebezyylinder / Liftink cylinder


Cislo Sestavy 201.0507-910		Ver. 2	Nazev sestavy VALEC ZVEDACI/LIFTING CYLINDER/HEBEZYLINDER		
Poz.	Objednaci cislo	Ver.	Nazev polozky	Rozmer	Ks
1	30.0507-901	2	VALEC / ROLLER / ZYLINDER	TR 45/40H8	1
2	30.0507-902	0	PIST / PISTON / KOLBEN	d 40	1
3	30.0507-903	2	VIKO / COVER / DECKEL	TYC 45	1
4	30.0507-911	0	DRZAK / HOLDER / HALTER	d 40	1
5	30.0507-913	2	POUZDRO / /	d 16	1
6	30.0514-904	0	CEP / LUG / BOLZEN	d 18	1
7	30.0514-905	0	KROUZEK DISTANCNI / DISTANCE RING / DISTANZRING	TR 25x 5	1
8	30.0807-006	0	DRZAK / HOLDER / HALTER	TYC 25x25	1
9	30.2807-003	0	PISTNICE / PISTON ROD / KOLBENSTANGE	d20	1
10	31.0507-905 (1)	0	VIKO / COVER / DECKEL		1
11	90.001.25.032	0	SROUB IMBUS CERNENY / ALLEN HEAD BOLT / IMBUSSCHRAUBE	8x20	1
12	90.001.25.059	0	SROUB IMBUS / ALLEN HEAD BOLT / IMBUSSCHRAUBE	M12X35	1
13	90.101.55.003	0	MATICE / NUT / MUTTER	MATICE M16	1
14	90.150.50.007	0	PODLOZKA / WASHER / UNTERLEGSCHIEBE	PODLOZKA 13	2
15	92.002.001	0	SROUBENI PRIME / DIRECT BOLTING / GERADE VERSCHRAUBUNG	G 1/4"	1
16	92.002.102	0	SROUBENI / BOLTING / VERSCHRAUBUNG	S-GEV-8LLR	1
17	95.800.008	0	KROUZEK POJIST.VNEJS / OUTSIDE SAFETY RING / SICHERUNGSRING AUßEN	POJISTNY KROUZEK 18	2
18	95.801.005	0	KROUZEK POJIST.VNITR / INSIDE SAFETY RING / SICHERUNGSRING INNEN	POJISTNY KROUZEK 40	4
19	96.001.010	0	KROUZEK O STATICKY / STATIC O RING / O-RING STATISCH	36X2	1
20	96.002.017	0	KROUZEK O DYNAMICKY / DYNAMIC O RING / O-RING DYNAMISCH	34X3	1
21	96.041.002	0	MANZETA TESNICI / /	20/28x4	1
22	96.060.002	0	KROUZEK STIRACI / SCRAPER RING / ABSTREIFRING	TK 20x28	1
23	96.082.001	0	TESNENI / SEALING / DICHTUNG	KROUZEK CU 10/14	1
24	96.082.002	0	TESNENI / SEALING / DICHTUNG	KROUZEK CU 13/17	1
25	96.900.015 (2)	0	TESNENI KOMBINOVA NE / COMBINATION SEALING / KOMBIDICHTUNG	PT0200400-T46N	1

1. DOPL. 31.0507-905, 12.1.04 STASTNY

2. ZRUSENO TESNENÍ 96.900.002 A NAHRAZENO 96.900.015. 336/ZM006 11.1.2011 SLEZACKOVA

7.19. Podavač / Vorschub / Feeder



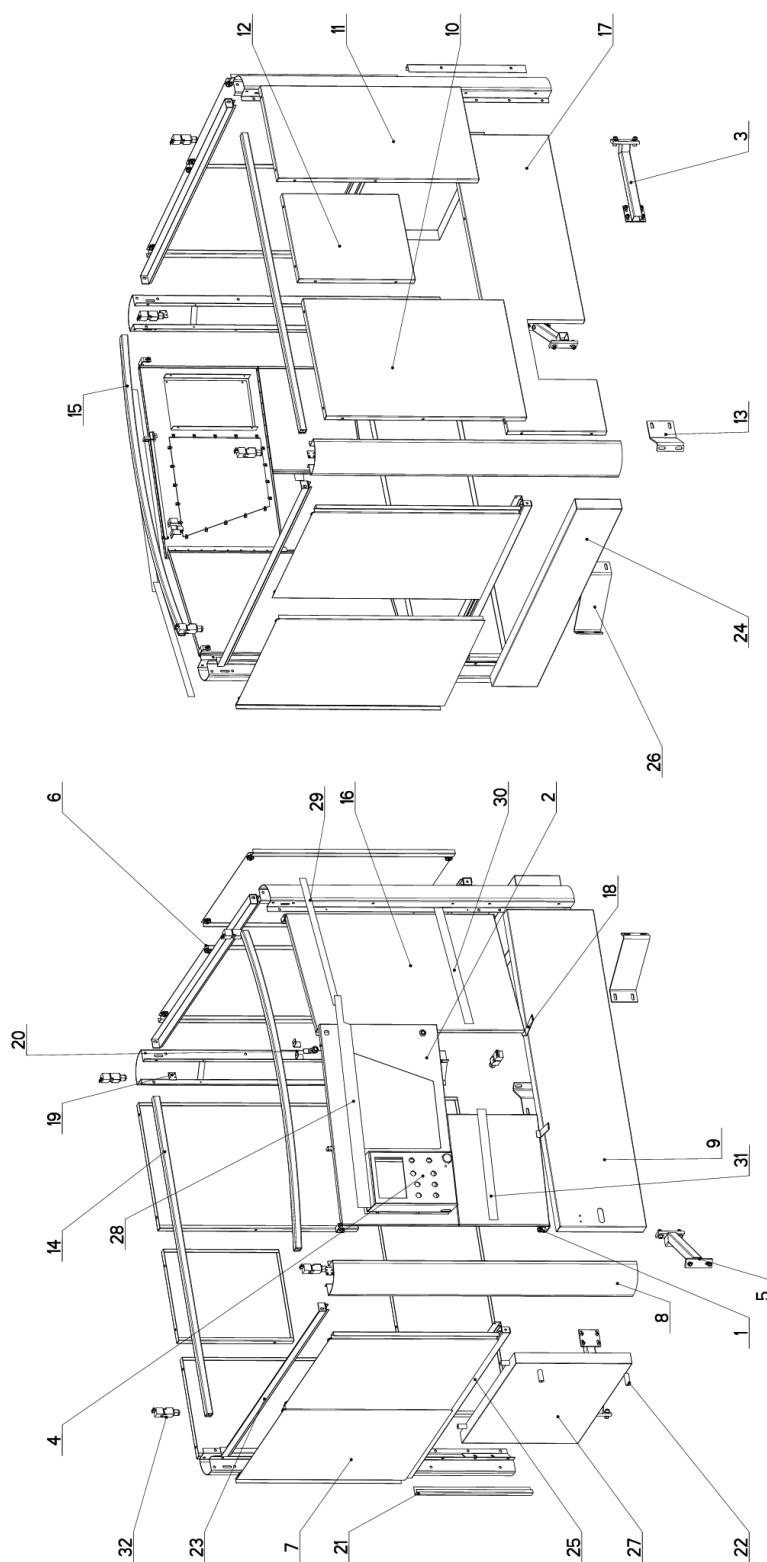
NÁZEV SESTAVY PODAVAC	ČÍSLO SESTAVY 201.2311 - 350	STROJ GAC 250
	Konstruoval: FOLTYN	
	Datum: 20. 09. 2011	
	Meritko: 1:4	
		

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

Císlo Sestavy 201.2311-350		Ver. 0	Název sestavy PODAVAC/FEEDER/VORSCHUB		
Poz.	Objednací číslo	Ver.	Název položky	Rozměr	Ks
1	30.2311-352	0	VOZÍK / CART / WAGEN		1
2	30.R211-004	0	VEDENÍ / GUIDE / BACKENFÜHRUNG	TYC 20x20	4
3	30.2311-353	0	PODAVAC / FEEDER / VORSCHUB		1
4	30.2311-354	0	CELIST PEVNÁ / SOLID JAW / FESTE BACKE		1
5	30.2311-356	0	KOSTKA / CUBE / WÜRFEL	HR 120x30	1
6	30.2311-355	0	PLECH / PLATE / BLECH	HR 120x10	1
7	99.212.034	0	MATICE / NUT / MUTTER		1
8	90.001.25.018	0	SROUB IMBUS / ALLEN HEAD BOLT / IMBUSSCHRAUBE	M6x20	6
9	96.040.003	0	KROUZEK STÍRACÍ / SCRAPER RING / ABSTREIFRING	42x52x5	4
10	95.700.025	0	POUZDRO / SLEEVE / BÜCHSE	40x40	4
11	90.100.55.007	0	MATICE / NUT / MUTTER	MATICE _ M12	1
12	95.860.001	0	MAZNICE / LUBRICATOR / ÖLER	KW5	2
13	90.015.25.009	0	SROUB IMBUS / ALLEN HEAD BOLT / IMBUSSCHRAUBE	M8x16	4
14	90.100.55.005	0	MATICE / NUT / MUTTER	MATICE _ M8	8
15	30.3511-009	0	PRÍLOŽKA / STRAP / LASCHE	HR 70x10	1
16	90.001.55.083	0	SROUB IMBUS / ALLEN HEAD BOLT / IMBUSSCHRAUBE	M8x30	4
17	201.2311-360	0	VALEC PODAVACE / FEEDER CYLINDER / VORSCHUBWALZE		1
18	30.2311-357	0	TYC / POLE / STANGE	HR 120x20	1
19	30.2311-358	0	HRIDEL / SHAFT / WELLE	D 35h6	1
20	90.015.25.023	0	SROUB IMBUS / ALLEN HEAD BOLT / IMBUSSCHRAUBE	M12X30	2
21	90.001.25.048	0	SROUB IMBUS / ALLEN HEAD BOLT / IMBUSSCHRAUBE	M10X30	4
22	90.002.20.012	0	SROUB STAVECÍ / ADJUSTMENT BOLT / STELLSCHRAUBE	SROUB M8x16	8
23	90.002.20.013	0	SROUB STAVECÍ / ADJUSTMENT BOLT / STELLSCHRAUBE	SROUB M8x25	4
24	90.004.20.0XX	0	SROUB STAVECÍ / ADJUSTMENT BOLT / STELLSCHRAUBE	SROUB M12X50	1
25	95.700.020	0	KROUZEK KU / KU RING / KU-RING	KU 35x30	1
26	95.720.008	0	KROUZEK KU / KU RING / KU-RING	KU 32x28	1
27	30.2311-371	0	TYC / POLE / STANGE	HR 40x15	1

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

7.21. Kryty / Abdeckungen / Covers



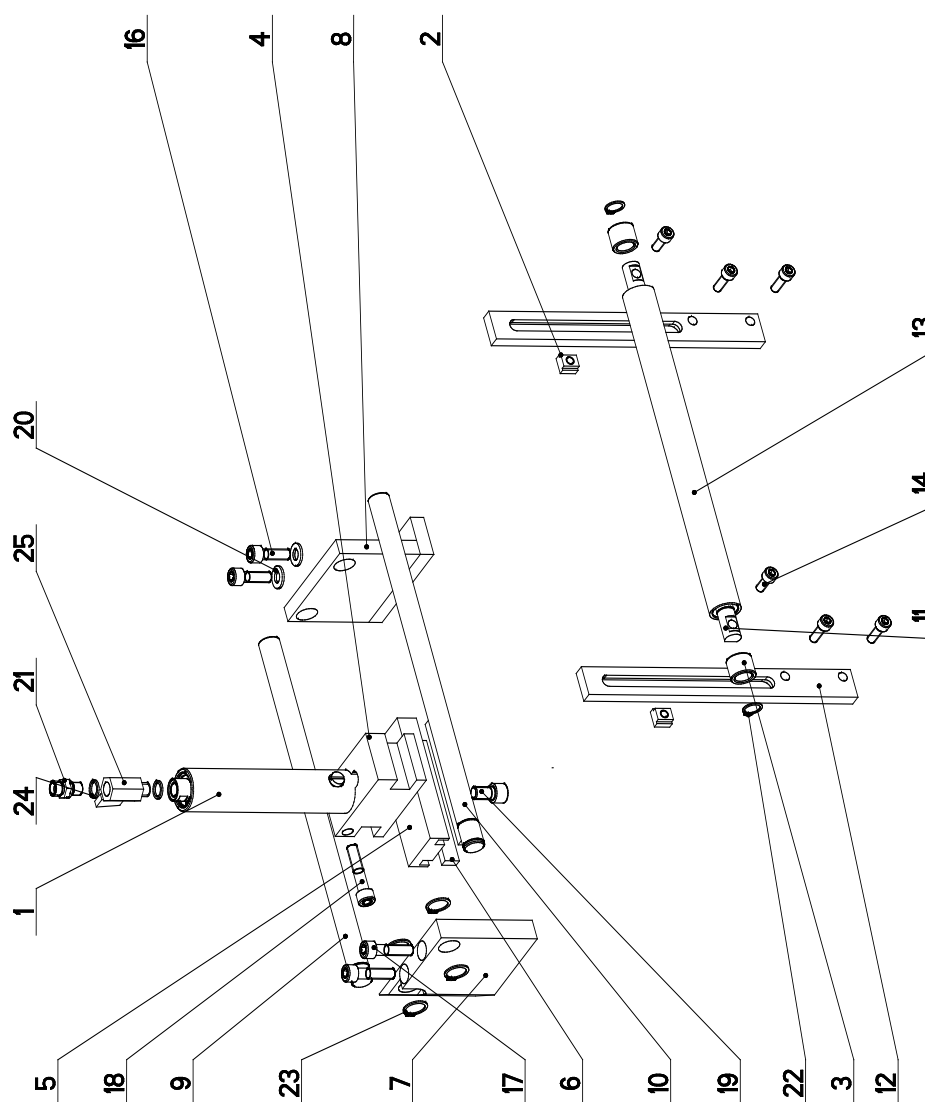
INEX SSIANT KRYTY	CISLO SSIANTY 201.2314-700	STROJ ERGO.250GACNC
Konstruoval: FOLTN	Datum: 01.09.2012	Meritko: 2:25

7.22. Kusovník / Stückliste / Piece list – Kryty / Abdeckungen / Covers

Cislo Sestavy 201.2314-700		Ver. 0	Nazev sestavy KRYTY/COVERS/ABDECKUNGEN		
Poz.	Objednaci cislo	Ver.	Nazev polozky	Rozmer	Ks
1	201.2314-610	0	PANT / HINGE / TÜR BAND		4
2	201.2314-630	0	DVERE / DOOR / TÜR		1
3	201.2314-640	0	DRZAK / HOLDER / HALTER		1
4	201.2314-690	0	PANEL ELEKTRO / ELECTRO PANEL / PANEL		1
5	201.2314-720	0	DRZAK / HOLDER / HALTER		1
6	201.2314-750	0	DVERE / DOOR / TÜR		2
7	201.2314-760	0	DVERE / DOOR / TÜR		2
8	30.2314-601	1	SLOUP / POLE / SÄULE		4
9	30.2314-604	0	PLECH / DOOR / TÜR	P 1.5x500.2	1
10	30.2314-608	0	DVERE / DOOR / TÜR	P 1.5x690.4	1
11	30.2314-609	0	DVERE / DOOR / TÜR	P 1.5x560.4	1
12	30.2314-612	0	PLECH / DOOR / TÜR	P 1.5x524.4	1
13	30.2314-613	0	PLECH / PLATE / BLECH	P 5x120	1
14	30.2314-614	0	PRICKA / BRACE / QUERLATTE		1
15	30.2314-615	0	PRICKA / BRACE / QUERLATTE		1
16	30.2314-617	0	DVERE / DOOR / TUR		1
17	30.2314-619	0	KRYT / COVER / ABDECKUNG		1
18	30.2314-624	0	PLECH / PLATE / BLECH	P 2x30	2
19	30.2314-626	0	PLECH / PLATE / BLECH	P 3x32	2
20	30.2314-629	0	DRZAK / /	P2x25	2
21	30.2314-685	0	PLECH / PLATE / BLECH	P 1.5x76.2	1
22	30.2314-687	0	TYC / POLE / STANGE	D 20	2
23	30.2314-703	0	VYZTUHA / REINFORCEMENT / VERSTEIFUNG		2
24	30.2314-705	0	PLECH / PLATE / BLECH	P 1.5x308	1
25	30.2314-706	0	VYZTUHA / REINFORCEMENT / VERSTEIFUNG		2
26	30.2314-727	0	PLECH / PLATE / BLECH	P 5x120	1
27	30.2314-786	0	KRYT / COVER / ABDECKUNG		1
28	31.2314-692	0	SAMOLEPKA / STICKER / AUFKLEBER		1
29	31.2314-693	0	SAMOLEPKA / STICKER / AUFKLEBER		1
30	31.2314-694	0	SAMOLEPKA / STICKER / AUFKLEBER		1
31	31.2314-695	0	SAMOLEPKA / STICKER / AUFKLEBER		1
32	91.173.012	0	SPINAC KONCOVY / ENDSCHALTER		5

Cislo 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 položky/Volume title/Name der Position; Rozměr/Stock size/Abmessung

7.23. Upínání horní / Spannvorrichtung oben / Top clamping



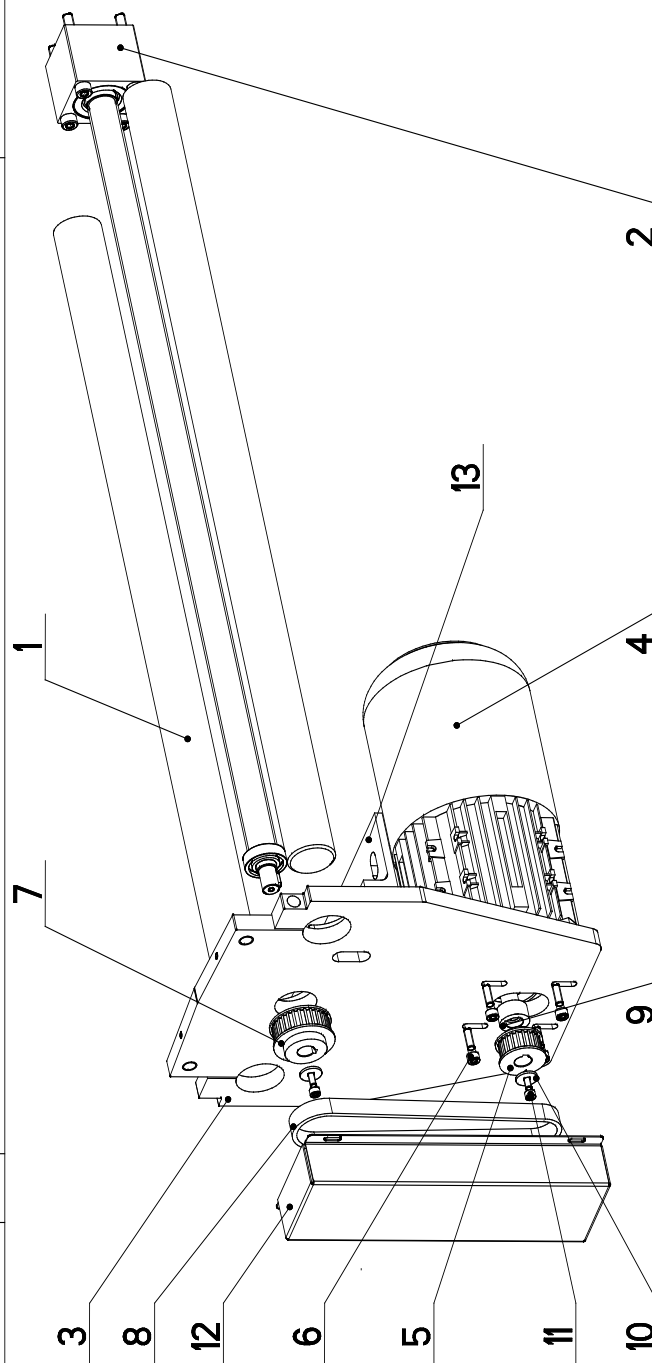
NAZEV SESTAVY UPÍNÁNÍ HORNÍ	ČÍSLO SESTAVY 201.2314-300	STROJ GAC 250
Konstruoval: FOLTYN		
Datum: 07. 06. 2011		
Meritko: 1:4		

7.24. Kusovník / Stückliste / Piece list – Upínání horní / Spannvorrichtung oben / Top clamping

Císlo Sestavy 201.2314-300		Ver. 0	Název sestavy UPÍNÁNÍ HORNÍ / TOP CLAM/SPANNVORRICHTUNG OBEN		
Poz.	Objednací číslo	Ver.	Název položky	Rozměr	Ks
1	201.2114-330	0	VALEC UPÍNACÍ / FIXING CYLINDER / SPANNZYLINDER		1
2	30.2114-308	0	MATICE / NUT / MUTTER	TYC 16x16	2
3	30.2114-311	0	POUZDRO / SLEEVE / BÜCHSE	d 25	2
4	30.2114-315	0	VEDENÍ / GUIDE / BACKENFÜHRUNG	HR 50x50	1
5	30.2314-006	0	CELIST / JAW / BACKE	TYC 50x20	1
6	30.2314-007	0	LISTA CELISTI / JAW TRIM / BACKENLEISTE	8x15x2000	2
7	30.2314-008	0	NASTAVEC / EXTENSION / ANSATZ	TYC 100x20	1
8	30.2314-301	0	DRŽÁK / HOLDER / HALTER		1
9	30.2314-303	0	TYC VODICÍ / LEAD POLE / FÜHRUNGSSTANGE	D 20	1
10	30.2314-304	0	TYC VODICÍ / LEAD POLE / FÜHRUNGSSTANGE	D 20	1
11	30.2314-310	0	TYC / POLE / STANGE	D 16	1
12	30.2314-319	0	TYC / POLE / STANGE	HR 30x12	2
13	30.2314-320	0	VALEČEK / CYLINDER / ROLLE	TR 32x5	1
14	90.001.25.032	0	SROUB IMBUS ČERNÝ / ALLEN HEAD BOLT / IMBUSSCHRAUBE	8x20	2
15	90.001.25.033	0	SROUB IMBUS / ALLEN HEAD BOLT / IMBUSSCHRAUBE	8x25	4
16	90.001.25.048	0	SROUB IMBUS / ALLEN HEAD BOLT / IMBUSSCHRAUBE	M10x30	2
17	90.001.25.050	0	SROUB IMBUS / ALLEN HEAD BOLT / IMBUSSCHRAUBE	M10x40	2
18	90.001.25.052	0	SROUB IMBUS / ALLEN HEAD BOLT / IMBUSSCHRAUBE	M10x50	1
19	90.001.25.056	0	SROUB IMBUS ČERNÝ / ALLEN HEAD BOLT / IMBUSSCHRAUBE	M12x20	1
20	90.150.50.006	0	PODLOŽKA / WASHER / UNTERLEGSCHLEIBE	PODLOŽKA 10,5	2
21	92.002.001	0	SROUBENÍ PRÍME / DIRECT BOLTING / GERADE VERSCHRAUBUNG	G 1/4"	1
22	95.800.007	0	KROUZEK POJIST.VNEJS / OUTSIDE SAFETY RING / SICHERUNGSRING AUßEN	POJISTINY KROUZEK 16	2
23	95.800.009	0	KROUZEK POJIST.VNEJS / OUTSIDE SAFETY RING / SICHERUNGSRING AUßEN	POJISTINY KROUZEK 20	4
24	96.082.002	0	TESNENÍ / SEALING / DICHTUNG	KROUZEK CU 13/17	2
25	99.260.001	0	VENTIL / VALVE / VENTIL	VENTIL KULOVÝ	1

7.25. Pohon / Antrieb / Drive

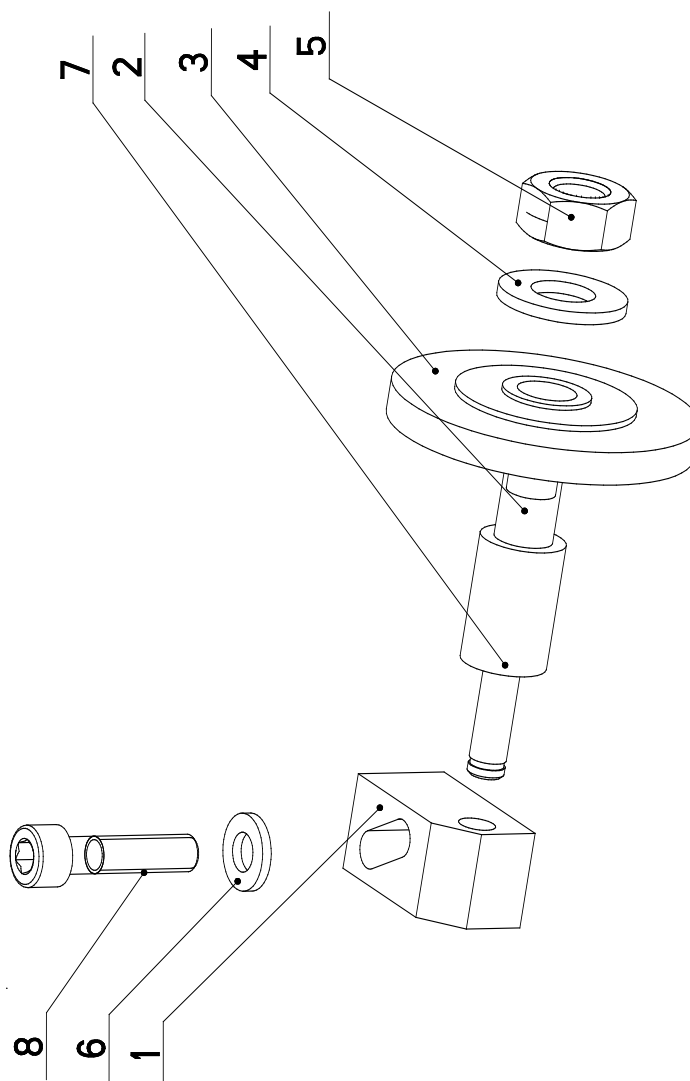
Cislo Sestavy 201.2304-300		Ver. 0	Název sestavy POHON/DRIVE / ANTRIEB			
Poz.	Objednací číslo	Ver.	Název položky	Rozměr	Ks	
1	30.2311-205	0	TYC VODICI / LEAD POLE / FÜHRUNGSSTANGE	40h6-766	2	
2	201.2304-301	0	POHON / DRIVE / ANTRIEB		1	
3	30.2303-312	0	CELO / HEAD / STIRN	P 15x290	1	
4	91.001.009	0	ELEKTROMOTOR / ELECTRIC MOTOR / ELEKTROMOTOR		1	
5	30.2303-313	0	REMENICE / PULLEY / RIEMENSCHIEBE	22-5M-15 HTD	1	
6	90.001.25.019	0	SROUB IMBUS / ALLEN HEAD BOLT / IMBUSSCHRAUBE	M6x25	4	
7	30.2303-314	0	REMENICE / PULLEY / RIEMENSCHIEBE	30-5M-15 HTD	1	
8	99.024.054	0	REMEN OZUBENÝ / COG BELT / ZAHNRIEMEN	HTD 500-5M S=15	1	
9	30.2303-316	0	DISTANC / DISTANCE / DISTANZ	TR 20x3	1	
10	90.151.50.006	0	PODLOŽKA / WASHER / UNTERLEGSCHEIBE	PODLOŽKA 5	2	
11	90.001.25.010	0	SROUB IMBUS / ALLEN HEAD BOLT / IMBUSSCHRAUBE	M5x20	2	
12	30.2303-317	0	KRYT / COVER / ABDECKUNG	P 1x180, 3	1	
13	30.2304-309	0	PROFIL L / PROFILE L / PROFIL L	L 80x60x8	1	



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

7.26. Kartaček / Bürste / Brush

Císlo Sestavy 201.0704-100		Ver. 0	Název sestavy KARTAC/BRUSH/BÜRSTE		
Poz.	Objednací číslo	Ver.	Název položky	Rozměr	Ks
1	30.0104-022	0	DRŽAK / HOLDER / HALTER	HR 16x16	1
2	30.0704-029	0	HRIDEL / SHAFT / WELLE	d 14	1
3	31.0704-031	0	KARTAC / BRUSH / BÜRSTE		1
4	90.150.50.006	0	PODLOŽKA DIN125 / WASHER / UNTERLEGSCHIEBE	PODLOŽKA 10,5	1
5	90.100.55.006	0	MATICE / NUT / MUTTER	MATICE _ M10	1
6	90.150.50.004	0	PODLOŽKA / WASHER / UNTERLEGSCHIEBE	PODLOŽKA 6,4	1
7	95.800.001	0	KROUZEK POJIST.VNEJS / OUTSIDE SAFETY RING / SICHERUNGSRING AUßEN	POJISTNY KROUZEK 6	1
8	90.001.25.019	0	SROUB IMBUS CERNÝ / ALLEN HEAD BOLT / IMBUSSCHRAUBE	M6X25	1



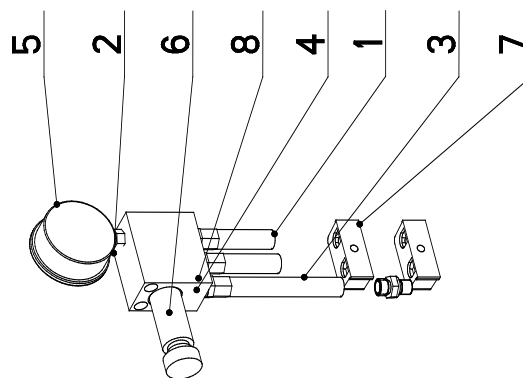
7.27. Reglace tl. svěráku / Schraubstock-Druckregelung / Vice pressure regulation

Císlo Sestavy 201.2115-200		Ver. 1	Název sestavy REGULACE TL. SVĚRÁKU/VICE PRESSURE REGULATION/SCHRAUBSTOCK-DRUCKREGELUNG	
Poz.	Objednací číslo	Ver.	Název položky	Ks
1	30.1816-102	0	HADICE / HOSE / SCHLAUCH	2
2	30.2115-101	0	KOSTKA REGULACE / REGULATION CUBE / REGULUNGSWÜRFEL	1
3	30.2116-008	0	HADICE / HOSE / SCHLAUCH	1
4	92.002.001	0	SROUBENÍ / BOLTING / VERSCHRAUBUNG	4
5	92.080.001	0	MANOMETR / MANOMETER / MANOMETER	1
6	92.154.001	0	VENTIL REDUKČNÍ / REDUCTION VALVE / DRUCKMINDERUNGSVENTIL	1
7	94.204.005	0	DRŽÁK / HOLDER / HALTER	2
8	96.082.002	0	KROUZEK TESNÍČNÍ / SEAL RING / DICHTUNGSRING	3

I. PRÍD. 2xSAMOLEPKA SÍPKA 31.0899.004 . 101/ZM131 29.5.2009 SLEZACKOVA

(1)

SAMOLEPKU NALEPIT NA CIFERNÍK MANOMETRU
JEDNU NA 20 bar A DRUHOU NA 40bar



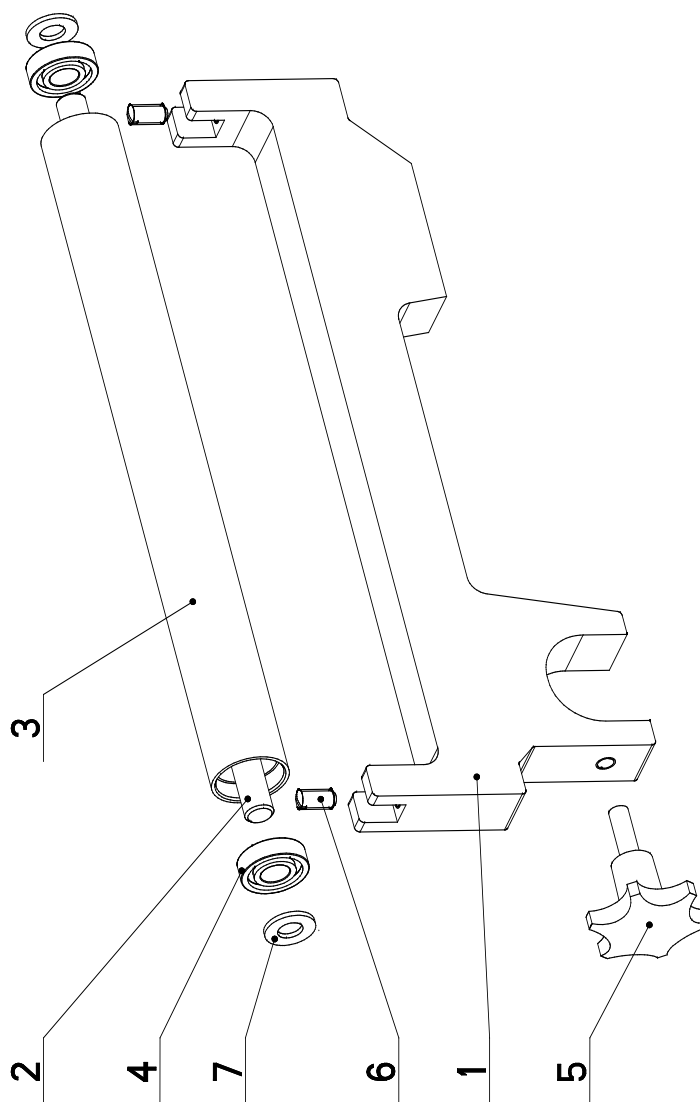
Císlo Sestavy/Number of assembly/Nummer der Baugruppe; Verze (Ver.)/Version/Version; Název sestavy/Assembly title/Name der Baugruppe; Pozice (Poz.)/Position/Position;
Objednací číslo/Purchase order number/Bestellnummer; Název položky/Volume title/Name der Position; Rozměr/Stock size/Abmessung

7.28. Držák / Halter / Holder

Cislo Sestavy 201.2311-310		Ver. 0	Nazev sestavy DRZAK/HOLDER/HALTER		
Poz.	Objednaci cislo	Ver.	Nazev polozky	Rozmer	Ks
1	30.2311-311	0	DRZAK / HOLDER / HALTER	P 25x127	1
2	30.2311-312	0	TYC / POLE / STANGE	D 12	1
3	30.2311-313	0	VALECEK / CYLINDER / ROLLE	TR 33.7x3.25	1
4	95.001.005	0	LOZISKO / BEARING / LAGER	6001 2RS	2
5	94.006.002	0	SROUB / BOLT / SCHRAUBE	M8x25	1
6	90.002.2D.012	0	SROUB STAVECI / ADJUSTMENT BOLT / STELLSCHRAUBE	SROUB M8x16	2
7	90.150.50.006	0	PODLOZKA / WASHER / UNTERLEGSCHIEBE	PODLOZKA 10,5	2

The diagram shows an exploded view of a mechanical assembly. Part 1 is a vertical bracket with a horizontal flange at the top. Part 2 is a long cylindrical rod. Part 3 is a small roller or cylinder. Part 4 is a bearing. Part 5 is a bolt. Part 6 is an adjustment bolt. Part 7 is a washer. The assembly is shown in a disassembled state, with lines indicating the relative positions of the parts.

Cislo Sestavy/Number of assembly/Nummer der Baugruppe; Verze (Ver.)/Version/Versio; 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



Cislo 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 položky/Volume title/Name der Position; Rozměr/Stock size/Abmessung