Series **Ergonomic Automatic**

Ergonomic 290.250 DGA

version ~ 3×230 V, 50 Hz, TN-C

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
Czech Republic, EU

telefon: +420 – 533 426 100
fax: +420 – 533 426 109
e-mail: info@bomar.cz
www: http://www.bomar.cz

We are available:

Mondays to Fridays 7^{00} – 16^{00}

Version:

3.01 / Jan. 2011

rev. 1

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 290.250 DGA**

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, cooling device, control, electric switch board, hydraulic aggregate yes ☒ *no* ☐, control system yes ☒ *no* ☐

Technical data: cutting rate 20–120. m.min^{-1}, cutting angle 0°–60° R, 0°–45° L
Total dimensions in mm (l × w × h) 2900 × 1850 × 1650,
Supply voltage 400 V, total power requirement 4 kW, weight 1500 kg

The applied decrees of governments: **No. 176/2008 Coll. (Directive 2006/42/EC)**
No. 616/2006 Coll. (Directive 2004/108/EC)
No. 17/2003 Coll. (Directive 2006/95/EC)

The applied harmonized standards,
National standards and technical specifications: ČSN EN ISO 12 100-2:2004, ČSN EN 13 898 + A1:2009, ČSN EN ISO 13857:2008, ČSN EN 982 + A1:2008, ČSN EN 61000-6-2 ed.3:2006, ČSN EN 61000-6-4 ed.2:2007, ČSN EN 60204-1 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) The declaration of conformity was carried out in the cooperation with the TÜV SÜD Czech s.r.o, Novodvorská 994, 142 21 Praha 4,– Czech Republic, Identification number: 63987121 - Inspection body no. 4002

The inspection certificate no . 01.074.556/09/07/02/0 was issued.

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

Alfred Pichlmann, managing director

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 ro 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 ro have been declared "identical" to a safety device, as offered by BOMAR, spol. s ro or its agents.

Content

1. SAFETY NOTES 9

1.1. Machine determination 11
1.2. Protective suit and personal safety 11
1.3. Safety notes for machine operator 12
1.4. Safety notes for the servicing and repairs 12
1.5. Safety notes for the servicing and repairs on hydraulic unit 13
1.6. Safety machine accessories 13
1.6.1. Total Stop 13
1.6.2. Saw arm covers 13
1.6.3. Saw band stretching and rupture inspection 13
1.6.4. Safety covers 14
1.7. Safety guidelines for laser bars 14
1.8. Safety notes for the cooling 14
1.8.1. Instructions for first help 15
1.9. Umístění štítku stroje / Maschinenschild position / Position of machine label 15
1.10. Umístění bezpečnostních značek / Verteilung der Sicherheitszeichen / Position of safety symbols 16

2. MACHINE DOCUMENTATION 17

2.1. Technická data / Technische Daten / Technical data 19
2.2. Rozměrové schéma / Aufstellzeichnung / Installation diagram 20
2.3. Popis / Beschreibung / Description 21
2.4. Transportation and stocking 22
2.4.1. Conditions for transportation and stocking 22
2.4.2. Transport and stocking preparations 22
2.4.3. Transport and stocking 22
2.4.4. Transportní schéma / Transportschema / Transport diagram 23
2.5. Activation 24
2.5.1. Machine working conditions 24
2.6. Band saw unpacking and assembling 24
2.6.1. Machine installing and levelling 24
2.6.2. Machine disposal after lifetime 24
2.6.3. First run of the power pack 25
2.6.4. Filling the reservoir with hydraulic oil 25
2.6.5. Kotevní plan / Verankerungsplan / Grounding plan 26
2.7. Electrical connection 27
2.7.1. Check the direction of the saw band 27
2.7.2. Check machine connection into electrical network 27
2.7.3. Filling of the cooling system 28
2.8. Check machine function 28
2.9. Saw band 28
2.9.1. Saw band size 28
2.9.2. Selection of the saw band tooth system 28
2.9.3. Saw band running-in 28
2.9.4. Tables for teeth selection 29

3. MACHINE CONTROL 31

3.1. Starting the Band Saw 33
3.2. Control panel 1 34
3.3. Control panel 2 36
3.4. Controlling the Machine 38
3.4.1. Controlling the Touch Display 38
3.4.2. Moving in the Chosen Menu 39
3.5. Referencing the Machine 39
3.6. Machine Regimes 39
3.7. Manual Regime 40
3.7.1. Semi-automatic Cut 41
3.7.2. Automatic Positioning 41
3.8. Automatic Regime 43
3.8.1. Automatic Regime Screen 43
3.8.2. Starting the Automatic Cycle 43
3.8.3. Starting automatic cycle 44
3.8.4. Automatic Material Feed 45
3.9. Entering Cutting Data 46
3.9.1. Choosing the Cutting Program 46
3.9.2. Entry Table for the Current Cutting Program 47
3.9.3. Cutting Commands Editor 48
3.9.4. More cuts 49
3.10. Disrupting a Cycle 51
3.10.1. Pausing the Running 51
3.10.2. Emergency Stop During an Automatic Cutting Cycle 51
3.10.3. Out of Material 52
3.10.4. End of the Cutting Program 52
3.11. Saw Settings 53
3.11.1. User Parameters (no password) 54

3.11.2. F3 – Service Parameters ... 55
3.11.3. F5 – Feeder Parameters ... 55
3.11.4. F7 – System Parameters ... 56
3.11.5. Frame Parameters – "Setting Saw Frame" menu ... 57
3.11.6. F4 – Measuring the Feeder Track ... 58
3.11.7. F6 – Saving Initial Values ... 59
3.11.8. F8 – Reading Initial Values ... 59
3.11.9. F9 – Settings (using the Bundler) ... 59
3.12. Error statements ... 60
3.12.1. Brush Settings ... 61
3.13. Feeding Material ... 62
3.13.1. Choosing Handling Devices ... 62
3.13.2. Feeding ... 62

4. MACHINE SERVICE ... 63

4.1. Saw band dismantling and installation ... 65
4.1.1. Saw band dismantling ... 65
4.1.2. Saw band installation ... 66
4.2. Saw band stretching and inspection ... 66
4.2.1. Saw band stretching ... 66
4.3. Saw band run adjustment on stretching wheel ... 66
4.3.1. Saw band run inspection ... 66
4.3.2. Saw band setting ... 67
4.4. Saw band adjusting ... 67
4.4.1. Hard metal guides adjustment ... 67
4.4.2. Guide cube adjustment ... 68
4.4.3. Adjusting the limit switch of the saw band stretching ... 68
4.4.4. Saw frame lower position stop adjustment ... 68
4.4.5. Adjustment of the limit switch of saw frame lower stop point ... 69
4.4.6. Pressure switch adjustment ... 70
4.4.7. Pressure adjustment of the hydraulic system ... 70
4.4.8. Adjustment of a throttle valve ... 71
4.4.9. Brush adjustment ... 71
4.5. Cooling agents and chips disposal ... 71
4.5.1. Coolant device inspection ... 72
4.5.2. Chips disposal ... 72
4.6. Hydraulic, greases and oils ... 72
4.6.1. Gearbox oils ... 72
4.6.2. Lubricant greases ... 73
4.6.3. Lubrication ... 74
4.6.4. Hydraulic oils ... 75
4.6.5. Hydraulic unit service ... 75
4.7. Machine cleaning ... 76
4.8. Worn pieces replacement ... 76
4.8.1. Hard metal guides replacement ... 76
4.8.2. Saw band guiding rollers replacement ... 77
4.8.3. Hard metal guides replacement ... 79
4.8.4. Saw band guiding rollers replacement ... 79
4.8.5. Round brush replacement ... 81
4.8.6. Stretching wheel replacement ... 81
4.8.7. Driving wheel replacement ... 83
4.8.8. Cooling pump replacement ... 85

5. ZÁVADY / TROUBLESHOOTING ... 87

5.1. Mechanical problems ... 88
5.2. Electric problems ... 90
5.3. Hydraulic problems ... 91

6. SCHÉMATA / SCHEMAS / SCHEMATICS ... 93

6.1. Elektrické schema / Elektroschema / Wiring diagrams – ~ 3×230 V, 50 Hz, TN-C ... 94
6.2. Hydraulické schéma / Hydraulikschema Hydraulic diagrams ... 118

7. VÝKRESY SESTAV PRO OBJEDNÁNÍ NÁHRADNÍCH DÍLŮ / ZEICHNUNGEN FÜR BESTELLUNG DER ERSATZTEILE / DRAWING ASSEMBLIES FOR SPARE PARTS ORDER ... 121

7.1. Ergonomic 290.250 DGA 1 ... 122
7.2. Kusovník / Stückliste / Piece list – Ergonomic 290.250 DGA 1 ... 123
7.3. Ergonomic 290.250 DGA 2 ... 124
7.4. Kusovník / Stückliste / Piece list – Ergonomic 290.250 DGA 2 ... 125
7.5. Rameno / Sägerahmen / Saw arm 1 ... 126
7.6. Kusovník / Stückliste / Piece list – Rameno / Sägerahmen / Saw arm 1 ... 127
7.7. Rameno / Sägerahmen / Saw arm 2 ... 128
7.8. Kusovník / Stückliste / Piece list – Rameno / Sägerahmen / Saw arm 2 ... 129
7.9. Napínání / Spannung / Tensioning ... 130
7.10. Kusovník / Stückliste / Piece list – Napínání / Spannung / Tensioning ... 131
7.11. Vedení pásu / Sägebandführung / Belt guide ... 132
7.12. Kusovník / Stückliste / Piece list – Vedení pásu / Sägebandführung / Belt guide ... 133
7.13. Vodící kostka / Führungsklotz / Guiding cube 1 ... 134

7.14. Kusovník / Stückliste / Piece list – Vodící kostka / Führungsklotz / Guiding cube 1 ... 135
7.15. Vodící kostka / Führungsklotz / Guiding cube 2 ... 136
7.16. Kusovník / Stückliste / Piece list – Vodící kostka / Führungsklotz / Guiding cube 2 ... 137
7.17. Válec zvedací / Hebezylinder / Lifting cylinder ... 138
7.18. Kusovník / Stückliste / Piece list – Válec zvedací / Hebezylinder / Lifting cylinder ... 139
7.19. Konzola / Konzole / Console ... 140
7.20. Kusovník / Stückliste / Piece list – Konzola / Konzole / Console ... 141
7.21. Svěrák / Schraubstock / Vice ... 142
7.22. Kusovník / Stückliste / Piece list – Svěrák / Schraubstock / Vice ... 143
7.23. Podstavec / Untersatz / Base 1 ... 144
7.24. Kusovník / Stückliste / Piece list – Podstavec / Untersatz / Base 1 ... 145
7.25. Podstavec / Untersatz / Base 2 ... 146
7.26. Kusovník / Stückliste / Piece list – Podstavec / Untersatz / Base 2 ... 147
7.27. Odměřování / Gehrungmessung / Measuring ... 148
7.28. Kusovník / Stückliste / Piece list – Odměřování / Gehrungmessung / Measuring ... 149
7.29. Kryty / Deckel / Covers 1 ... 150
7.30. Kusovník / Stückliste / Piece list – Kryty / Deckel / Covers 1 ... 151
7.31. Kryty / Deckel / Covers 2 ... 152
7.32. Kusovník / Stückliste / Piece list – Kryty / Deckel / Covers 2 ... 153
7.33. Chlazení / Kuhlung / Cooling ... 154
7.34. Kusovník / Stückliste / Piece list – Chlazení / Kuhlung / Cooling ... 155
7.35. Ovládací panel / Bedienpult / Control panel ... 156
7.36. Kusovník / Stückliste / Piece list – Ovládací panel / Bedienpult / Control panel ... 157
7.37. Podavač / Vorschhub / Feeder 1 ... 158
7.38. Kusovník / Stückliste / Piece list – Podavač / Vorschhub / Feeder 1 ... 159
7.39. Podavač / Vorschhub / Feeder 2 ... 160
7.40. Kusovník / Stückliste / Piece list – Podavač / Vorschhub / Feeder 2 ... 161
7.41. Pohon / Antrieb / Drive ... 162
7.42. Kusovník / Stückliste / Piece list – Pohon / Antrieb / Drive ... 163
7.43. Válec / Zylinder / Roller 1 ... 164
7.44. Kusovník / Stückliste / Piece list – Válec / Zylinder / Roller 1 ... 165
7.45. Válec / Zylinder / Roller 2 ... 166
7.46. Válec svěráku / Schraubstockzylinder / Vice cylinder ... 167
7.47. Kartáč / Bürste / Brush ... 168
7.48. Skluz /Rutsch / Slide ... 169
7.49. Závora optická /Lichtschranke / Optical gate ... 170
7.50. Trať /Bahn / Track ... 171
7.51. Horní upínání / Spannvorrichtung oben / Top clamping ... 172
7.52. Kusovník / Stückliste / Piece list – Horní upínání / Spannvorrichtung oben / Top clamping ... 173

1. Safety notes

Manual version: 3.01 / Jan. 2011
Manual rev.: 1

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 290.250 DGA** 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 angles from -45° to 60°**.

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!

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

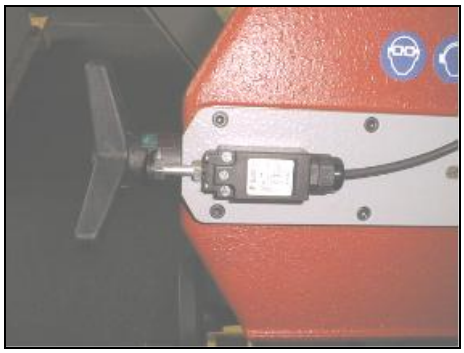
1.6.2. Saw arm covers

If the cover is opened during operation, the limit switch is disconnected and the band saw is stopped. The band saw is impossible to start in set mode.

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

1.6.3. Saw band stretching and rupture inspection

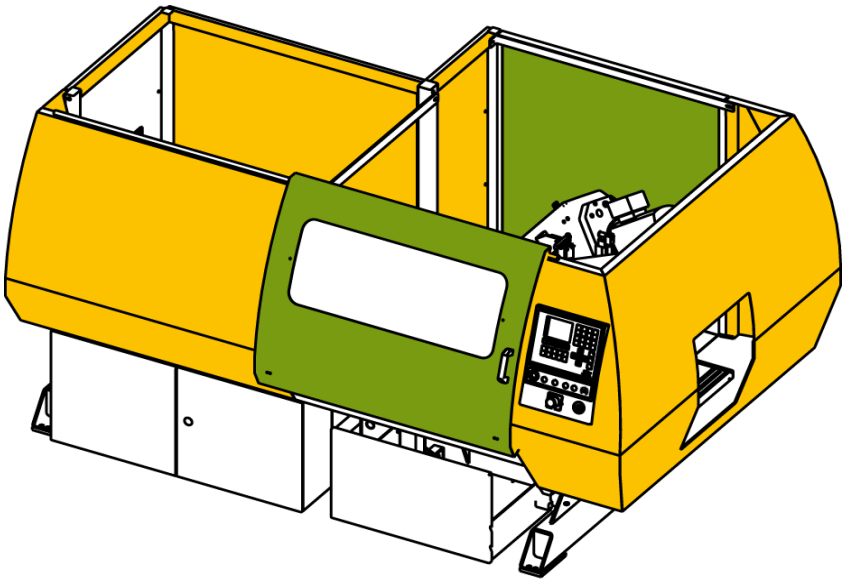
This device checks the saw band tension and causes immediate machine stop if the band incidentally ruptures.



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

1.6.4. Safety covers

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



Kryt pily / Sägeabdecklung / Saw covers

Dveře, oteviratelné kryty / Aufmachenende Tür / Door, openable doorSaw covers

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

1.7. Safety guidelines for laser bars

Machine uses laser bars for controling purposes. Laser bars are on the feeder. Near laser bolts is a safety sticker.

Laser bolts on a machine are in *class 1M*.

It is forbidden is forbidden to look into the beam of laser bolts.

1.8. Safety notes for the cooling

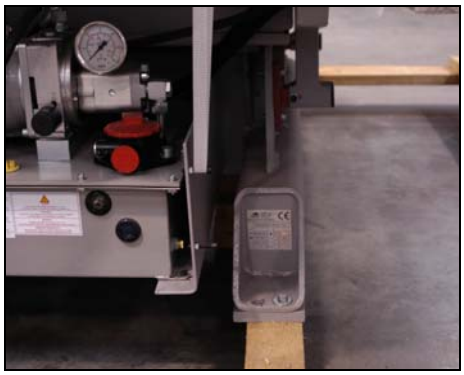
Attention!

- *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*

1.8.1. Instructions for first help

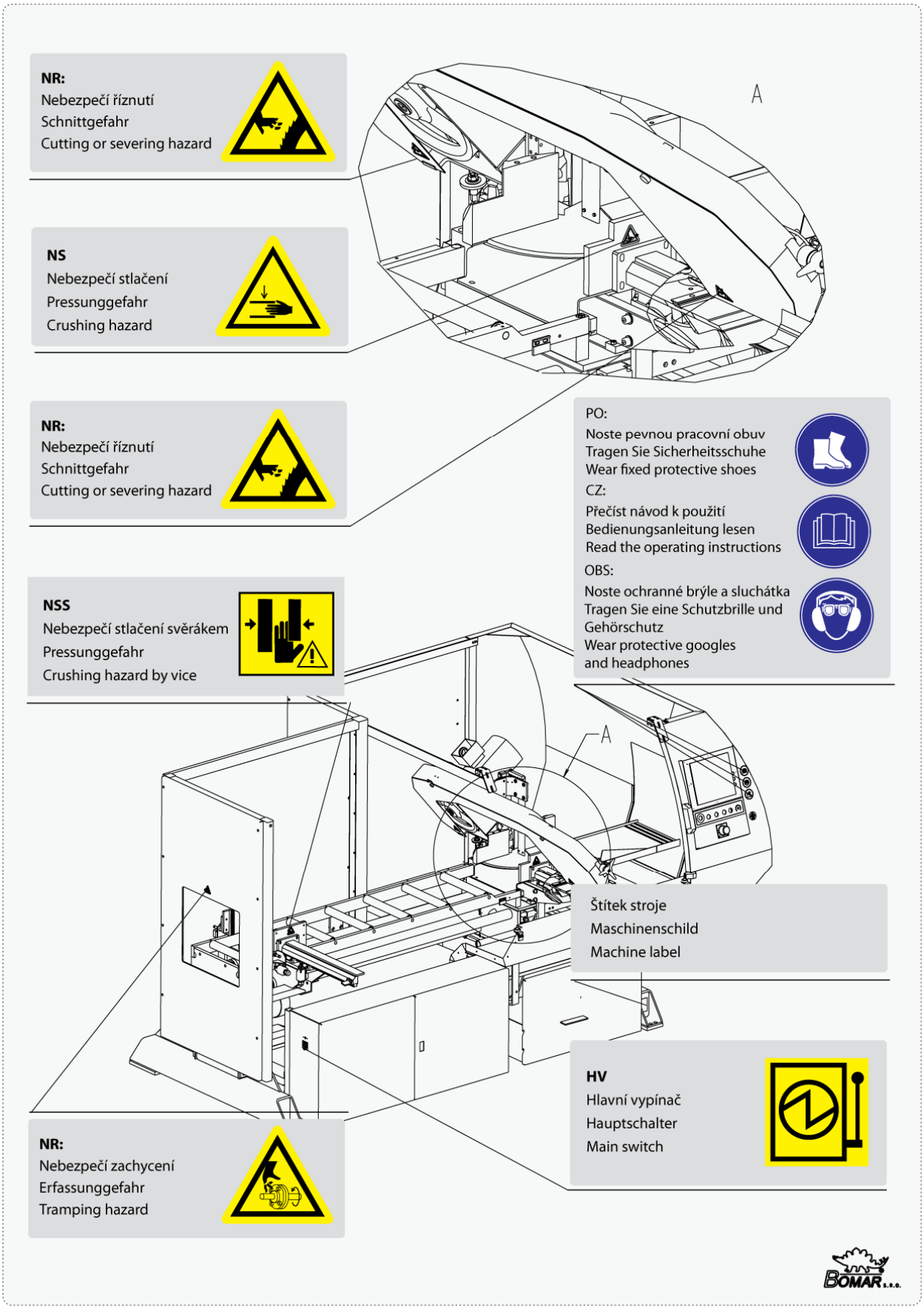
1. Pull off and safely remove polluted, soaked clothing.
2. For breathing, go out in the fresh air or look for first aid treatment.
3. Wash with water or use crèmes for contact with the skin.
4. Flush with water for eyes and look for first aid treatment.
5. For swallowing, drink a lot of water and induce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

1.9. Umístění štítku stroje / Maschinenschild position / Position of machine label



The machine's label is located under the pedestal on the foot of the machine in the space under the control panel.

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

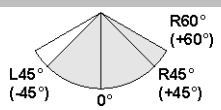


2. Machine documentation

2.1. Technická data / Technische Daten / Technical data

Hmotnost stroje / Maschinengewicht / Machine weight:	
• Hmotnost / Gewicht / Weight	1500 kg
Rozměry stroje / Maschinengröße / Machine size :	
• Délka / Länge / Lenght	2900 mm
• Šířka / Breite / Width	1850 mm
• Výška / Höhe / Height	1650 mm
Elektrické vybavení / Elektrische Ausrüstung / Electical equipment:	
• Napájení / Versorgungsspannun / Supply voltage	~ 3×230 V, 50 Hz, TN-C
• Příkon / Gesamptschlusswert / Total Input	4 kW
• Max. jištění / Max. Vorschaltsicherung / Max. Fuse	16 A
• Krytí / Schutzart / Protection	IP 55
Akustický tlak / Schalldruckpegel / Acoustic pressure:	
• Ergonomic 290.250 DGA	L_{Aeqv} = 65 dB
Pohon / Atrieb / Drive:	
• Typ / Type / Type	TM 90-2/2S B5
• Výkon / Leistung / Output	1,5 kW
Hydraulické zařízení / Hydraulieinrichtung / Hydraulic equipment:	
• Typ / Type / Type	870-1922/SMA 03-48/13.0-S11
• Výkon / Leistung / Output	0.55 kW/4 MPa
Chladící zařízení / Kühlmiteleinrichtung / Cooling equipment:	
• Typ / Type / Type	2COP-1-17H P1
• Výkon / Leistung / Output	0,05 kW
• Obsah nádrže / Volumen vom Kühlmittel / Capacity	80 dm3
Rozměr pásu / Sägebanddimension / Band size:	
2910×27 (25)×0,90 mm	
Řezná rychlost / Schnittgeschwindigkeit / Cutting speed:	
20–120 m/min.	
Minimální řezaná délka / Minimale Schnittlänge / Minimal cutted material size:	
20 mm	
Min. podávací délka polotovaru / Min. Vorschublänge des Werkstückes / Min. feeding lenght:	
L45° – 570 mm / 0° – 280 mm / R45°– 280 mm / R60° – 620 mm	

Řezné rozsahy / Schnittbereiche / Cutting size:

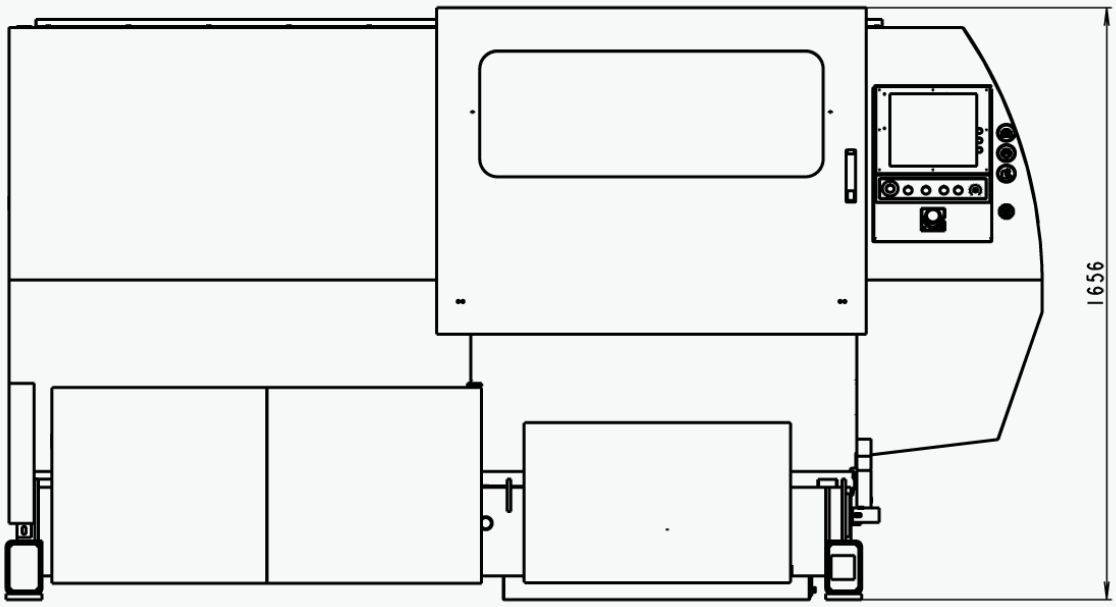


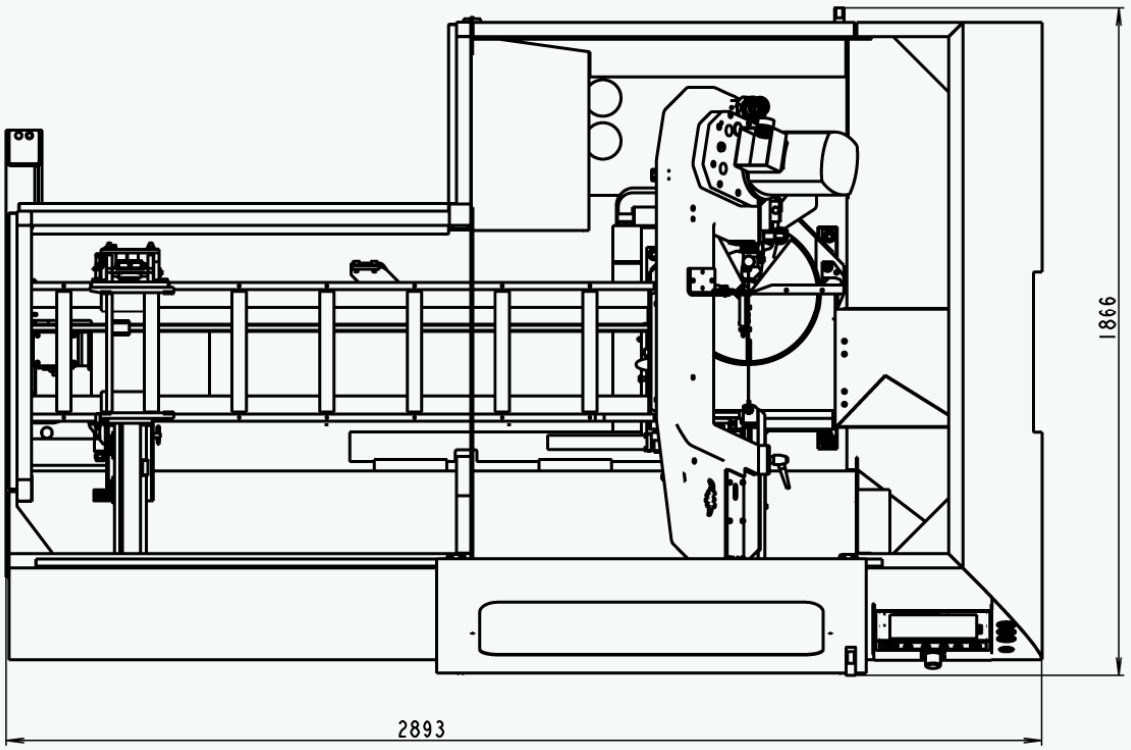
	○	□	▯	□
0°	∅230 mm	200×300 mm	200×300 mm	230×230 mm
R 45° (+45°)	∅195 mm	100×130 mm	100×130 mm	195×195 mm
L 45° (-45°)	∅200 mm	130×190 mm	130×190 mm	200×200 mm
R 60° (+60°)	∅135 mm	95×130 mm	95×130mm	95×95 mm

Level of acoustic pressure:

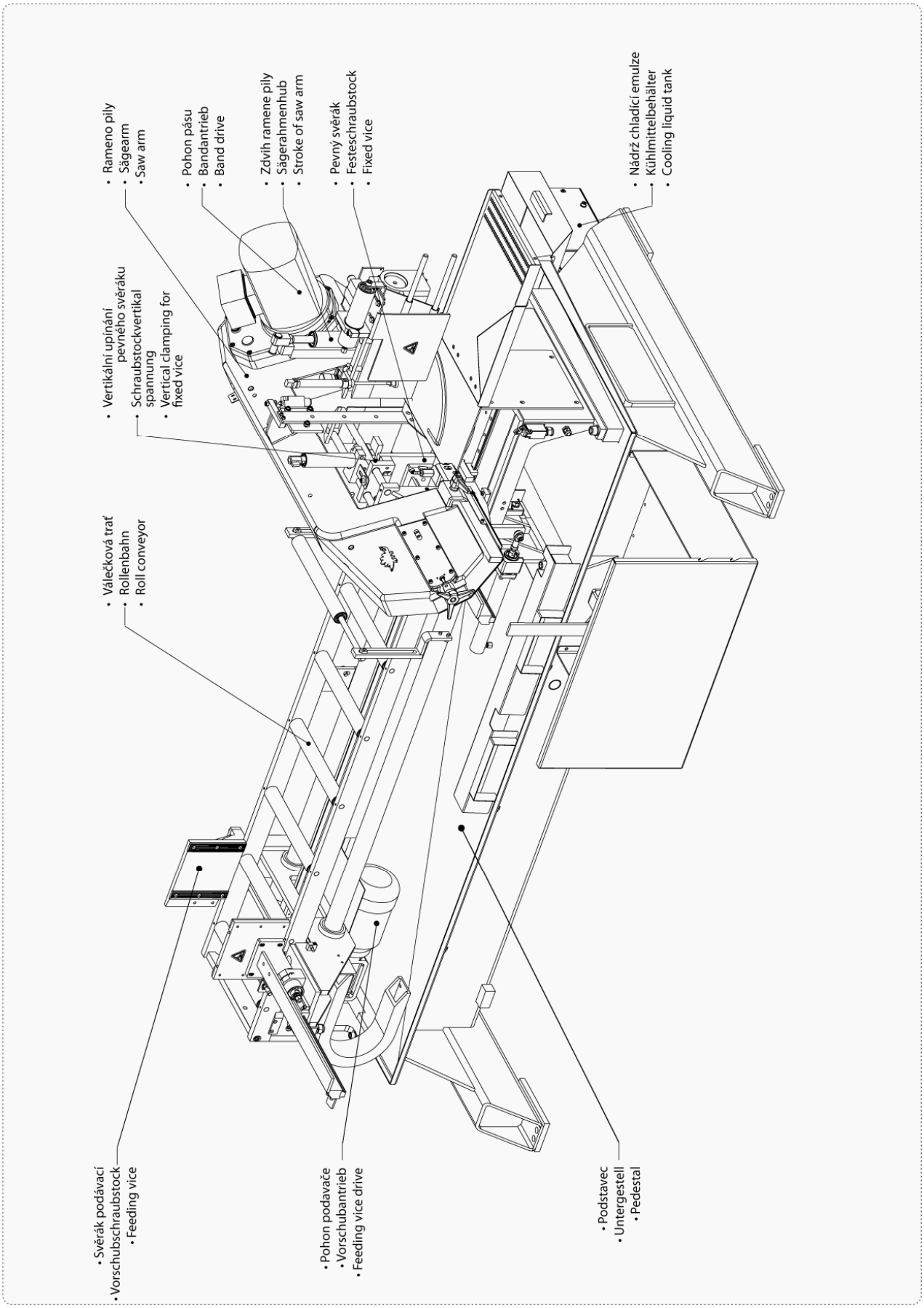
Equivalent level of acoustic pressure A (noise) at operator position are L_{Aeqv}=65 dB. Mentioned values are levels of emission which doesn't have to represent safe levels. Factors which influence real level of acoustic pressure on machine operator are: working place characteristics, cut material, saw band. These factors have significantly influence on acoustic pressure.

2.2. 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.

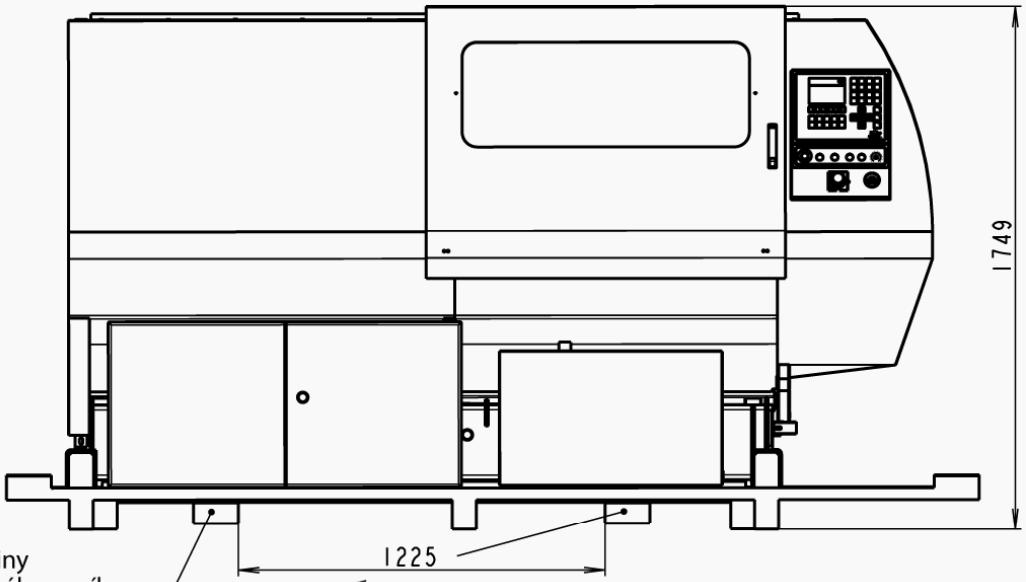
Fix the stickers stating the minimum approximate machine weight to at least five well visible places.

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.

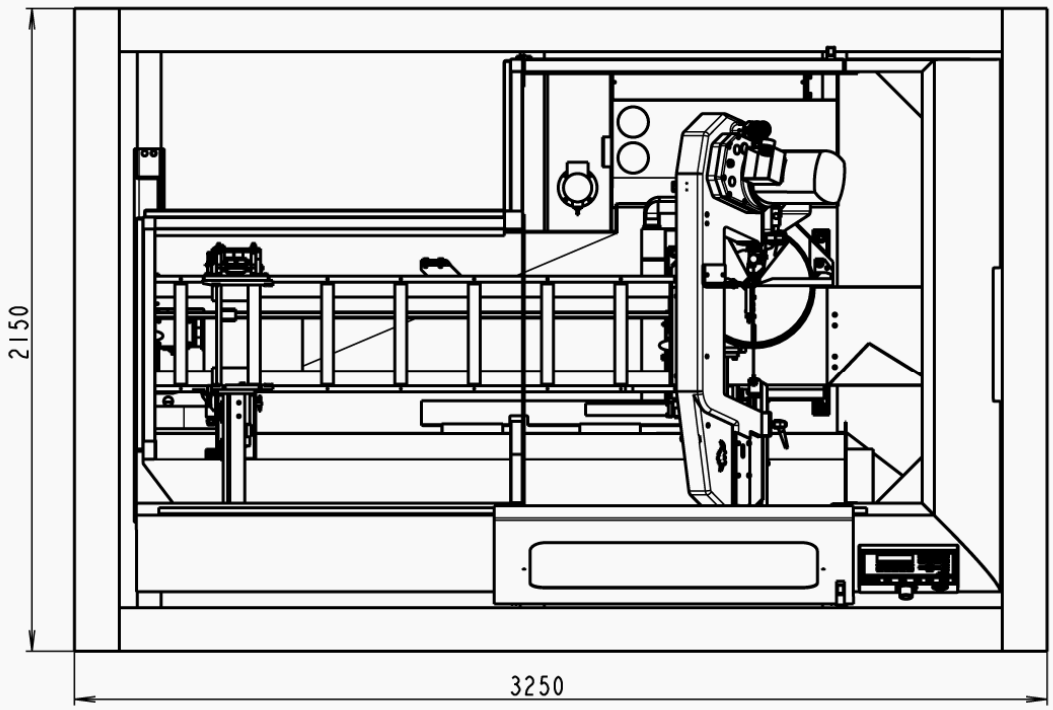
2.4.4. Transportní schéma / Transportschema / Transport diagram



Místo pro lyžiny vysokozdvižného vozíku

Die Stelle für Greifen mit der Gabel des Gabelstaplers

Place for forklift's skides



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 290.250 DGA – 1500 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.

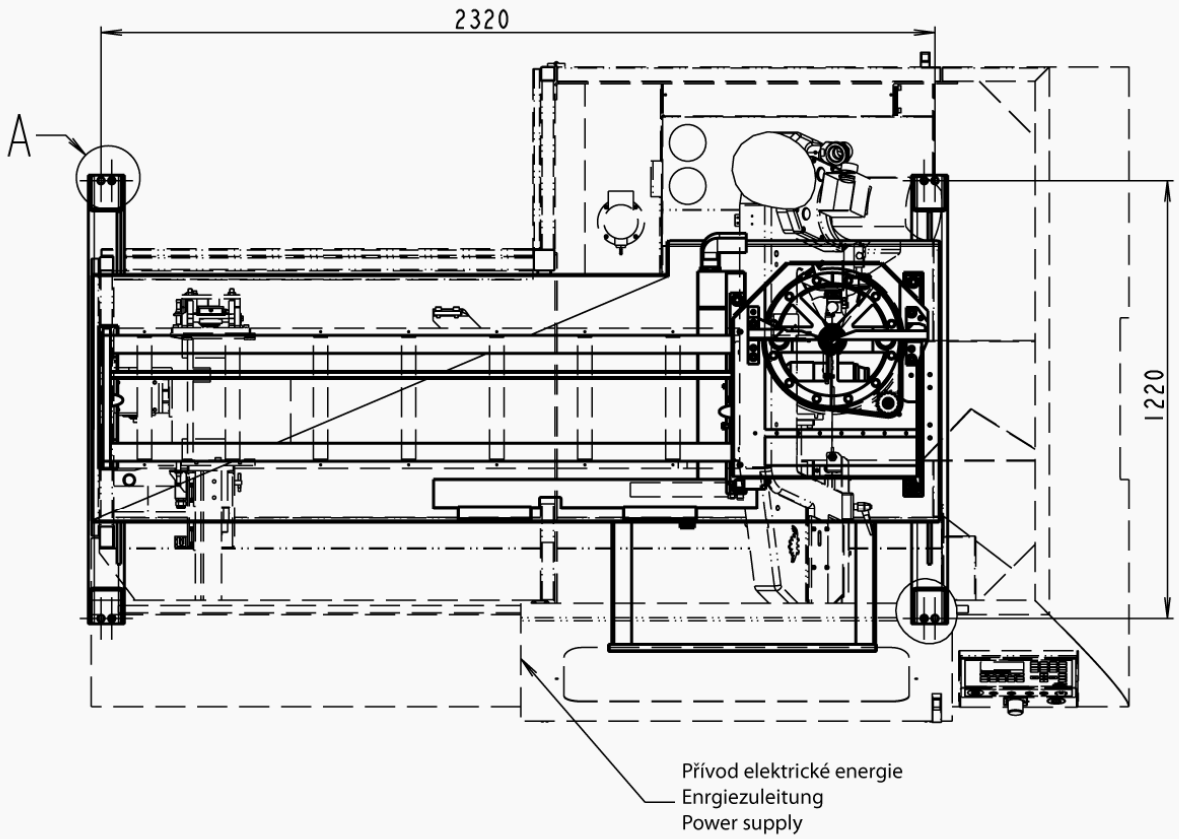
Power packs have to be filled up with clean, pre-filtered oil! The purity of the hydraulic fluid must correspond to the class 10 NAS 1638 (reachable with filter ß =75)!

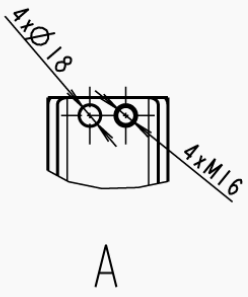
Filling from container, such as barrels, backets, etc. is not recommended or permitted!

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

Oil type	Kinematic viscosity v in mm²/s in relationship to the fluid 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





Kotvící materiál / Verankerungsmaterial / Grouding material

- 4× Hmoždina / Dübel / Plug – ø14 mm
- Vrtáno do hloubky / In die Tiefe gebohrt / Drilled to – 140 mm
- Šrouby / Schraube / Screws – M16 a 4×M14

Šrouby podložit deskami o min. rozměrech P10×100-100
- Die Schrauben mit Platten mit Minimaldimensionen P10×100-100 unterlegen
Screew must be bottomed with plates (min. dimensions P10×100-100)

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

± 10 mm / 1 m

2.7. Electrical connection

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

Electrical parameters of the machine:

- Service voltage: ~ 3×230 V, 50 Hz, TN-C
- Total input / Max. fuse: 4 kW / 16 A

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

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

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

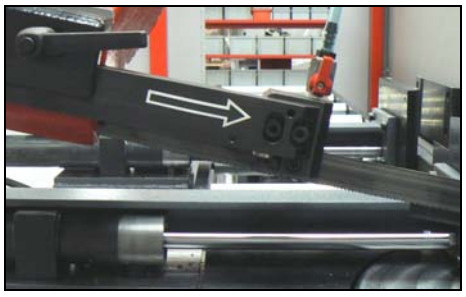
Note:
The socket with the fork can be used only at the machines with the rated current less than 16 A and total input less than 3 kW.

Connect the service cable of the machine on the clamps of the electric distribution.

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

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

2.7.1. Check the direction of the saw band



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

2.7.2. Check machine connection into electrical network

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

2.7.3. 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.

2.8. 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..

2.9. Saw band

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

2.9.1. Saw band size

2910×27 (25)×0,90 mm

2.9.2. Selection of the saw band tooth system

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

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

BOMAR recommended Variable tooth system for band saw.

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

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

Footnotes:

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

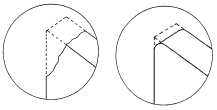
Examples of the tooth system marking:

32 S – number „32" means 32 teeth on one inch (that means constant tooth system), letter „S" marks teeth with zero angle of the tooth. 4–6 K – number „4–6" means 4 till 6 teeth on one inch
(that means variable tooth system); letter „K" marks teeth with positive angle of the teeth.

2.9.3. Saw band running-in

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

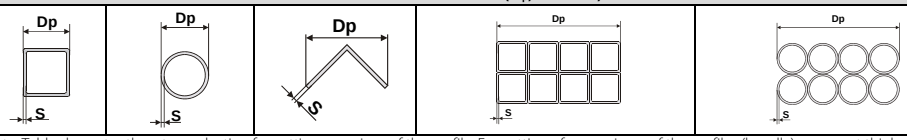
When cutting small pieces run the band until approximately 300 cm^2 of material has been cut. When cutting large pieces run the band for 15 minutes approximately. When the band has been run, increase the lowering-speed to normal speed. The running in of the saw band avoids micro-breaks on the cutting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

2.9.4. Tables for teeth selection

SHAPED MATERIAL (D_p, S = mm)

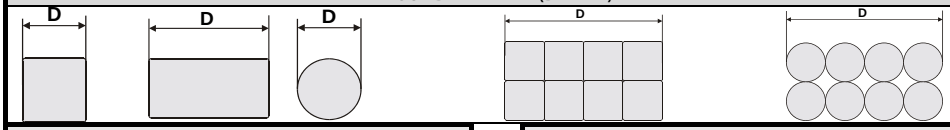


Note: Table shows tooth system selection for cutting one piece of the profile. For cutting of more pieces of the profiles (bundle), you must think of the size of the wall as double size of the wall of one profile (that means, size „S" equates to 2×S). In table, there are tooth systems constant and variable.

Size of the wall S [mm]	Tooth system (Z_pZ) 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_pZ) Outer diameter of the profile D_p [mm]					
	150	200	300	500	750	1000
2	10–14 S	10–14 S	8–12 S	6–10 S	5–8 S	5–8 S
3	8–12 S	8–12 S	6–10 S	5–8 S	4–6 K	4–6 K
4	6–10 S	6–10 S	5–8 S	4–6 K	4–6 K	4–6 K
5	6–10 S	5–8 S	4–6 K	4–6 K	4–6 K	3–4 K
6	5–8 S	5–8 S	4–6 K	4–6 K	3–4 K	3–4 K
8	5–8 S	4–6 K	4–6 K	3–4 K	3–4 K	3–4 K
10	4–6 K	4–6 K	4–6 K	3–4 K	3–4 K	2–3 K
12	4–6 K	4–6 K	3–4 K	3–4 K	2–3 K	2–3 K
15	4–6 K	3–4 K	3–4 K	2–3 K	2–3 K	2–3 K
20	3–4 K	3–4 K	2–3 K	2–3 K	2–3 K	2–3 K
30	3–4 K	2–3 K	2–3 K	2–3 K	1,4–2 K	1,4–2 K
50	2–3 K	2–3 K	2–3 K	1,4–2 K	1,4–2 K	1,4–2 K
75	-	2–3 K	1,4–2 K	1,4–2 K	1,4–2 K	0,75–1,25 K
100	-	-	1,4–2 K	0,75–1,25 K	0,75–1,25 K	0,75–1,25 K
150	-	-	-	0,75–1,25 K	0,75–1,25 K	0,75–1,25 K
200	-	-	-	0,75–1,25 K	0,75–1,25 K	0,75–1,25 K

SOLID MATERIAL (D = mm)



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

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

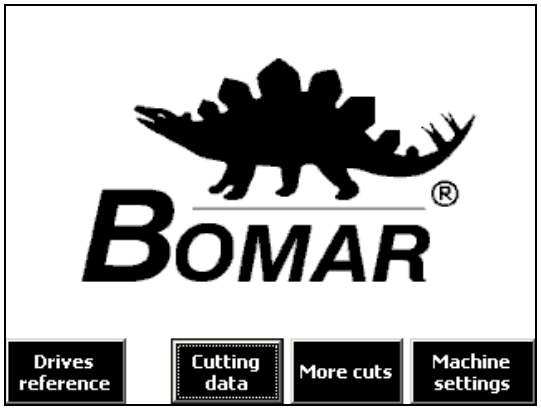
Manual version: 3.01 / Jan. 2011
Manual rev.: 1

3. Machine control

Manual version: 3.01 / Jan. 2011
Manual rev.: 1

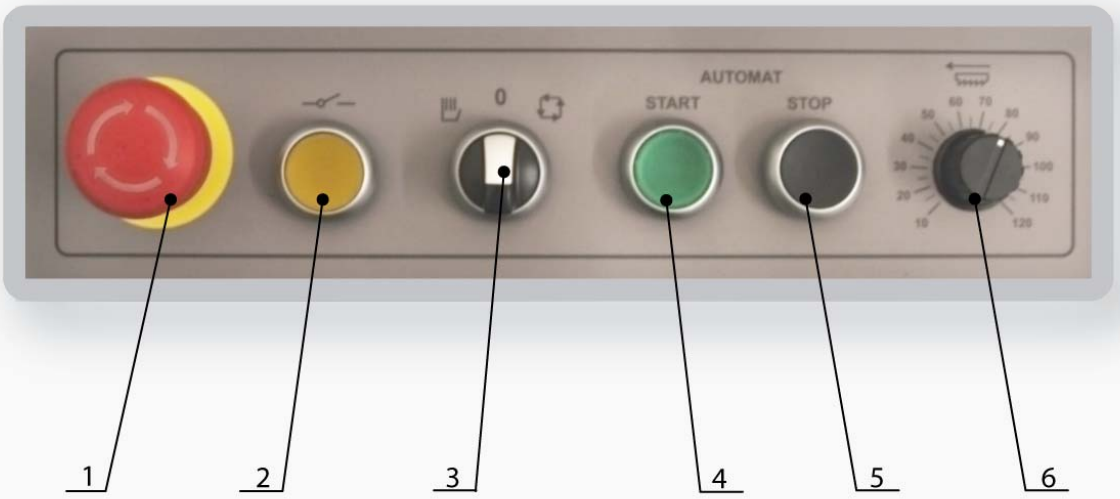
3.1. Starting the Band Saw

1. Turn the ***main switch*** to ***position 1*** – on. The main switch is on the side of the electricity box – on the material entry point side, on the machine's left-hand side when standing in front of the control panel.
2. Switch the saw's safety (control) circuit on. The safety circuit checks all of the safety switches.
3. Turn the regime selection switch to ***"0".***
4. After these steps the display shows the basic offer of three options to choose from:



Key	Functions and description
	***Machine references*** – see chapter Referencing Machine
	***Cutting data*** – see chapter Entering Cutting Data
	***More cuts –*** *see chapter More cuts*
	***Machine settings*** – see chapter Machine Settings

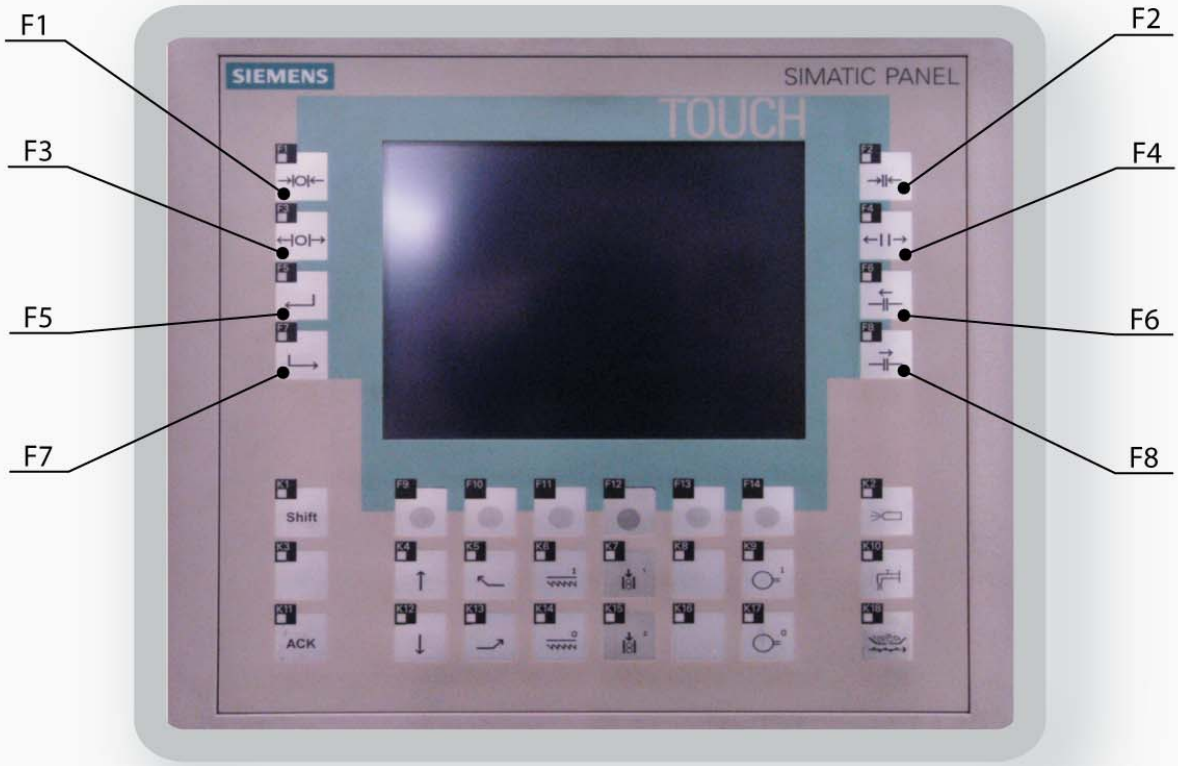
3.2. Control panel 1

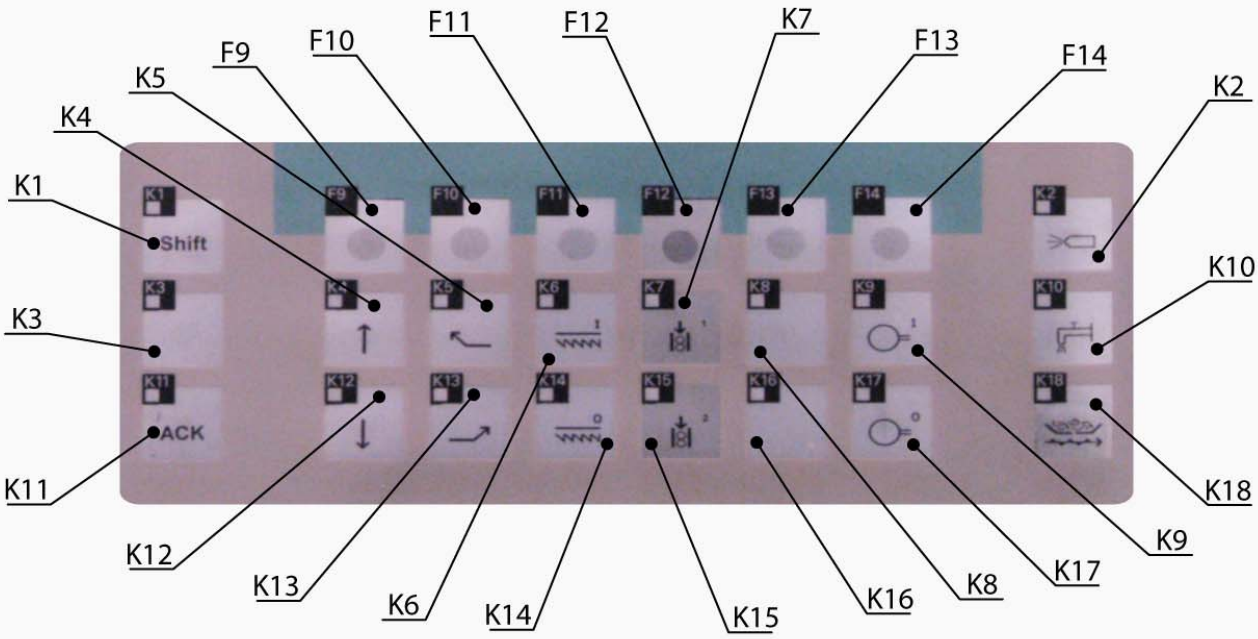


Manual version: 3.01 / Jan. 2011
Manual rev.: 1

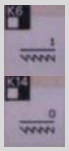
1	**TOTAL STOP button** Safety key for emergency shutdown in case of machine failure or a health risk.
2	**Power-on the control circuits** Button switch on the control circuits of control system. Switching control circuit is indicated by signal light up the button.
3	**Saw's operating mode** Switch to the left select manual mode, switch to the right select automatic mode. In the middle position "0" can be Machine referenced or performed maintenance tasks.
4	**START button** Starts automatic/semiautomatic cycle.
5	**STOP button** Stops automatic/semiautomatic cycle.
6	**Frequency converter, the choice of the speed band saw** Frequency converter sets the speed of saw band in the range of 20 – 120 $m.min^{-1}$

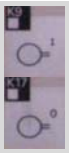
3.3. Control panel 2





Manual version: 3.01 / Jan. 2011
Manual rev.: 1

F1		**Context key / tightening the feeder vice** Context key – function depends on the menu on the LCD Tightens vice – tightens the jaws of the feeder vice
F2		**Context key / tightening the main vice** Context key – function depends on the menu on the LCD Tightens vice – tightens the vice's jaws.
F3		**Context key / loosening the feeder vice** Context key – function depends on the menu on the LCD Loosens vice – pressing the button loosens the vice's jaws.
F4		**Context key / loosening the vice** Context key – function depends on the menu on the LCD Loosens vice – pressing the button loosens the vice's jaws.
F5		**Feeder to left** After pressing the button the feeder moves away from the saw. If the machine is not referenced the feeder moves with micro-movements (slowly).
F6		**Main vice to left** Pressing the button moves vice to left. Button need not be pressed during movement. The F8 key only works if machine is **not** referenced. If it is referenced the vice moves fully automatically depending on saw position.
F7		**Main vice to right** After pressing the button the feeder moves towards the saw. If the machine is not referenced the feeder moves with micro-movements (slowly).
F8		**Main vice to right** Pressing the button moves vice to right. Button need not be pressed during movement. The F8 key only works if machine is **not** referenced. If it is referenced the vice moves fully automatically depending on saw position.
F9 – F14		**Context key** Function depends on the menu on the LCD
K1		**Shift – speed shift** Pressing and holding the Shift key and K12 enables the frame to be lowered quickly (if the belt is not in the material).
K2		**Micronization *(optional accessory)*** On/off button for cooling saw belt by micronization.
K3		No function
K4 K12		**Moving the frame** Pressing the button moves the frame – *K4 for up and K12 for down*. Keep the button pressed when moving the frame.
K5 K13		**Rotating the saw frame** Pressing *K5 turns the frame to the left* (negative angles). Pressing *K13 turns the frame to the right* (positive angles).
K6 K14		**Saw belt drive** Pressing *K14 turns off the belt drive* in the manual regime. Pressing *K6 turns on the saw belt drive.*
K7 K15		**Controlling upper clamper pressure (*optional accessory*)** *K7* for the hydraulic top clamping cylinder, which is fixed to the main vice and moves with it. *K15* controls the pneumatic cylinder of the upper pressure, which holds on to cut material. This is an optional accessory and doesn't come as standard.
K8		No function

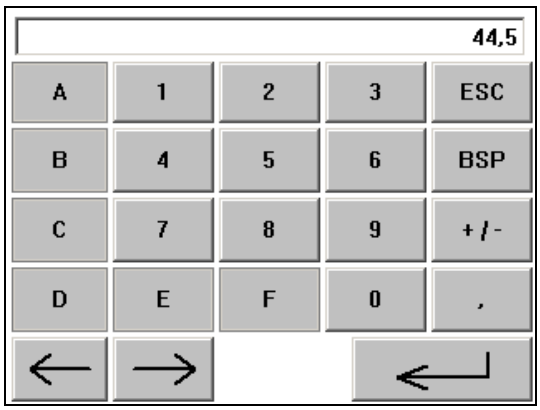
K9 K17		**Hydraulics pump** The hydraulics pump is *turned on* by pressing *K9* (*K17 turns it off*).
K10		**Cooling the belt with emulsion** Pressing the button turns the coolant emulsion pump on/off.
K11		**ACK key** *Quit* – confirm breakdowns, if the breakdown is not confirmed the machine's working cycle cannot be started.
K18		**Loading device button** Loading device is optional accessories.

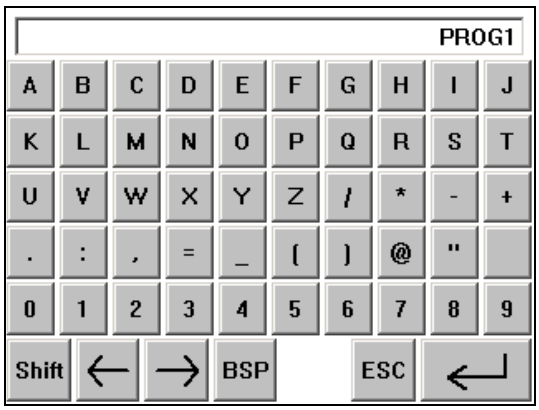
3.4. Controlling the Machine

3.4.1. Controlling the Touch Display

When working with the machine all of the necessary information the operator needs to control it is shown on the display.

For the basic options on the display the context keys F1 and F14 or the touch screen can be used if the button for the given option is displayed. To enter numerical values (dimensions or parameters) or alphanumerical values (recipe name, log on data to enter into protected settings) the keyboard on the display must be used if you have chosen an option that requires this. This option can be, for example, pressing editable items, which are, as a rule, in a thin lined box.





Key	Function and description
ESC	ESC – leaving the entry screen without saving the value entered
BSP	BSP (backspace) – deleting the last character to the left of the cursor
Shift	Shift – switches from small letters to capitals and special symbols

Be particularly careful when working with the touch panel. The choice is made by gently pressing the display with a finger or the touch pen used to control the touch displays. Do not use sharp objects and other devices!

3.4.2. Moving in the Chosen Menu

The menu name is displayed on the first line. Individual parameters are found in the sections according to their meaning.

Pressing the corresponding entry field with the framed parameter chooses the parameters.

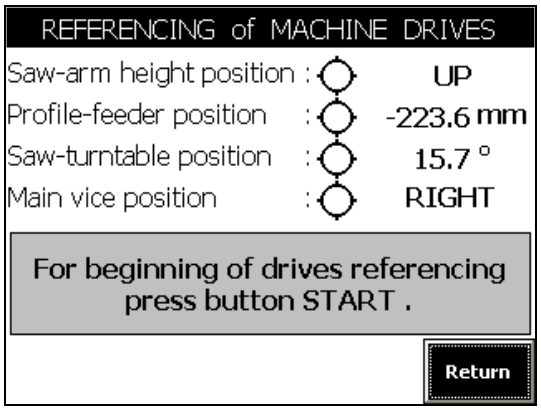
After choosing a field with a numerical value the number pad comes up on the display. The permissible range is displayed in the upper edge of the display when entering. If the value entered is outside of this range it returns to the original value field.

If choosing a box with an arrow on the right hand side the offer opens out and one of the items offered (usually represented by a text description) can be chosen by a single click.

3.5. Referencing the Machine

Attention!
Before machine referencing begins remove all material from conveyer or from any vices do not reference machine with material in vices.

Before starting work it is necessary to reference the machine.



After pressing the ***F9*** context key on the basic screen the saw switches to the reference regime.

Pressing *Start* runs the machine references.

During the references the display shows the progress of referencing the drives and the state of each saw part

Pressing the *Stop* button halts the references.

To return to the default screen after completing the references press F14 or turn the regime option switch to the required regime.

It is possible to return to the machine references at any time and enter them again.

3.6. Machine Regimes

The machine has two basic regimes. It is possible to see which regime the machine is in from the position of the key control 0 . In addition the state is written in the display's upper part. The regime is chosen by the key controller in the lower part of the control panel.

- ***Left position – Manual mode*** – all of the equipment's moves can be controlled. Each movement is only made whilst the relevant button is pressed. Releasing the button stops the movement instantly. In the manual regime the buttons for each function are fixed.

- ***Central position – no regime*** – In this state the saw belt can't be started, but the saw belt can only be changed in this position.
- ***Right position – Automatic mode*** – After turning the key to this position the machine is ready to start an automatic cycle. The cycle starts by pressing the green START button (see chapter Automatic Regime)

3.7. Manual Regime

Conditions:

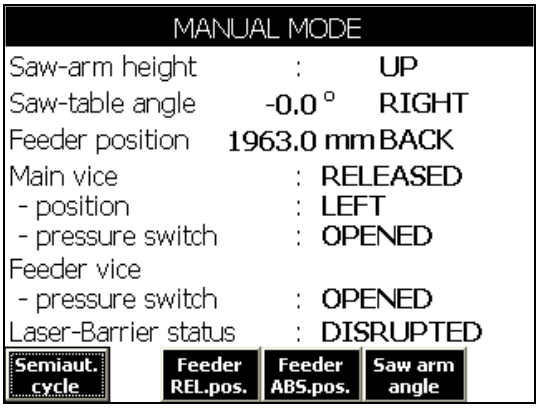
- The machine was set up according to the instructions.
- All of the protection elements are installed and working.
- The saw operator is qualified and has read the operating instructions.
- The key switch is in the position for the manual regime.

Attention!
Pay increased attention when in the manual regime. If the machine has not been referenced the feeder and frame rotation movements have a restricted speed and their movement and mutual positions are not checked.

After referencing the machine these movements are supervised in the following manner:

- ***Closing the main vice*** – the vice must be moved to the correct extreme position depending on the frame turning
- ***Moving the main vice*** – controlled automatically depending on the frame turning (if it is not blocked e.g. clamper cylinder on)
- ***Moving feeder forward*** – restricted depending on collision with saw frame in the given turning
- ***Moving frame down*** – the vice must be moved to the correct extreme position depending on the frame turning
- ***Frame turning*** – checks collision with feeder. If the frame is not above the main vice the frame rotation movement is further restricted according to the position of the main vice on the right or left.

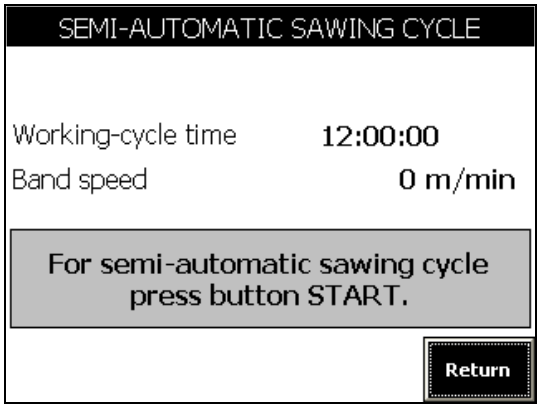
Attention!
The saw will not work if the doors stay open.



Manual regime menu shows the present position and state of all the important components

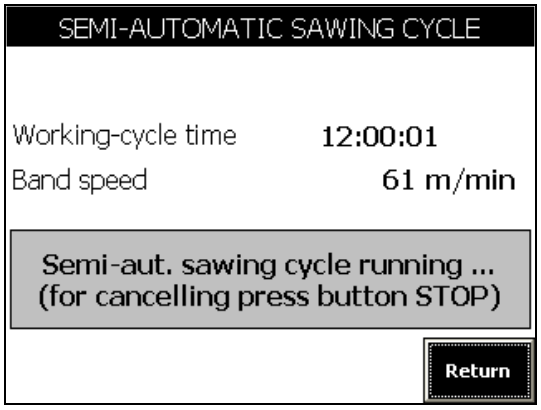
In the lower part of the display there is a context offer of semi-automatic feeder movements and saw frame turning (with distance and angle being entered absolutely or relatively). Under the button ***F9*** there is also a choice for ***semi-automatic cuts***.

3.7.1. Semi-automatic Cut



If the references have been made it is possible to display the semi-automatic screen by pressing ***F9*** in the manual regime.

By pressing the ***START*** button, one cut of the material can be made. The main vice automatically moves to the corresponding extreme position, depending on the turning of the frame, and the material is held. The material is cut. Pressing the *STOP* button stops the cut.



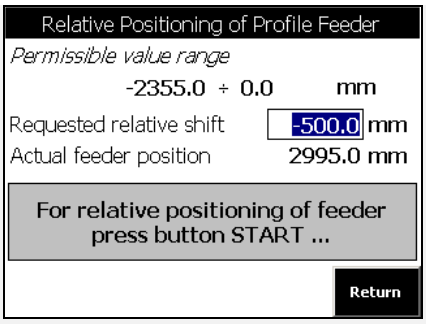
After the cut the machine frame stops below or above the material depending on the parameter settings in the *Machine Settings/ Position after Cut*.

After the cut the main vice opens according to the set parameter in the *Machine Settings/ Open Vice*, that being above or below.

3.7.2. Automatic Positioning

In the manual control regime the feeder can be moved or the saw turning bench can be rotated either with less precision by pressing ***F5, F7 or K5, K13*** or by using the context keys to choose one of the options for automatically setting the position.

Key	Function
F10 	**F10 – Feeder relative positioning** By using these options the position of the selected drive can be set with high precision. Using the *relative positioning of the feeder function* the feeder can be positioned relatively with regards to its actual position. The actual feeder position comes up on the display along with the limits in which the feeder can be moved in both directions. If, for example, we need to move the feeder 20 mm to the right (to the saw) we enter –20 mm as the entry parameter. To move it back (from the saw) a positive value is entered.

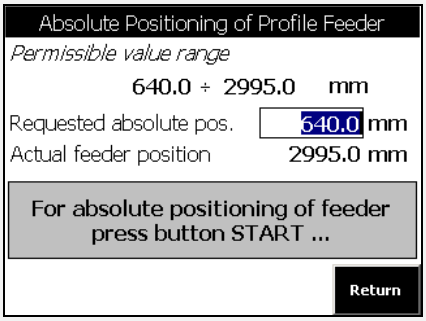


After setting the correct relative distance press ***START*** and the feeder automatically moves the value entered. Pressing the ***STOP*** button stops this process. Upon completing the positioning you can return to the previous menu with the ***F14 (Back)*** button, by pressing the ***START*** button you can again move it the same distance (if it is possible with regards to the feeder position) or enter a different distance and position.

F11

F11 – Feeder absolute positioning

By using the ***absolute positioning of the feeder function*** the feeder can be positioned absolutely with regards to the start of the track. The entered distance thus corresponds to the required feeder distance (laser barrier) with regards to the notional start of the track (front edge of the saw band at an angle of 0°). The limits for entering the position are shown on the display. Pressing the entry field enters the required position (framed by a thin line).



After setting the correct absolute distance press ***START*** and the feeder automatically moves to the value entered.

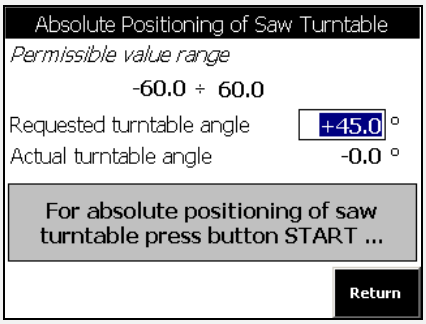
Pressing ***STOP*** can stop this movement. After completing the positioning you can return to the previous menu with button ***F14 (Back)*** or enter a new distance and position it again.

F12

F12 – Saw bench absolute angle positioning

The rotation angle serves to automatically turn the frame to the required angle.

The rotation moves from *-60° to 60°* **(0° when using top clamping).** The limits are displayed on the screen just like the field for entering the required angle.



After setting the right values press ***START*** and the turning bench automatically rotates with the saw frame to the required angle.

Pressing the ***STOP*** button stops the movement. After completing the positioning you can return to the previous menu with button ***F14 (Back)*** or enter a new distance and position it again.

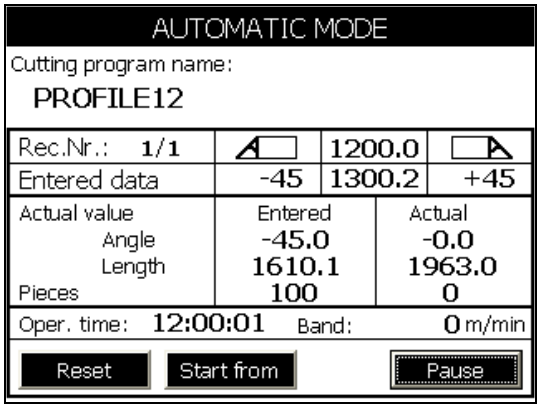
3.8. Automatic Regime

The automatic cycle can be run if the following conditions have been met:

- The machine references were made
- The cutting program was chosen and the cutting commands entered
- The machine's regime selection switch is turned to automatic (to the right)

Before starting on automatic it is also best to remove remnants of materials from the saw space.

3.8.1. Automatic Regime Screen



The automatic regime screen displays the name of the chosen cutting program. Underneath it is a table displaying the basic parameters of the current cutting command (angle and length of cut). Under these are the assigned and actual values of the positioned axes and the number of pieces in the given record.

The lower part of the table shows the time it runs automatically in minutes.

3.8.2. Starting the Automatic Cycle

It is assumed the basic conditions have been met.

Conditions:

- **Choice of position in the cutting programme.**

If a new cutting program has been chosen or the existing one has finished, the table shows the position of the first record with the actual number of pieces 0. Thus the start of the program begins here.

If the previous program did not finish due to, for example, the automatic cycle is stopped by pressing the STOP button or the regime switch being turned to "0", by a safety shutdown, a power outage or material running out, the position on the last piece to be cut remains.

In both cases the operator can start cutting from either the start of the program or set up a position on any piece of the current cutting program.

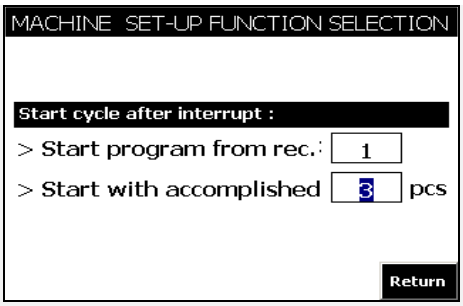
- **Reset position**

The button serves to set the position to the start of the cutting program – 1st record, 0 pieces.

- **Start from**

Choosing this button shows a screen where the command number can be set and shows the number of pieces that do not need to be cut.

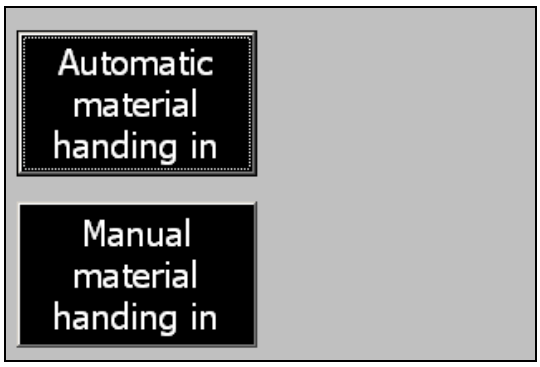
After returning to the basic screen these values are set as the current position and the machine can cut the next piece.



The machine is ready when the *START* button flashes. Pressing it we get to the options for feeding the material.

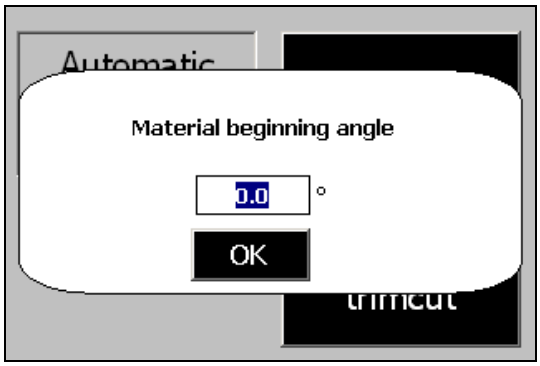
3.8.3. Starting automatic cycle

After pressing the *START* button the manner of feeding material to the machine is displayed

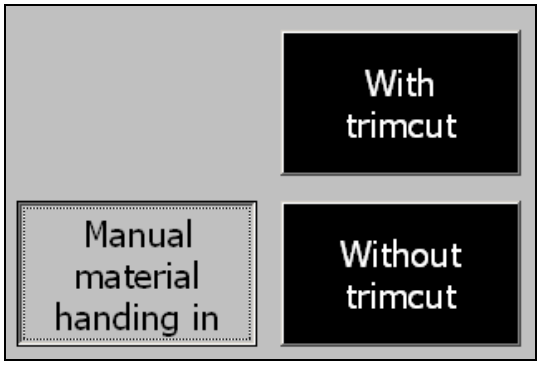


If manual feed is chosen it is assumed that the operator fed the material into the saw so that it can start cutting without positioning the feeder.

Next task is question on the initial angle of the material. Inset 0 if the initial edge is perpendicular to the vice.



Last task is question about trim cut.



After choosing the manner of feeding there is trimming the material

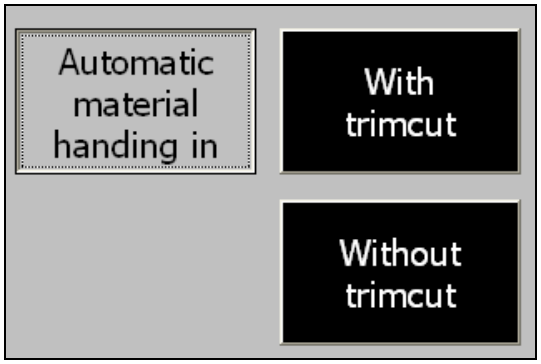
The ***YES*** option is carried out by cutting off the start of the material according to the first angle of the current cutting record. This ensures that for the positioned length of the first cut the length for trimming the material is added. This value can be set in the ***Machine Settings / User Parameters / Trimming Length***.

If trimming is not necessary (e.g. the first angle has been cut or it is the same as the initial angle of the material) select the ***NO*** option.

Pressing the ***START*** button again confirms the start of the automatic cycle and it begins according to the choice made. The choice can be stopped by pressing the ***STOP*** button.

3.8.4. Automatic Material Feed

Before running the automatic cycle with automatic material feed, use the manual control regime to open both vices so that their jaws are further from each other than the width of the material to be cut.



If the automatic material feed was chosen the feeder vice moves to the centre of the feeder and asks the operator to place the material in.

Put the material i*n* so that the ***laser barrier is disrupted,*** i.e. the material goes between the feeder vice jaws and, at the same time, not to the edge of the feeder, so that it can be directed.

After putting the material between the laser, the green limit button flashes and you can press the ***START*** button to continue. Pressing the ***STOP*** button returns you to the basic menu.

After pressing the ***START*** button the feeder locates the start of the material by slowly moving to the saw until the laser barrier becomes free.

If the start of the material has been located, the feeder moves to the position for holding it, the vice closes and the material is fed into the saw for cutting.

The basic screen is shown on the main screen and the automatic cutting cycle begins. If the material has been moved too close to the saw the feeder cannot find the beginning and displays an error announcement.

In this case it is necessary to put the material into the correct position and repeat the run sequence. It is possible to use the manual control regime to put the material into the correct position.

3.9. Entering Cutting Data

3.9.1. Choosing the Cutting Program

By turning the regime switch to "O" the basic screen is displayed offering the **Cutting Data** option. Selecting it displays the screen for managing cutting programs.

The management system can store *60 cutting programs* each with *25 cutting commands*. This number can be expanded by a memory medium to 200 cutting programs *(optional saw accessory)*.

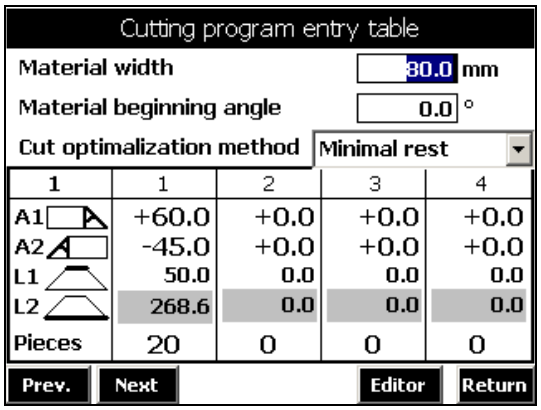
In the upper part of the screen there is a field with the name of the chosen program. Pressing the button to the right of this field displays the menu for the saved programs. By selecting one of the items you can read the chosen program.

There are three buttons displayed under the program name for working with cutting programs.

Button	Function
	**New** – creates a new cutting program. The field with the name empties and clicking on it displays a screen with an alphanumerical keyboard for entering its name. When making a new program a dialogue window will inform you of any unsaved changes in the previous program with the options for saving them.
	**Save** – saves the currently chosen cutting program with the changes made to it. If it is not saved after editing the cutting program the changes may be lost when choosing another program or turning off the machine.
	**Delete** – permanently erases the chose cutting program from the memory. The free memory can be used for making a new command. The **F9** context key is used to display the entry tables for each cutting command of the currently chosen cutting program.

Button	Function
F9: Entry table	Used to display the entry tables for each cutting command of the currently chosen cutting program.
USB	Backup cutting data into USB (USB port is placed near touch screen)
USB	Save cutting data from USB memory into machine.

3.9.2. Entry Table for the Current Cutting Program



The upper part of the screen shows the properties common to the whole cutting program.

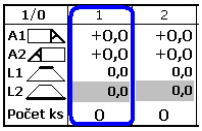
Parameters:

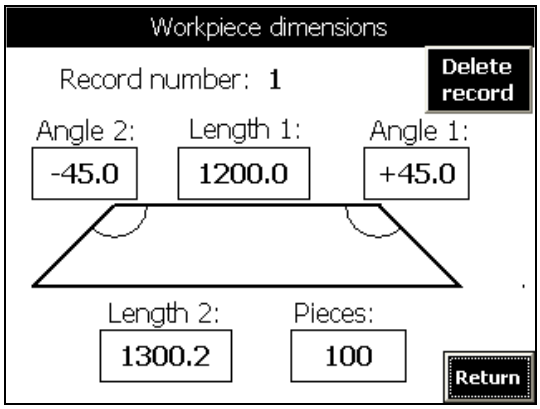
- **Material width:**
  It is very important to enter the precise width in the event that non-zero angles are to be cut because some length measurements must be calculated from the angles and width. In extreme cases an incorrectly entered width can lead to a threefold fault in the length.
- **Initial angle**
  For the feeding and trimming of the material to work properly it is necessary to enter the initial angle for the start of the material (this is not the first angle of the first piece).
- **Optimizations**
  Without optimization: The pieces are cut as they are entered in the table
  Minim. remnant: Turns the pieces so that the next piece has the same initial angle as the final angle of the last piece. The pieces follow on from one another and there are no remnants.

In the middle of the screen there is a table of the cutting commands (a record of the shapes cut). The table displays four shapes at once (on screens 1 to 4).

Button	Function
	**F9/ F10 – Left/Right** Moving in the menu, the maximum number of shapes in the program is 25.
	**F13 – Editor** Used for working with all the cutting commands. They can be removed, copied or deleted individually or in sequences.
	**F14 – Back** Used to get back to the previous menu where it is possible to save the edited program. Turning the switch to the automatic position switches it to the cutting program without saving it. If the changes are not saved they will be lost after changing the program or turning off the machine.

Pressing the relevant column we want to edit enters individual cutting commands.





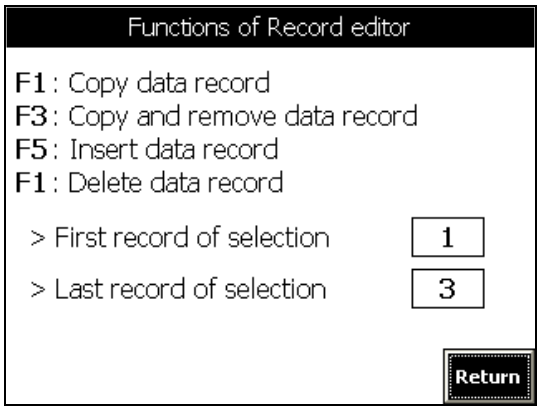
Every cutting command comprises of *two lengths* of opposing sides, *two angles* (turning the saw frame during the cut) and the *number of cuts*. It displays the cross-section of the shape that will arise. *Angle 1* lies on the right as the material enters the machine and is cut from the right from the operator's point of view (the first cut). The numerical values (lengths in mm, angles in degrees) are entered into the relevant bordered editing fields.

After entering the values the remaining length is automatically calculated according to the angles entered (the calculated value is shaded in grey). A check is also made whether the piece with the parameters entered can be cut (the minimum length corresponds).

Button	Function
	**F14 – Back** Used to go back to the previous menu, where it is possible to save the edited program.
	**F2 – Delete command** The **Delete command** button erases one or a whole sequence of commands.

Attention!
After editing the cutting commands table do not forget to save the changes. If not you may loose the changes you made when you turn the machine off or read another cutting program.

3.9.3. Cutting Commands Editor

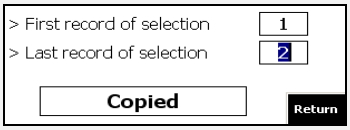


The cutting commands editor is used to work with all the cutting commands. It works with a "box" into which one or more commands can be placed and afterwards they are inserted behind the last command entered into the program. The commands can be transferred to other cutting programs.

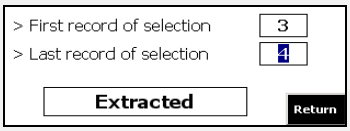
It is assigned using the first and last number of the chosen command. The last command in the choice must be greater than or equal to the first command. If the first and last commands in the choice are the same it only works with this one command.

Setting:

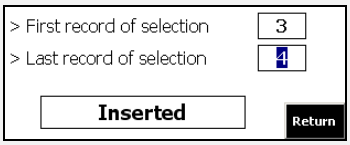
- **F1 – Copying a cutting program command:**
  It loads the commands defined by the range of the first and last commands of the choice into the box. Source data remains unchanged. It displays a verification "Copied"



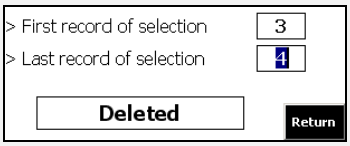
- **F3 – Removing a cutting program command**
  It loads the commands defined by the range of the first and last commands of the choice into the box, whilst source data (commands) will be erased. It displays a verification "Removed"



- **F5 – Inserting a cutting program record**
  It inserts commands saved in the box behind the last command in the currently chosen cutting program (independent of the choice assigned). It only inserts commands that fit, i.e. until the maximum, 25, for the cutting program has been used up.
  It displays a verification "Inserted".

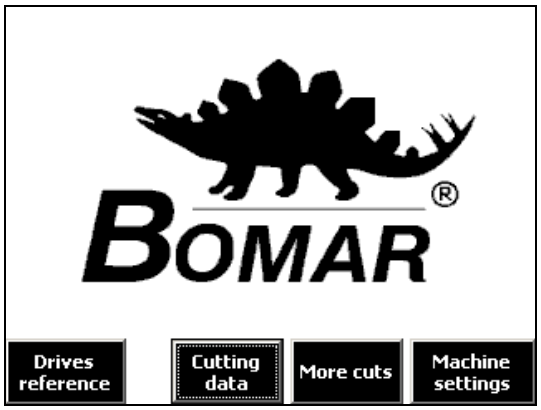


- **F7 – Deleting a cutting program command**
  It deletes the cutting command of the current program as chosen.
  It displays a verification "Deleted".

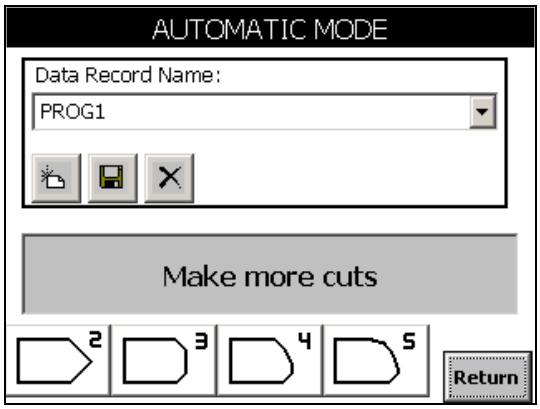


3.9.4. More cuts

Turn machine mode switch into "0" position. It shows basic screen with offer More cuts.



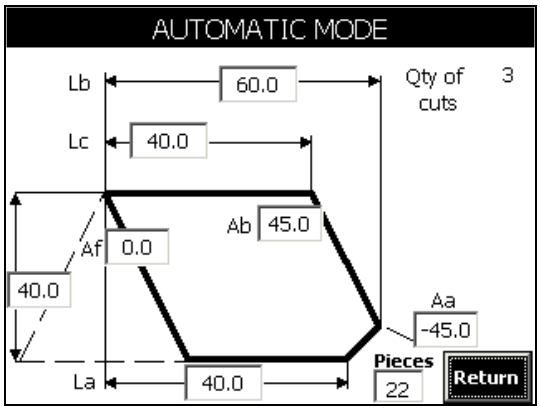
Press button **F12–More Cuts.** It shows next screen:



It is possible cut one piece or more pieces – choose by button.

Button	Function
	**New** – creates a new cutting program. The field with the name empties and clicking on it displays a screen with an alphanumerical keyboard for entering its name. When making a new program a dialogue window will inform you of any unsaved changes in the previous program with the options for saving them.
	**Save** – saves the currently chosen cutting program with the changes made to it. If it is not saved after editing the cutting program the changes may be lost when choosing another program or turning off the machine.
	**Delete** – permanently erases the chose cutting program from the memory. The free memory can be used for making a new command. The **F9** context key is used to display the entry tables for each cutting command of the currently chosen cutting program.

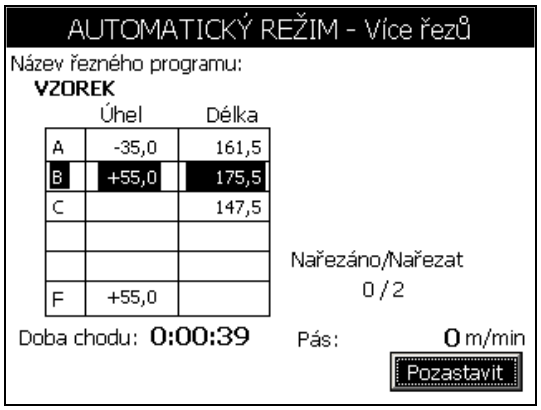
Then choose by buttons on bottom of screen how many cuts will be performed on cutted material. Then You can specify cutting angles and dimensions.



This is screen for two cuts. Shown workpiece picture is only informative and it is not change according to your values. Values must be entered from "a" value to "f" value. It is necessary enter angles from smallest to biggest. First angle could be negative and every angle must be greater than the previous one.

Given the complexity and the number of different values to enter the program is not able to check the correctness of the assignment. Therefore it is necessary to pay attention to the entered values.

Where is entered angle 0 ° so it is also necessary to specify the distance between the two points. This means that at zero angle is necessary to specify two identical lengths. The number of sections (Qty of cuts) indicates how many cuts will be performed. Anticipates that at least two cuts are performed at the beginning of material and one cut on the material end. It is also necessary to specify the number of pieces.



After entering the parameters it is possible to go back a screen and created a formula to save or to switch without saving the automatic cutting cycle.

The automatic mode screen displays cuts what will be made and their lengths. Also screen displays quantity of required and completed cuts.

3.10. Disrupting a Cycle

3.10.1. Pausing the Running

Using the parameter in ***Machine Settings / Stop after Cut*** it is possible to set up pauses in the automatic run after the material has been cut with the frame down or up over the material. After the cut the main vice opens according to the set parameter in the Machine Settings. If no pause is required after a cut in the automatic run set the parameter ***Machine Settings / Stop after Cut – do not stop***.

Before cutting the material during the cut or when raising the frame over the material the *Pause* button can be pressed (*F14* on the screen), this stops the machine even with the parameter setting ***Machine Settings / Stop after Cut – do not stop.*** The text button changes to *Paused*. Depending on when the Pause button was pressed the automatic run temporarily stops in the following manner:

- ***Before a cut*** – it completes feeder positioning and frame rotation and just before the frame goes into the cut the automatic run stops.
- ***During a cut*** – it completes cutting the material and then the automatic run stops.
- ***When lifting the frame over the material*** – the frame is lifted over the material and then the automatic run stops.

To start the automatic cycle again, press the ***Paused (F14)*** button or the ***START*** button.

3.10.2. Emergency Stop During an Automatic Cutting Cycle

During an automatic cycle the ***STOP*** button can be pressed during a cut and all movements end and the automatic cycle ends.

In emergencies in which there is the risk of injury or damage to the health of people, animals or property press the Total Stop safety button immediately.

After pressing ***Total Stop*** the safety circle is broken and the electric drives are immediately disconnected from the power supply.

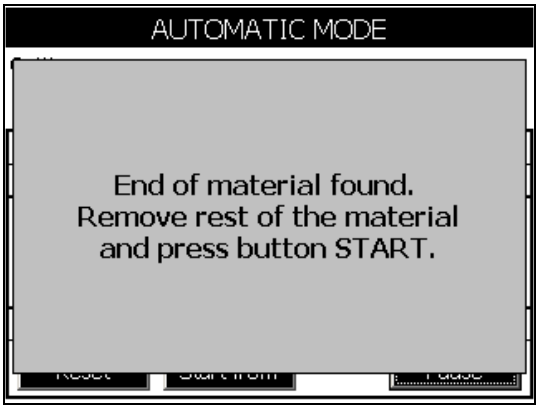
Opening the band saw's front or rear doors or the housing has the same effect

After pressing the ***Total Stop*** button the automatic cycle ends. After removing the danger it is necessary to return the doors, saw housing and the *Total Stop* button to the original position. Afterwards the safety circle can be turned on again.

After pressing Total Stop it is necessary to reference the machine. Afterwards the automatic cycle can run again.

3.10.3. Out of Material

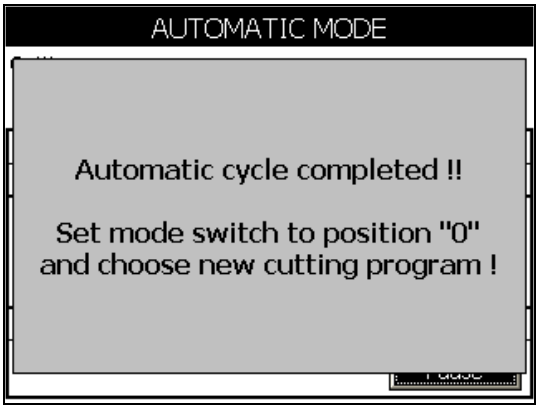
Whilst cutting the material or just before a cut preparations are made for the next entry and a check is made that there is enough material length to cut the next piece. If it is assessed that the material is not long enough to make the given cut a message comes up on the display:



Now switch the *machine regime* selector to the ***Manual***, remove the remainder of the material by hand and insert a new piece of material. Run the automatic cutting in the usual manner as described in the chapter ***Start Automatic Cycle***. The number of uncut pieces is saved and the cycle will continue from were it was disrupted.

3.10.4. End of the Cutting Program

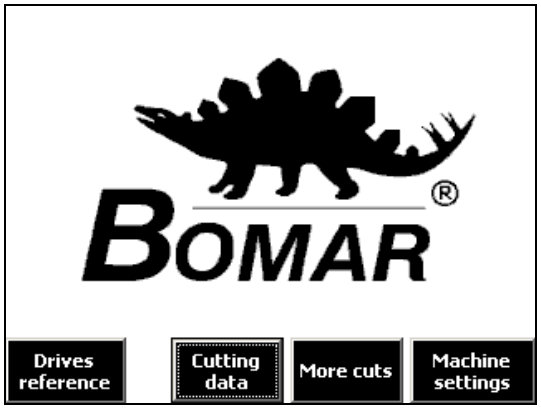
After completing the entire program of cutting data you will be asked to enter more cutting data.



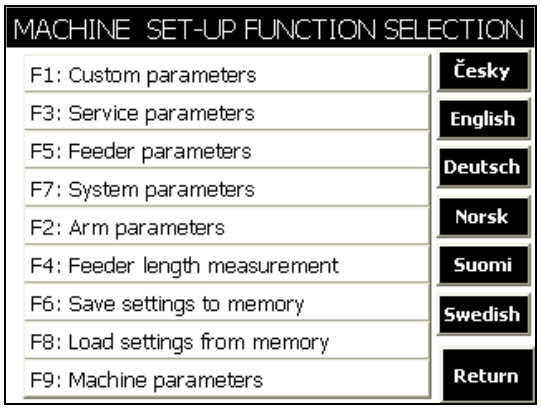
If it is necessary to start the same cutting program from the start an alternative approach is possible by pressing the *STOP* button and returning to the first automatic run screen. The position stops on the 1st command with 0 pieces (or at another place where the run started) and it can then be started.

3.11. Saw Settings

Turn the Machine Regime switch to "0". The basic menu is displayed offering three possibilities.

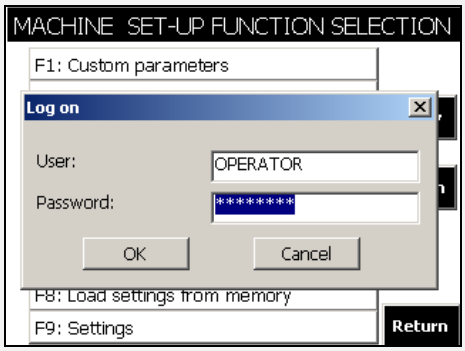


Choose Machine settings.



Each menu, apart from the User Parameters, is protected by a password.

Choosing the requisite menu and items.



The user parameters are available to the operator without restrictions. All the other items *contain settings that, if set incorrectly, could cause the machine to work incorrectly.*

Therefore these items are protected by a *password*. If they are chosen a dialogue window appears in which the corresponding user name and password must be entered, which is *set by the manufacturer* for entry to these menus.

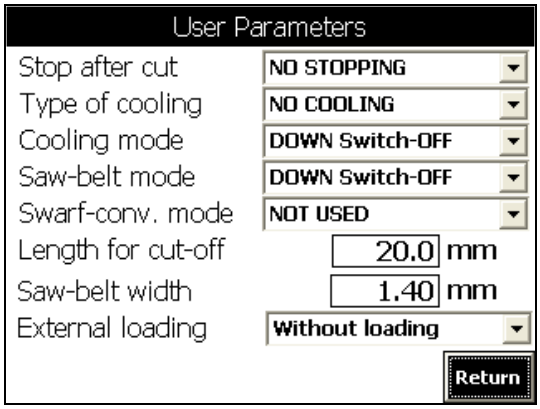
After logging in chose the requisite menu and its screen will be displayed.

User: OPERATOR **Password:** 1234

After selecting the menu using the context keys you will be asked for the password.

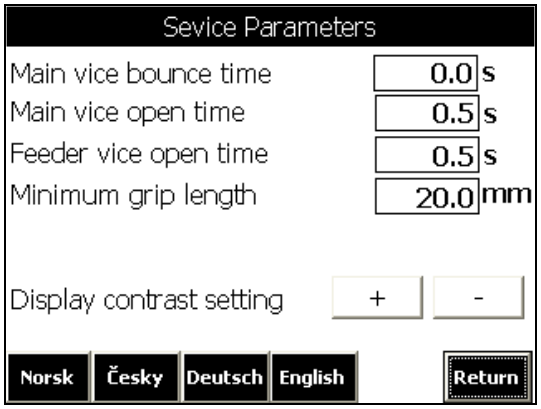
After leaving the menu Machine Settings the memories of the password entered are erased and it is necessary to enter the corresponding access password again.

3.11.1. User Parameters (no password)



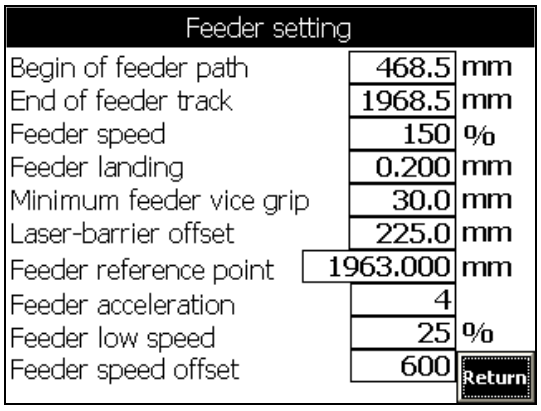
Parameter	Description
Stop after cut	The saw frame's actions after completing a cut. • Do not stop • Down (bottom limit switch) • Up (above material)
Type of cooling	Selection of band cooling. • No cooling • With water • With a microniser
Cooling mode	Cooling during cycle. • Do not turn off • Turn off above (over material) • Turn of below (bottom limit switch)
Saw-belt mode	Belt motor during cycle. • Do not turn off • Turn off above (over material) • Turn of below (bottom limit switch)
Swarf conveyor regime	Conveyor motor during cycle. • Do not use • Manual control (the operator controls the conveyor manually using the buttons, see chapter Control Panel) • Together with the band (conveyor turns on/off depending on the saw band)
Length for cut off	Length for trimming the start of the material. This length is added to the first cut length.
Saw-belt width	Service parameter, important for compute proper lengths
External loading	Option for external material loader

3.11.2. F3 – Service Parameters



Parameter	Description
Time for opening the main vice	The time setting, in seconds, for opening the main vice.
Recoil time of the main vice	The time setting, in seconds, for the main vice recoil after cutting the material.
Opening time for feeder vice	The time setting, in seconds, for opening the feeder vice.
Correction for multiple passings	Corrects the error arising whilst the main vice grasps the material from the feeder vice. The correction is entered as a mistake arising during one grasp.
Minimum grasp with the jaws	Determines the minimum length of material that is to be in the main vice's jaws .
Contrast settings	The ideal values depend on the viewing angle, temperature and the specific piece. Changed by the buttons "+" and "-"
Language selection	Determines the language used. • Norsk • Česky • English • Deutsche

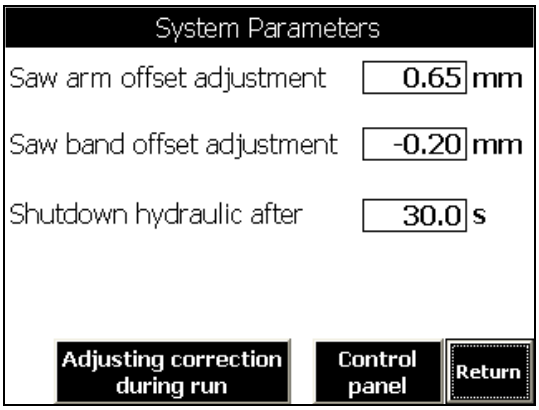
3.11.3. F5 – Feeder Parameters



Parameter	Description
Start of feeder track	Determines the distance of the laser beam from the edge of the saw belt adjacent to the feeder side when the feeder is by the saw.
End of feeder track	Determines the distance of the laser beam from the edge of the saw belt adjacent to the feeder side when the feeder is at the end of the track (for material leaving the saw).
Feeder speed	Gives the maximum feeder speed as a percentage relating to the nominal revolutions of the motor (100 % is equal to the revolutions at a frequency of 50 Hz).

Parameter	Description
Feeder end	The correction parameter that determines the distance the feeder travels from braking to a complete halt.
Min. grasp of feeder vice	Determines the minimum material length that the feeder vice is able to grasp.
Offset laser –feeder vice	Determines the distance of the laser beam from the front edge of the feeder vice (on the side by the saw).
Feeder references	Determines the position of the reference limit switch with regards to the saw belt (distance from the front side of the saw)
Feeder acceleration	A dimensionless constant determining the increase in feeder velocity during its start.
Feeder braking	A dimensionless constant determining the decrease in feeder velocity when braking
Offset feeder speed	Determines the minimum required value for the speed of the frequency converter in the feeder motor during which the feeder starts to move at minimum speed.

3.11.4. F7 – System Parameters



- Without setting the correct band width there is no point in continuing
- Entering the test run and running it – it is not necessary to cut the piece, it is enough to cut into the material so that a measurement can be made
- After finishing the program and measuring the actual dimensions of the pieces a correction is set according to the following diagrams.

Parameter:

- Offsetting the saw frame

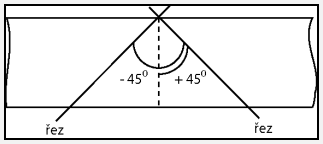
Setting the offset of the frame affects both pieces, thus it is necessary to do this before pre-setting the belt offset.

Offsetting the saw frame means deflecting the frame axis in the direction perpendicular to the material feed.

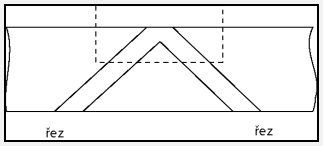
The frame offset value is set and recommended by the manufacturer.

A correction to the frame offset is made in the following manner:

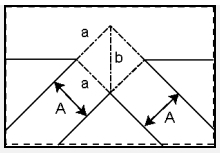
1. Use straight material for setting the correction, at least 1.2 m long, so that there is no collision with the feeder when turning the frame.



2. Fix the end of the material to the feeding vice and whilst keeping hold make cuts at +45° and -45° (see figure).



3. Measure the cut in the following manner



A….band width

a….cut width

b….calculated value

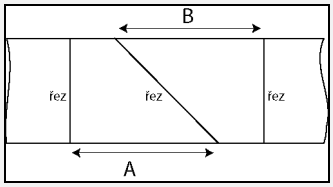
Measure the width of cut **a**. Using Pythagoras Theorem calculate the value of **b** ($\mathbf{b}^2=\mathbf{a}^2+\mathbf{a}^2$). Modify the correction parameter by a half of value **b**.

- Offsetting the band

Offsetting the band from the frame axis

The value of the band offset is set by the manufacturer.

1. Use straight material for setting the correction.
2. Fix the end of the material to the feeding vice and whilst keeping hold make a perpendicular cut and then cuts at 45° or 60° and again perpendicular.



3. Measure the cut in the following manner:

Length B is longer than length A, it is necessary to increase the correction parameter by half of the difference between lengths A and B

Length B is shorter than length A, it is necessary to decrease the correction parameter by half of the difference between lengths A and B

- Delay in turning off the hydraulics

The parameter determines the time, in seconds, after which the motor for the hydraulic aggregate turns off if the hydraulic valves are not clasped (e.g. material is not held in the vice)

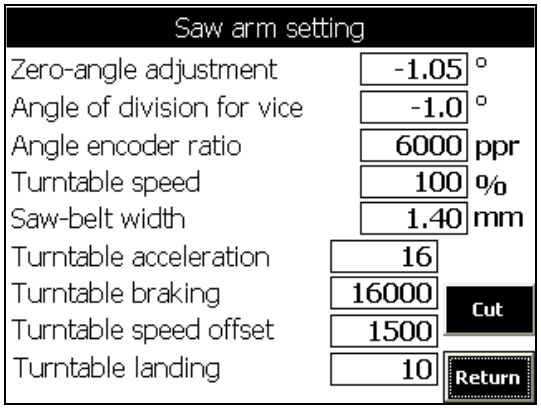
- **Bundler:** Option to use a bundler.

- With a bundler

- Without a bundler

The bundler is an optional accessory.

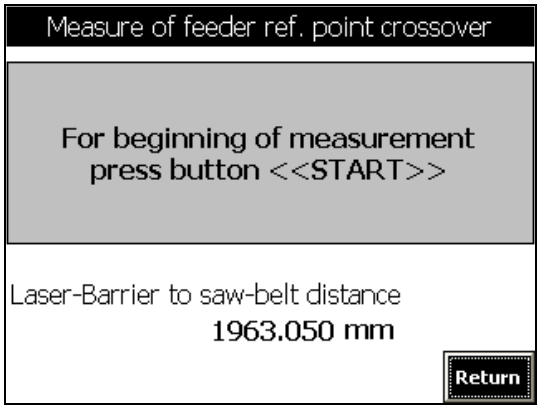
3.11.5. Frame Parameters – "Setting Saw Frame" menu



Parameter	Description
Zero angle correction	Moving the frame angle against the reference index of the angle detector. A simple procedure can be used to measure the correction: 1. Setting the correction to "0". 2. Making a reference. 3. Setting the frame to the zero position using a protractor 4. Deducing the angle from the display and recording it in the service menu. 5. Doing the references again You can also enter the value directly if you know the precise difference from the measurement.

Parameter	Description
Dividing angle for the vice	Determines the angle at which the main vice automatically switches to the other extreme position when the saw frame exceeds this angle.
Pulses per revolution	Determines the number of incremental detector pulses measuring frame rotations per revolution i.e. the transmission ratio of impulses per degree (ppr – pulse per round).
Frame speed	Determines the maximum frame rotation speed as a percentage relating to the nominal revolutions of the motor (100 % is equal to the revolutions at a frequency of 50 Hz).
Saw band width	Determines the width of the cut material, which it is necessary to add to the cut length during positioning so that the cut piece had the requisite length. It is possible to measure this parameter by simply cutting into the material.
Frame acceleration	A dimensionless constant determining the increase in frame rotation velocity during its start.
Frame braking	A dimensionless constant determining the decrease in frame rotation velocity when braking.
Frame offset speed	Determines the minimum required value for the speed of the frequency converter in the frame rotation motor during which the frame starts to move at minimum speed.
Cut/Don't cut	Only used for testing purposes. When chosen with the option "Don't cut" enables the cut to be finished when the saw frame gets to the "L" switch (it does not cut into the material).

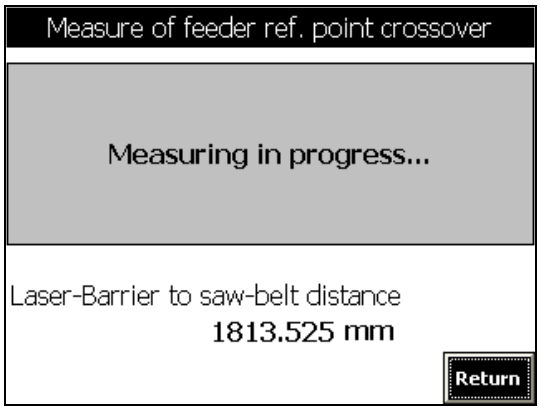
3.11.6. F4 – Measuring the Feeder Track



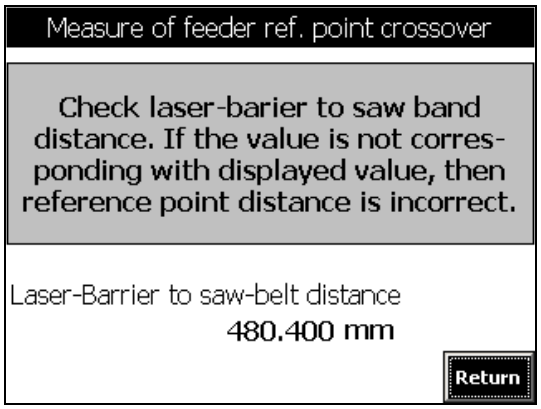
This option serves to verify the correctness of the set distance for the start of the feeder track and the feeder reference point.

Measurements are made without material and it is best to set the frame to the zero position or lower it to the down position. This makes it easier to measure the distance of the laser beam from the band.

To start the movement, press the ***START*** button.

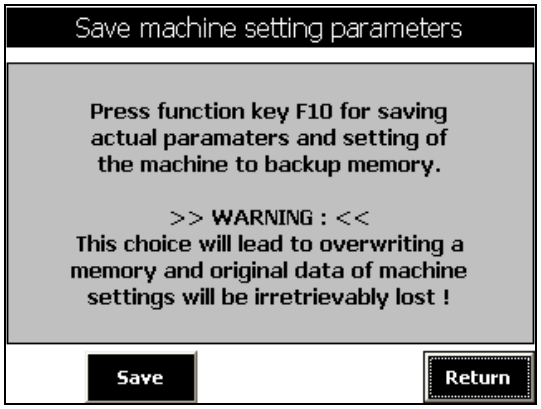


The feeder moves slowly towards the saw to the place closest to the end limit sensor.



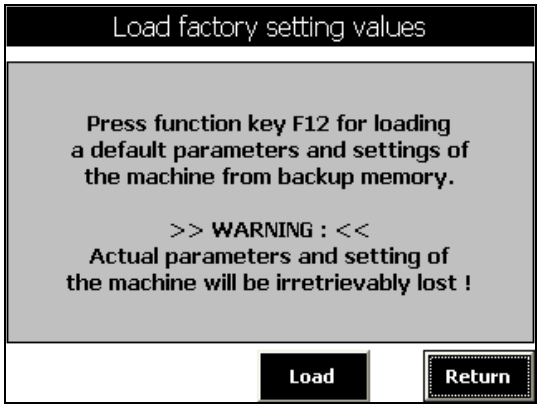
After the feeder movement ends a report on this is displayed. It is necessary to measure the distance of the laser beam between the jaws of the feeder vice and the saw band. If this value does not correspond to the data on the display the feeder's reference distance is incorrectly set (feeder settings parameter).

3.11.7. F6 – Saving Initial Values



The actual values are saved in the memory. The function is used for saving the initial factory settings into the backed up memory.

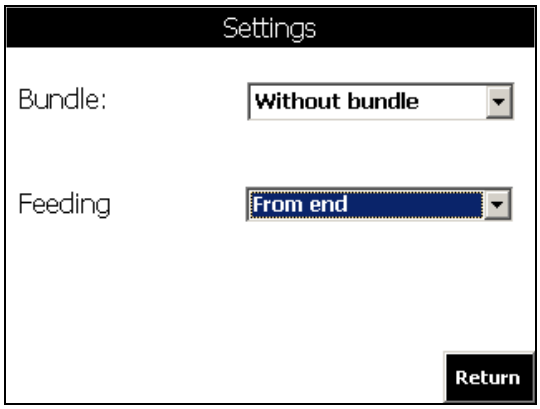
3.11.8. F8 – Reading Initial Values



Reads the values saved in the memory. The function is used to renew the initial factory settings (e.g. if the machine has not been used for some months and the back-up batteries for the control system are flat).

3.11.9. F9 – Settings (using the Bundler)

Attention!
The bundling device is an optional accessory to the saw. The bundling device does not come as standard.



The feed option allows you to choose which manner the feeder moves material into the saw:

3.12. Error statements

If an error occurs when the machine is in use, one that would cause the machine to work incorrectly, the machine stops and a report appears with a description of the error.

An error is indicated on the display by an icon with an exclamation mark and a number indicating the number of errors. At the same time there is a written description (see following overview). This can be minimized if it is necessary to control the display and displayed again by clicking on the warning icon.

Errors are displayed for the time they occur or until the operator confirms they have been removed by pressing the ***ACK*** button. If the cause of the error remains, the error remains displayed even after pressing this button.

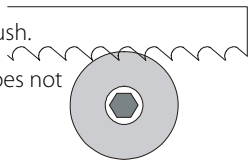
Error	Description
E02: !! ATTENTION !! Safety circle turned off !!	The Total Stop safety switch was pressed, the front or rear doors are open or the saw band housing is open or the safety circle was not started after starting the machine. Check the doors and housing are closed and the position of the Total Stop and turn the safety circle on.
E01: !! ATTENTION!! The TOTAL STOP button on the control panel was activated !!	The Total Stop button for the central safety stop was pressed. Turning the button to the right returns it to the original position.
E25: !! ROTATION FAILURE !! : Index not found during reference movement !!	Malfunction in the incremental sensor of the saw frame rotation, its feed cable or it is badly attached to the connector and its reference impulse (index) is outside of the saw's working range.
E28: !! FAILURE !! : Error during a main vice movement to left !!	The main vice has not moved to the left in the set time. The cause can be a mechanical obstacle, a breakdown in the hydraulic system or a breakdown in the limit switch on the left frame position.
E29: !! FAILURE !! : Error during a main vice movement to right !!	The main vice has not moved to the right in the set time. The cause can be a mechanical obstacle, a breakdown in the hydraulic system or a breakdown in the limit switch on the right frame position.
E03: !! FAILURE !! : Pressure switch on a main vice did not set !! Perform a set up of this switch in the manual mode !	The main vice pressure sensor may be incorrectly set or the feed cable is not connected. There may also be a pressure drop in the hydraulic system when closing the main vice.
E04: !! FAILURE !! : Pressure switch on a feeder vice did not set !! Perform a set up of this switch in the manual mode !!	The feeder vice pressure sensor may be incorrectly set or the feed cable is not connected. There may also be a pressure drop in the hydraulic system when closing the feeder vice.

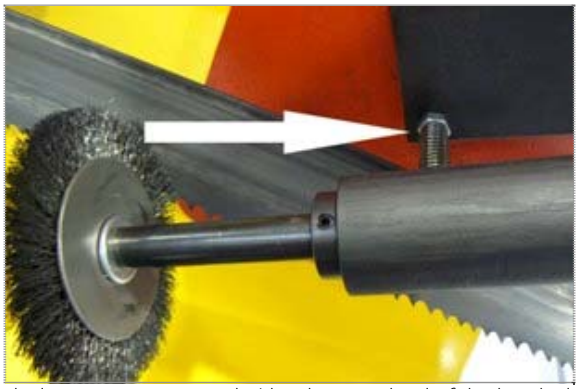
Error	Description
E05: !! FAILURE !! : Cooler pump current protection is switched-off !!	There is a current overload for the coolant pump and its thermal protector is off. When it has cooled turn on the thermal protector (button I). If this occurs repeatedly the current value may be incorrectly set or there is a malfunction in the motor or its feed.
E06: !! FAILURE !! : Hydraulic pump current protection is switched-off !!	There is a current overload for the pump to the hydraulic aggregate and its thermal protector is off. When it has cooled turn on the thermal protector (button I). If this occurs repeatedly the current value may be incorrectly set or there is a malfunction in the motor or its feed.
E08: !! FAILURE !! : Swarf conveyor current protection is switched-off !!	There is a current overload for the swarf conveyor motor and its thermal protector is off. When it has cooled turn on the thermal protector (button I). If this occurs repeatedly the current value may be incorrectly set or there is a malfunction in the motor or its feed.
E09: !! FAILURE !! : One or more frequency converters are in failure!!	The frequency converter for moving the feeder, saw frame rotation or the saw band drive is not ready to operate. This warning appears if the safety circle is not on, as the feed to these drives is disconnected. If it does not go away several seconds after turning on the safety circle it is necessary to check the frequency converters.
E11: !! FAILURE !! : Saw belt NOT TIGHT !!	The saw band is not sufficiently tight or it has cracked or slipped off the guiding wheels. There may also be a malfunction in the band tightness limit sensor.
E34: !! FAILURE !! : Entered position is out of range !!	Error in the program, the position parameter settings or the cutting data.
E35: !! FAILURE !! : Machine is not referenced. Perform a reference of drives !!	It is necessary to reference the machine for the given action. Turn the regime switch to "0" and reference the machine.
E38: !! ERROR !! : Saw arm must be UP for a vice movement !!	When moving the vice the saw frame must be in the upper position. This limits the risk of collisions between the frame and the main vice's jaws.
E39: !! ERROR !! : Position of the main vice is controlled automatically when reference is done !!	After referencing the machine the position of the main vice is automatically controlled according to the turning of the saw frame (even in the manual regime).
E43: !! ERROR !! : Main vice not fully open !!	This error arises when using the bundler, where it is necessary for the main vice to be fully open when turning the saw frame (limit switch on). The reason is to limit the risk of collisions between the saw frame or the saw belt with the top clamping cylinder of the bundler.
E42: !! ERROR !! : Entered side length is incorrect.Max. length is 20 mm !!	Check the cutting command. The shortest side must be at least 20 mm (the added value too) to close the main vice.
E36: !! ERROR !! : Wrong position requirement !!	Error in the program, parameter settings for positioning or the cutting data.
E40: !! ERROR !! : Material width is zero. Enter a new width !!	The length of the opposite side cannot be calculated if the entered width is zero. Enter the width of the material.

3.12.1. Brush Settings

The brush affects sawing output, the lifespan of the saw band, the blade wheels, the hardmetal guide and cutting accuracy. That is why it should be checked after every shift.

1. Loosen the brush's fastening screw (see arrow) until you can move the brush.
2. Place the brush on the saw band. Make sure that the end of the bristles does not reach to the bottom of the saw teeth.
3. Tighten the fastening screw.





4. If the brush does not turn correctly (the driving wheel of the brush slips on the driving wheel of the saw band), push the driving wheel of the brush to the driving wheel of the saw band using the screw.

Attention!
Do not tighten the screw too much, as this may damage the driving wheel of the brush or lower the lifespan of the bearings in the driving wheel of the band!

3.13. Feeding Material

- Do not move under raised loads!
- Never get onto the roller conveyor!
- When fastening material to the vice, do not hold on to it or otherwise handle it! The vice can cause serious injury!

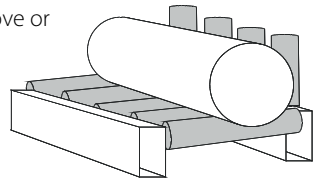
3.13.1. Choosing Handling Devices

- Use handling devices with sufficient bearing capacity when lifting and transferring material!
- If possible only handle material with a fork-lift truck or suspended ropes and a crane!
- Do not use a fork-lift truck or a crane if you are not authorized to do so!

3.13.2. Feeding

Feed material into the vice so that after tightening it cannot move or fall out of the vice.

If cutting long pieces of material (e.g. bars, tubes) use the roller conveyor to move them towards the band saw.



Ensure that the length and width of the roller conveyor is sufficient with regards to the dimensions of the material and whether the conveyor's load bearing capacity will handle the weight of the material .

For round material make sure that it has been propped up by at least two vertical cylinders and it cannot fall off the roller conveyor.

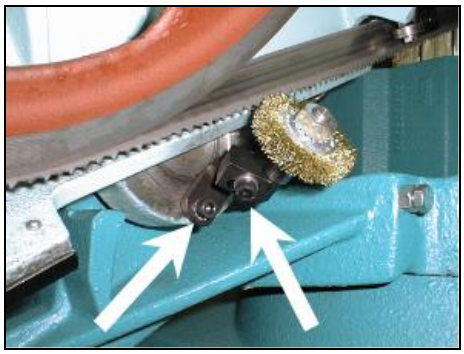
4. Machine service

4.1. Saw band dismantling and installation

4.1.1. Saw band dismantling

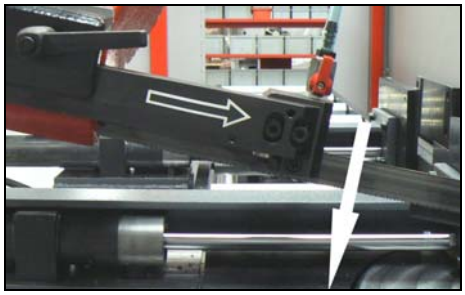
1. Lift the saw frame to the top position. Stop the saw frame in top position by control valve.

2. Dismantle back covering sheet metal of the saw frame. The covering sheet metal is clamped with two screws with plastic head.



3. Release brush holder and turn it. The brush must not defend saw band dismantling.

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



5. Pull up the saw band from the guiding cubes.

4.1.2. 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. Set the brush into the function position and screw up the holder.
6. ***Direction of saw band movement must agree with the direction arrows on the belt.*** Turn saw-band if not.

4.2. 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.

4.2.1. Saw band stretching

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

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

4.3. Saw band run adjustment on stretching wheel

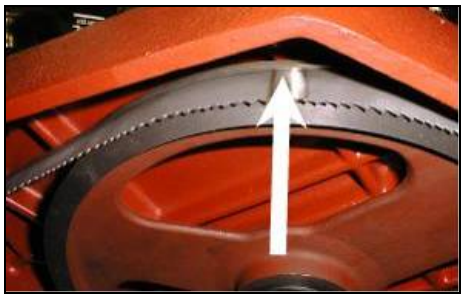
Saw band run on the stretching wheel must be regularly inspected. The inspection has to follow every saw band replacement.

4.3.1. Saw band run inspection

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

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

1. Start and stop saw band drive.
2. Stop the main switch!
3. Open rear cover of the saw frame.
4. Check saw band placing on the wheels.



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

4.3.2. Saw band setting

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

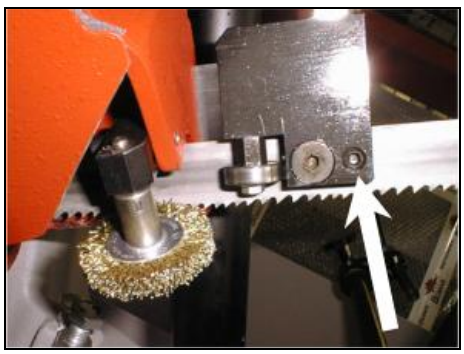
- Turn by screw to the right, the saw band approximates to the stretching wheel rim.
- Turn by screw to the left, the saw band departs from the stretching wheel rim.

Check saw band run again after setting.

4.4. Saw band adjusting

4.4.1. Hard metal guides adjustment

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

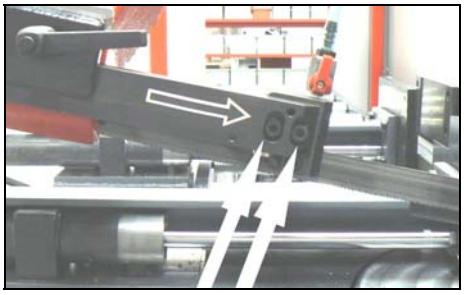


1. Tighten the stop screw on the rear side of guide cube so that the band cannot move.
2. Release the stop screw and at the same time grip the saw band by hand and check if the hard metal guide does not put up to much resistance against the movement of the band. As soon as it is possible to move the 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.

4.4.2. Guide cube adjustment

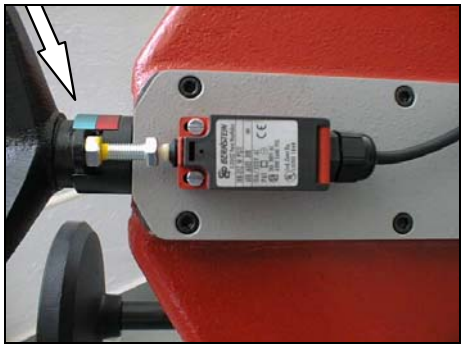
Cutting quality and saw band life is also dependent on guide cubes adjustment. Therefore this adjustment has to be checked periodically.



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.

4.4.3. 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.

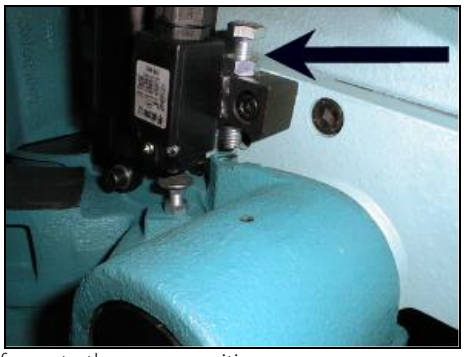


1. Stretch the band by means of TENZOMAT–on the optimal value.
2. Release the nut on the stop screw.
3. Start the driving engine. ***Two scenarios may occur:***
   - If the engine is switched on, but it does not run, turn the screw to the left until the engine starts to run.
   - If the engine runs turn 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.

4.4.4. 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.

4.4.5. Adjustment of the limit switch of saw frame lower stop point

If you have adjusted the lower stop point of the saw frame, the limit switch adjustment inspection is required.

Adjustment:

- **Check setting**

  Lower the arm to the lowest position. If the arm lays on the lower stop and the switch reacts, the setting is correct. In other case carry out the switch setting.

- **Limit switch setting**

  1. Release the nut of the stop screw and screw down the stop screw.
  2. Lower the arm to the lower stop and turn on the band driver.
  3. Screw out the stop screw until the band driver stops.
  4. Secure the screw with nut again and check the limit switch setting once more.

- **Saw frame sinking speed control**

  From top position saw frame is sinking fast until sensor hit the material.
  After this point setting screw make contact with limit switch and rapid feed change to cutting feeding.

4.4.6. 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.

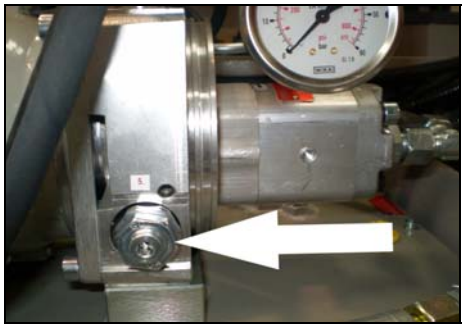
Turn by screwdriver to the left, the sensitivity is bigger. Turn by screwdriver to the right, the switch will be clip with higher pressure.

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

4.4.7. Pressure adjustment of the hydraulic system

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



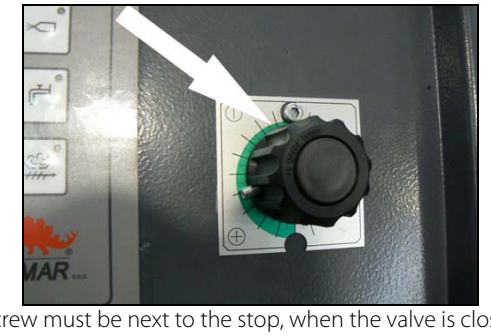
- *Higher pressure* – turn the pressure valve to the clock's direction

- *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.

4.4.8. Adjustment of a throttle valve

1. Switch off the machine by its main switch. Let the sawing head down at the bottom. Close the throttle valve gently.

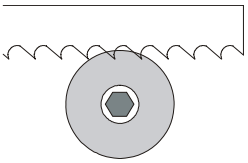


2. The worm screw must be next to the stop, when the valve is closed (see picture).
3. Otherwise, you must loosen the worm screw, lift the plastic knob and close the throttle valve to the maximum. Next loosen the worm screw and take off the plastic knob. Put it back so that the worm screw must be next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

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.



4.5. Cooling agents and chips disposal

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

4.5.1. Coolant device inspection

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

Check level of the cooling liquid and function of the pump periodically!

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

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

Testing	Interval	Method	Condition	Precaution
Liquid level	daily	visually	too low	after concentration check, refill with water or emulsion
Concentration	daily	refractometer 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

4.5.2. Chips disposal

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

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

4.6. Hydraulic, greases and oils

4.6.1. Gearbox oils

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

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

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

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

Band saw	Gearbox oil	Capacity
Ergonomic 290.250 DGA	Paramo PP7	2,0 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

4.6.2. Lubricant greases

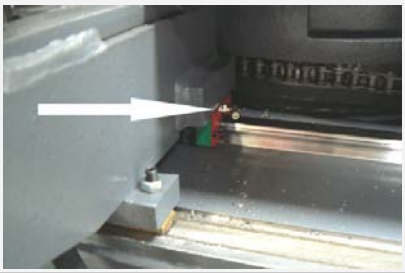
We recommend using lithium based saponified grease, class NGLI-2 for lubrication. Different greases are mixable, if their oil bases and consistence type are identical.

Comparative table of the lubricant greases:

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

4.6.3. Lubrication

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

Place	Procedure
	• The upper pivot of the lifting cylinder – drop the oil once a week.
	• The linear guiding of feeder 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 3–5 times whole line of the linear guiding during lubrication.
	• The linear guiding of feeder trolley – lubricate with grease once a three months (see chapter Lubricant greases). Use 3–5g grease on the every carriage of the linear guiding. Use the grease gun to the lubrication. Drive 3–5 times whole line of the linear guiding during lubrication.
	• The sliding surface - lubricate with grease every day for the machine starting
	• Guiding bar - lubricate with grease as necessary

4.6.4. 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.

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

Comparative table of the hydraulic oils:

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

4.6.5. 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
- Cheb 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	-	-	•	-	-	-

4.7. 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.

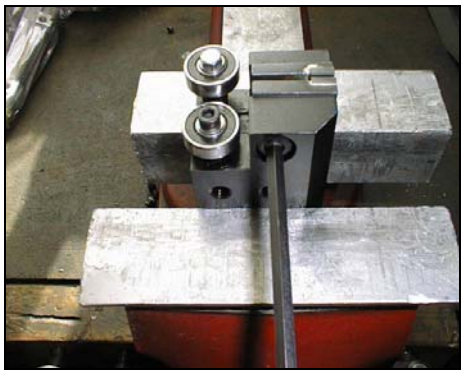
Attention!
When you use rinsing gun make sure that water not get into the engines and into rotation sensor arm. ***Water in these parts could damage the saw.***
Rinse with water only chips from the board table.

4.8. Worn pieces replacement

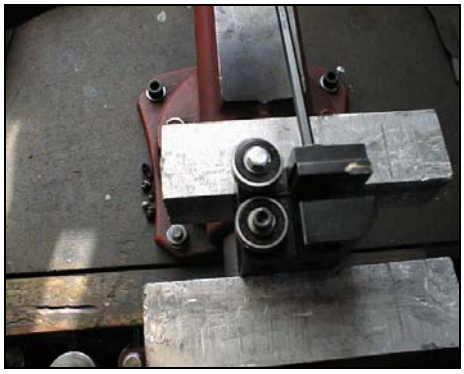
4.8.1. Hard metal guides replacement

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.



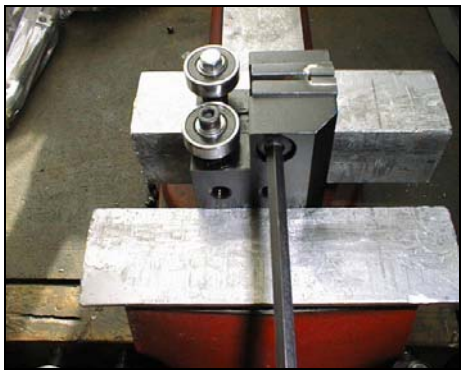
3. Screw out the adjusting screw of the adjustable guiding desk as far from the guide cube so that it is not possible to see it from the inner side.
4. Now insert new hard metal guides and fasten them tightly and fasten the guide cube to the gib.
5. Install the saw band and adjust guide cube and hard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

4.8.2. 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.

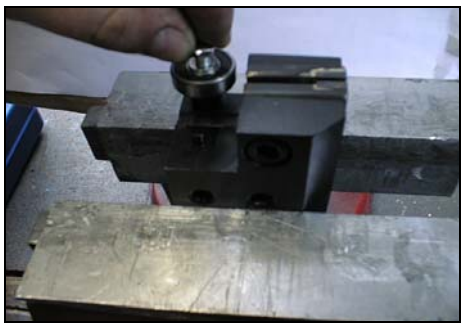
Attention!
Rollers must be replaced on both guiding cubes at once!

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

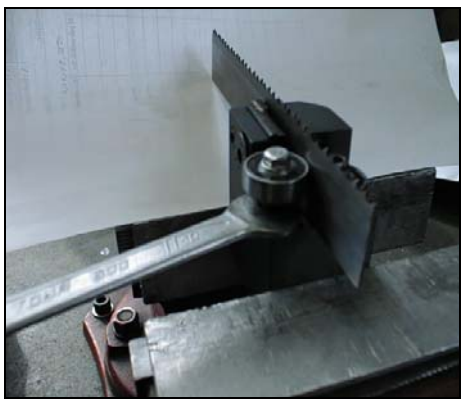


2. Grip the guide cube in the vice and screw out both fastening screws of the eccentrics.

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.

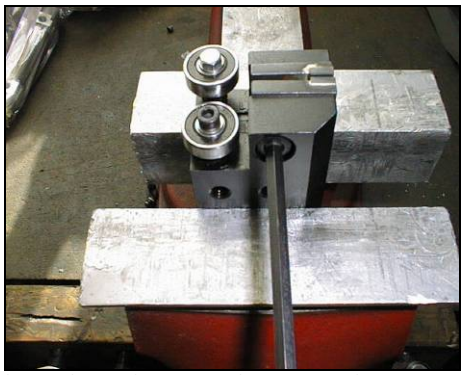
   Guide rollers may not press too much on the band, but they must spin freely. Optimal distance between band and roller is 0,05mm.

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

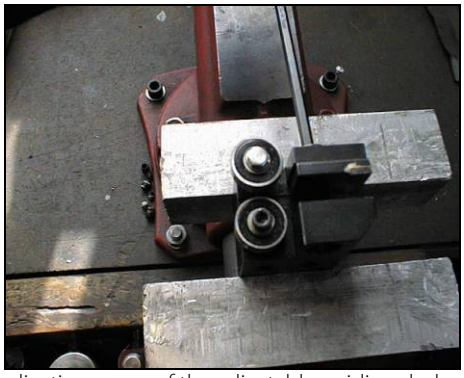
4.8.3. Hard metal guides replacement

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.

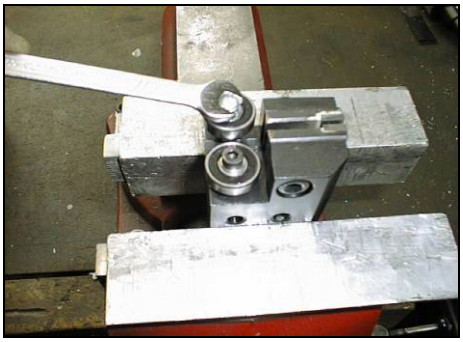
Attention!
Vice must has aluminum jaws or should be placed in a vice aluminum produc, that avoid damage to the pin during clamping.

4.8.4. 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.

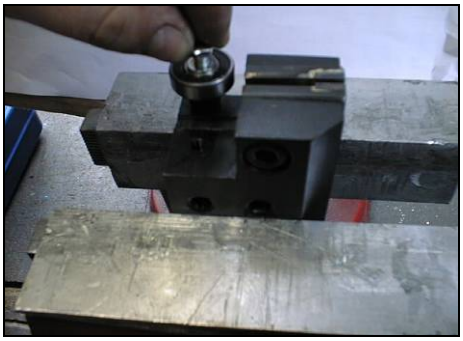
Attention! Guiding rollers must be replaced together on both guide cubes!

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

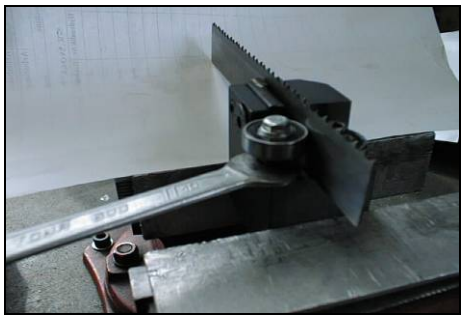


2. Grip the guide cube in the vice and screw out both fastening screws of the eccentrics.

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.

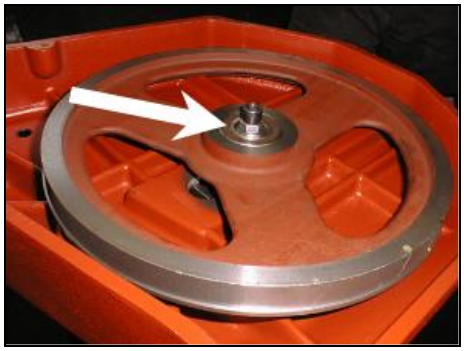
4.8.5. Round brush replacement

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.

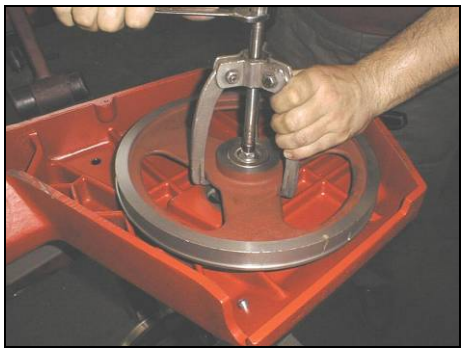
4.8.6. Stretching wheel replacement

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.

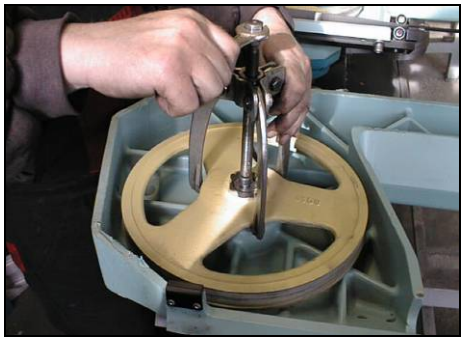
11. Install the washer and screw on the stretching wheel.
12. Install the saw band. Wheel replacement is ready.

4.8.7. Driving wheel replacement

1. Dismantle the saw band.

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

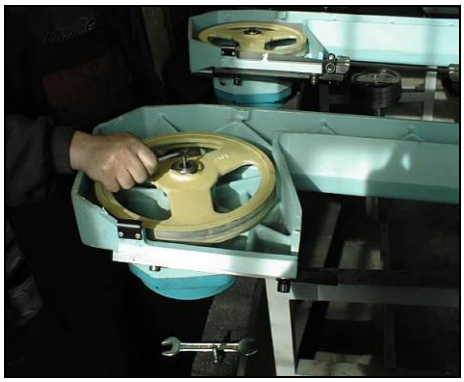
3. Screw on the auxiliary screw to the driving shaft.



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.

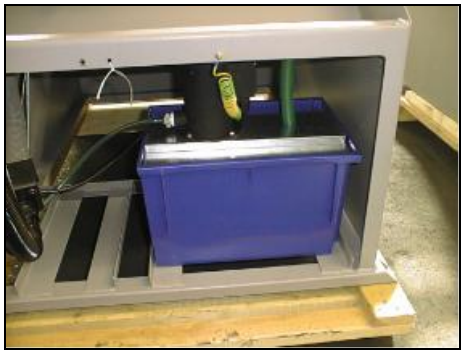
6. If the shaft and the feather are in good order, clean them, oil them and install them on the driving shaft.



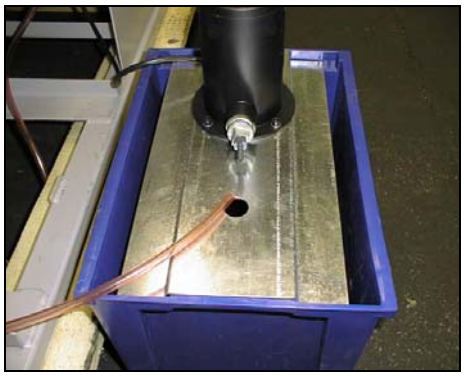
7. Install the washer and screw on the driving wheel.
8. Install the saw band.

4.8.8. Cooling pump replacement

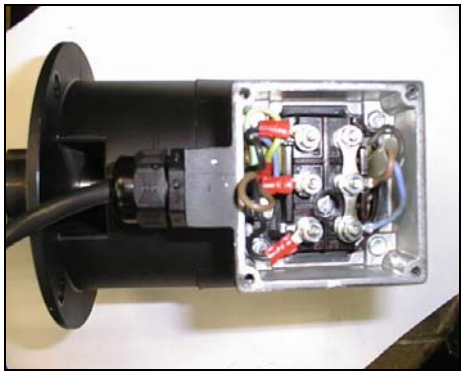
Only a qualified worker can carry out the connection! High-voltage shock may have fatal results.



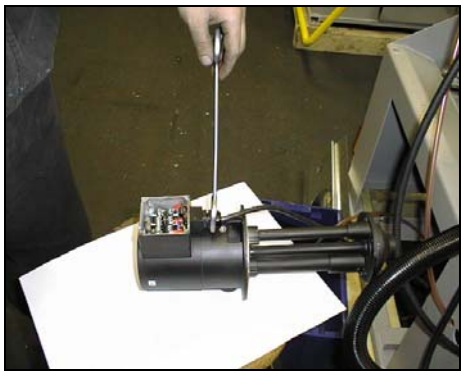
1. Pull out the cooling agent tank from the machine base as far as possible.



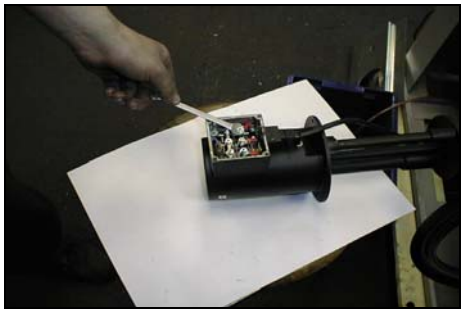
2. Remove the hosepipe leading the cooling agent from the connection on the pump. Unscrew four screws on the cooling pump flange and pull out the pump from the metal sheet holder.



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. Závady / Troubleshooting

5.1. Mechanical problems

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

Manual version: 3.01 / Jan. 2011
Manual rev.: 1

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“
4. Insufficient cut output.	- Worn saw band.	Replace the saw band and keep instructions of the manufacturer on the choice.
	- Wrong saw band tooth system.	Replace the saw band and keep instructions of the manufacturer on the choice.
	- Wrongly set down feed and speed of a saw band.	Set feed and speed of a saw band according to values published by saw band manufacturer.
5. The cut is not finished.	- Wrongly adjusted lower stop point of the saw frame.	Check lower limit switch and screw.
	- Stop point surface is messed-up.	Cleanse stop point surface of the limit switch from debris and residue material.
6. By choke is not possible turn	- Metal clamps between valve and panel.	Clamps must be removed and put on the shaft O-Ring about 10x2 mm.
	- Metal clams are in body of valve.	Valve must be cleared or changed.
7. Saw band drive cannot be started.	- Pressure switch is adjusted wrong.	Set the pressure switch according to chapter „Servicing and adjustment“
	- Pressure switch is defective.	Replace defective parts of the pressure switch.
8. The saw bands are cracked.	- In stretching wheel is wrong adjusting geometry.	Adjust distance band from recess wheel c.2 mm according to operating instructions.
	- Hard metal plates of circuit saw band are not adjusting.	Hard metal plates of circuit saw band must be adjusting according to operating instructions.
	- Guiding cubes are not adjusting (bearings + hard metal circuit)	Guiding cubes must be adjusting (bearings + hard metal circuit) according to operating instructions.
	- Bearings of guiding cubes are used (rolling elements are damaged or outside ring of bearing has conical form).	Bearings of guiding cubes must be replaced. Bearings must be adjusting according to operating instructions.
9. Damage tooth system of the saw band	- In gripping the lifting cylinder is backlash.	
	- Squeezed pin upper or downer holder of the lifting cylinder.	Exchange complete upper or downer holder of lifting cylinder.
10. The saw is cut downing.	- Geometry of hardmetal guiding cubes is wrong adjusted.	Hardmetal guiding cubes must be adjusted.
	- Bearings of guiding cubes are used.	Bearings of guiding cubes must be replaced.
11. Cleansing of the saw band 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.
12. The saw arm periodically rise and fall during the cut; this cause short lifetime of the saw band.	- Backslash in driving wheel lodgement on the shaft.	Change the driving shaft for a long one, new bearings, distance ring, new driving wheel, spring, two covers on the forehead of the shaft + screws.
	- Worn channel for spring.	

5.2. Electric problems

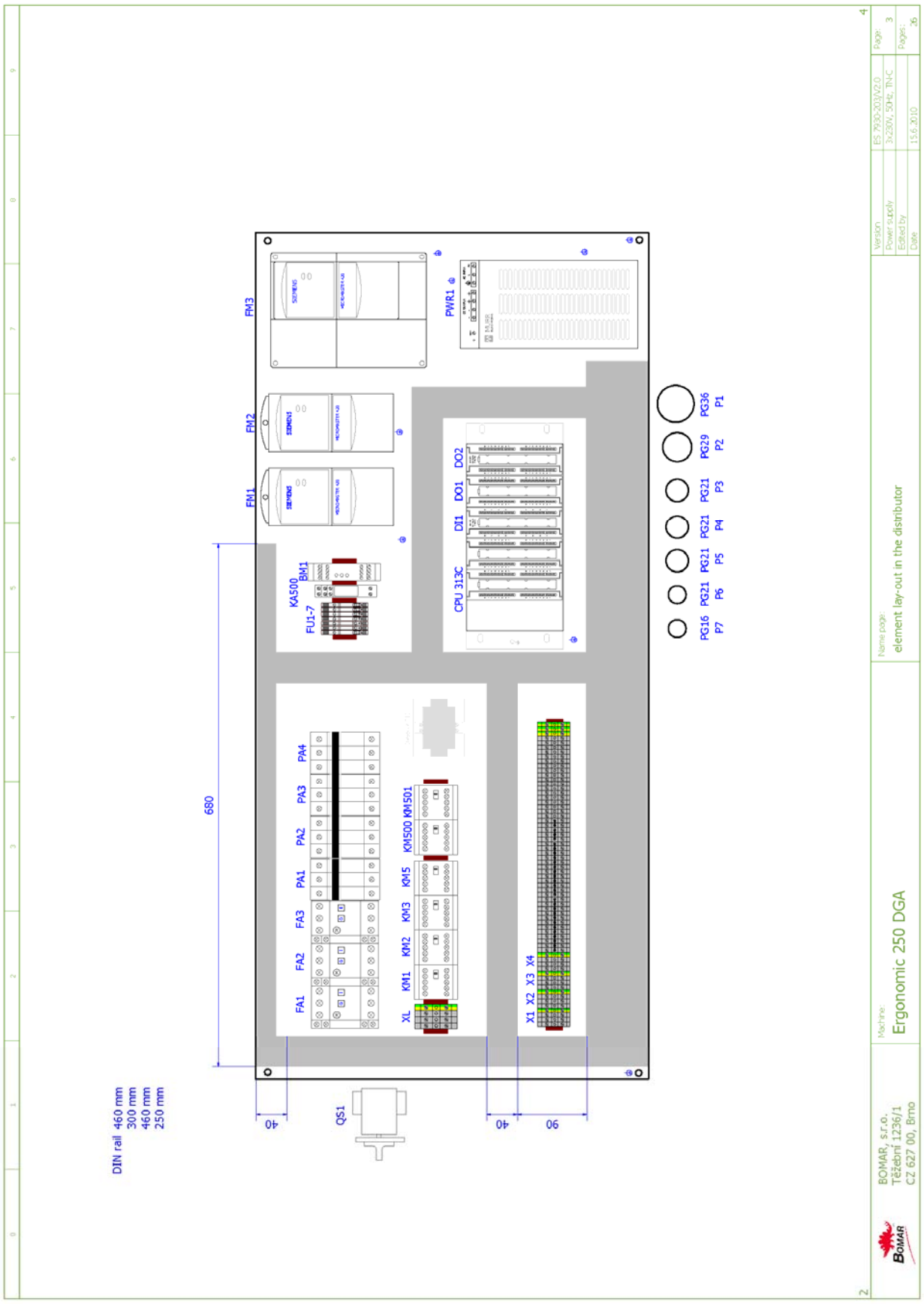
Problem	Possible causes	Repair
1. Machine is not possible start.	- In socket is not voltage	Line voltage must be checked.
	- Transfer relay is closed (thermal protector)	Each FA relay must be checked.
	- Limit switch of saw band stretching, cover of frame or cover of saw band is not started.	Check of 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

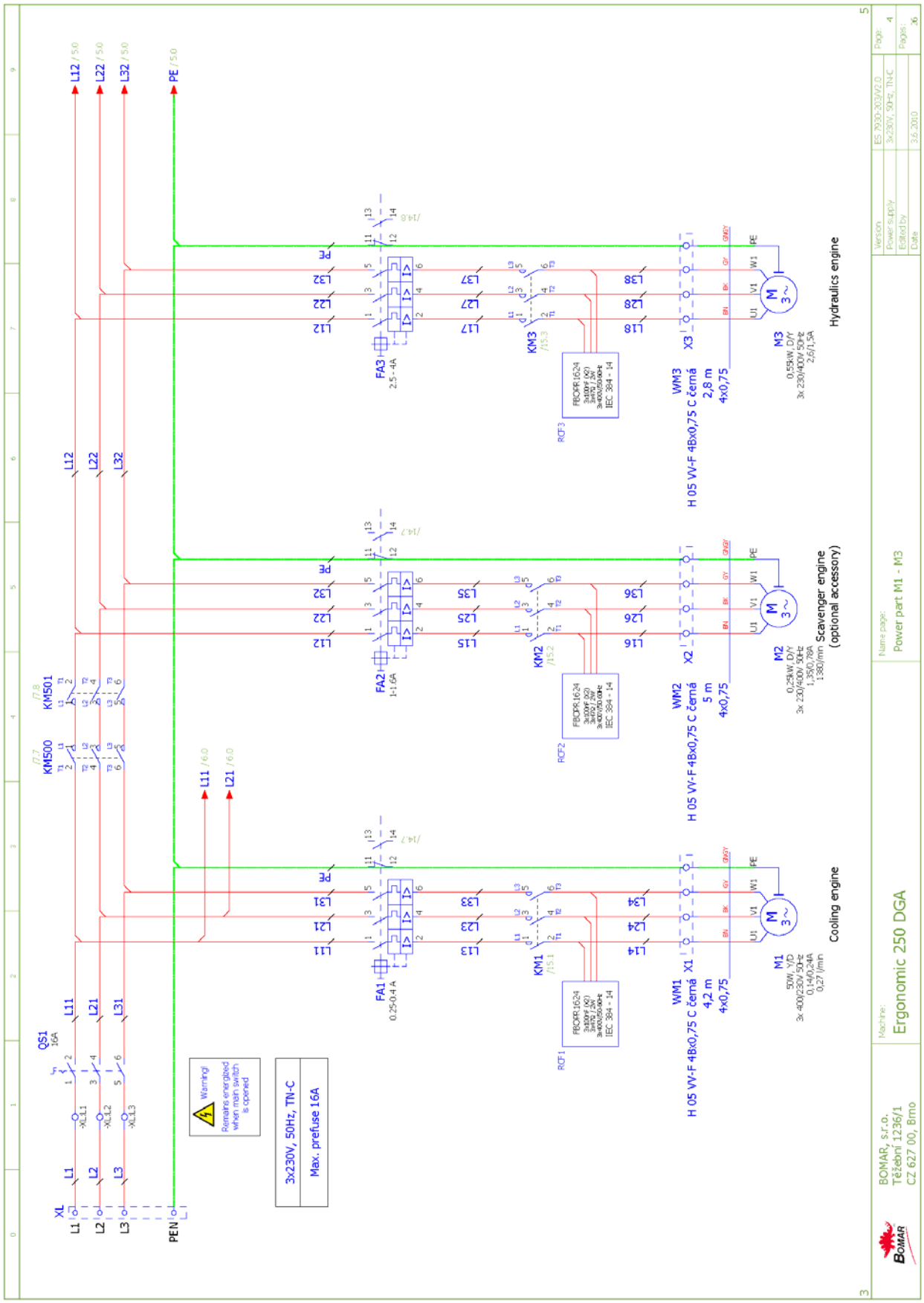
Problem	Possible causes	Repair
1. Hydrogenerator not supplying oil	• reverse rotation	Check the connections of each phase. Reconnect properly connection of the electrical phases.
	• shortage of oil in the tank	Add hydraulic oil
	• Oil viscosity does not correspond prescribed viscosity value	Change hydraulic 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

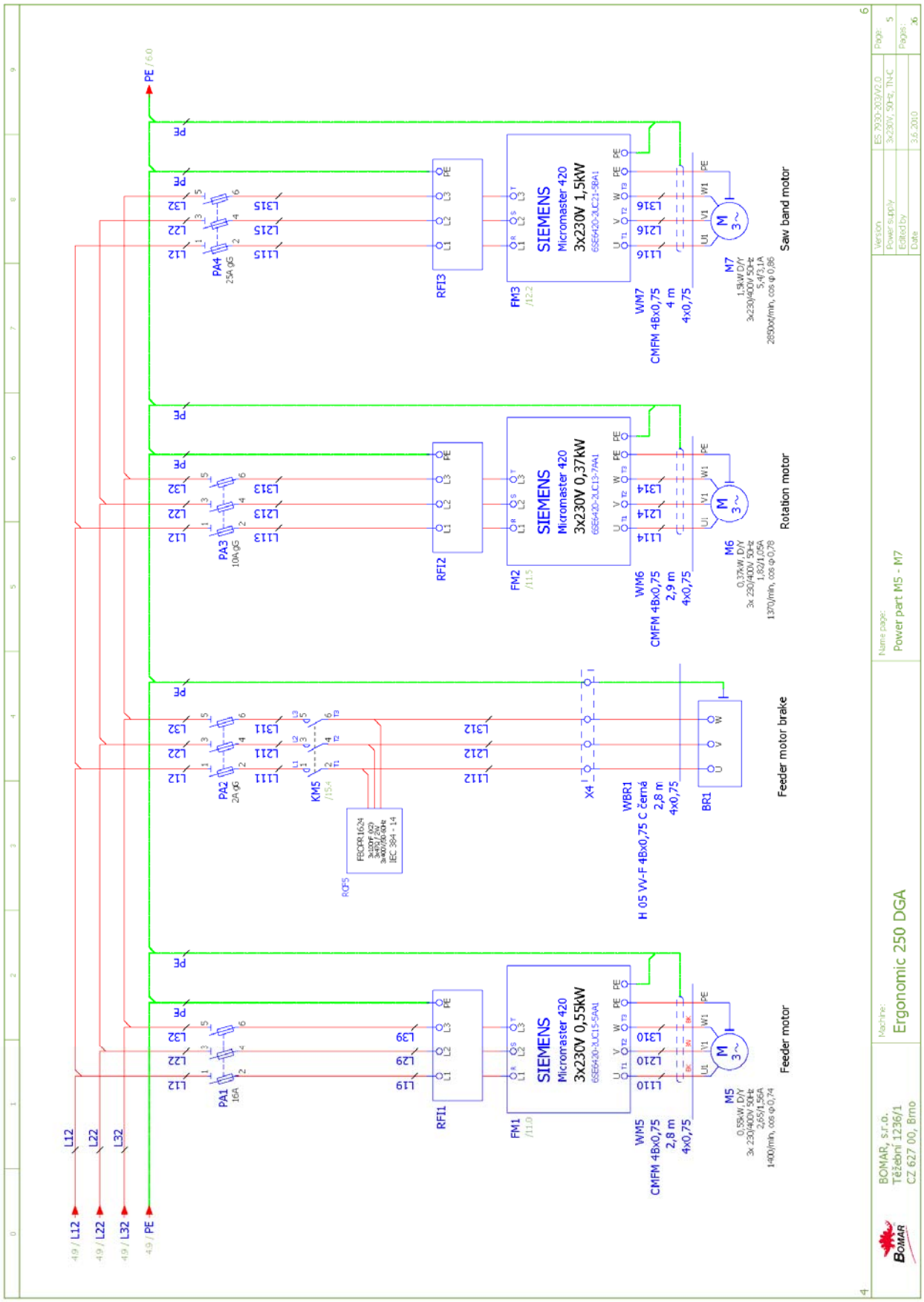
6. Schémata / Schemas / Schematics

6.1. Elektrické schema / Elektroschema / Wiring diagrams – ~ 3×230 V, 50 Hz, TN-C

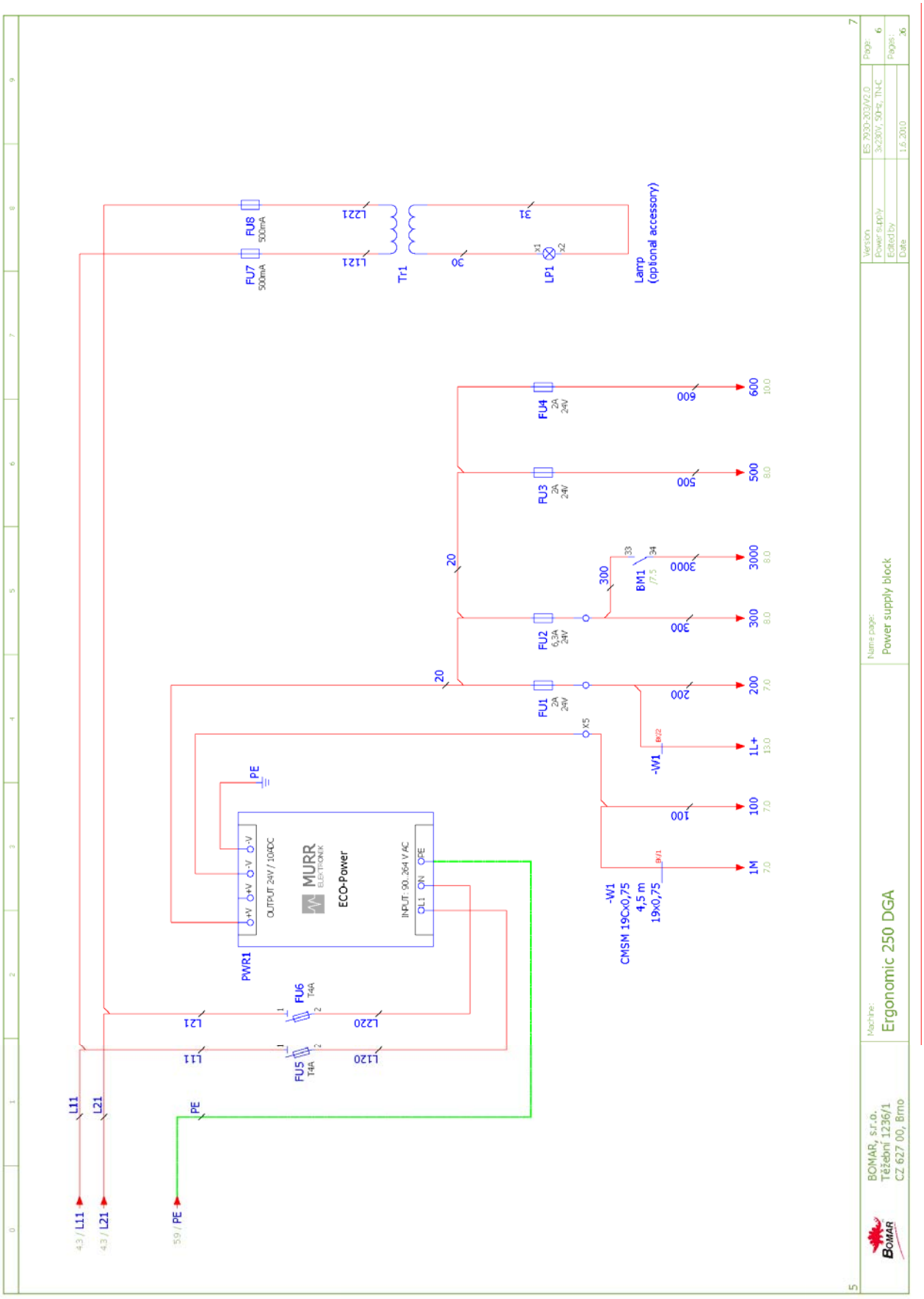


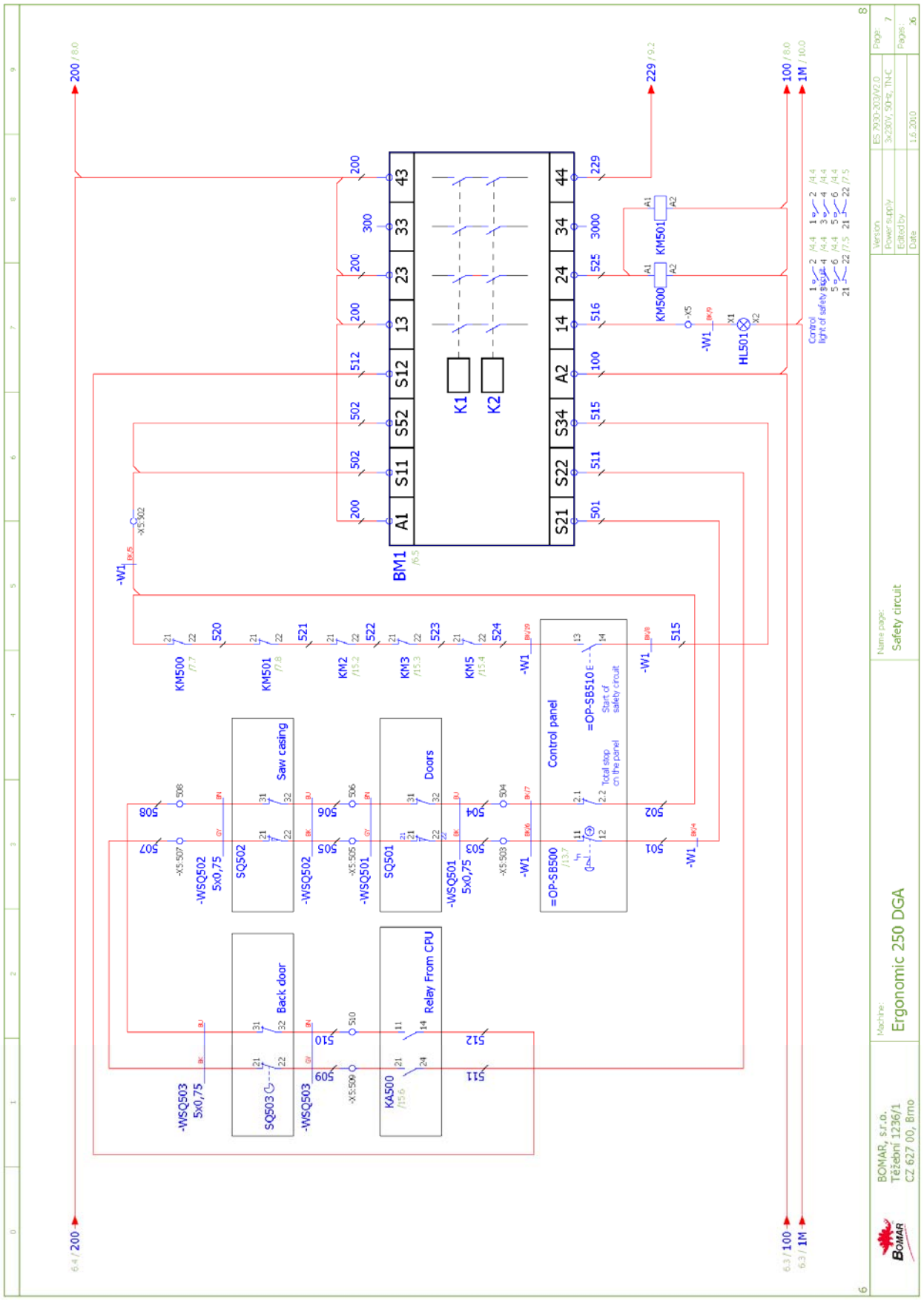
Manual version: 3.01 / Jan. 2011
Manual rev.: 1


Machine:
Ergonomic 250 DGA
Name page:
Power part M1 - M3
BOMAR, s.r.o.
Těžební 1236/1
CZ 627 00, Brno
Cooling engine
Scavenger engine
(optional accessory)
Hydraulics engine
3x230V, 50Hz, TN-C
Max. prefuse 16A
Warning!
Remains energised
when main switch
is opened
PEN
XL
QS1
16A
KM500
KM501
FA1
FA2
FA3
KM1
KM2
KM3
WM1
WM2
WM3
M1
M2
M3

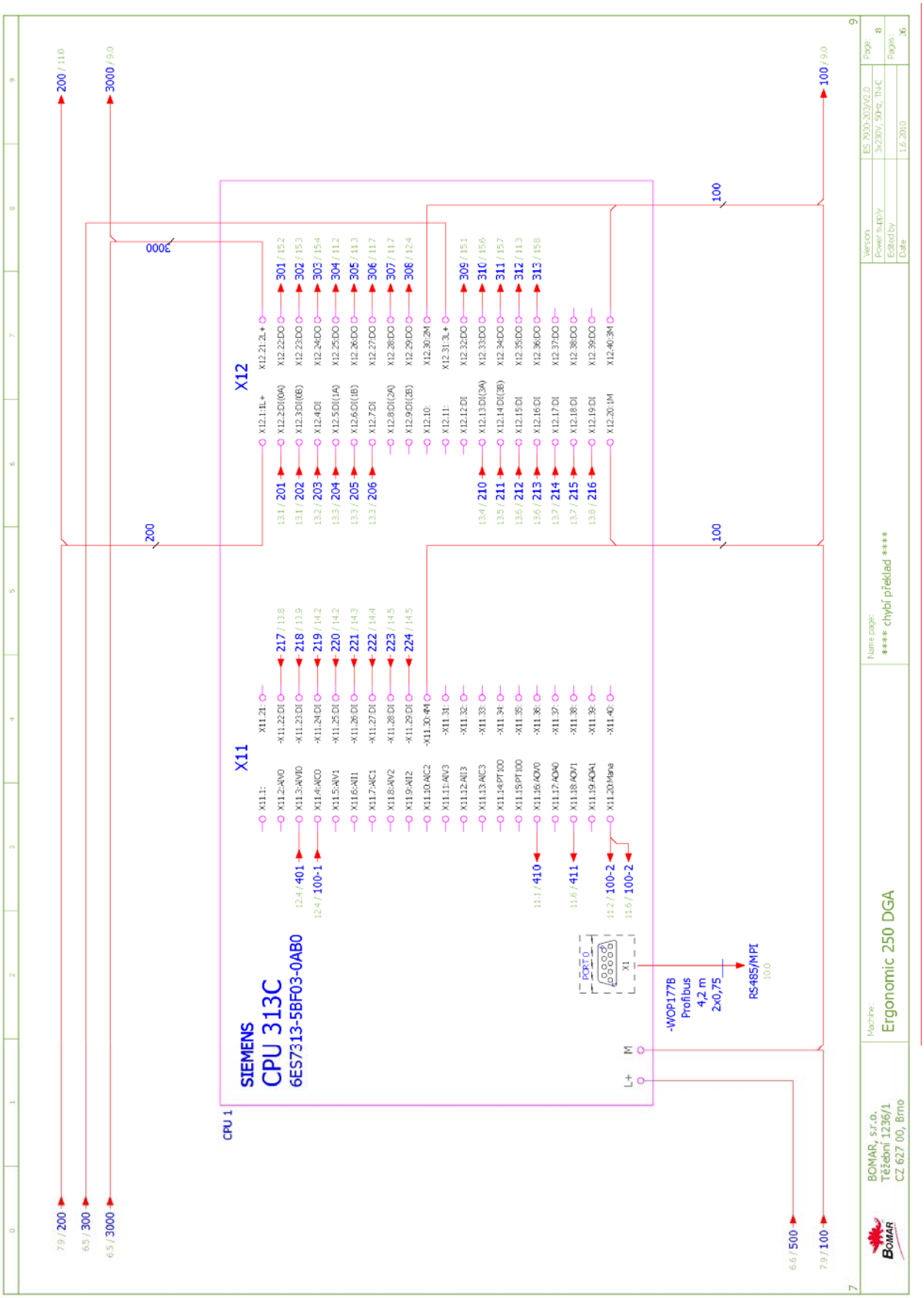


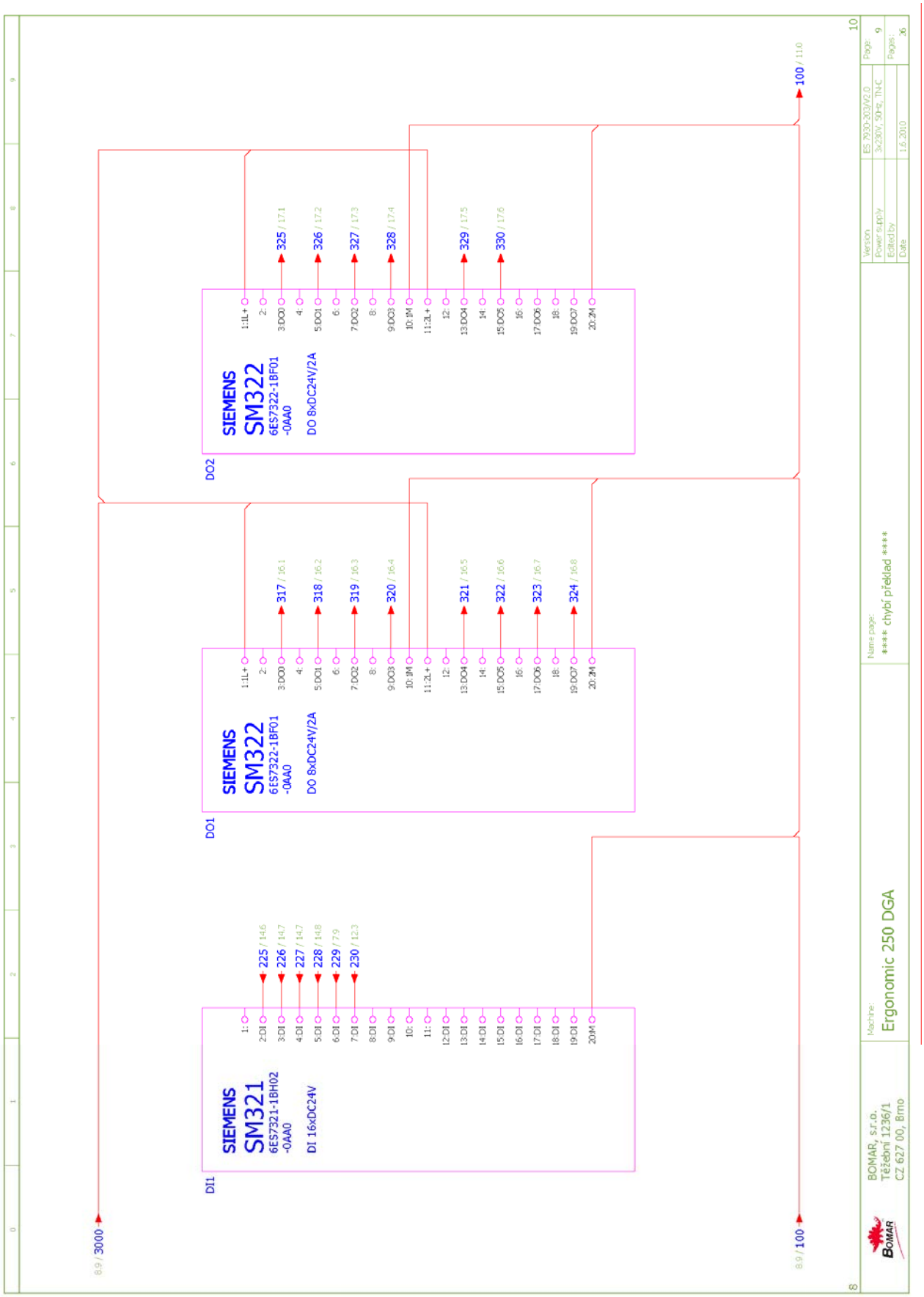
Manual version: 3.01 / Jan. 2011
Manual rev.: 1

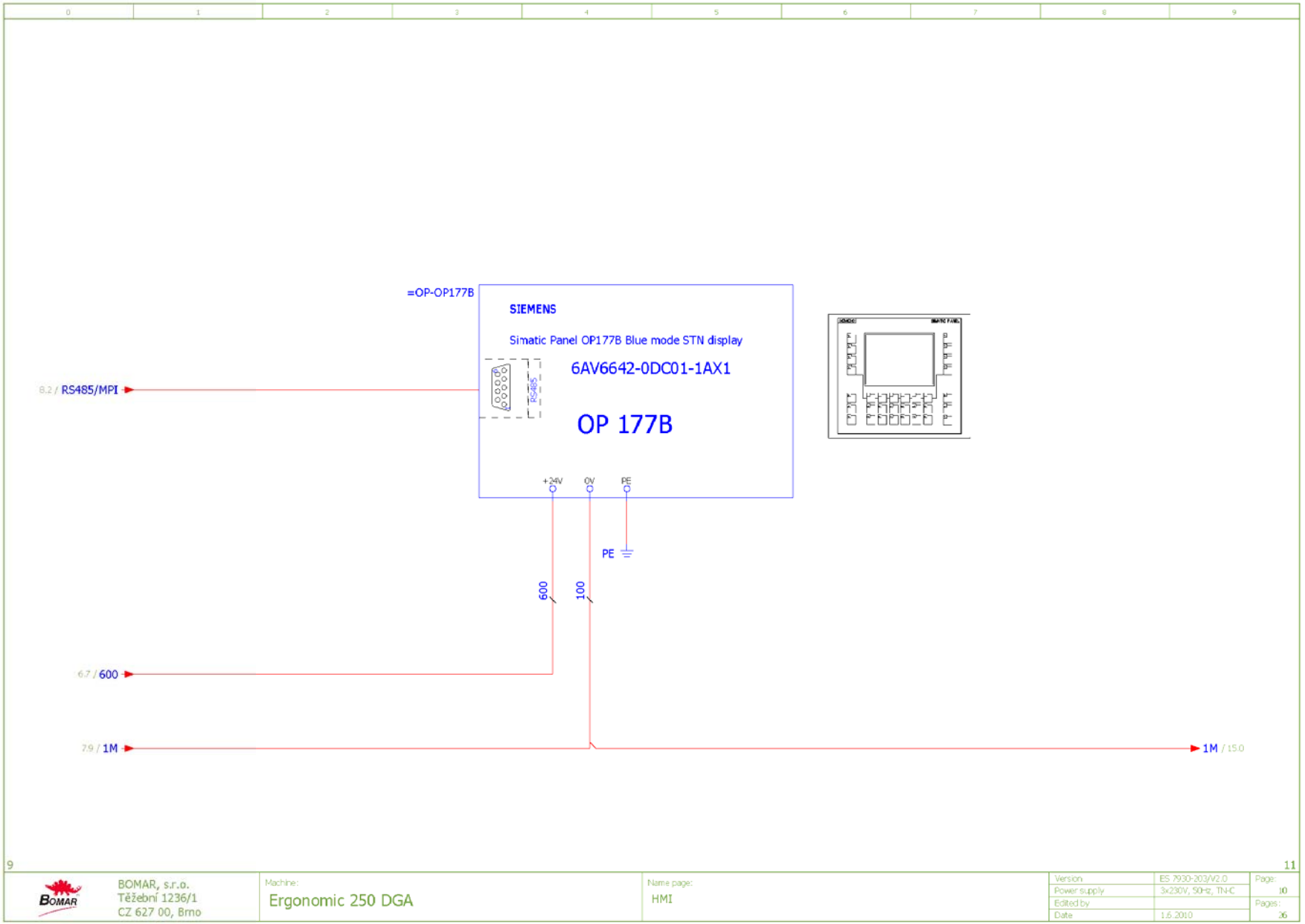

FU8 500mA
FU7 500mA
L221
L121
Tr1
30
31
LP1
X1
X2
Lamp
(optional accessory)
FU4 2A 24V
FU3 2A 24V
FU2 6,3A 24V
FU1 2A 24V
20
300
33
34
BM1
/7.5
600
500
3000
300
200
1L+
100
1M
-W1
CMSM 19Cx0,75
4,5 m
19x0,75
BW1
BW2
X5
PE
PWR1
MURR
ELEKTRONIK
ECO-Power
OUTPUT 24V / 10ADC
INPUT : 90...264 V AC
FU6 T4A
FU5 T4A
L21
L11
L220
L120
L11
L21
PE
4.3 / L11
4.3 / L21
5.9 / PE
Machine:
Ergonomic 250 DGA
Name page:
Power supply block
Version
Power supply
Edited by
Date
ES 7930-203/V2.0
3x230V, 50Hz, TN-C
1.6.2010
Page:
6
Pages:
16
BOMAR, s.r.o.
Těžební 1236/1
CZ 627 00, Brno

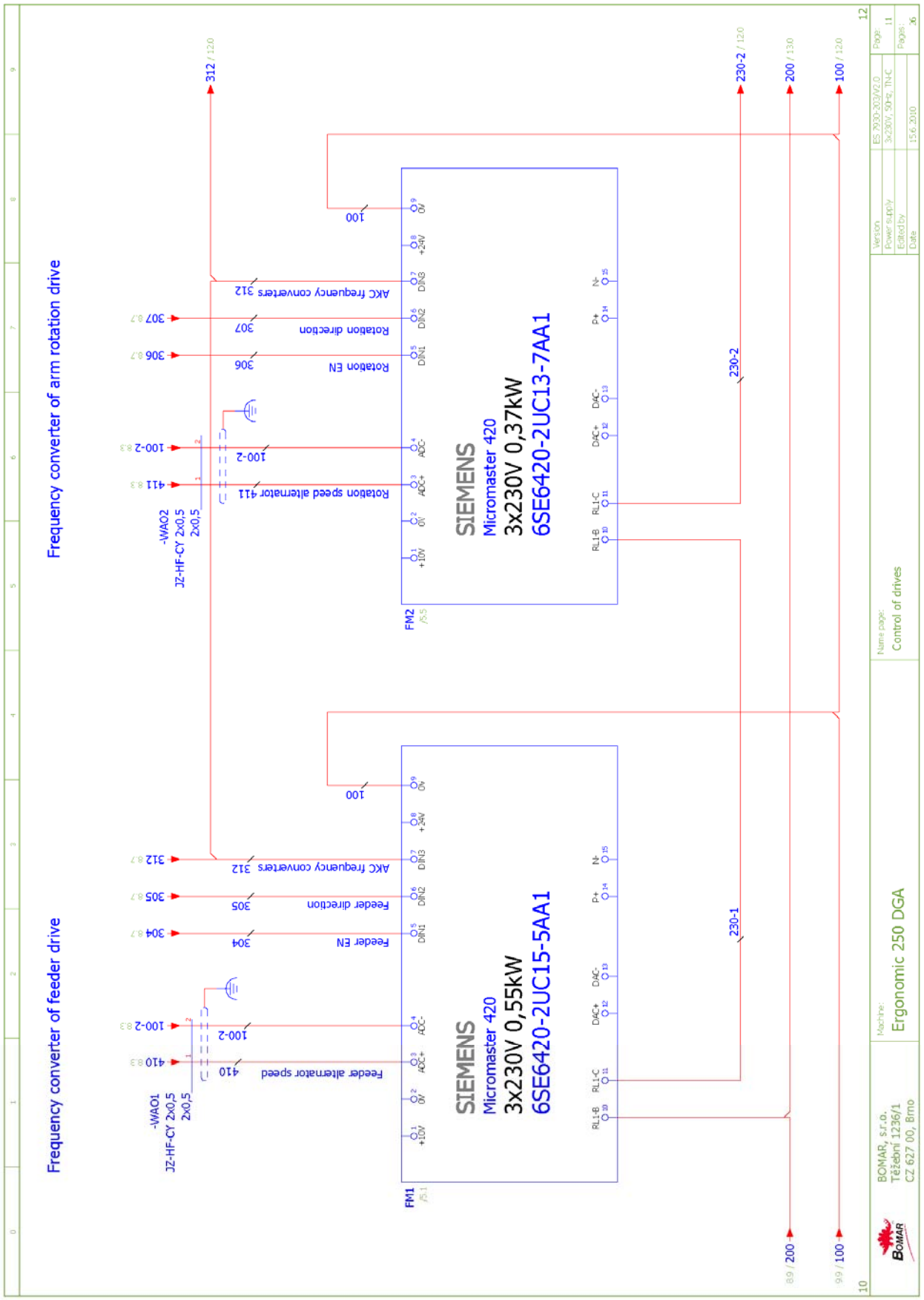


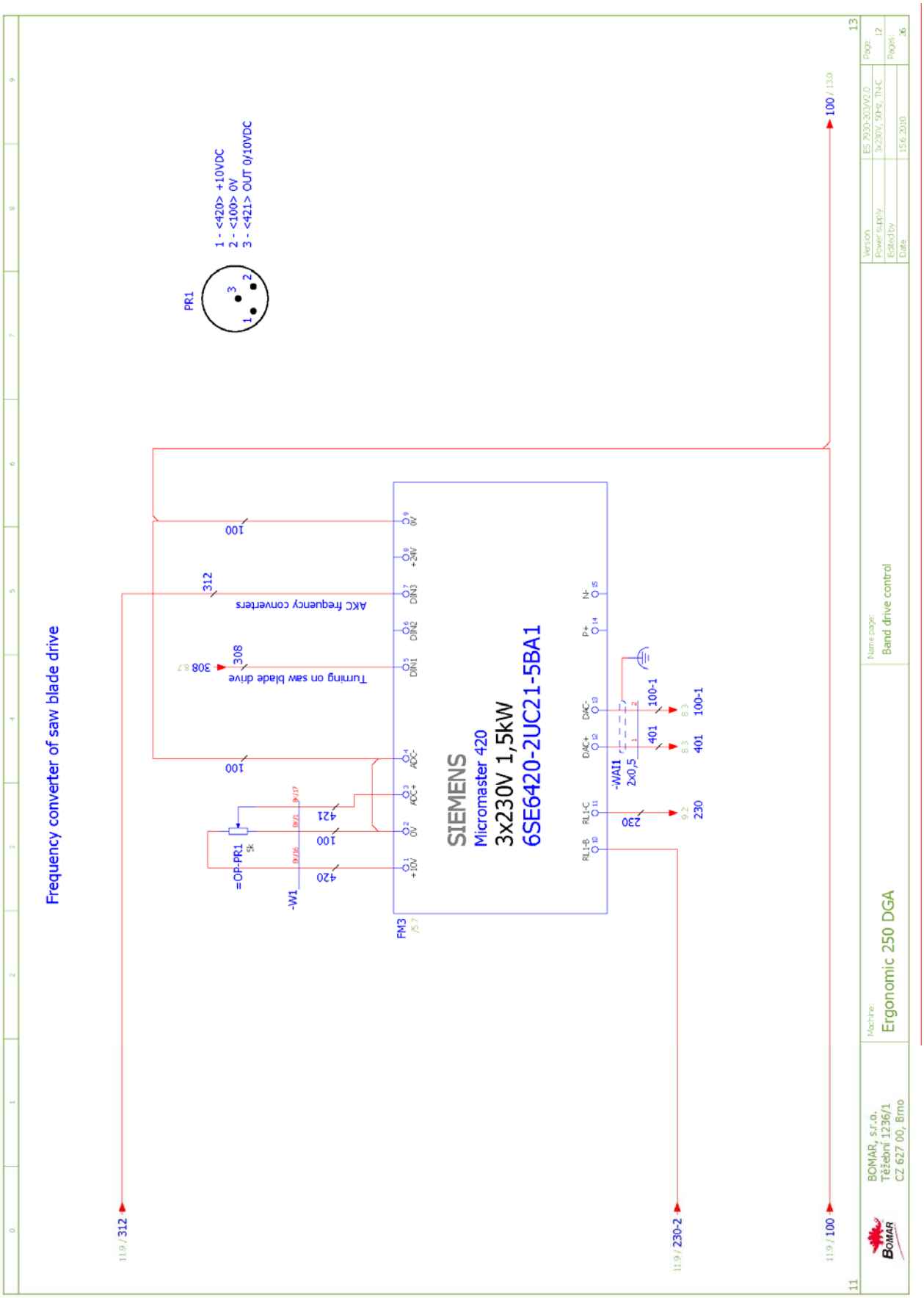
Manual version: 3.01 / Jan. 2011
Manual rev.: 1

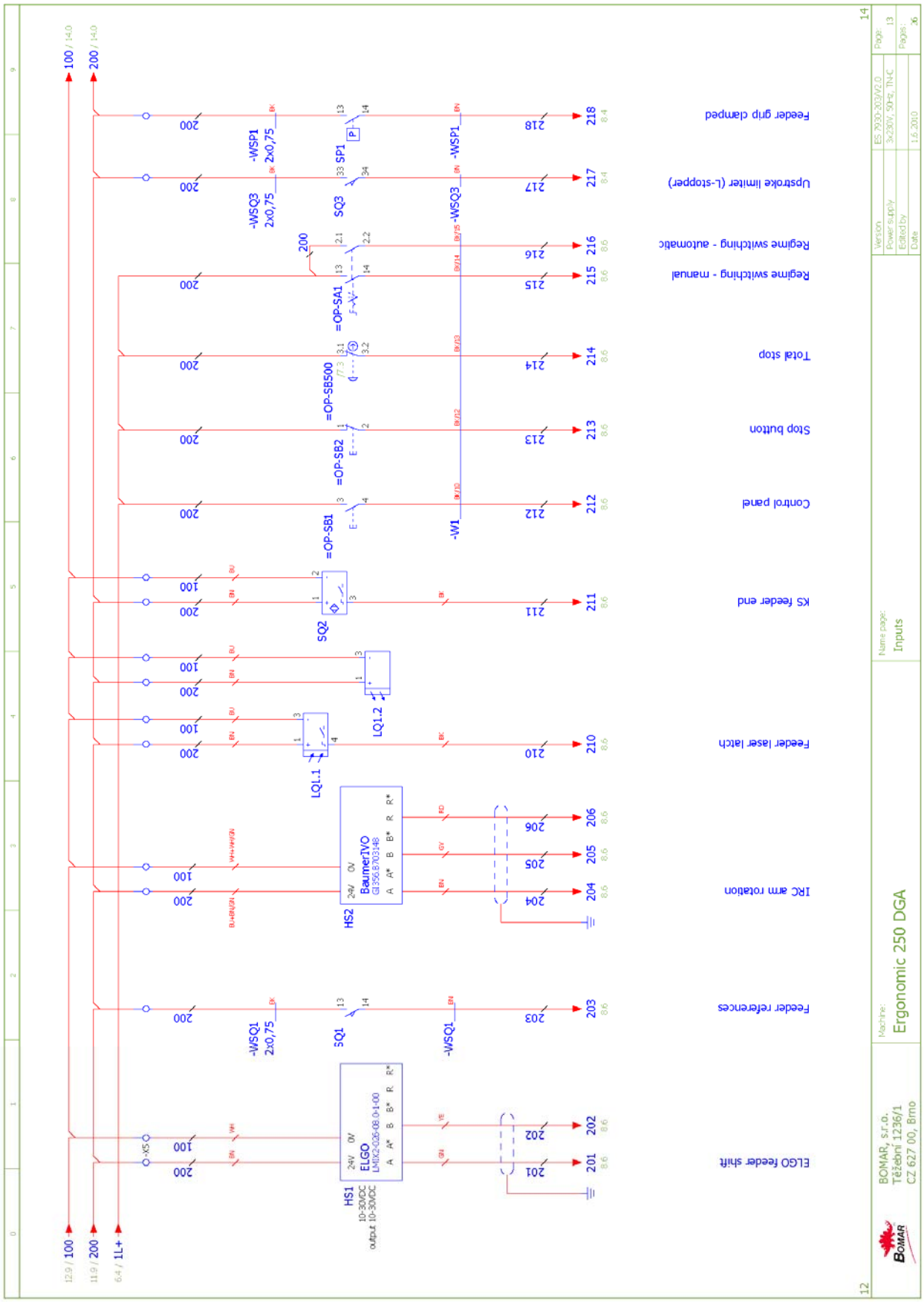

SIEMENS
CPU 313C
6ES7313-5BF03-0AB0
CPU 1
X11
X12
-WOP177B
Profibus
4,2 m
2x0,75
RS485/MPI
Machine:
Ergonomic 250 DGA
Name page:
**** chybí překlad ****
BOMAR, s.r.o.
Těžební 1236/1
CZ 627 00, Brno
ES 7931-2003/V2.0
3x230V, 50Hz, TN-C
Edited by
Date
16.2010
Page:
Pages:


DI1
SIEMENS
SM321
6ES7321-1BH02
-0AA0
DI 16xDC24V
DO1
SIEMENS
SM322
6ES7322-1BF01
-0AA0
DO 8xDC24V/2A
DO2
SIEMENS
SM322
6ES7322-1BF01
-0AA0
DO 8xDC24V/2A
8.9 / 3000
8.9 / 100
100 / 110
BOMAR, s.r.o.
Těžební 1236/1
CZ 627 00, Brno
Machine:
Ergonomic 250 DGA
Name page:
**** chybí překlad ****
Version
Power supply
Edited by
Date
ES 7930-203/V2.0
3x230V, 50Hz, TN-C
16.2010
Page: 9
Pages: 16

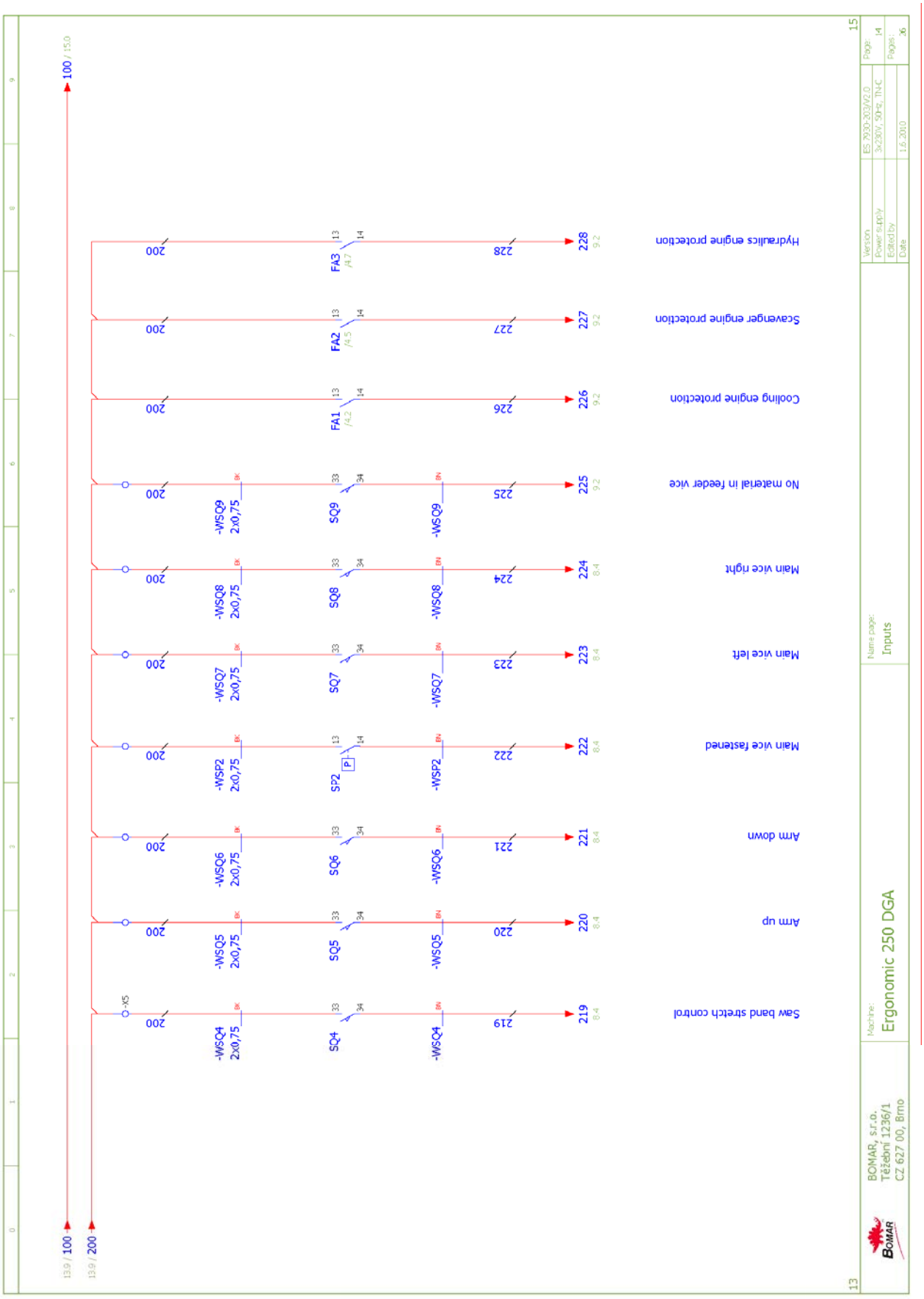

=OP-OP177B
SIEMENS
Simatic Panel OP177B Blue mode STN display
6AV6642-0DC01-1AX1
OP 177B
RS485
8.2 / RS485/MPI
+24V
0V
PE
PE
600
100
6.7 / 600
7.9 / 1M
1M / 15.0
9
11
BOMAR, s.r.o.
Těžební 1236/1
CZ 627 00, Brno
Machine:
Ergonomic 250 DGA
Name page:
HMI
Version
ES 7930-203/V2.0
Power supply
3x230V, 50-Hz, TN-C
Edited by
Date
1.6.2010
Page:
10
Pages:
36

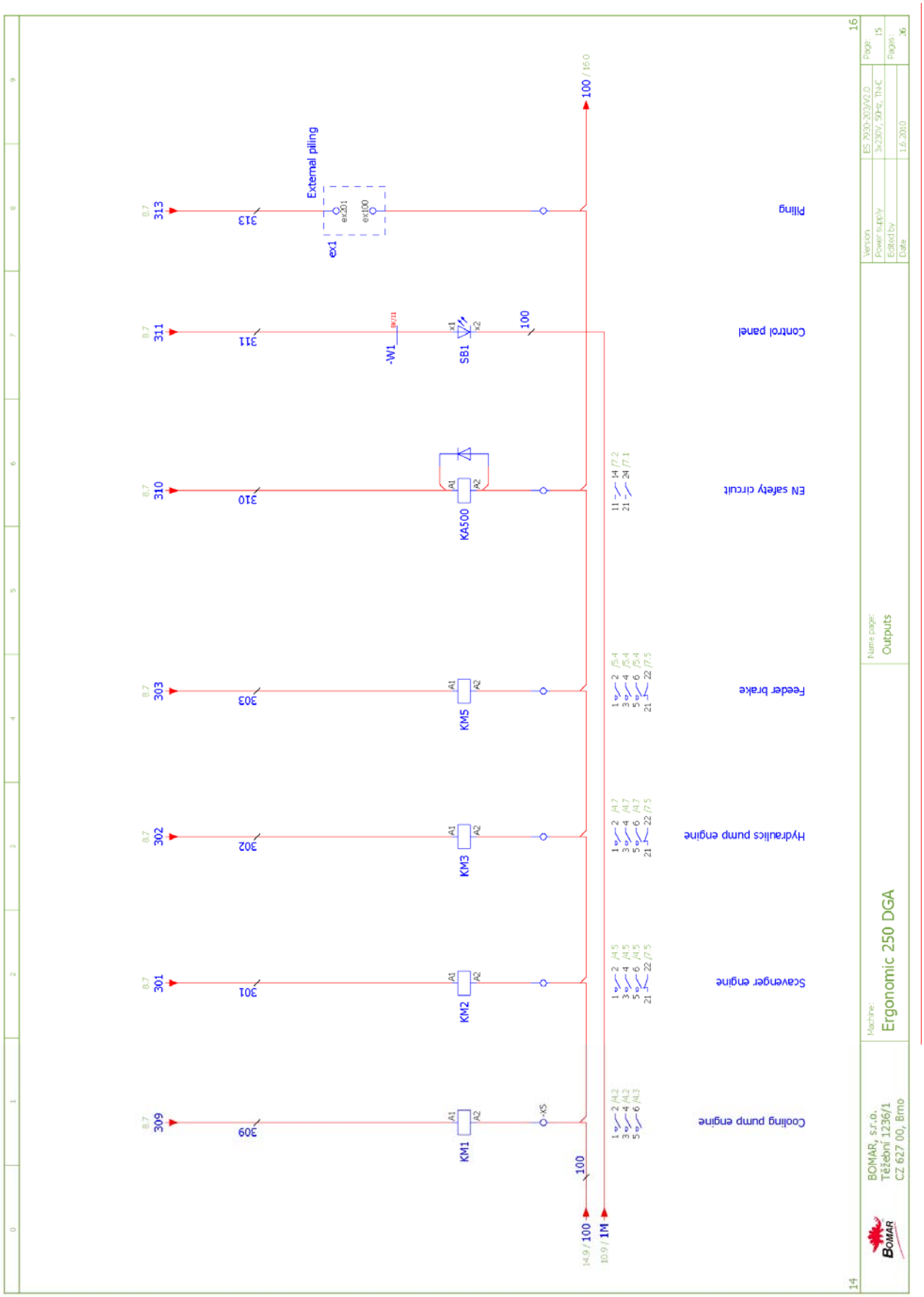

Frequency converter of arm rotation drive
Frequency converter of feeder drive
SIEMENS
Micromaster 420
3x230V 0,37kW
6SE6420-2UC13-7AA1
SIEMENS
Micromaster 420
3x230V 0,55kW
6SE6420-2UC15-5AA1
FM1
FM2
-WAO1
JZ-HF-CY 2x0,5
2x0,5
-WAO2
JZ-HF-CY 2x0,5
2x0,5
Feeder alternator speed
Feeder EN
Feeder direction
AKC frequency converters
Rotation EN
Rotation direction
AKC frequency converters
Rotation speed alternator
312 / 120
230-2 / 120
200 / 130
100 / 120
230-2
230-1
89 / 200
99 / 100
Machine:
Ergonomic 250 DGA
Name page:
Control of drives
BOMAR, s.r.o.
Těžební 1236/1
CZ 627 00, Brno
ES 7930-203/V2.0
3x230V, 50Hz, TN-C
15.6.2010
Page: 11
Pages: 36


Frequency converter of saw blade drive
PR1
1 - <420> +10VDC
2 - <100> 0V
3 - <421> OUT 0/10VDC
SIEMENS
Micromaster 420
3x230V 1,5kW
6SE6420-2UC21-5BA1
FM3
=OP-PR1
-W1
-WA1
2x0,5
AKC frequency converters
Turning on saw blade drive
308
312
100
420
421
401
100-1
230
11.9 / 312
11.9 / 230-2
11.9 / 100
100 / 13.0
Machine:
Ergonomic 250 DGA
Name page:
Band drive control
BOMAR, s.r.o.
Těžební 1236/1
CZ 627 00, Brno
ES 7930-203/V2.0
3x230V, 50Hz, TN-C
15.6.2010
Page: 12
Pages: 16

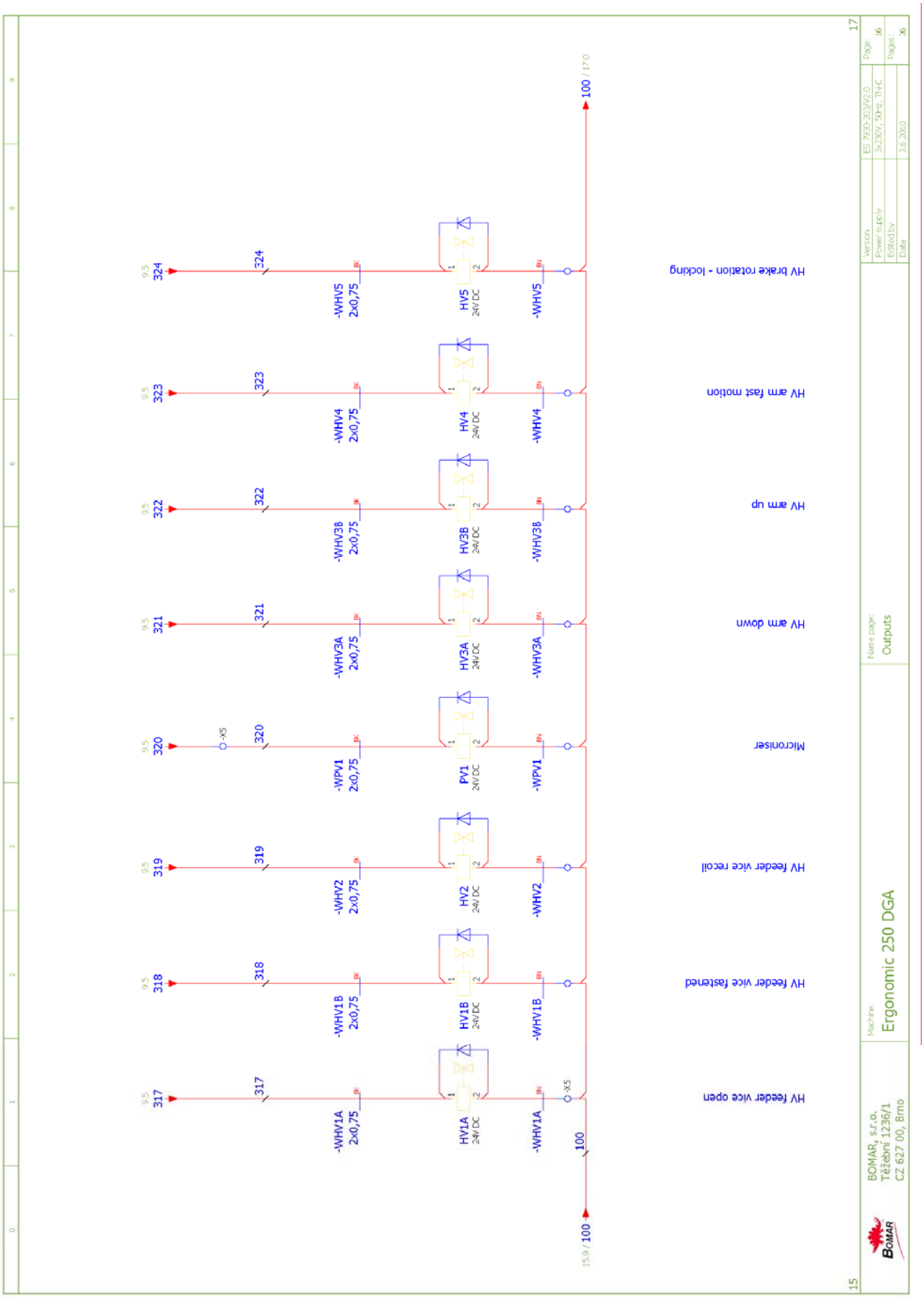


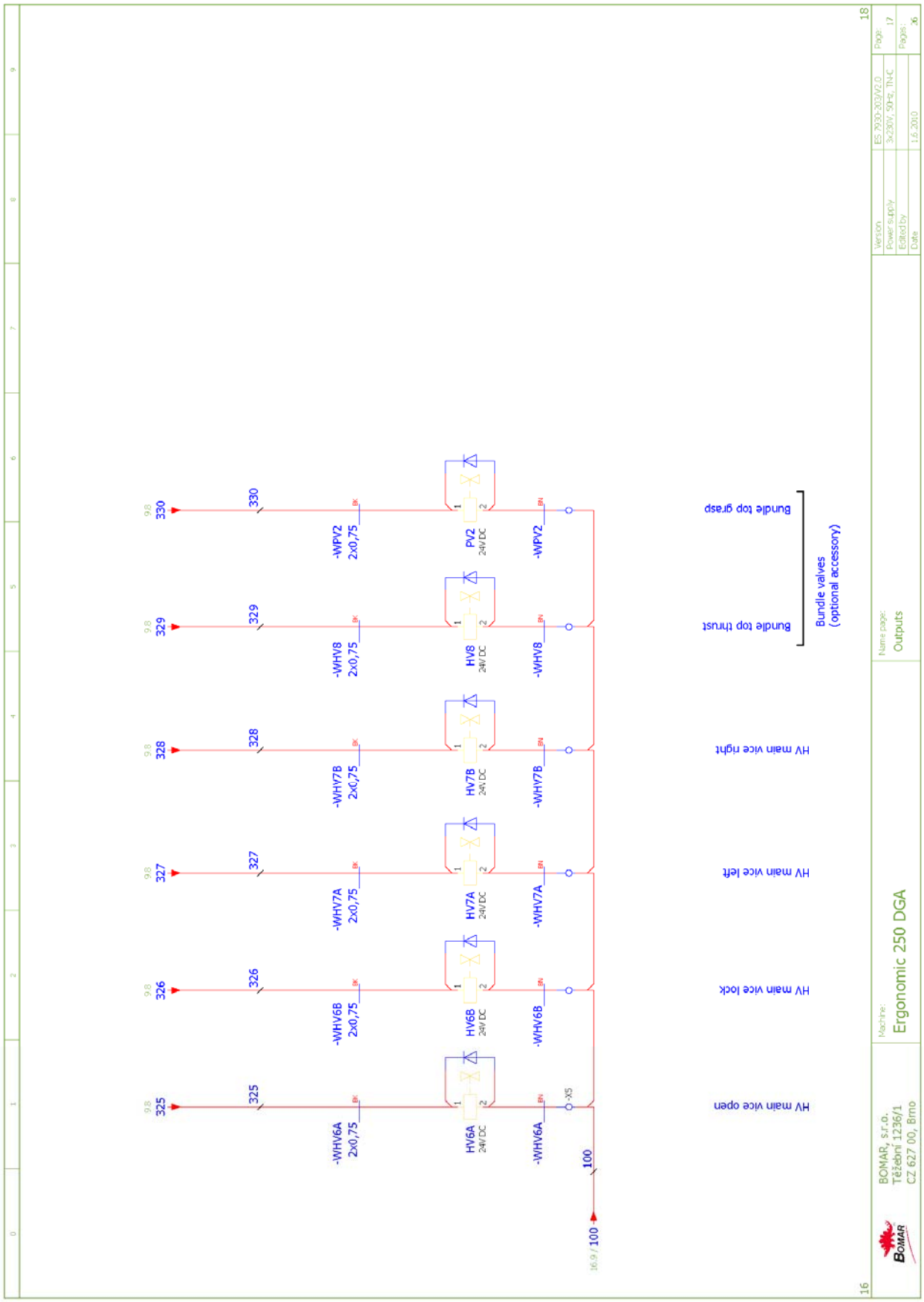
Manual version: 3.01 / Jan. 2011
Manual rev.: 1


100 / 15.0
139 / 100
139 / 200
Saw band stretch control
Arm up
Arm down
Main vice fastened
Main vice left
Main vice right
No material in feeder vice
Cooling engine protection
Scavenger engine protection
Hydraulics engine protection
-WSQ4 2x0,75
-WSQ5 2x0,75
-WSQ6 2x0,75
-WSP2 2x0,75
-WSQ7 2x0,75
-WSQ8 2x0,75
-WSQ9 2x0,75
SQ4
SQ5
SQ6
SP2
SQ7
SQ8
SQ9
FA1
FA2
FA3
Machine:
Ergonomic 250 DGA
Name page:
Inputs
BOMAR, s.r.o.
Těžební 1236/1
CZ 627 00, Brno
Version
Power supply
Edited by
Date
ES 7930-203/V2.0
3x230V, 50Hz, TN-C
1.6.2010
Page:
Pages:

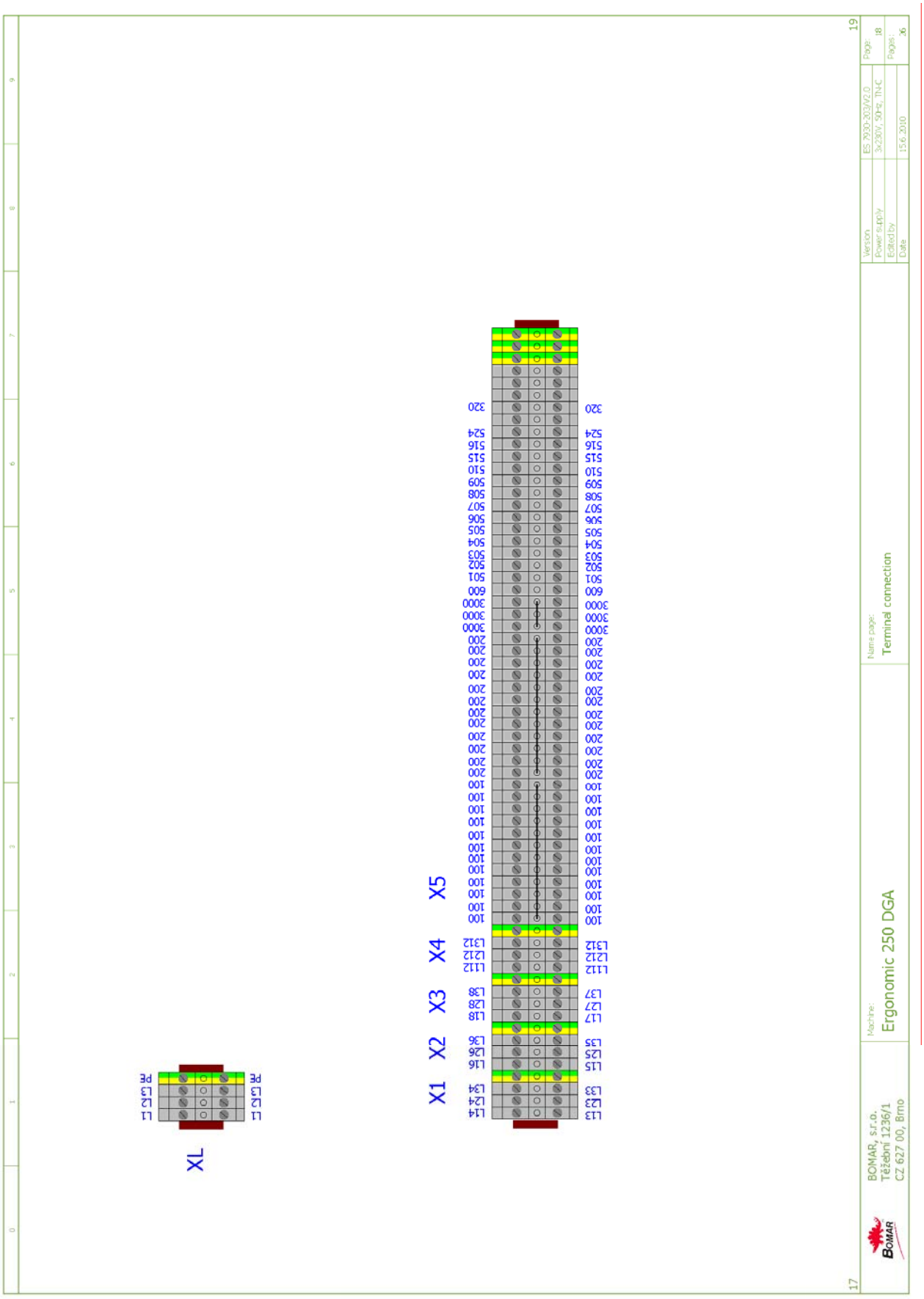


Manual version: 3.01 / Jan. 2011
Manual rev.: 1


HV brake rotation - locking
HV arm fast motion
HV arm up
HV arm down
Microniser
HV feeder vice recoil
HV feeder vice fastened
HV feeder vice open
-WHV5 2x0,75
-WHV4 2x0,75
-WHV3B 2x0,75
-WHV3A 2x0,75
-WPV1 2x0,75
-WHV2 2x0,75
-WHV1B 2x0,75
-WHV1A 2x0,75
HV5 24V DC
HV4 24V DC
HV3B 24V DC
HV3A 24V DC
PV1 24V DC
HV2 24V DC
HV1B 24V DC
HV1A 24V DC
324
323
322
321
320
319
318
317
100
BOMAR, s.r.o.
Těžební 1236/1
CZ 627 00, Brno
Machine:
Ergonomic 250 DGA
Name page:
Outputs
ES 7930-203/V2.0
3x230V, 50Hz, TN-C
Page: 16
Pages: 16



Manual version: 3.01 / Jan. 2011
Manual rev.: 1


X1
X2
X3
X4
X5
XL
Machine:
Ergonomic 250 DGA
Name page:
Terminal connection
Version
Power supply
Edited by
Date
ES 7930-203/V2.0
3x230V, 50Hz, TN-C
15.6.2010
BOMAR, s.r.o.
Těžební 1236/1
CZ 627 00, Brno

Cable overview

F10_001

Cable name	Source (from)	Target (to)	cable type	all conductors	Conductors used	Cross-section [mm]	Length [m]	function text	Graphical page of cable diagram
-W1	-X5	=OP-SB1	CMSM 19Cx0,75	19	18	0,75	4,5	Control panel	
	-KM5	=OP-SB500							
	-BM1	=OP-SB510							
	-CPU1-X12.15	-HL501							
	-CPU1-X12.16	=OP-SB2							
	-CPU1-X12.17	=OP-SA1							
	-CPU1-X12.18	-SB1							
	-CPU1-X12.19	=OP-PR1							
	-CPU1-X12.34								
	-FM3								
-WAI1	-CPU1-X11.3	-FM3	JZ-HF-CY 2x0,5	2	2	0,5	1,2		
	-CPU1-X11.4								
-WAO1	-CPU1-X11.16	-FM1	JZ-HF-CY 2x0,5	2	2	0,5	0,8		
	-CPU1-X11.20								
-WAO2	-CPU1-X11.18	-FM2	JZ-HF-CY 2x0,5	2	2	0,5	0,9		
	-CPU1-X11.20								
-WBR1	-BR1	-X4	H 05 VV-F 4Bx0,75 C černá	4	3	0,75	2,8		
-WHV1A	-DO1-3	-HV1A	H 03 VV-F 2Ax0,75 C černá	2	2	0,75	2,2		
	-X5								
-WHV1B	-DO1-5	-HV1B	H 03 VV-F 2Ax0,75 C černá	2	2	0,75	2,3		
	-X5								
-WHV2	-DO1-7	-HV2	H 03 VV-F 2Ax0,75 C černá	2	2	0,75	2,15	HV feeder vice recoil	
	-X5								
-WHV3A	-DO1-13	-HV3A	H 03 VV-F 2Ax0,75 C černá	2	2	0,75	2,2		
	-X5								
-WHV3B	-DO1-15	-HV3B	H 03 VV-F 2Ax0,75 C černá	2	2	0,75	2,3		
	-X5								
-WHV4	-DO1-17	-HV4	H 03 VV-F 2Ax0,75 C černá	2	2	0,75	2,2		
	-X5								
-WHV5	-DO1-19	-HV5	H 03 VV-F 2Ax0,75 C černá	2	2	0,75	2,1		
	-X5								
-WHV6A	-DO2-3	-HV6A	H 03 VV-F 2Ax0,75 C černá	2	2	0,75	2,1		
	-X5								
-WHV6B	-DO2-5	-HV6B	H 03 VV-F 2Ax0,75 C černá	2	2	0,75	2,2		
	-X5								
-WHV7A	-DO2-7	-HV7A	H 03 VV-F 2Ax0,75 C černá	2	2	0,75	2,1		
	-X5								
-WHV7B	-DO2-9	-HV7B	H 03 VV-F 2Ax0,75 C černá	2	2	0,75	2,2		
	-X5								
-WHV8	-DO2-13	-HV8	H 03 VV-F 2Ax0,75 C černá	2	2	0,75		Bundle top thrust	
	-X5								
-WM1	-M1	-X1	H 05 VV-F 4Bx0,75 C černá	4	4	0,75	4,2		
-WM2	-M2	-X2	H 05 VV-F 4Bx0,75 C černá	4	4	0,75	5		
-WM3	-M3	-X3	H 05 VV-F 4Bx0,75 C černá	4	4	0,75	2,8		
-WM5	-FM1	-M5	CMFM 4Bx0,75	4	4	0,75	2,8		
-WM6	-FM2	-M6	CMFM 4Bx0,75	4	4	0,75	2,9		

18

19.a

BOMAR, s.r.o.
Těžební 1236/1
CZ 627 00, Brno

Machine: Ergonomic 250 DGA

Name page: Cable overview : =-W1 - =-WM6

Project number:
Processed by:
Date: 15.6.2010

Page: 19
Pages: 26

Cable overview

F10_001

Cable name	Source (from)	Target (to)	cable type	all conductors	Conductors used	Cross-section [mm]	Length [m]	function text	Graphical page of cable diagram
-WM7	-FM3	-M7	CMFM 4Bx0,75	4	4	0,75	4		
-WOP177B	-CPU1	=OP-OP177B	Profibus	2	0	0,75	4,2		
-WPV1	-PV1	-X5	H 03 VV-F 2Ax0,75 C černá	2	2	0,75	1,8		
-WPV2	-DO2-15	-PV2	H 03 VV-F 2Ax0,75 C černá	2	2	0,75		Bundle top grasp	
	-X5								
-WSP1	-CPU1-X11.23	-SP1	H 03 VV-F 2Ax0,75 C černá	2	2	0,75	3	Feeder grip clamped	
	-X5								
-WSP2	-CPU1-X11.27	-SP2	H 03 VV-F 2Ax0,75 C černá	2	2	0,75	3,5	Main vice fastened	
	-X5								
-WSQ1	-CPU1-X12.4	-SQ1	H 03 VV-F 2Ax0,75 C černá	2	2	0,75	2,9	Feeder references	
	-X5								
-WSQ3	-CPU1-X11.22	-SQ3	H 03 VV-F 2Ax0,75 C černá	2	2	0,75	4,85	Upstroke limiter (L-stopper)	
	-X5								
-WSQ4	-CPU1-X11.24	-SQ4	H 03 VV-F 2Ax0,75 C černá	2	2	0,75	5,55	Saw band stretch control	
	-X5								
-WSQ5	-CPU1-X11.25	-SQ5	H 03 VV-F 2Ax0,75 C černá	2	2	0,75	4,1	Arm up	
	-X5								
-WSQ6	-CPU1-X11.26	-SQ6	H 03 VV-F 2Ax0,75 C černá	2	2	0,75	4,2	Arm down	
	-X5								
-WSQ7	-CPU1-X11.28	-SQ7	H 03 VV-F 2Ax0,75 C černá	2	2	0,75	2,8	Main vice left	
	-X5								
-WSQ8	-CPU1-X11.29	-SQ8	H 03 VV-F 2Ax0,75 C černá	2	2	0,75	3,1	Main vice right	
	-X5								
-WSQ9	-DI1-2	-SQ9	H 03 VV-F 2Ax0,75 C černá	2	2	0,75	2,9	No material in feeder vice	
	-X5								
-WSQS01	-SQS01	-X5	H 05 VV-F 5Gx0,75 C černá	5	4	0,75	4,3	Safety switch front door	
-WSQS02	-SQS02	-X5	H 05 VV-F 5Gx0,75 C černá	5	4	0,75	4,5		
-WSQS03	-SQS03	-X5	H 05 VV-F 5Gx0,75 C černá	5	4	0,75	4,25		

19 20

BOMAR, s.r.o.
Těžební 1236/1
CZ 627 00, Brno

Machine: Ergonomic 250 DGA

Name page: Cable overview : =-WM7 - =-WSQ503

Project number:		Page: 19.a
Processed by:		Pages: 26
Date:	15.6.2010	

Parts list

Device tag	Device type	Type number	supplier	part number	Quantity	Location (page.col)
-BM1	Safety relay	SNA4064K	WIELAND	91.051.026	1	/7.5
-CPU1	Simatic S7-300, CPU 313C	6ES7313-5BF03-0AB0	SIEMENS	91.995.622	1	/8.1
-CPU1	Memory Card MMC for SIMATIC S7-300/C7/ET 200, 3.3V, 64kB	6ES7953-8LF20-0AA0	SIEMENS	91.995.628	1	/8.1
-CPU1	SIMATIC DP,BUS CONNECTOR FOR PROFIBUS WITH PC SOCKET	6ES7972-0BB41-0XA0	SIEMENS	91.141.089	1	/8.1
-CPU1	SIMATIC S7-300, FRONT CONNECTOR WITH SPRING CONTACTS, 40-PIN	6ES7392-1BM01-0AA0	SIEMENS		2	/8.1
-DI1	Simatic SM321, 16xDI 24VDC	6ES7321-1BH02-0AA0	SIEMENS	91.995.624	1	/9.0
-DI1	SIMATIC S7-300, FRONT CONNECTOR WITH SPRING CONTACTS, 20-PIN	6ES7392-1BJ00-0AA0	SIEMENS		1	/9.0
-DO1	Simatic SM322, 8xDO 24VDC/2A	6ES7322-1BF01-0AA0	SIEMENS	91.995.625	1	/9.3
-DO1	SIMATIC S7-300, FRONT CONNECTOR WITH SPRING CONTACTS, 20-PIN	6ES7392-1BJ00-0AA0	SIEMENS		1	/9.3
-DO2	Simatic SM322, 8xDO 24VDC/2A	6ES7322-1BF01-0AA0	SIEMENS	91.995.625	1	/9.6
-DO2	SIMATIC S7-300, FRONT CONNECTOR WITH SPRING CONTACTS, 20-PIN	6ES7392-1BJ00-0AA0	SIEMENS		1	/9.6
-FA1	Motor-overcurrent circuit breaker auxiliary contacts	GZ1AN11	TELEMECANIQUE	91.046.004	1	/4.2
-FA1	Motor-overcurrent circuit breaker 0.25-0.4A	GZ1M03	TELEMECANIQUE	91.235.022	1	/4.2
-FA2	Motor-overcurrent circuit breaker 1-1.6A	GZ1M06	TELEMECANIQUE	91.235.024	1	/4.5
-FA2	Motor-overcurrent circuit breaker auxiliary contacts	GZ1AN11	TELEMECANIQUE	91.046.004	1	/4.5
-FA3	Motor-overcurrent circuit breaker 2.5-4A	GZ1M08	TELEMECANIQUE	91.235.029	1	/4.7
-FA3	Motor-overcurrent circuit breaker auxiliary contacts	GZ1AN11	TELEMECANIQUE	91.046.004	1	/4.7
-FM1	MICROMASTER BOP - operator panel	6SE6400-0BP00-0AA0	SIEMENS	91.995.591	1	/5.1
-FM1	Frequency converter MICROMASTER 420, 3x230V, 0.55kW	6SE6420-2UC15-5AA1	SIEMENS	91.012.055	1	/5.1
-FM2	Frequency converter MICROMASTER 420, 3x230V, 0.37kW	6SE6420-2UC13-7AA1	SIEMENS	91.012.054	1	/5.5
-FM3	Frequency converter MICROMASTER 420, 3x230V, 1.5kW	6SE6420-2UC21-5BA1	SIEMENS	91.012.056	1	/5.7
-FU1	Tube fuse 5x20 slow, 2A/250V	T2A/250V	ESKA	91.230.001	1	/6.4
-FU1	Fuse case	WK4/THSi5...U	WIELAND	91.251.102	1	/6.4
-FU2	Fuse case	WK4/THSi5...U	WIELAND	91.251.102	1	/6.5
-FU2	Tube fuse 5x20 slow, 6.3A/250V	T6,3A/250V	ESKA	91.230.002	1	/6.5
-FU3	Tube fuse 5x20 slow, 2A/250V	T2A/250V	ESKA	91.230.001	1	/6.6
-FU3	Fuse case	WK4/THSi5...U	WIELAND	91.251.102	1	/6.6
-FU4	Tube fuse 5x20 slow, 2A/250V	T2A/250V	ESKA	91.230.001	1	/6.7

The manufacturer reserves the use of equivalent compensation components.

19.a 20.a

BOMAR, s.r.o.
Těžební 1236/1
CZ 627 00, Brno

Machine: Ergonomic 250 DGA

Name page: Parts list

Project number:
Processed by:
Date: 15.6.2010

Page: 20
Pages: 26

Parts list

Device tag	Device type	Type number	supplier	part number	Quantity	Location (page.col)
-FU4	Fuse case	WK4/THSi5...U	WIELAND	91.251.102	1	/6.7
-FU5	Tube fuse 5x20 slow, 4A/250V	T4A/250V	ESKA	91.230.015	1	/6.1
-FU5	Fuse case	WK4/THSi5...U	WIELAND	91.251.102	1	/6.1
-FU6	Fuse case	WK4/THSi5...U	WIELAND	91.251.102	1	/6.2
-FU6	Tube fuse 5x20 slow, 4A/250V	T4A/250V	ESKA	91.230.015	1	/6.2
-FU7	Fuse case	WK4/THSi5...U	WIELAND	91.251.102	1	/6.8
-FU7	Tube fuse 5x20 slow, 500mA/250V	T500mA/250V	ESKA	91.230.011	1	/6.8
-FU8	Tube fuse 5x20 slow, 500mA/250V	T500mA/250V	ESKA	91.230.011	1	/6.8
-FU8	Fuse case	WK4/THSi5...U	WIELAND	91.251.102	1	/6.8
-HL501	White light for Moeller adapter	M22-LED-W	MOELLER	91.061.034	1	/7.7
-HS1	Linear incremental encoder with magnetic strip 10-30VDC	LMIX2-026-08.0-1-00	ELGO	91.270.011	1	/13.0
-HS2	Inkrementální rotační snímač, 6000ppr	GI356.B703148	BaumerIVO	91.103.106	1	/13.3
-HS2	Incremental encoder coupling piece 6/6mm	Z121.C02		91.015.107	1	/13.3
-HV1A	Hydraulic valve coil	944-0024 0806/11	ARGO HYTOS		1	/16.1
-HV1A	Diode 3A	IN5408		91.280.003	1	/16.1
-HV1B	Hydraulic valve coil	944-0024 0806/11	ARGO HYTOS		1	/16.2
-HV1B	Diode 3A	IN5408		91.280.003	1	/16.2
-HV2	Hydraulic valve coil	944-0024 0806/11	ARGO HYTOS		1	/16.3
-HV2	Diode 3A	IN5408		91.280.003	1	/16.3
-HV3A	Hydraulic valve coil	944-0024 0806/11	ARGO HYTOS		1	/16.5
-HV3A	Diode 3A	IN5408		91.280.003	1	/16.5
-HV3B	Hydraulic valve coil	944-0024 0806/11	ARGO HYTOS		1	/16.6
-HV3B	Diode 3A	IN5408		91.280.003	1	/16.6
-HV4	Hydraulic valve coil	944-0024 0806/11	ARGO HYTOS		1	/16.7
-HV4	Diode 3A	IN5408		91.280.003	1	/16.7
-HV5	Hydraulic valve coil	944-0024 0806/11	ARGO HYTOS		1	/16.8
-HV5	Diode 3A	IN5408		91.280.003	1	/16.8
-HV6A	Hydraulic valve coil	944-0024 0806/11	ARGO HYTOS		1	/17.1

The manufacturer reserves the use of equivalent compensation components.

BOMAR, s.r.o.
Těžební 1236/1
CZ 627 00, Brno

Machine: Ergonomic 250 DGA

Name page: Parts list

Project number:
Processed by:
Date: 15.6.2010

Page: 20.a
Pages: 26

Parts list

Device tag	Device type	Type number	supplier	part number	Quantity	Location (page.col)
-HV6A	Diode 3A	IN5408		91.280.003	1	/17.1
-HV6B	Hydraulic valve coil	944-0024 0806/11	ARGO HYTOS		1	/17.2
-HV6B	Diode 3A	IN5408		91.280.003	1	/17.2
-HV7A	Hydraulic valve coil	944-0024 0806/11	ARGO HYTOS		1	/17.3
-HV7A	Diode 3A	IN5408		91.280.003	1	/17.3
-HV7B	Hydraulic valve coil	944-0024 0806/11	ARGO HYTOS		1	/17.4
-HV7B	Diode 3A	IN5408		91.280.003	1	/17.4
-HV8	Hydraulic valve coil	944-0024 0806/11	ARGO HYTOS		1	/17.5
-HV8	Diode 3A	IN5408		91.280.003	1	/17.5
-KA500	Relay	G2R-2 24VDC	OMRON	91.051.007	1	/15.6
-KA500	Relay socket	95.95.3	FINDER	91.051.003	1	/15.6
-KM1	Contactor	DIL EM-10-G	MOELLER	91.040.020	1	/15.1
-KM2	Contactor	DIL EM-01-G 24V DC	MOELLER	91.040.024	1	/15.2
-KM3	Contactor	DIL EM-01-G 24V DC	MOELLER	91.040.024	1	/15.3
-KM5	Contactor	DIL EM-01-G 24V DC	MOELLER	91.040.024	1	/15.4
-KM500	Contactor	DIL EM-01-G 24V DC	MOELLER	91.040.024	1	/7.7
-KM501	Contactor	DIL EM-01-G 24V DC	MOELLER	91.040.024	1	/7.8
-LP1	Lamp 12V/20W	LBP-B 30 Z		91.100.103	1	/6.8
-LQ1.1	Laser barrier - receiver	BOS12M-PA-LE10-S4	BALLUFF	91.400.017	1	/13.4
-LQ1.1	Sensor cable	MOD.15/4 M12 SL LC10		91.142.002	1	/13.4
-LQ1.2	Laser barrier - transmitter	BOS12M-XT-LS11-S4	BALLUFF	91.400.018	1	/13.4
-LQ1.2	Sensor cable	MOD.14/4 M12 SL LC10		91.142.001	1	/13.4
-M1	Pump 3x400V, 50Hz, 50W, 0.24A	2C0P1-22 HP1		91.020.006	1	/4.2
-M2	Asynchronous motor 3x230/400V, 50Hz, 0,25kW	BN71A4	BONFIGLIOLI		1	/4.5
-M5	Asynchronous motor 3x230/400V, 50Hz, 0,55kW	BN80A4FA	BONFIGLIOLI	91.001.063	1	/5.1
-M6	Asynchronous motor 3x230/400V, 50Hz, 0.37kW	1LA7073-4AB11 IMB5	SIEMENS	91.001.061	1	/5.5
-M7	Asynchronous motor 230/400V; 1,5kW	TM 90-2S B5	EmP Slavkov u Brna	91.001.027	1	/5.8
=OP-OP177B	Simatic Panel OP177B Blue mode STN display	6AV6642-0DC01-1AX1	SIEMENS	91.995.621	1	/10.3

The manufacturer reserves the use of equivalent compensation components.

20.a 20.c

BOMAR, s.r.o.
Těžební 1236/1
CZ 627 00, Brno

Machine: Ergonomic 250 DGA

Name page: Parts list

Project number:
Processed by:
Date: 15.6.2010

Page: 20.b
Pages: 26

Parts list

Device tag	Device type	Type number	supplier	part number	Quantity	Location (page.col)
=OP-OP177B	SIMATIC DP,BUS CONNECTOR FOR PROFIBUS	6ES7972-0BA41-0XA0	SIEMENS	91.141.090	1	/10.3
-PA1	Fuse case for cylindric fuse 10x38mm, size 10	OPV10/3	OEZ	91.241.002	1	/5.1
-PA1	Cylindric fuse 16A, 10x38 fast, gG charakteristic	PV10 16A gG	OEZ	91.230.020	3	/5.1
-PA2	Fuse case for cylindric fuse 10x38mm, size 10	OPV10/3	OEZ	91.241.002	1	/5.4
-PA2	Cylindric fuse 2A, 10x38 fast, gG charakteristic	PV10 2A gG	OEZ	91.230.034	3	/5.4
-PA3	Fuse case for cylindric fuse 10x38mm, size 10	OPV10/3	OEZ	91.241.002	1	/5.5
-PA3	Cylindric fuse 10A, 10x38 fast, gG charakteristic	PV10 10A gG	OEZ	91.231.008	3	/5.5
-PA4	Fuse case for cylindric fuse 10x38mm, size 10	OPV10/3	OEZ	91.241.002	1	/5.8
-PA4	Cylindric fuse 25A, 10x38 fast, gG charakteristic	PV10 25A gG	OEZ	91.230.021	3	/5.8
=OP-PR1	head of potentiometer 24mm	S8877BLK		91.060.063	1	/12.3
=OP-PR1	Potentiometer 5k	TP195 4x7/N20A		91.283.015	1	/12.3
-PV1	Pneumatic valve coil	1824210243	REXROTH		1	/16.4
-PV1	Diode 3A	IN5408		91.280.003	1	/16.4
-PV2	Pneumatic valve coil	1824210243	REXROTH		1	/17.6
-PV2	Diode 3A	IN5408		91.280.003	1	/17.6
-PWR1	Powe suply 10A, 1x230VAC / 24VDC	MURR ECO-Power 24V/10A	MURR	91.085.019	1	/6.2
-QS1	3phase switch	194L-E12-1753	Allen Bradley	91.170.003	1	/4.1
-QS1	Switch plate	G00275		91.180.001	1	/4.1
-RCF1	RCF filter	FBOPR1624		91.041.015	1	/4.1
-RCF2	RCF filter	FBOPR1624		91.041.015	1	/4.4
-RCF3	RCF filter	FBOPR1624		91.041.015	1	/4.6
-RCF5	RCF filter	FBOPR1624		91.041.015	1	/5.3
-RFI1	MICROMASTER - filtr class A	6SE6400-2FA00-6AD0	SIEMENS	91.012.037	1	/5.1
-RFI2	MICROMASTER - filtr class A	6SE6400-2FA00-6AD0	SIEMENS	91.012.037	1	/5.5
-RFI3		6SE6400-2FA01-4BC0	SIEMENS		1	/5.7
=OP-SA1	Attaching adapter + NO contact	M22-AK10	MOELLER	91.061.021	1	/13.7
=OP-SA1	NO contact for Moeller adapter	M22-K10	MOELLER	91.061.022	1	/13.7
=OP-SA1	Head of 3 positional switch	M22-WRK3	MOELLER	91.060.051	1	/13.7

The manufacturer reserves the use of equivalent compensation components.

20.b 20.d

BOMAR, s.r.o.
Těžební 1236/1
CZ 627 00, Brno

Machine: Ergonomic 250 DGA

Name page: Parts list

Project number:
Processed by:
Date: 15.6.2010

Page: 20.c
Pages: 26

Parts list

Device tag	Device type	Type number	supplier	part number	Quantity	Location (page.col)
=OP-SB1	Green translucent switch head	M22-DL-G	MOELLER	91.060.031	1	/13.6
=OP-SB1	Attaching adapter + NO contact	M22-AK10	MOELLER	91.061.021	1	/13.6
=OP-SB1	Green light for Moeller adapter	M22-LED-G	MOELLER	91.061.023	1	/13.6
=OP-SB2	Attaching adapter + NC contact	M22-AK01	MOELLER	91.061.020	1	/13.6
=OP-SB2	Blackt switch head	M22-D-S	MOELLER	91.060.035	1	/13.6
=OP-SB500	Attaching adapter + NC contact	M22-AK01	MOELLER	91.061.020	1	/7.3
=OP-SB500	NC contact for Moeller adapter	M22-K01	MOELLER	91.061.024	2	/7.3
=OP-SB500	Head of safety switch (Total Stop)	M22-PVT 263467	MOELLER	91.060.030	1	/7.3
=OP-SB510	Yellow translucent switch head	M22-DL-Y	MOELLER	91.060.053	1	/7.5
=OP-SB510	Attaching adapter + NO contact	M22-AK10	MOELLER	91.061.021	1	/7.5
-SP1	Hydraulic pressure switch 10-20bar	336450103043		92.201.001	1	/13.9
-SP2	Hydraulic pressure switch 10-20bar	336450103043		92.201.001	1	/14.4
-SQ1	Limit switch with roller	D4N-4A62	OMRON	91.173.008	1	/13.2
-SQ2	Inductivity limit switch	BES M18MI-PSC15B-BV06	BALLUFF	91.172.001	1	/13.5
-SQ3	Limit switch	D4N-4A31	OMRON	91.173.007	1	/13.8
-SQ4	Limit switch	D4N-4A31	OMRON	91.173.007	1	/14.2
-SQ5	Limit switch	D4N-4A31	OMRON	91.173.007	1	/14.2
-SQ6	Limit switch	D4N-4A31	OMRON	91.173.007	1	/14.3
-SQ7	Mechanical limit switch VDE 0660 1xNO/1xNC	PZ-FK3301-M1	PIZZATO	91.173.015	1	/14.5
-SQ8	Mechanical limit switch VDE 0660 1xNO/1xNC	PZ-FK3302-M1	PIZZATO	91.173.011	1	/14.5
-SQ9	Mechanical limit switch VDE 0660 1xNO/1xNC	PZ-FK3302-M1	PIZZATO	91.173.011	1	/14.6
-SQ501	Safety limit switch, 2xNC	QKS8	KEDU	91.173.012	1	/7.3
-SQ502	Safety limit switch, 2xNC	QKS8	KEDU	91.173.012	1	/7.3
-SQ503	Mechanical limit switch with pulley, right door, 2xNC	PZ-FR34C1-M2	PIZZATO	91.173.021	1	/7.1
-Tr1	Transformator 230/11.5V, 20VA	NT-20	RNDR Zdeněk Martinásek	91.100.104	1	/6.8
-X1	DIN grounding clamp, yellow+green, 4mm	WK 4SL/U	WIELAND	91.251.105	1	/4.2
-X1	DIN clamp, gray, 4mm	WK4/U	WIELAND	91.251.103	3	/4.2
-X2	DIN clamp, gray, 4mm	WK4/U	WIELAND	91.251.103	3	/4.5

The manufacturer reserves the use of equivalent compensation components.

20.c 20.e

BOMAR, s.r.o.
Těžební 1236/1
CZ 627 00, Brno

Machine: Ergonomic 250 DGA

Name page: Parts list

Project number:
Processed by:
Date: 15.6.2010

Page: 20.c
Pages: 26

Parts list

Device tag	Device type	Type number	supplier	part number	Quantity	Location (page.col)
-X2	DIN grounding clamp, yellow+green, 4mm	WK 4SL/U	WIELAND	91.251.105	1	/4.5
-X3	DIN clamp, gray, 4mm	WK4/U	WIELAND	91.251.103	3	/4.7
-X3	DIN grounding clamp, yellow+green, 4mm	WK 4SL/U	WIELAND	91.251.105	1	/4.7
-X4	DIN grounding clamp, yellow+green, 4mm	WK 4SL/U	WIELAND	91.251.105	1	/5.4
-X4	DIN clamp, gray, 4mm	WK4/U	WIELAND	91.251.103	3	/5.4
-X5	Bridge for DIN clamps 4mm	IVBWK 4-12,Z7.281.2227.0	WIELAND	91.252.105	3	/6.4
-X5	MSV-PG 36 black	PG 36		91.071.007	1	/6.4
-X5	M-BIMED PG36 - nut	PG 36 matice		91.071.010	1	/6.4
-X5	MSV-PG 29 black	PG 29		91.071.004	1	/6.4
-X5	M-BIMED PG29 - nut	PG 29 matice		91.072.007	1	/6.4
-X5	MSV-PG 21 black	PG 21		91.071.003	3	/6.4
-X5	M-BIMED PG21 - nut	PG 21 matice		91.072.006	3	/6.4
-X5	MSV-PG16 black	PG 16		91.071.010	2	/6.4
-X5	M-BIMED PG16 - nut	PG 16 matice		91.072.005	2	/6.4
-X5	DIN clamp, gray, 4mm	WK4/U	WIELAND	91.251.103	70	/6.4
-X5	DIN grounding clamp, yellow+green, 4mm	WK 4SL/U	WIELAND	91.251.105	7	/6.4
-X5	DIN finishing clip	koncová svorka		91.256.106	10	/6.4
-XL	DIN clamp, gray, 4mm	WK4/U	WIELAND	91.251.103	3	/4.0
-XL	DIN clamp, blue, 4mm	WK 4/U BLAU	WIELAND	91.251.104	1	/4.0
-XL	DIN grounding clamp, yellow+green, 4mm	WK 4SL/U	WIELAND	91.251.105	1	/4.0

The manufacturer reserves the use of equivalent compensation components.

20.d

BOMAR, s.r.o.
Těžební 1236/1
CZ 627 00, Brno

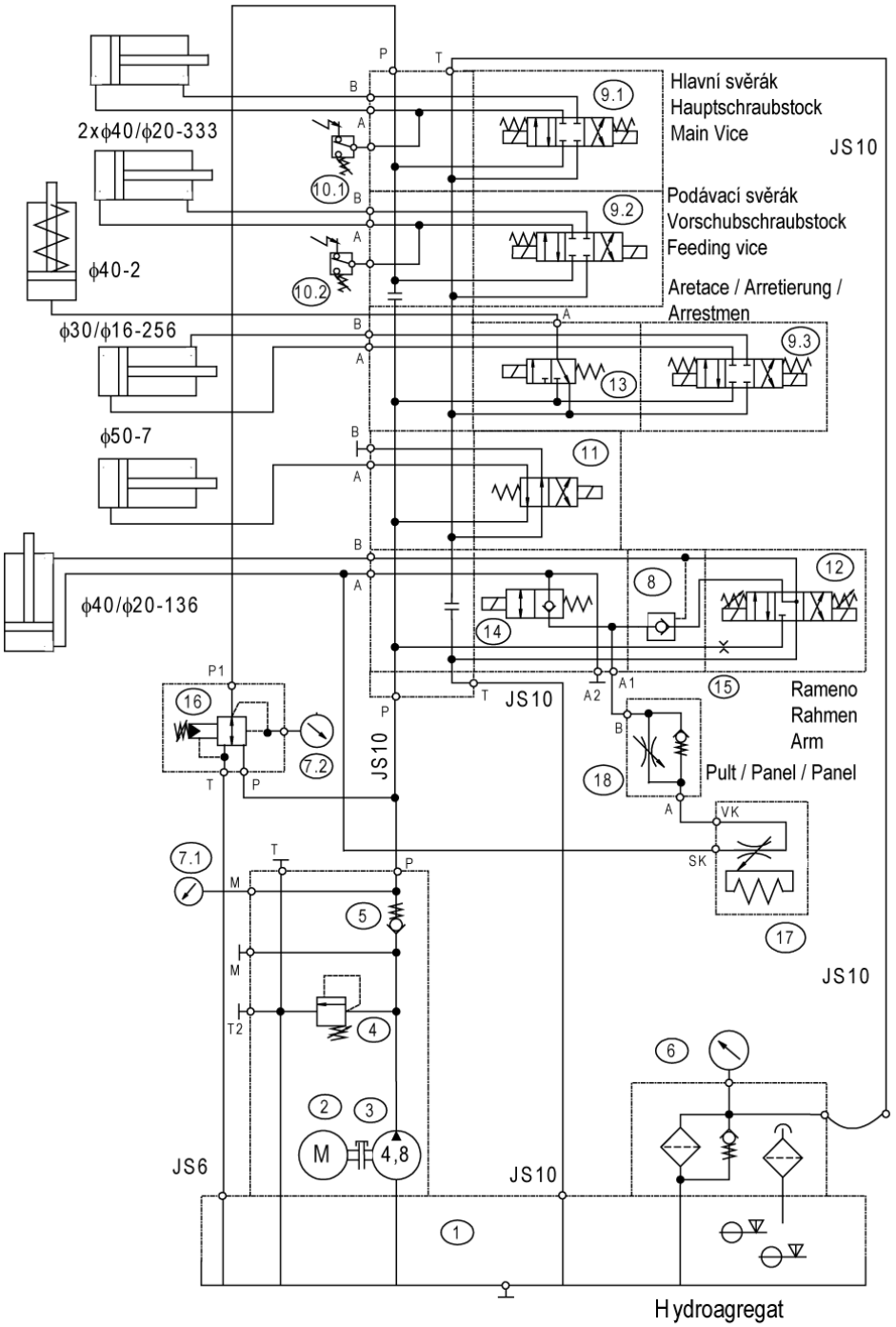
Machine: Ergonomic 250 DGA

Name page: Parts list

Project number:
Processed by:
Date: 15.6.2010

Page: 20.e
Pages: 26

6.2. Hydraulické schéma / Hydraulikschema Hydraulic diagrams



Základní technické parametry
Technische Spezifikation
Technical specification

Typ / Type / Type	Ergonomic 290.250 DGA
Hydraulický agregát / Hydroaggregat Hydro aggregat	870-1922/SMA 03-48/13.0-S11 92.001.030
Neuvedené světlosti / Unerwähnt Lichtbreite Unlisted inside diameters	JS6
Výstupní šroubení / Ausgangschraubung Output screewing	G1/4"
p_{max}	4 Mpa
Q	6,3 dm^3/min
n	1390 ot./min
P	0,55 kW

Manual version: 3.01 / Jan. 2011
Manual rev.: 1

Poz. Pos. Pos.	Název položky Bezeichnung Item		ks Mng. Pcs.
1	Nádrž / Behälter / Tank	30 dm special (750/7264)	1
2	Elektromotor / Elektromotor / Electromotor	MA-AL80 400/230V –50Hz	1
3	Hydrogenerátor / Hydraulikaggregat / Hydrogenerator	P2-4.8L 66017 4.8cub./rev.	1
4	Jednosměrný ventil / Einwegventil / One-way valve	VJO1-06/SG-1	1
5	Přepouštěcí ventil / Bypaßventil / By pass valve	VPP2-04/S-6 4 Mpa	1
6	Zpětný filter /Regressivfilter / Reverse filter	FR 043- 166/0 10µm	1
	Vložka ve filtru / Filtereinlage / Filter lining 92.153.101	V3.0510-56 10µm	
7	Manometer / Manometer /Manometer	Ř 68 with Glycerin 0-6 MPa	1
8	Hydraulický zámek / Hydraulikschloss / Hydraulic lock	VJR-04/MA	1
9	Rozváděč / Verteilungsventil / Distributor	RPE3-043Z11/02400E1K1	3
10	Tlakový spinač / Druckschalter / Pressure Switch	SUCO 0166 411 031 043 92.201.001	2
11	Rozváděč / Verteilungsventil / Distributor	RPE3-42R11/02400E1K1	1
12	Rozváděč / Verteilungsventil / Distributor	RPE3-043Y11/02400E1K1	1
13	Blok aretace / Arretierungblock / Locking Block	731-9002 Keine düse/No Nozzle	1
14	Blok rychloposuvu / Eilgangblock / Rapid feed blocking	729-0084	1
15	Tryska / Düse / Nozzle	Ř 1mm	1
	Designing department ARGO-HYTOS		
	No. of type 870-1922		
	Type SMA03-48/13.0-S11.X-H33M.0-1922/02400		

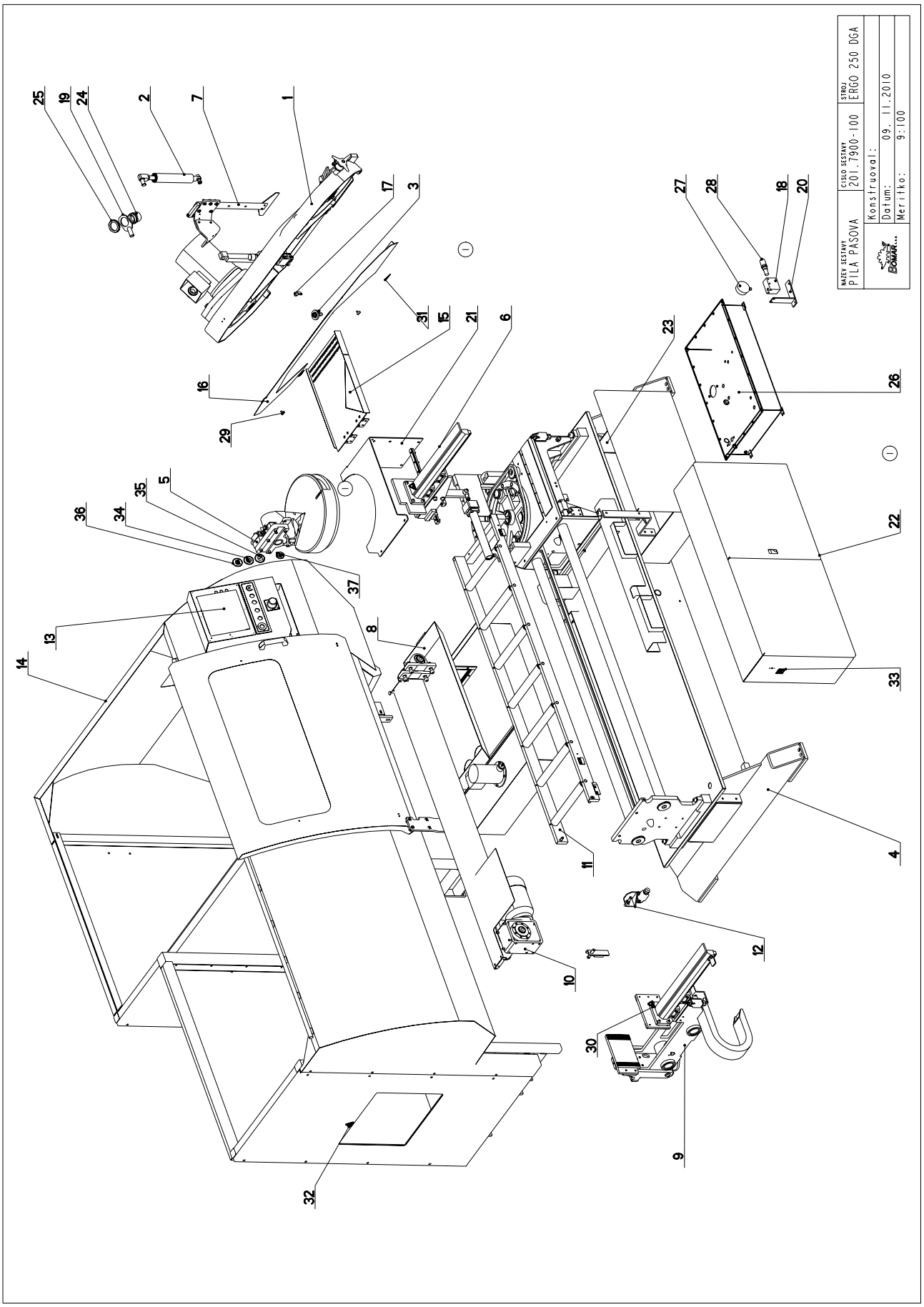
7. Výkresy sestav pro objednání náhradních dílů / Zeichnungen für Bestellung der Ersatzteile / Drawing assemblies for spare parts order

- Při objednávání náhradních dílů vždy uvádějte: typ stroje (např. practix Ergonomic 290.250 DGA) , výrobní číslo (např. 125) a rok výroby (např. 1999).

- In die Bestellung der Ersatzteile führen Sie immer an: Maschinentyp (z. B. Ergonomic 290.250 DGA), 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 290.250 DGA), serial number (for example 125, see cover page) and year of construction (for example 1999).

7.1. Ergonomic 290.250 DGA 1

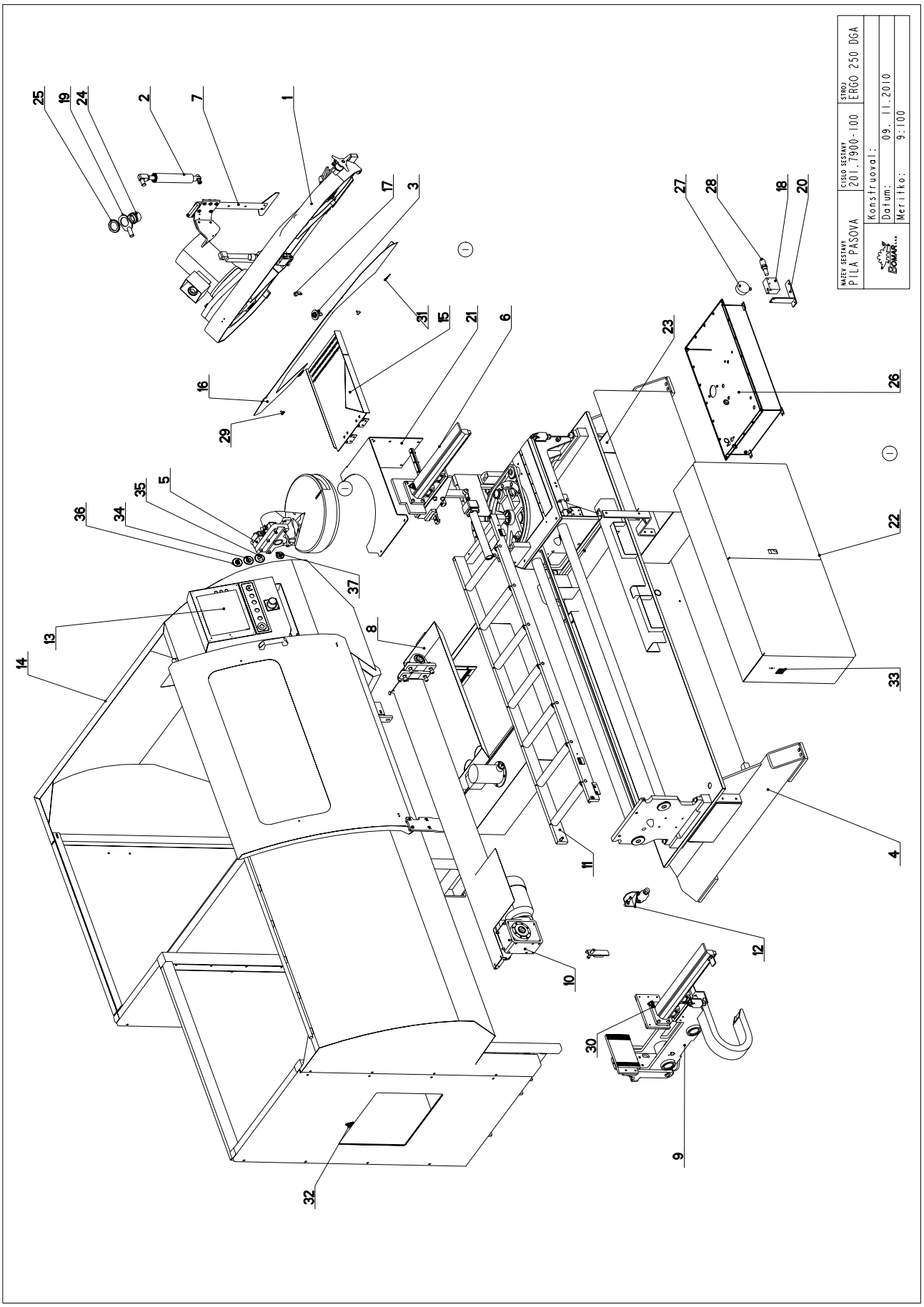


Manual version: 3.01 / Jan. 2011
Manual rev.: 1

Cislo Sestavy 201.7900-100	Ver. 2	Nazev sestavy PILA PASOVA/BAND SAW/BANDSÄGE

Poz.	Objednaci cislo	Ver.	Nazev polozky	Rozmer	Ks
1	201.0504-900	6	RAMENO / SHOULDER / SÄGERAHMEN		1
2	201.0507-920	1	VALEC ZVEDACI / LIFTING CYLINDER / HEBEZYLINDER		1
3	201.0704-100	0	KARTAC / BRUSH / BÜRSTE		1
4	201.7901-100	3	PODSTAVEC / BASE / UNTERSATZ		1
5	201.7902-000	0	KONZOLA / CONSOLE / KONSOLE		1
6	201.7903-000	0	SVERAK / VICE / SCHRAUBSTOCK		1
7	201.7904-100	0	ODMEROVANI / MEASURING / GEHRUNGSMESSUNG		1
8	201.7906-100	0	CHLAZENI / COOLING / KÜHLUNG		1
9	201.7911-000	4	PODAVAC / FEEDER / VORSCHUB		1
10	201.7911-100	0	POHON / DRIVE / ANTRIEB		1
11	201.7911-200	0	TRAT / TRACK / BAHN		1
12	201.7911-310	2	ZAVORA OPTICKA / OPTICAL GATE / LICHTSCHRANKE		1
13	201.7913-100	0	OVLADACI PANEL / CONTROL PANEL / BEDIENPULT	SESTAVA	1
14	201.7914-150	4	KRYTY / COVERS / ABDECKUNGEN		1
15	201.7914-210	0	SKLUZ / SLIDE / RUTSCH		1
16	30.0504-754	0	KRYT NAPINANI / TENSIONING COVER / BANDSPANNUNGSABDECKUNG	P 1.5-492	1
17	30.0514-603	0	DRZAK / HOLDER / HALTER	HR20x5	1
18	30.2115-101	2	DESKA / BOARD / PLATTE	HR 60x40	1
19	30.7913-050	0	KONZOLA / CONSOLE / KONSOLE		1
20	30.7913-051	1	KONZOLA / CONSOLE / KONSOLE	SVARENO	1
21	30.7914-202 (1)	0	STUL / TABLE / TISCH	P 4x330	1
22	30.7930-004 (1)	2	ROZVADEC / DISTRIBUTOR / VERTEILER		1
23	31.7999-001	0	STITEK / LABEL / SCHILD	P 0.5x65	1
24	91.071.005	0	PRUCHODKA / LEADTHROUGH / DURCHFÜHRUNG		1
25	91.072.008	0	MATICE / NUT / MUTTER		1
26	92.001.030	0	AGREGAT HYDRAULICKY / HYDRAULIC GENERATOR / HYDRAULIKAGGREGAT	870-1922	1
27	92.080.001	0	MANOMETR_HYDRAULICKY / /		1
28	92.154.001	0	VENTIL REDUKCNI / REDUCTION VALVE / DRUCKMINDERUNGSVENTIL		1
29	94.007.002	0	SROUB / BOLT / SCHRAUBE		2
30	99.900.039	0	SAMOLEPKA / STICKER / AUFKLEBER	NEBEZP.STLACENI	2
31	99.900.040	0	SAMOLEPKA / STICKER / AUFKLEBER		2
32	99.900.043	0	SAMOLEPKA / STICKER / AUFKLEBER		1
33	99.900.046	0	SAMOLEPKA / STICKER / AUFKLEBER		1

7.3. Ergonomic 290.250 DGA 2



Manual version: 3.01 / Jan. 2011
Manual rev.: 1

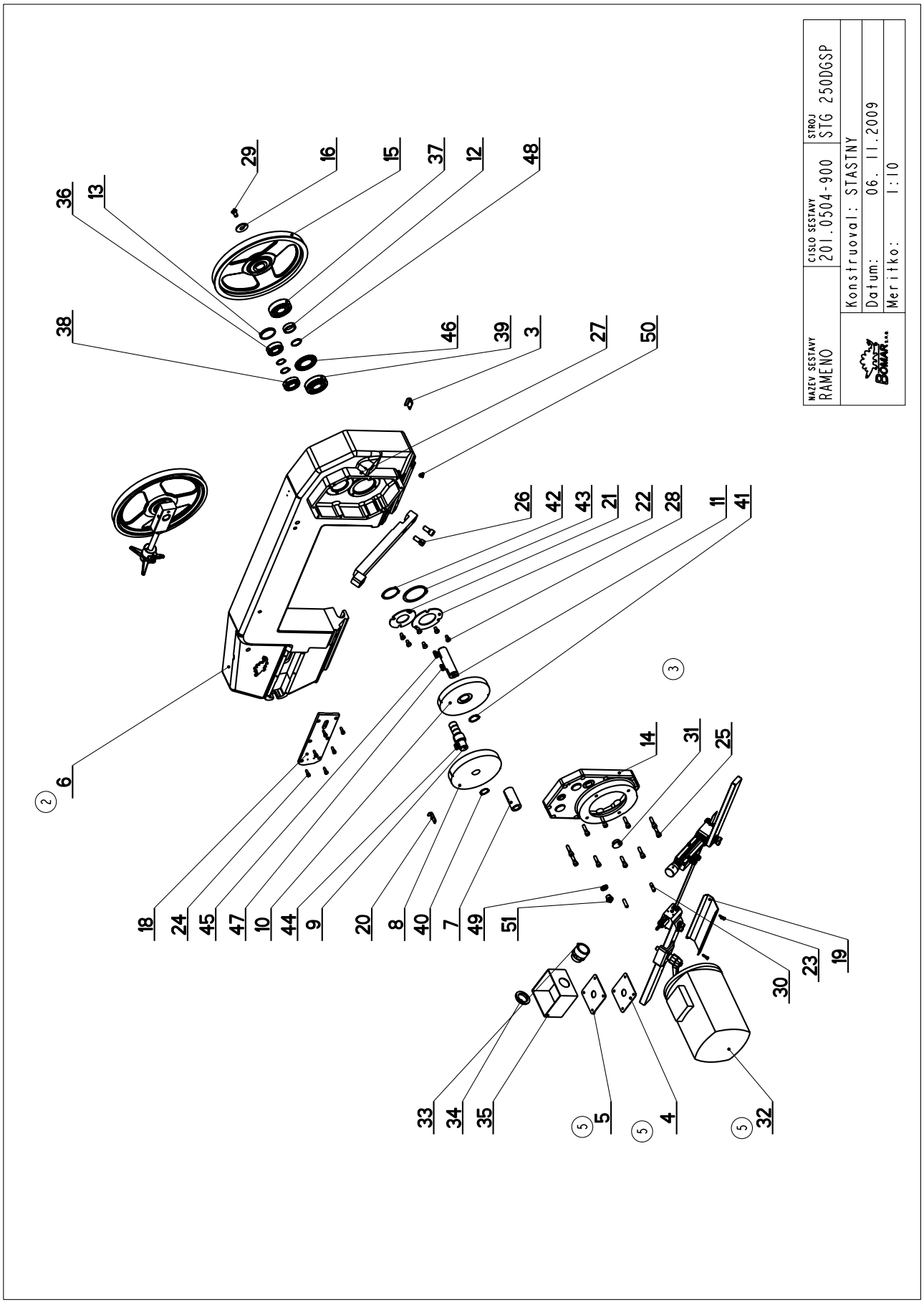
34	99.900.047	0	SAMOLEPKA / STICKER / AUFKLEBER		1
35	99.900.048	0	SAMOLEPKA / STICKER / AUFKLEBER		1
36	99.900.049	0	SAMOLEPKA / STICKER / AUFKLEBER		1
37	99.901.032 (1)	0	SAMOLEPKA / STICKER / AUFKLEBER	CETIFIKACNI SAMOLEPKA	1

1.ZRUS.STUL 30.7914-201 A NAHR.30.7914-202,ZRUS.ROZVADEC 31.7930-001 A NAHR.30.7930-004, PRIDANA CERTIFIKACNI ZNACKA 99.901.032. 156/ZM127 6.52010 SLEZACKOVA

2.UPRAVENA POLOHA OPTICKE ZAVORY 201.7911-310. 292/ZM306 9.11.2010 SLEZACKOVA

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

7.5. Rameno / Sägerahmen / Saw arm 1

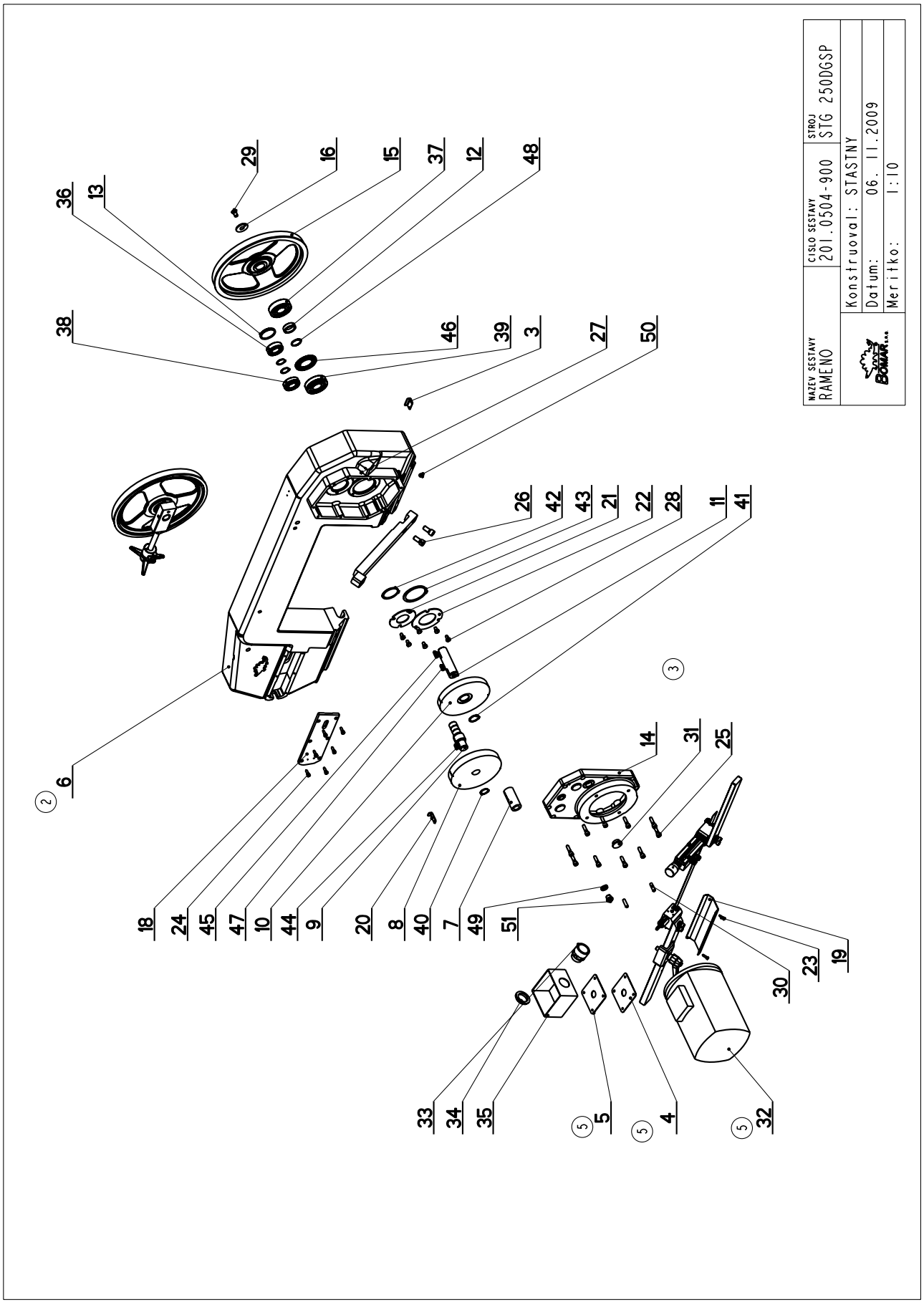


Manual version: 3.01 / Jan. 2011
Manual rev.: 1

Cislo Sestavy	Ver.	Nazev sestavy
201.0504-900	0	RAMENO/SHOULDER/SÄGERAHMEN

Poz.	Objednaci cislo	Ver.	Nazev polozky	Rozmer	Ks
1	201.0508-000	0	NAPINANI / TENSIONING / SPANNUNG		1
2	201.2810-000	0	VEDENI PASU / BELT GUIDE / SÄGEBANDFÜHRUNG		1
3	30.0104-029	0	DRZAK / HOLDER / HALTER	P 2- 36	1
4	30.0504-010 (5)	0	PLECH / PLATE / BLECH	P 1.5 - 95	1
5	30.0504-011 (5)	0	GUMA / RUBBER / GUMMI	TL.2-95	1
6	30.0504-751 (2)	0	RAMENO / SHOULDER / SÄGERAHMEN	80.0504-701	1
7	30.0505-002	0	PASTOREK / PINION / RITZEL	d 35	1
8	30.0505-003	0	KOLO OZUBENE / COG WHEEL / ZAHNRAD	D 176	1
9	30.0505-004	0	HRIDEL / SHAFT / WELLE	D40	1
10	30.0505-005	0	KOLO OZUBENE / COG WHEEL / ZAHNRAD	D 180	1
11	30.0505-007	0	HRIDEL / SHAFT / WELLE	TYC 35	1
12	30.0505-009	0	KROUZEK / RING / RING	Tr 44,5x8	1
13	30.0505-013	0	ZATKA / PLUG / STOPFEN	d 55	1
14	30.0505-201	0	VIKO / COVER / DECKEL	C.M.80.0705-001	1
15	30.0505-701	0	KOLO HNACI / DRIVE WHEEL / ANTRIEBSRAD		1
16	30.0508-002	0	PODLOZKA / WASHER / UNTERLEGSCHEIBE	d 40	1
17	30.0514-901	0	DRZAK / HOLDER / HALTER		1
18	30.0704-007	0	VIKO / COVER / DECKEL	PLECH 8x80	1
19	30.0704-021	0	KRYT PASU / BELT COVER / BANDABDECKUNG	P 1.5-101	1
20	30.0704-032	0	PRILOZKA / STRAP / LASCHE	P 2 - 15	1
21	81.0105-007	0	PRILOZKA / STRAP / LASCHE	P2.5-90	1
22	81.0505-010	0	PRILOZKA / STRAP / LASCHE	P 2.5- 108	1
23	90.001.25.009	0	SROUB IMBUS CERNENY / ALLEN HEAD BOLT / IMBUSSCHRAUBE	M5X16	2
24	90.001.25.017	0	SROUB IMBUS CERNENY / ALLEN HEAD BOLT / IMBUSSCHRAUBE	M6X16	6
25	90.001.25.034	0	SROUB IMBUS CERNENY / ALLEN HEAD BOLT / IMBUSSCHRAUBE	M8X30	10
26	90.001.25.057	0	SROUB IMBUS CERNENY / ALLEN HEAD BOLT / IMBUSSCHRAUBE	M12x25	2
27	90.004.2D.001	0	SROUB STAVECI / ADJUSTMENT BOLT / STELLSCHRAUBE	SROUB M6X8	1
28	90.005.55.013	0	6 HR SROUB ZIN / 6 SIDED BOLT / SECHSKANTSCHRAUBE	SROUB M8X12	6
29	90.011.27.008	0	SROUB ZAPUSTNY / COUNTERSINK BOLT / SENKSCHRAUBE	SROUB M10X20	1
30	90.302.0Z.002	0	KOLIK KUZELOVY / TAPER PIN / KEGELBOLZEN	KOLIK 8X30	2
31	90.400.5Z.003	0	ZATKA / PLUG / STOPFEN	M 24x1.5	1
32	91.001.007	0	ELEKTROMOTOR / ELECTRIC MOTOR / ELEKTROMOTOR		1
33	91.071.004 (3)	0	PRUCHODKA / LEADTHROUGH / DURCHFÜHRUNG		1
34	91.072.007 (5)	0	MATICE / NUT / MUTTER		1

7.7. Rameno / Sägerahmen / Saw arm 2



Manual version: 3.01 / Jan. 2011
Manual rev.: 1

35	91.190.004	0	KRABICE ELEKTRO / ELECTRO BOX / ELEKTRODOSE		1
36	95.001.018	0	LOZISKO / BEARING / LAGER	6205 2RS	1
37	95.001.025	0	LOZISKO / BEARING / LAGER	6306 2RS	1
38	95.003.002	0	LOZISKO / BEARING / LAGER	6205AN	1
39	95.003.003	0	LOZISKO / BEARING / LAGER	6306AN	1
40	95.800.012	0	KROUZEK POJIST.VNEJS / OUTSIDE SAFETY RING / SICHERUNGSRING AUßEN	POJISTNY KROUZEK 25	3
41	95.800.013	0	KROUZEK POJIST.VNEJS / OUTSIDE SAFETY RING / SICHERUNGSRING AUßEN	POJISTNY KROUZEK 30	1
42	95.800.019	0	KROUZEK POJIST.VNEJS / OUTSIDE SAFETY RING / SICHERUNGSRING AUßEN	POJISTNY KROUZEK 52	1
43	95.800.026	0	KROUZEK POJIST.VNEJS / OUTSIDE SAFETY RING / SICHERUNGSRING AUßEN	POJISTNY KROUZEK 72	1
44	95.810.006	0	PERO TESNE / SPRING / FEDER	PERO 8X7X20	1
45	95.810.007	0	PERO TESNE / SPRING / FEDER	PERO 8X7X25	1
46	95.830.005	0	GUFERO / GIT SEAL / DICHTUNG	GUFERO 40X72X7	1
47	95.810.XXX	0	PERO TESNE / SPRING / FEDER	PERO 8X7X22	1
48	96.002.034	0	KROUZEK O DYNAMICKY / DYNAMIC O RING / O-RING DYNAMISCH	30X2	1
49	96.081.001	0	KROUZEK TESNICI / SEAL RING / DICHTUNGSRING	23x15x3	1
50	DIN908_M10X1	0	ZATKA / PLUG / STOPFEN	10x1	1
51	DIN908_M10X1	0	ZATKA / PLUG / STOPFEN	16x1.5	1

1.ZRUSENY SOUCASTI - KRYT RAMENE 30.0504-750, KRYT KARTACKU 30.0504-602-2,SROUB PLASTOVY M6x10 99007.002. 168/ZM029 30.3.2006 SLEZACKOVA

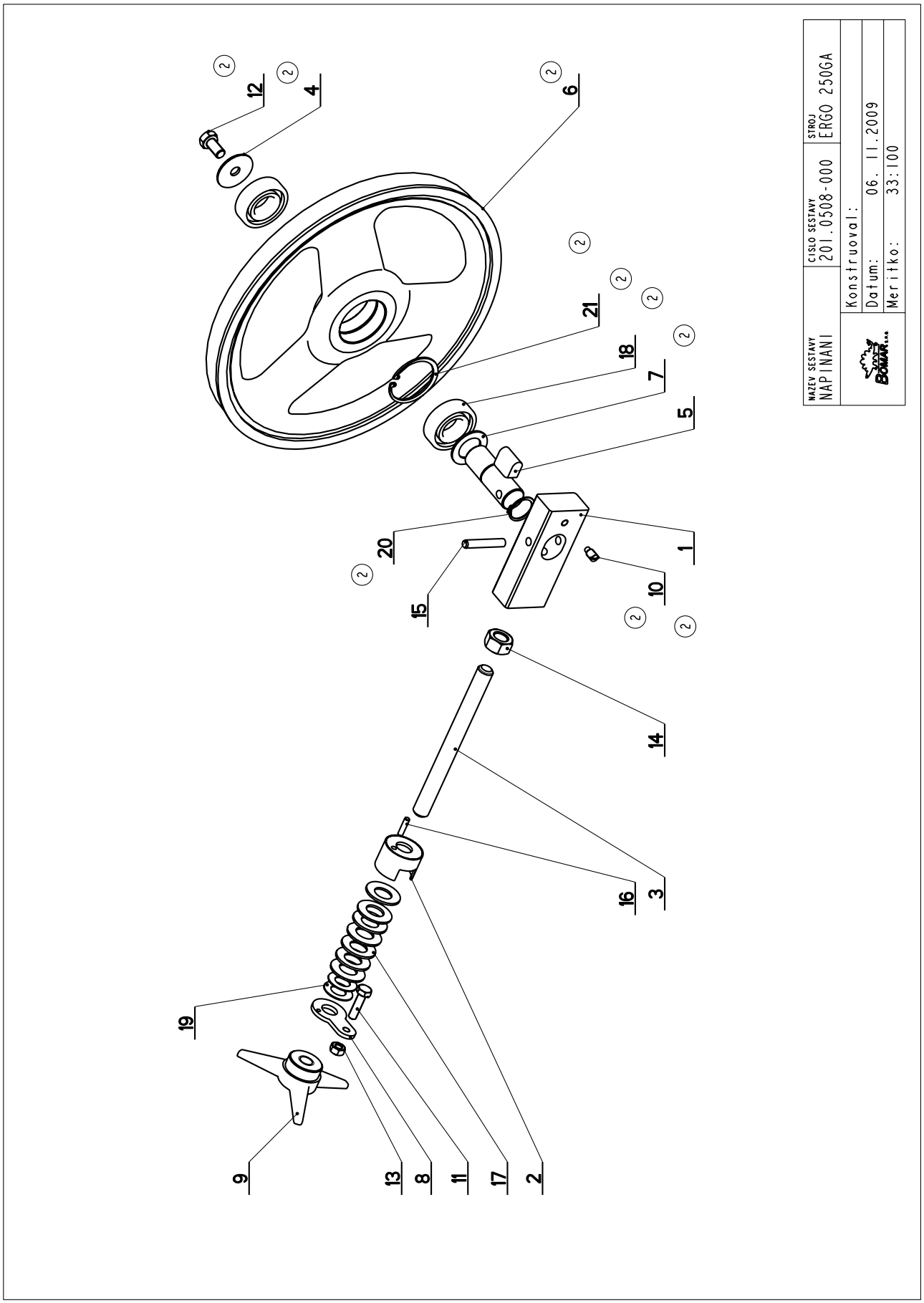
2.VYMENA RAMENE- ZRUSENA SOUCAST 30.0504-701 A NAHR. 30.0504-751. 558/ZM281 17.10.2006 SLEZACKOVA

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

4.ZRUS.PLECH 30.0504-010 A NAHR. 30.0504-012,ZRUS.GUMA 30.0504-011 A NAHR. 30.0504-013,ZRUS.MOTOR 91.001.007 A NAHR. 91.001.129. 318/ZM295 11.9.2008 SLEZACKOVA

5.VYMENA MOTORU - ZRUS.MOTOR CINSKY 91.001.129 A NAHR.MOTOREM EMP SLAVKOV 91.001.129,ZRUS.PLECH ELEKTRO 30.0504-012 A NAHR. PLECHEM 30.0504-010, ZRUS.GUMA 30.0504-013 A NAHR.GUMOU 30.0504-011. 061/ZM085 25.3.2009 SLEZACKOVA

7.9. Napínání / Spannung / Tensioning



Manual version: 3.01 / Jan. 2011
Manual rev.: 1

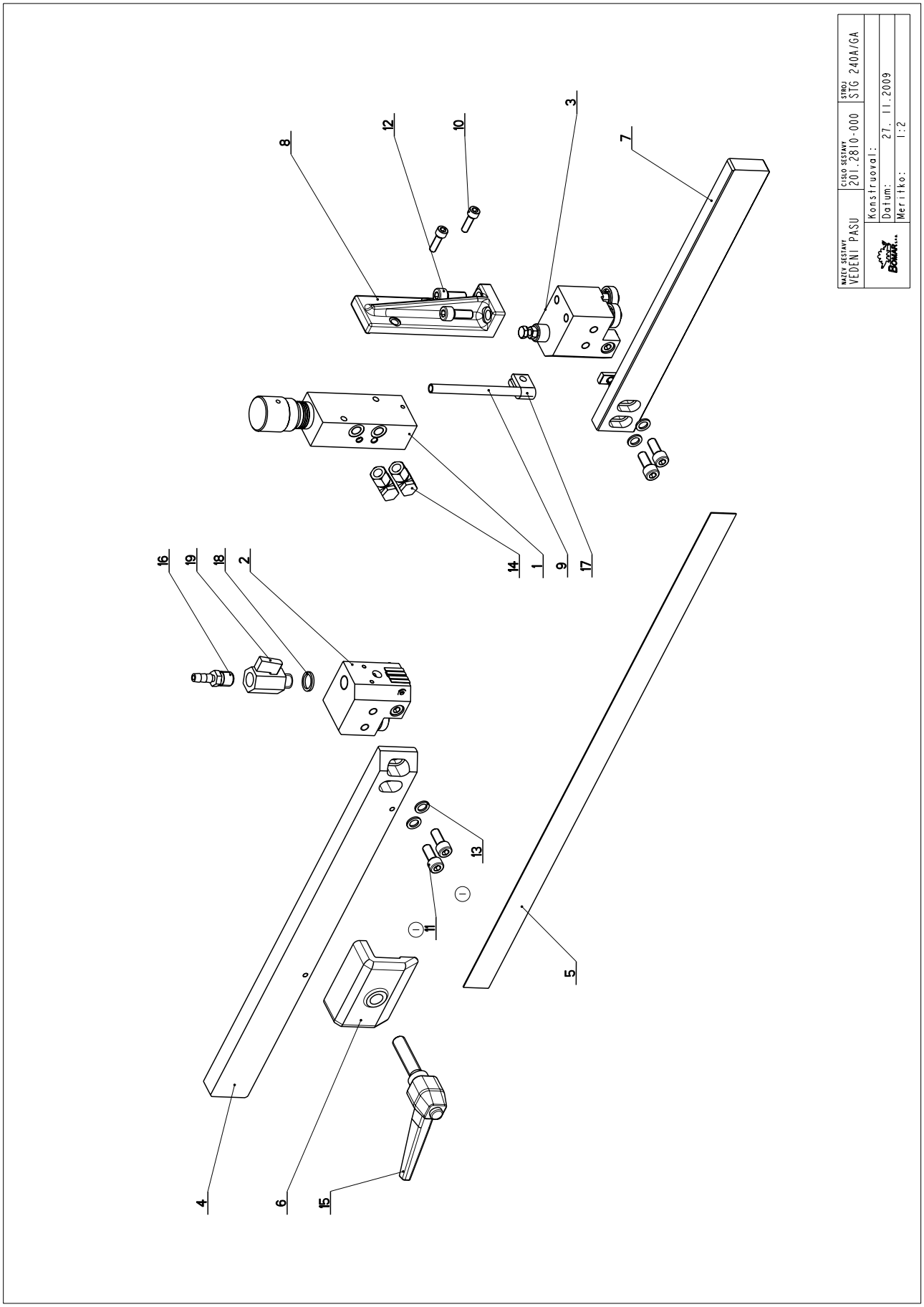
Cislo Sestavy	Ver.	Nazev sestavy
201.0508-000	0	NAPINANI/TENSIONING/SPANNUNG

Poz.	Objednaci cislo	Ver.	Nazev polozky	Rozmer	Ks
1	30.0104-002	0	HRANOL / BLOCK / PRISMA	HR 50x 30	1
2	30.0104-004	2	DRZAK / HOLDER / HALTER		1
3	30.0303-005	0	SROUB / BOLT / SCHRAUBE	M16	1
4	30.0505-011 (2)	0	PODLOZKA / WASHER / UNTERLEGSCHEIBE	TYC 40	1
5	30.0508-004 (2)	0	CEP NAPINANI / TENSIONING LUG / SPANNUNGSBOLZEN		1
6	30.0508-701 (2)	4	KOLO NAPINACI / TENSIONING WHEEL / UMLENKRAD		1
7	30.0702-023 (2)	0	KROUZEK DISTANCNI / DISTANCE RING / DISTANZRING		1
8	30.0704-025	3	DRZAK / HOLDER / HALTER	P 4x 36	1
9	31.0104-006	0	HVEZDICE / STAR WHEEL / STERN	PLAST	1
10	90.004.2D.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	90.300.0Z.012	0	KOLIK VALC. KAL. / PIN / BOLZEN	KOLIK 8X50	1
16	90.303.0Z.008	0	KOLIK PRUZNY / PIN / BOLZEN	KOLIK 5X20	1
17	90.350.0Z.002	0	PRUZINA TALIROVA / DISC SPRING / TELLERFEDER	35,5X18,3X2,0X2,8	7
18	95.001.018 (2)	0	LOZISKO / 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 AUßEN	POJISTNY KROUZEK 25	1
21	95.801.009 (2)	0	SEGR DIRA / INSIDE SAFETY RING / SICHERUNGSRING INNEN	POJISTNY 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

7.11. Vedení pásu / Sägebandführung / Belt guide



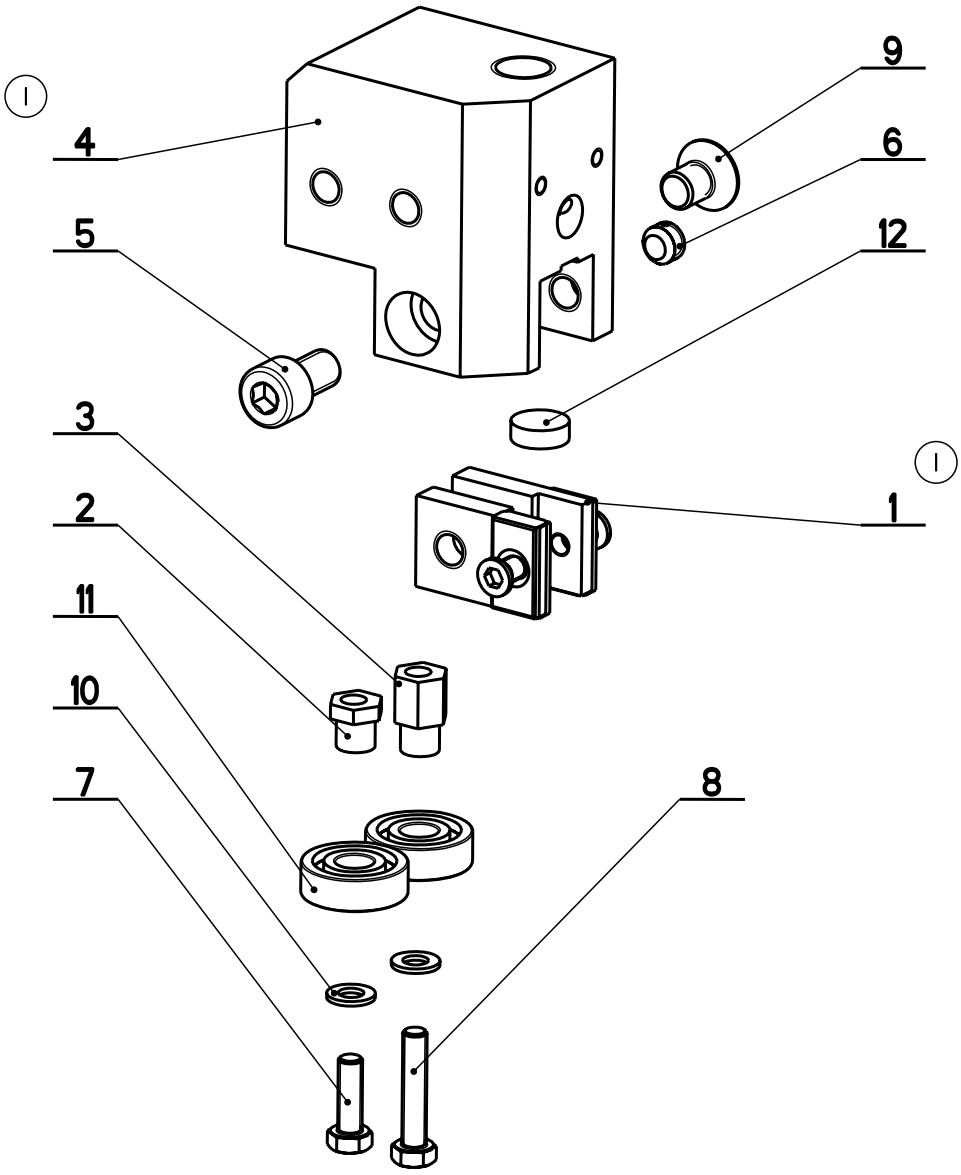
Manual version: 3.01 / Jan. 2011
Manual rev.: 1

Cislo Sestavy	Ver.	Nazev sestavy
201.2810-000	0	VEDENI PASU/BELT GUIDE/SÄGEBANDFÜHRUNG

Poz.	Objednaci cislo	Ver.	Nazev polozky	Rozmer	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 PILOVY / SAW BELT / SÄGEBAND	2910x25(7)x0.90	1
6	30.0704-010	0	UPINKA / FASTENER / SPANNEISEN	ODLITEK	1
7	30.0704-014	0	LISTA / TRIM / LEISTE	TYC 40x15	1
8	30.2804-001	0	DRZAK / 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 (1)	0	SROUB IMBUS CERNENY / 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 (1)	0	PODLOZKA / WASHER / UNTERLEGSCHEIBE	PODLOZKA 8	4
14	92.003.104	0	SROUBENI / BOLTING / VERSCHRAUBUNG	607002	2
15	94.008.009	0	PAKA UPINACI / ATTACHMENT LEVER / SPANNHEBEL	M12x50	1
16	94.202.002	0	REDUKCE / REDUCTION / ADAPTOR / REDUKTION	GES 6/R1/4"	1
17	94.204.001	0	DRZAK / HOLDER / HALTER		1
18	96.080.001	0	KROUZEK / RING / RING	17.8x13.5x2	1
19	99.260.001	0	VENTIL / VALVE / VENTIL		1

1.PRID.4xPODLOZKA NORD LOCK M8 90.163.00.002,ZRUS.4xSROUB M8x16 A NAHRZEN SROUBEM M8x20 . 161/ZM148 13.5.2008 SLEZACKOVA

7.13. Vodící kostka / Führungsklotz / Guiding cube 1



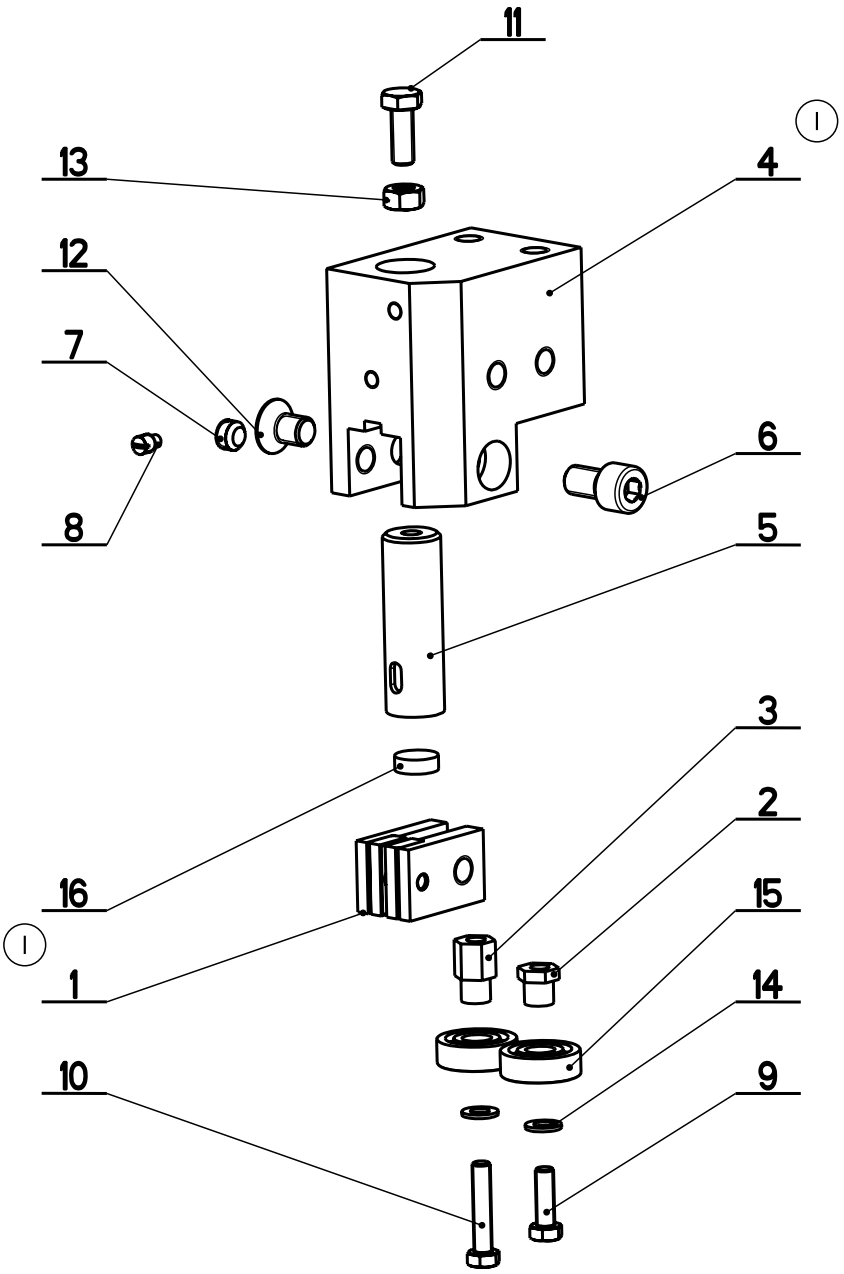
NAZEV SESTAVY	CISLO SESTAVY	STROJ
KOSTKA VODICI	201.0110-100	STG-240
	Konstruoval:	
	Datum: 06. 11.2009	
	Meritko: 4:5	

Cislo Sestavy	Ver.	Nazev sestavy
201.0110-100	0	KOSTKA VODICI/LEAD CUBE/FÜHRUNGSKLOTZ

Poz.	Objednaci cislo	Ver.	Nazev polozky	Rozmer	Ks
1	201.0104-021	0	DRZAK / HOLDER / HALTER		2
2	30.0104-018	0	EXCENTR / CAM / EXZENTER	SK10	1
3	30.0104-019	0	EXCENTR / CAM / EXZENTER	SK10	1
4	30.0104-032	0	KOSTKA VODICI / LEAD CUBE / FÜHRUNGSKLOTZ	TYC 60x40	1
5	90.001.55.082	0	SROUB IMBUS ZINEK / ALLEN HEAD BOLT / IMBUSSCHRAUBE	M8X14	1
6	90.002.2D.009	0	STAVECI S KUZEL / ADJUSTMENT BOLT / STELLSCHRAUBE	SROUB M8X6	1
7	90.005.55.003	0	6 HR SROUB ZIN / 6 SIDED BOLT / SECHSKANTSCHRAUBE	SROUB M5X16	1
8	90.005.55.005	0	6 HR SROUB ZIN / 6 SIDED BOLT / SECHSKANTSCHRAUBE	SROUB M5X25	1
9	90.011.27.007	0	SROUB ZAPUSTNY / COUNTERSINK BOLT / SENKSCHRAUBE	SROUB M8X12	1
10	90.150.50.003	0	PODLOZKA DIN125 / WASHER / UNTERLEGSCHEIBE	PODLOZKA 5,3	2
11	95.001.001	0	KUL. LOZ. 1 RADE / BEARING / LAGER	608 2RS	2
12	99.040.002	0	TVRDOKOV / HARD METAL / HM-SEGMENT	d 12	1

1.ZRUSENA SOUC.30.0104-020 A NAHR. 201.0104-021. 297/272 12.8.2008 KRPEC

7.15. Vodící kostka / Führungsklotz / Guiding cube 2



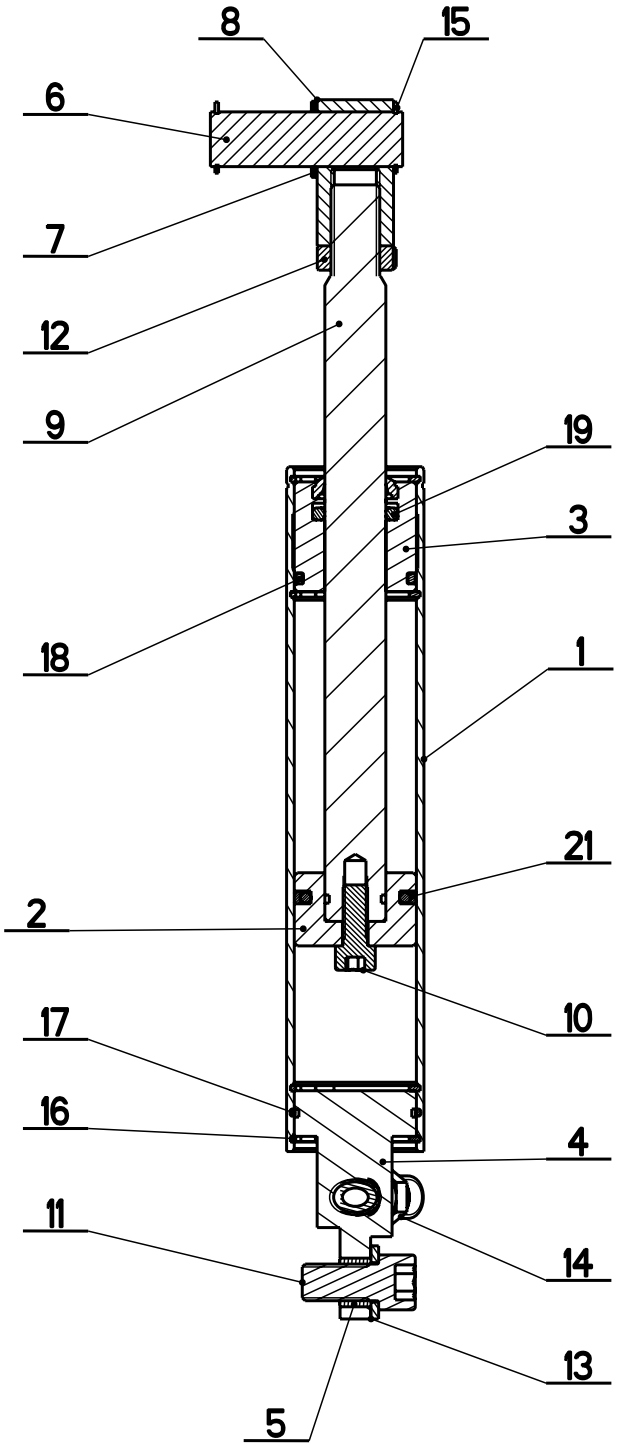
NAZEV SESTAVY	CISLO SESTAVY	STROJ
KOSTKA VODICI	201.2810-200	STG 240A/GA
	Konstruoval:	
	Datum: 06. 11.2009	
	Meritko: 3:5	

Cislo Sestavy	Ver.	Nazev sestavy
201.2810-200	0	KOSTKA VODICI/LEAD CUBE/FÜHRUNGSKLOTZ

Poz.	Objednaci cislo	Ver.	Nazev polozky	Rozmer	Ks
1	201.0104-021 (1)	0	DRZAK / HOLDER / HALTER		2
2	30.0104-018	0	EXCENTR / CAM / EXZENTER	SK10	1
3	30.0104-019	0	EXCENTR / CAM / EXZENTER	SK10	1
4	30.2804-012 (1)	0	KOSTKA VODICI / LEAD CUBE / FÜHRUNGSKLOTZ	HR 60x40	1
5	30.3510-002	0	DRZAK TVRDOKOVU / POA HOLDER / HM-HALTER	TYC 16	1
6	90.001.55.082	0	SROUB IMBUS ZINEK / ALLEN HEAD BOLT / IMBUSSCHRAUBE	M8X14	1
7	90.002.2D.009	0	STAVECI S KUZEL / ADJUSTMENT BOLT / STELLSCHRAUBE	SROUB M8X6	1
8	90.004.2D.017	0	STAV SR S CIP / ADJUSTMENT BOLT / STELLSCHRAUBE	SROUB M5X8	1
9	90.005.55.003	0	6 HR SROUB ZIN / 6 SIDED BOLT / SECHSKANTSCHRAUBE	SROUB M5X16	1
10	90.005.55.005	0	6 HR SROUB ZIN / 6 SIDED BOLT / SECHSKANTSCHRAUBE	SROUB M5X25	1
11	90.005.55.007	0	6 HR SROUB ZIN / 6 SIDED BOLT / SECHSKANTSCHRAUBE	SROUB M6X16	1
12	90.011.27.007	0	SROUB ZAPUSTNY / COUNTERSINK BOLT / SENKSCHRAUBE	SROUB M8X12	1
13	90.100.55.004	0	MATICE DIN 934 / NUT / MUTTER	MATICE _ M6	1
14	90.150.50.003	0	PODLOZKA DIN125 / WASHER / UNTERLEGSCHEIBE	PODLOZKA 5,3	2
15	95.001.001	0	KUL. LOZ. 1 RADE / BEARING / LAGER	608 2RS	2
16	99.040.002	0	TVRDOKOV / HARD METAL / HM-SEGMENT	d 12	1

1.ZRUS.KOSTKA 30.2804-002 A NAHR.30.2804-012,ZRUS.DRZAK 30.0104-020 A NAHR.201.0104-021. 340/ZM343 16.10.2008 SLEZACKOVA

7.17. Válec zvedací / Hebezylinder / Lifting cylinder

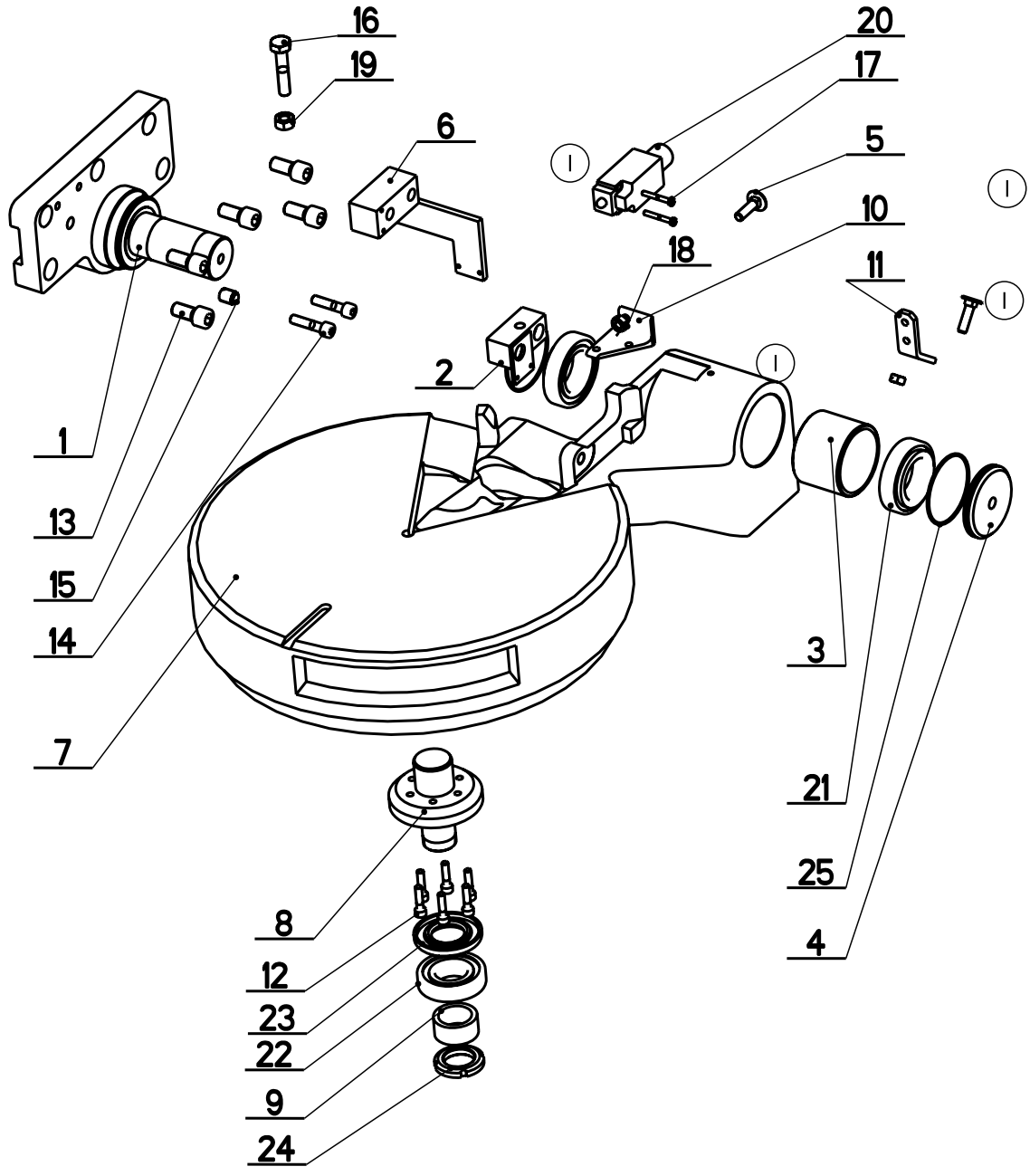


NAZEV SESTAVY	CISLO SESTAVY	STROJ
VALEC ZVEDACI	201.0507-920	250DGS-P
	Konstruoval: ZAJIC	
	Datum: 06. 11.2009	
	Meritko: 1:2	

Cislo Sestavy	Ver.	Nazev sestavy
201.0507-920	0	VALEC ZVEDACI/LIFTING CYLINDER/HEBEZYLINDER

Poz.	Objednaci cislo	Ver.	Nazev polozky	Rozmer	Ks
1	30.0507-901	0	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	30.0507-904	0	DRZAK / HOLDER / HALTER	d 40	1
5	30.0507-913	0	POUZDRO / SLEEVE / BÜCHSE	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	90.001.25.032	0	SROUB IMBUS CERNENY / ALLEN HEAD BOLT / IMBUSSCHRAUBE	8x20	1
11	90.001.25.057	0	SROUB IMBUS CERNENY / ALLEN HEAD BOLT / IMBUSSCHRAUBE	M12x25	1
12	90.101.55.003	0	MATICE NIZKA / NUT / MUTTER	MATICE M16	1
13	90.150.50.007	0	PODLOZKA DIN125 / WASHER / UNTERLEGSCHEIBE	PODLOZKA 13	1
14	92.002.001	0	SROUBENI PRIME / DIRECT BOLTING / GERADE VERSCHRAUBUNG	G 1/4"	1
15	95.800.008	0	SEGR HRIDEL. / OUTSIDE SAFETY RING / SICHERUNGSRING AUßEN	POJISTNY KROUZEK 18	2
16	95.801.005	0	SEGR DIRA / INSIDE SAFETY RING / SICHERUNGSRING INNEN	POJISTNY KROUZEK 40	4
17	96.001.010	0	O-KROUZEK STATIC / STATIC O RING / O-RING STATISCH	36X2	1
18	96.002.017	0	O-KROUZEK DYNAMIC / DYNAMIC O RING / O-RING DYNAMISCH	34X3	1
19	96.041.002	0	KROUZEK TESNICI / SEAL RING / DICHTUNGSRING	20/28x4	1
20	96.060.002	0	KROUZEK / RING / RING		1
21	96.900.002	0	TESNENI KOMBINOVANE / COMBINATION SEALING / KOMBIDICHTUNG		1

7.19. Konzola / Konzole / Console



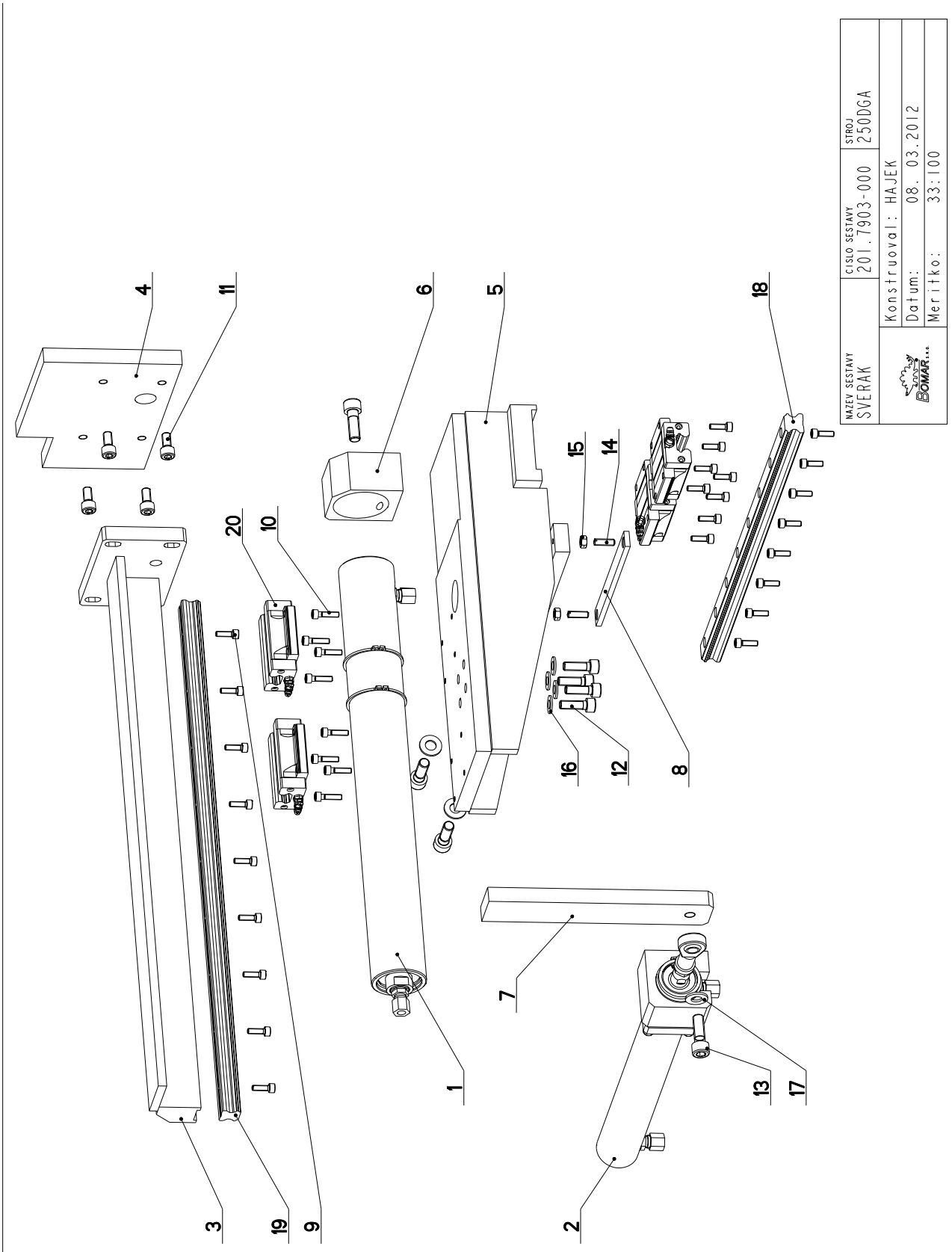
NAZEV SESTAVY	CISLO SESTAVY	STROJ
KONZOLA	201.7902-000	250 DGA
	Konstruoval: STASTNA	
	Datum: 05. 11.2009	
	Meritko: 1:5	

Cislo Sestavy	Ver.	Nazev sestavy
201.7902-000	0	KONZLOLA/CONZOLE/KONZOLE

Poz.	Objednaci cislo	Ver.	Nazev polozky	Rozmer	Ks
1	30.0502-604	0	DRZAK / HOLDER / HALTER		1
2	30.0502-610	0	DRZAK / HOLDER / HALTER		1
3	30.0702-008	0	POUZDRO / SLEEVE / BÜCHSE	TR 70x5	1
4	30.0702-012	0	VIKO / COVER / DECKEL	d 70	1
5	30.0702-013 (1)	0	SROUB / BOLT / SCHRAUBE	M8	2
6	30.7901-105 (1)	0	DRZAK / HOLDER / HALTER	SVAREK	1
7	30.7902-001	0	KONZOLA / CONSOLE / KONSOLE	ODLITEK	1
8	30.7902-002	0	CEP / LUG / BOLZEN	TYC 85	1
9	30.7902-005 (2)	0	KROUZEK DISTANCNI / DISTANCE RING / DISTANZRING	TR 40x5	1
10	30.7902-008 (1)	0	DRZAK / HOLDER / HALTER	L 45X30X4	1
11	30.7902-011	0	DRZAK / HOLDER / HALTER	HR 20 x 5	1
12	90.001.25.019	0	SROUB IMBUS CERNENY / ALLEN HEAD BOLT / IMBUSSCHRAUBE	M6X25	6
13	90.001.25.057	0	SROUB IMBUS CERNENY / ALLEN HEAD BOLT / IMBUSSCHRAUBE	M12x25	5
14	90.001.55.035	0	SROUB IMBUS CERNENY / ALLEN HEAD BOLT / IMBUSSCHRAUBE	M8X35	2
15	90.002.2D.017	0	SROUB STAVECI / ADJUSTMENT BOLT / STELLSCHRAUBE	SROUB M12X16	1
16	90.005.55.007	0	SROUB 6HRANNY / 6 SIDED BOLT / SECHSKANTSCHRAUBE	SROUB M10X50	1
17	90.012.50.007 (1)	0	SROUB / BOLT / SCHRAUBE	SROUB M4X30	2
18	90.100.55.005	0	MATICE DIN 934 / NUT / MUTTER	MATICE _ M8	2
19	90.100.55.006	0	MATICE / NUT / MUTTER	MATICE _ M10	1
20	91.173.007	0	SPINAC KONCOVY / END SWITCH / ENDSCHALTER		1
21	95.300.002	0	LOZISKO / BEARING / LAGER	32008AX	2
22	95.300.009 (2)	0	LOZISKO / BEARING / LAGER	30206A	1
23	95.830.007 (2)	0	GUFERO / GIT SEAL / DICHTUNG	GUFERO 30x62x7	1
24	95.850.011	0	MATICE KM / KM NUT / KM-MUTTER	MATICE KM6	1
25	96.001.018	0	KROUZEK TESNICI / SEAL RING / DICHTUNGSRING		2

1. ZRUS. KOSTKA 30.7902-009 A NAHR. DRZAKEM 30.7901-105, ZRUS. SOUC. 201.0614-200, PRIDANY SOUC. 1xSROUB 30.0702-013, 1xMATICE M8, 1x DRZAK 30.7902-011. 287/ZM298 10.7.2007 SLEZACKOVA
2. PRIDAN KROUZEK DISTANCNI 30.7902-005, KUZELIKOVE LOZISKO 30206A 95.300.009, GUFERO 30x62x7 95.830.007 106/ZM062 25.3.2008 KRPEC

7.21. Svěrák / Schraubstock / Vice



Manual version: 3.01 / Jan. 2011
Manual rev.: 1

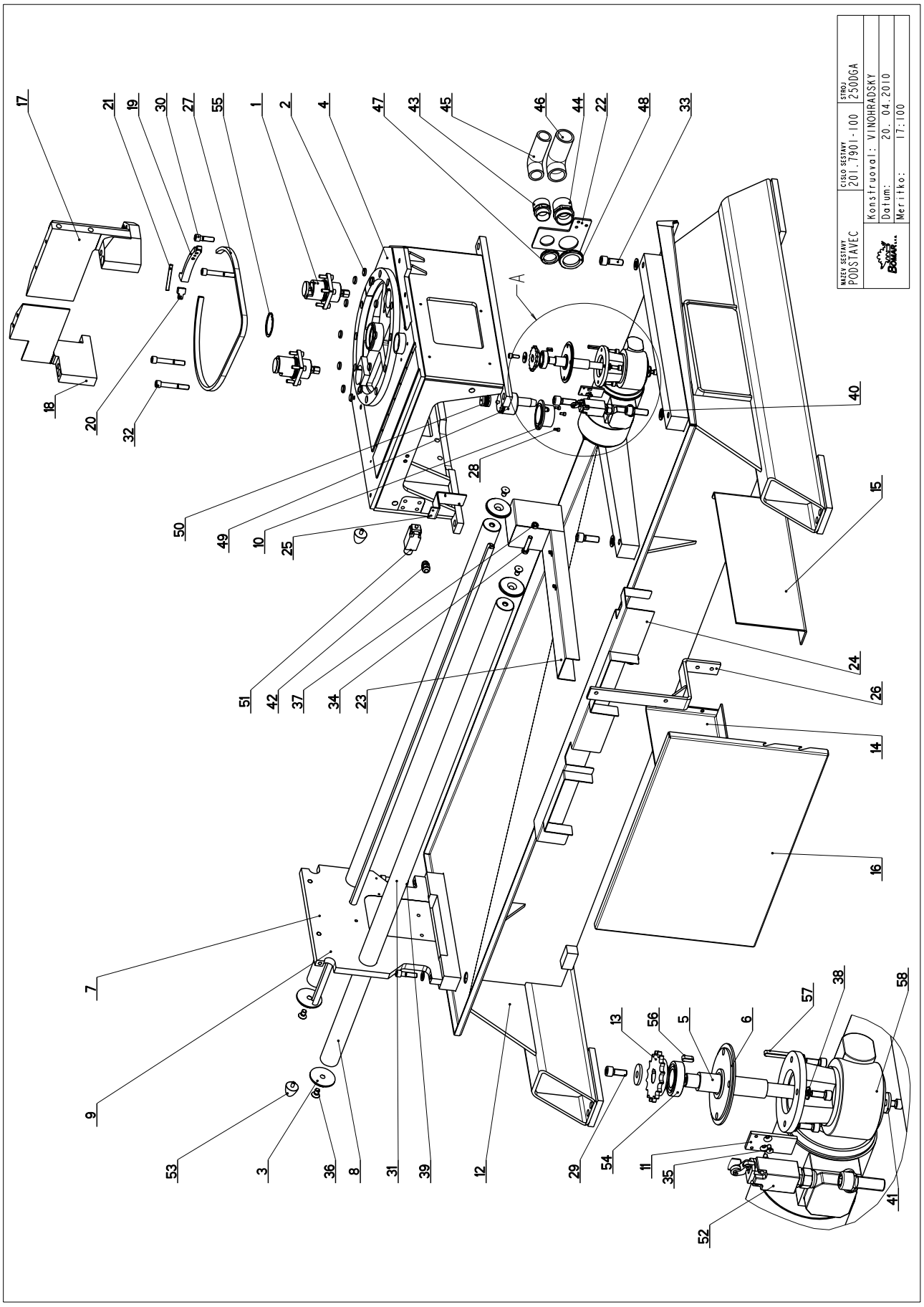
Cislo Sestavy	Ver.	Nazev sestavy
201.7903-000	1	SVERAK/VICE/SCHRAUBSTOCK

Poz.	Objednaci cislo	Ver.	Nazev polozky	Rozmer	Ks
1	201.7907-200	0	VALEC SVERAKU / VICE CYLINDER / SCHRAUBSTOCKZYLINDER		1
2	201.7907-400	0	VALEC / ROLLER / ZYLINDER		1
3	30.7903-001	3	VEDENI / GUIDE / BACKENFÜHRUNG		1
4	30.7903-002	2	CELIST / /	TYC 140x20	1
5	30.7903-003	2	TELESO SVERAKU / VICE BODY / SCHRAUBSTOCKKÖRPER		1
6	30.7903-004	0	KOSTKA / CUBE / WÜRFEL	TYC 60x40	1
7	30.7903-007	0	PAKA / LEVER / HEBEL	TYC 40x15	1
8	30.7903-016	0	LISTA / TRIM / LEISTE	HR 16x5	1
9	90.001.25.009	0	SROUB IMBUS / ALLEN HEAD BOLT / IMBUSSCHRAUBE	M5X16	25
10	90.001.25.010	0	SROUB IMBUS / ALLEN HEAD BOLT / IMBUSSCHRAUBE	M5X20	8
11	90.001.25.031	0	SROUB IMBUS / ALLEN HEAD BOLT / IMBUSSCHRAUBE	8x16	4
12	90.001.25.033	0	SROUB IMBUS / ALLEN HEAD BOLT / IMBUSSCHRAUBE	8x25	4
13	90.001.25.048	0	SROUB IMBUS / ALLEN HEAD BOLT / IMBUSSCHRAUBE	M10X30	4
14	90.002.2D.021	0	SROUB STAVECI / ADJUSTMENT BOLT / STELLSCHRAUBE	SROUB M6X20	2
15	90.100.55.004	0	MATICE / NUT / MUTTER	MATICE _ M6	2
16	90.150.50.005	0	PODLOZKA / WASHER / UNTERLEGSCHEIBE	PODLOZKA 8,4	4
17	90.150.50.006	0	PODLOZKA / WASHER / UNTERLEGSCHEIBE	PODLOZKA 10,5	3
18	99.200.269 (1)	0	VEDENI LINEARNI / LINEAR GUIDE / LINEARE FUHRUNG	MSA 20R 460 20/20N	1
19	99.200.274 (1)	0	VEDENI LINEARNI / LINEAR GUIDE / LINEARE FUHRUNG	MSA20R 540 30//30N	1
20	99.201.045 (1)	0	VOZIK LINEARNIHO VEDENI / LINEAR GUIDE CART / LINEARFÜHRUNGSWAGEN	MSA20E SS F0 N	4

1.ZRUS.LINEARNI VEDENI 99.200.,047 A NAHR.99.200.274,ZRUS.LIN.VEDENI 99.200.021 A NAHR.99.200.269,
ZRUS.LIN.VOZIK 99.201.012 A NAHR.99.201.045. 056/ZM078 7.3.2012 SLEZACKOVA

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

7.23. Podstavec / Untersatz / Base 1

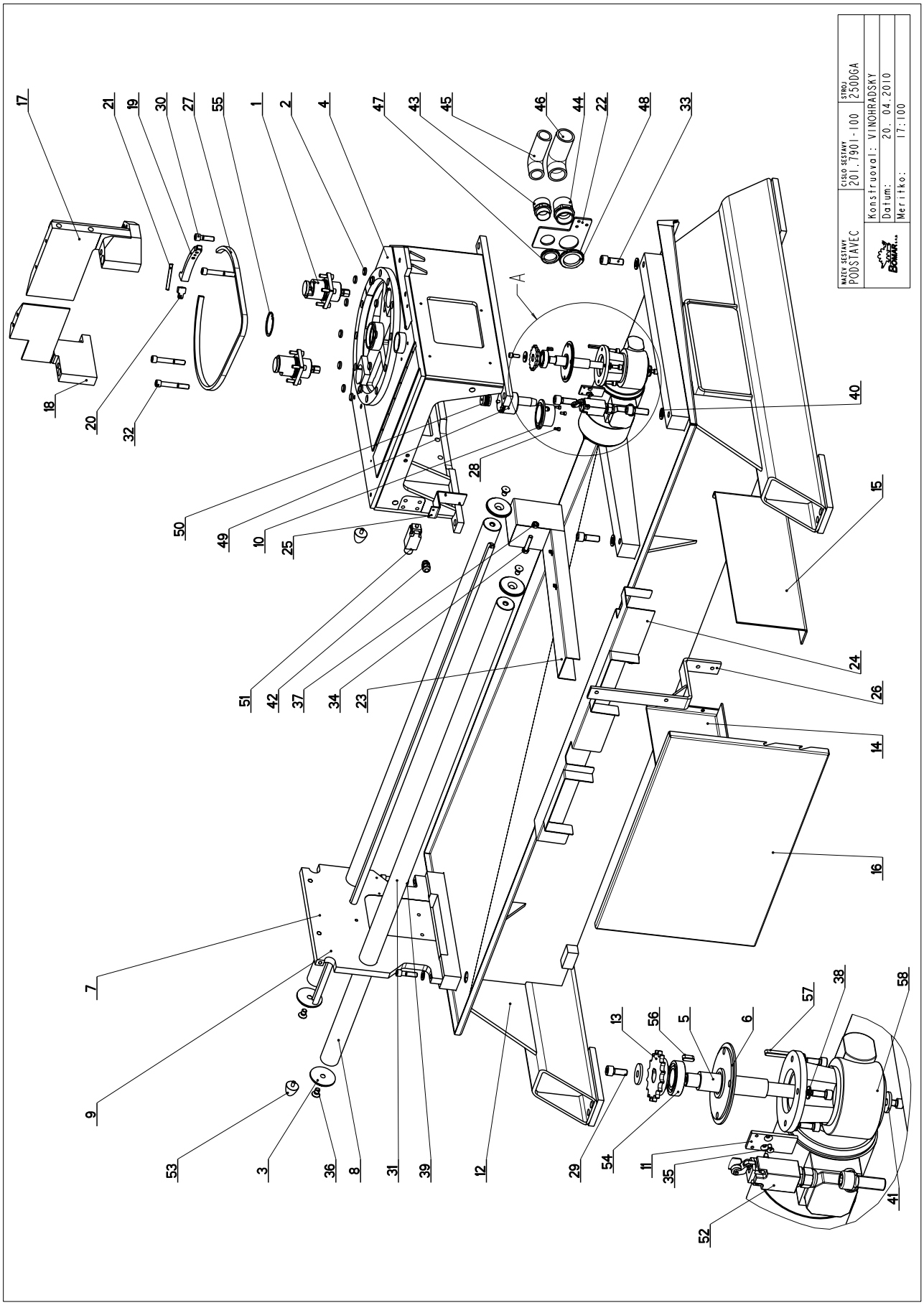


Manual version: 3.01 / Jan. 2011
Manual rev.: 1

Cislo Sestavy	Ver.	Nazev sestavy
201.7901-100	0	PODSTAVEC/BASE/UNTERSATZ

Poz.	Objednaci cislo	Ver.	Nazev polozky	Rozmer	Ks
1	201.7907-500	0	VALEC / ROLLER / ZYLINDER		2
2	30.0509-608	0	LISTA TRECI / FRICTION TRIM / FRIKTIONSLEISTE	d20	12
3	30.1804-010	0	PODLOZKA / WASHER / UNTERLEGSCHEIBE	d 70	4
4	30.7901-002	0	PODSTAVEC SVERAKU / VICE BASE / SCHRAUBSTOCKUNTERSATZ		1
5	30.7901-005	0	HRIDEL / SHAFT / WELLE	TYC 26	1
6	30.7901-006	0	PRIRUBA / FLANGE / FLANSCHE	P 12x112x112	1
7	30.7901-014	0	CELO / HEAD / STIRN	P 20x358x390	1
8	30.7901-020	0	TYC VODICI / LEAD POLE / FÜHRUNGSSTANGE	TYC 50h6-1767	2
9	30.7901-022	0	TYC / POLE / STANGE	TYC 20	1
10	30.7901-031	0	PRIRUBA / FLANGE / FLANSCHE	TYC 80	1
11	30.7901-032	0	DRZAK / HOLDER / HALTER	TYC 30x5	1
12	30.7901-101	0	PODSTAVEC / BASE / UNTERSATZ		1
13	30.7901-103	0	KOLO RETEZOVE / CHAIN WHEEL / KETTENRAD	08B-1 Z16-d8.51	1
14	30.7901-116	0	DRZAK / HOLDER / HALTER	P4x247	1
15	30.7901-117	0	DRZAK / HOLDER / HALTER	P4x247	1
16	30.7901-120	0	KRYT HYDRAULIKY / HYDRAULIC COVER / HYDRAULIKABDECKUNG	P2x482,3	1
17	30.7902-006	0	CELIST PEVNA / SOLID JAW / FESTE BACKE		1
18	30.7902-007	0	CELIST PEVNA / SOLID JAW / FESTE BACKE		1
19	30.7902-104	0	DRZAK / HOLDER / HALTER	P 20x85	1
20	30.7902-106	0	DRZAK / HOLDER / HALTER	TYC 20x12	1
21	30.7902-107	0	TYC ZAVITOVA / THREADED POLE / GEWINDESTANGE	d 8	1
22	30.7914-128	0	KONZOLA / CONSOLE / KONSOLE	P5-125	1
23	30.7914-129	0	KRYT / COVER / ABDECKUNG		1
24	30.7914-130	0	KRYT / COVER / ABDECKUNG	SVARENO	1
25	30.7914-131	0	KONZOLA / CONSOLE / KONSOLE	P3-40	1
26	30.7914-132	0	KONZOLA / CONSOLE / KONSOLE		1
27	49.200.020	0	RETEZ POHONOVY / DRIVE BELT / ANTRIEBSKETTE	08 B-d8.51	1
28	90.001.25.007	0	SROUB IMBUS / ALLEN HEAD BOLT / IMBUSSCHRAUBE	M5X10	3
29	90.001.25.032	0	SROUB IMBUS / ALLEN HEAD BOLT / IMBUSSCHRAUBE	8x20	6
30	90.001.25.060	0	SROUB IMBUS / ALLEN HEAD BOLT / IMBUSSCHRAUBE	M12X40	2
31	90.001.25.061	0	SROUB IMBUS / ALLEN HEAD BOLT / IMBUSSCHRAUBE	M12X45	2
32	90.001.25.065	0	SROUB IMBUS / ALLEN HEAD BOLT / IMBUSSCHRAUBE	M12X80	3
33	90.001.25.074	0	SROUB IMBUS / ALLEN HEAD BOLT / IMBUSSCHRAUBE	M16X45	4
34	90.005.55.028	0	SROUB 6HRANNY / 6 SIDED BOLT / SECHSKANTSCHRAUBE	SROUB M10X50	1
35	90.011.27.003	0	SROUB ZAPUSTNY / COUNTERSINK BOLT / SENKSCHRAUBE	SROUB M5X10	2
36	90.011.27.009	0	SROUB ZAPUSTNY / COUNTERSINK BOLT / SENKSCHRAUBE	SROUB M12X20	4

7.25. Podstavec / Untersatz / Base 2

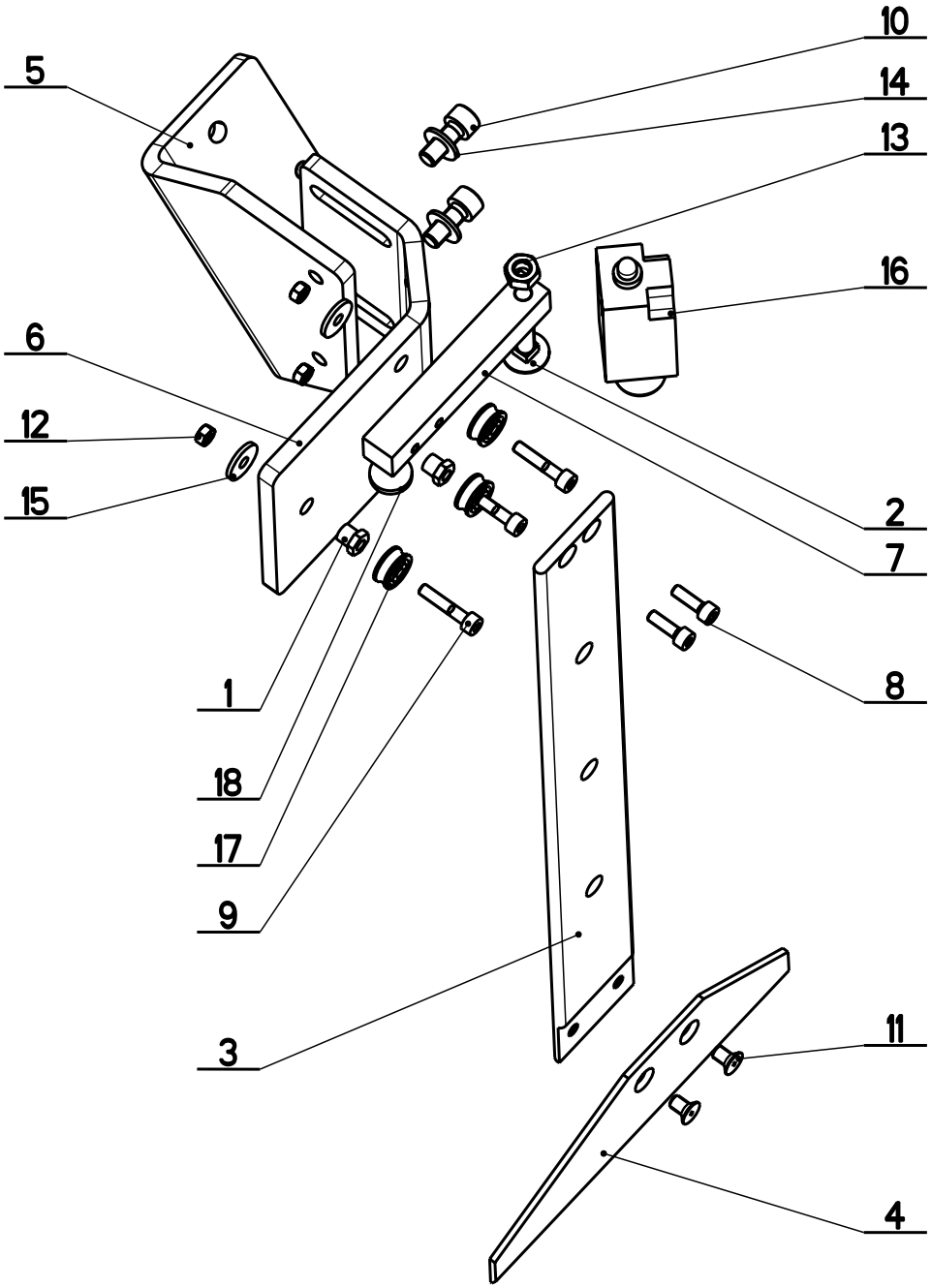


Manual version: 3.01 / Jan. 2011
Manual rev.: 1

Cislo Sestavy	Ver.	Nazev sestavy
201.7901-100	0	PODSTAVEC/BASE/UNTERSATZ

Poz.	Objednaci cislo	Ver.	Nazev polozky	Rozmer	Ks
37	90.100.55.006	0	MATICE / NUT / MUTTER	MATICE _ M10	1
38	90.150.50.005	0	PODLOZKA / WASHER / UNTERLEGSCHEIBE	PODLOZKA 8,4	4
39	90.150.50.007	0	PODLOZKA / WASHER / UNTERLEGSCHEIBE	PODLOZKA 13	2
40	90.150.50.009	0	PODLOZKA / WASHER / UNTERLEGSCHEIBE	PODLOZKA 17	4
41	90.151.50.005	0	PODLOZKA / WASHER / UNTERLEGSCHEIBE	PODLOZKA 8	2
42	91.070.011	0	VYVODKA / BUSHING / TÛLLE	M16x1.5	2
43	91.071.004	0	VYVODKA / BUSHING / TÛLLE	VYVODKA	1
44	91.071.005	0	PRUCHODKA / LEADTHROUGH / DURCHFÜHRUNG		1
45	91.071.025	0	VYVODKA / BUSHING / TÛLLE	VYVODKA HADICE PG29	1
46	91.071.028	0	VYVODKA / BUSHING / TÛLLE	VYVODKA HADICE PG36	1
47	91.072.007	0	MATICE / NUT / MUTTER	MATICE	1
48	91.072.008	0	MATICE / NUT / MUTTER		1
49	91.103.101	0	CIDLO / SENSOR / SENSOR	natáèeni ram.pr	1
50	91.103.102	0	SPOJKA / JOINT / KUPPLUNG	natáèeni ram.pr	1
51	91.173.007	0	SPINAC KONCOVY / END SWITCH / ENDSCHALTER		1
52	91.173.008	0	SPINAC KONCOVY / END SWITCH / ENDSCHALTER		1
53	94.700.001	0	SILENTBLOK / SILENT BLOCK / SCHWINGUNGSDÄMPFER		2
54	95.001.008	0	LOZISKO / BEARING / LAGER	6005 2RS	1
55	95.801.010	0	KROUZEK POJIST.VNITR / INSIDE SAFETY RING / SICHERUNGSRING INNEN	POJISTNY KROUZEK 62	1
56	95.810.005	0	PERO TESNE / SPRING / FEDER	PERO 6X6X16	1
57	95.810.034	0	PERO TESNE / SPRING / FEDER	PERO 6X6X50	1
58	99.001.029	0	PREVODOVKA SNEKOVA / WORM GEAR TRANSMISSION / SCHNECKENGETRIEBE	MVF44/F/20-0,37	1

7.27. Odměřování / Gehrungmessung / Measuring



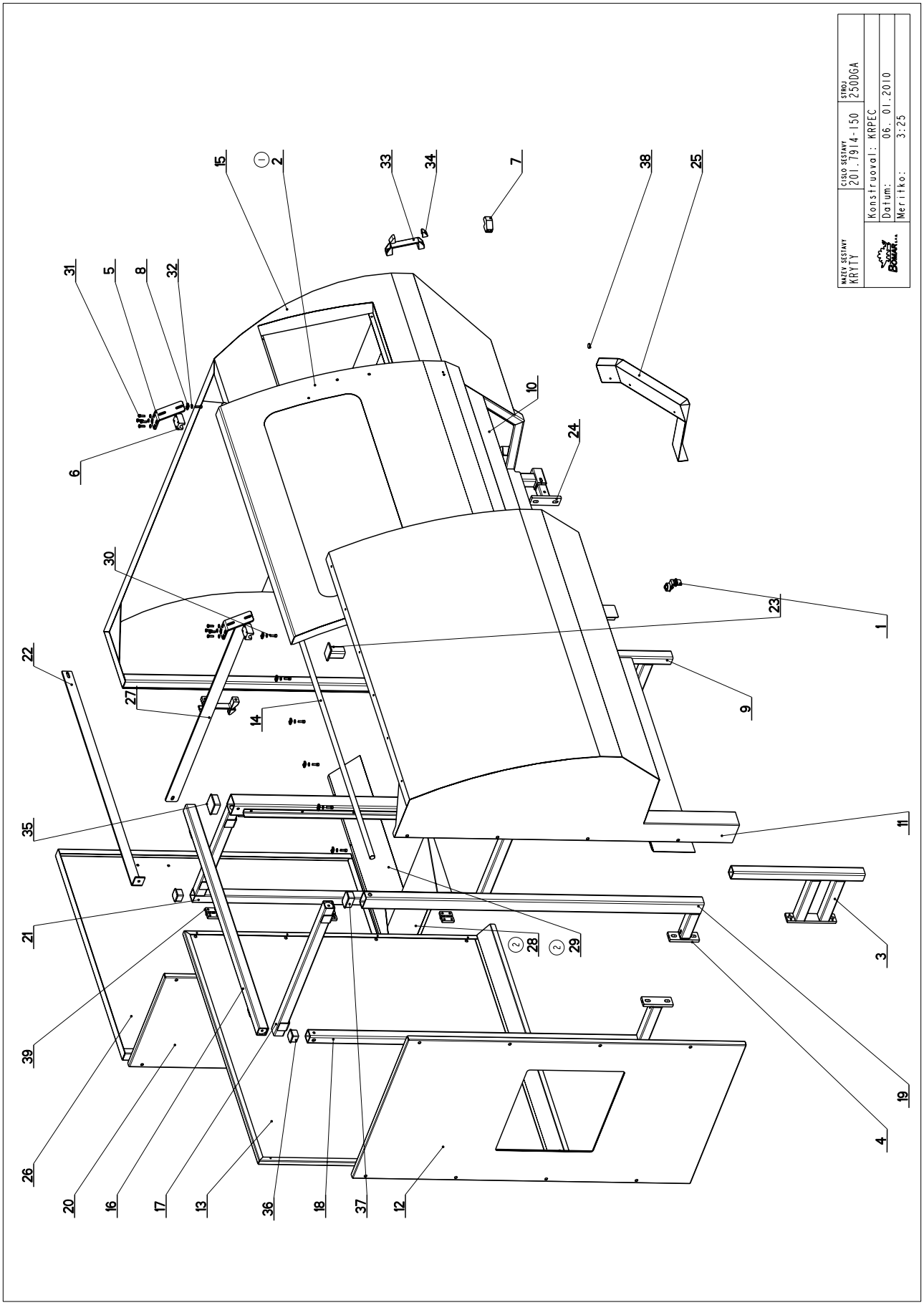
NAZEV SESTAVY	CISLO SESTAVY	STROJ
ODMEROVANI	201.7904-100	250DGA
	Konstruoval: HAJEK	
	Datum: 05. 11.2009	
	Meritko: 2:5	

Cislo Sestavy	Ver.	Nazev sestavy
201.7904-100	0	ODMEROVANI/MEASURING/GEHRUNGSMESSUNG

Poz.	Objednaci cislo	Ver.	Nazev polozky	Rozmer	Ks
1	30.0104-018 (1)	0	EXCENTR / CAM / EXZENTER	SK10	3
2	30.0702-013	0	SROUB / BOLT / SCHRAUBE	M8	1
3	30.7904-102	0	VEDENI / GUIDE / BACKENFÜHRUNG	TYC 50x6	1
4	30.7904-103	0	LISTA / TRIM / LEISTE	P 3x55x195	1
5	30.7904-106	0	DRZAK / HOLDER / HALTER	P8 - 120	1
6	30.7904-107	0	DRZAK / HOLDER / HALTER	P8 - 100	1
7	30.7904-108	0	KOSTKA / CUBE / WÜRFEL	TYC 16x16	1
8	90.001.25.009	0	SROUB IMBUS CERNENY / ALLEN HEAD BOLT / IMBUSSCHRAUBE	M5X16	2
9	90.001.25.011 (1)	0	SROUB IMBUS / ALLEN HEAD BOLT / IMBUSSCHRAUBE	M5X25	3
10	90.001.25.032	0	SROUB IMBUS CERNENY / ALLEN HEAD BOLT / IMBUSSCHRAUBE	8x20	2
11	90.011.27.004	0	SROUB ZAPUSTNY / COUNTERSINK BOLT / SENKSCHRAUBE	SROUB M6X10	2
12	90.100.55.003 (1)	0	MATICE DIN 934 / NUT / MUTTER	MATICE _ M5	3
13	90.100.55.005	0	MATICE DIN 934 / NUT / MUTTER	MATICE _ M8	1
14	90.150.50.005	0	PODLOZKA / WASHER / UNTERLEGSCHEIBE	PODLOZKA 8,4	2
15	90.151.50.006 (1)	0	PODLOZKA / WASHER / UNTERLEGSCHEIBE	PODLOZKA 5	3
16	91.173.007	0	SPINAC KONCOVY / END SWITCH / ENDSCHALTER	-RIWK	1
17	95.008.001	0	LOZISKO / BEARING / LAGER	YTLR 20/5	3
18	99.060.003	0	MAGNET / MAGNET / MAGNET		1

1.ZRUS.SROUB 30.7904-109,SROUB IMBUS M5x20 90.001.25.010 A NAHR.3x EXCENTR 0104-018,ZRUS.PODLOZKA 5.3 90.150.50.003,
PRIDANO 3x SROUB IMBUS M5x25 90.001.25.011,PRID. 2xMATICE M5 90.100.55.003,PRID.3xPODLOZKA VELKOPLOSNA 5 90.150.50.006.
239/ZM260 14.6.2007 SLEZACKOVA

7.29. Kryty / Deckel / Covers 1

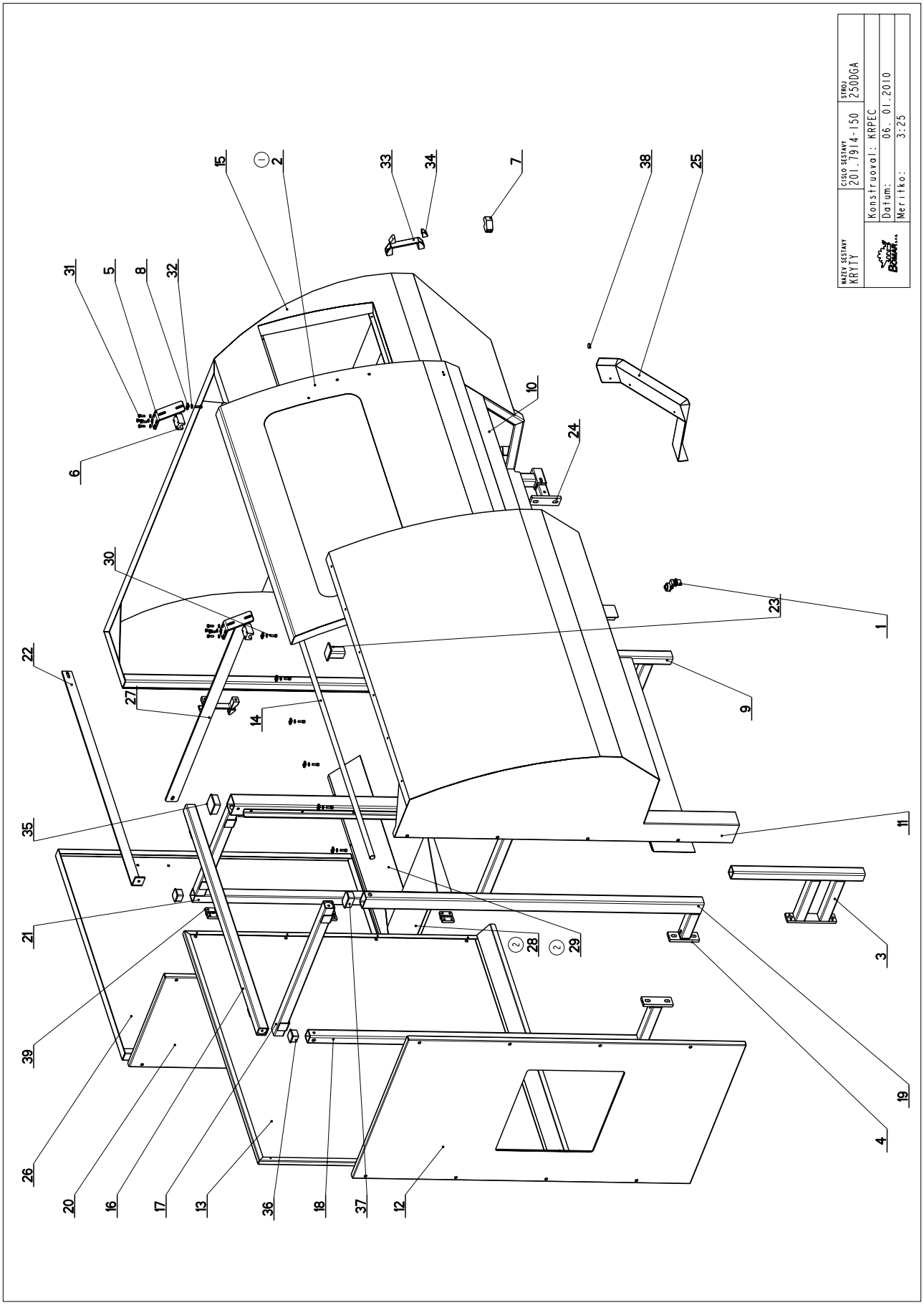


Manual version: 3.01 / Jan. 2011
Manual rev.: 1

Cislo Sestavy	Ver.	Nazev sestavy
201.7914-150	2	KRYTY/&NAZEV_EN/&NAZEV_DE

Poz.	Objednaci cislo	Ver.	Nazev polozky	Rozmer	Ks
1	201.7914-120	0	KLADKA / PULLEY / ROLLE		2
2	201.7914-159 (1)	0	DVERE / DOOR / TÜR		1
3	30-7914-126	0	KONZOLA / CONSOLE / KONSOLE		1
4	30.6714-647	0	DRZAK / HOLDER / HALTER		3
5	30.7914-108	0	DRZAK / HOLDER / HALTER	TYC 50x5	2
6	30.7914-109	0	KOSTKA / CUBE / WÜRFEL	TYC 35x25x1000	2
7	30.7914-113	0	KOSTKA / CUBE / WÜRFEL	TYC 35x25x1000 natur	1
8	30.7914-117	0	PODLOZKA / WASHER / UNTERLEGSCHEIBE	TYC 20x5	7
9	30.7914-127	0	KONZOLA / CONSOLE / KONSOLE		1
10	30.7914-149	0	KRYT / COVER / ABDECKUNG		1
11	30.7914-153	0	KRYT / COVER / ABDECKUNG		1
12	30.7914-155	0	KRYT / COVER / ABDECKUNG	VARENO	1
13	30.7914-156	0	KRYT / COVER / ABDECKUNG	P 1.5x1273.5	1
14	30.7914-157	0	TYC VODICI / LEAD POLE / FÜHRUNGSSTANGE	TYC 20	1
15	30.7914-158	0	KRYT / COVER / ABDECKUNG		1
16	30.7914-161	0	DRZAK / HOLDER / HALTER		1
17	30.7914-162	0	DRZAK / HOLDER / HALTER		1
18	30.7914-163	0	KONZOLA / CONSOLE / KONSOLE		1
19	30.7914-164	0	KONZOLA / CONSOLE / KONSOLE		1
20	30.7914-165	0	KRYT / COVER / ABDECKUNG	P 1.5x573	1
21	30.7914-167	0	KONZOLA / CONSOLE / KONSOLE	SVARENO	1
22	30.7914-168	0	VZPERA / PROP / STREBE	PLO 40x5	1
23	30.7914-169	0	PODPERA / SUPPORT / STÜTZE	SVARENO	1
24	30.7914-170	0	DRZAK / HOLDER / HALTER		2
25	30.7914-171	0	KRYT / COVER / ABDECKUNG		1
26	30.7914-173	0	DVERE / DOOR / TÜR	P1.5x1186.4	1
27	30.7914-174	0	PLECH / PLATE / BLECH	HR50x6	1
28	30.7914-180 (2)	0	KRYT / COVER / ABDECKUNG	P 1.5x347	1
29	30.7914-181 (2)	0	KRYT / COVER / ABDECKUNG	P 1.5x160	1
30	90.001.25.018	0	SROUB IMBUS / ALLEN HEAD BOLT / IMBUSSCHRAUBE	M6X20	7
31	90.005.55.008	0	6 HR SROUB ZIN / 6 SIDED BOLT / SECHSKANTSCHRAUBE	SROUB M6X20	8
32	90.150.50.004	0	PODLOZKA / WASHER / UNTERLEGSCHEIBE	PODLOZKA 6,4	15
33	94.012.001	0	RUKOJET / HANDLE / GRIFF		2
34	94.012.002	0	KRYT / COVER / ABDECKUNG		4
35	94.101.003	0	ZATKA / PLUG / STOPFEN	60x60x1,5-3,5	1
36	94.101.005	0	ZATKA / PLUG / STOPFEN	40x40x3	2

7.31. Kryty / Deckel / Covers 2



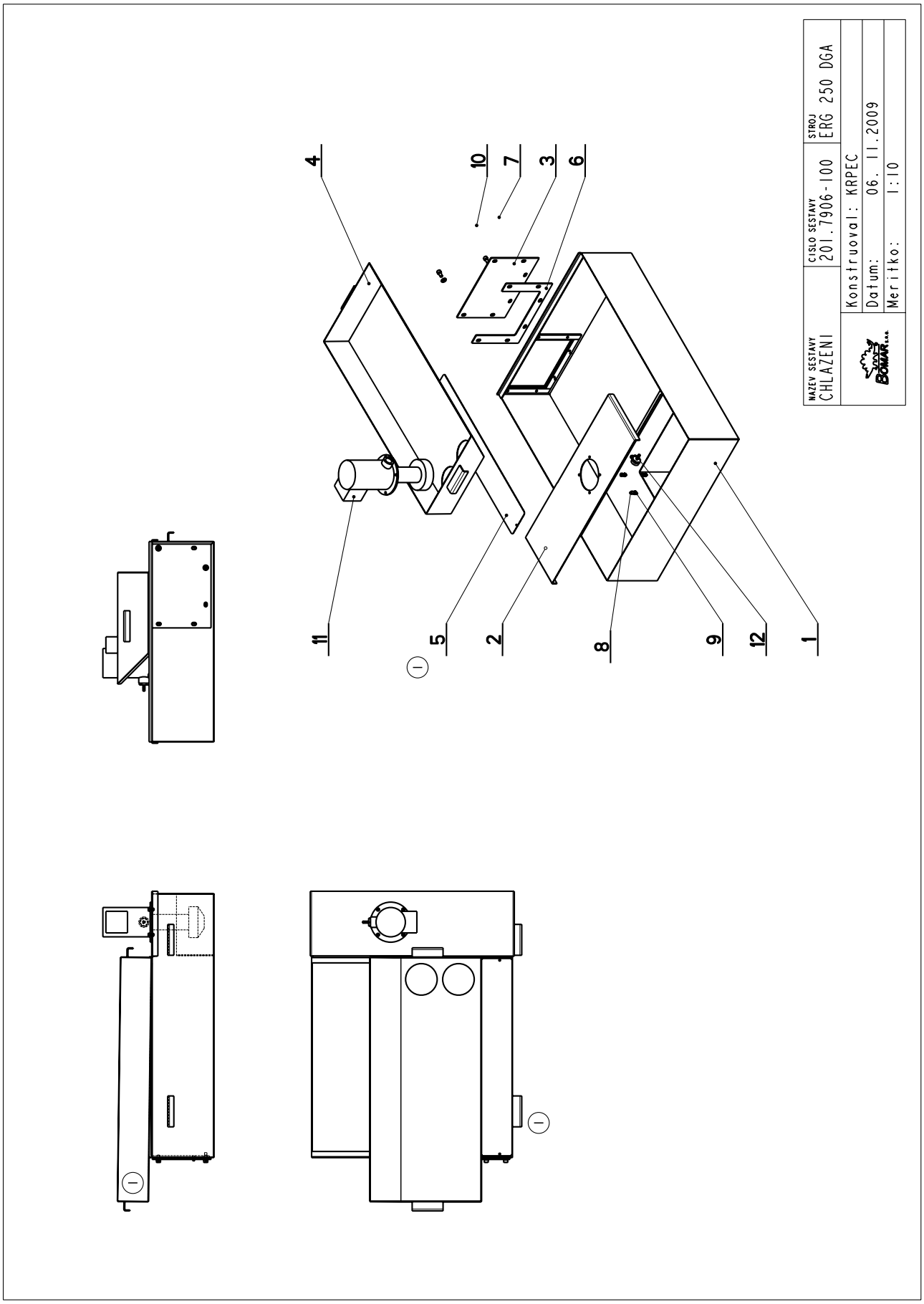
Manual version: 3.01 / Jan. 2011
Manual rev.: 1

37	94.101.009	0	ZATKA / PLUG / STOPFEN	60x40x3	1
38	99.060.003	0	MAGNET / MAGNET / MAGNET		2
39	99.100.007	0	PANT / HINGE / TÜRBAND		3

1.ZRUSENY DVERE 30.7914-152 A NAHRAZENY 201.7914-159. 168/ZM160 21.5.2008 SLEZACKOVA

2.PRIDANY KRYTY 30.7914-180, 30.7914-181. 002//ZM003 6.1.2010 SLEZACKOVA

7.33. Chlazení / Kuhlung / Cooling



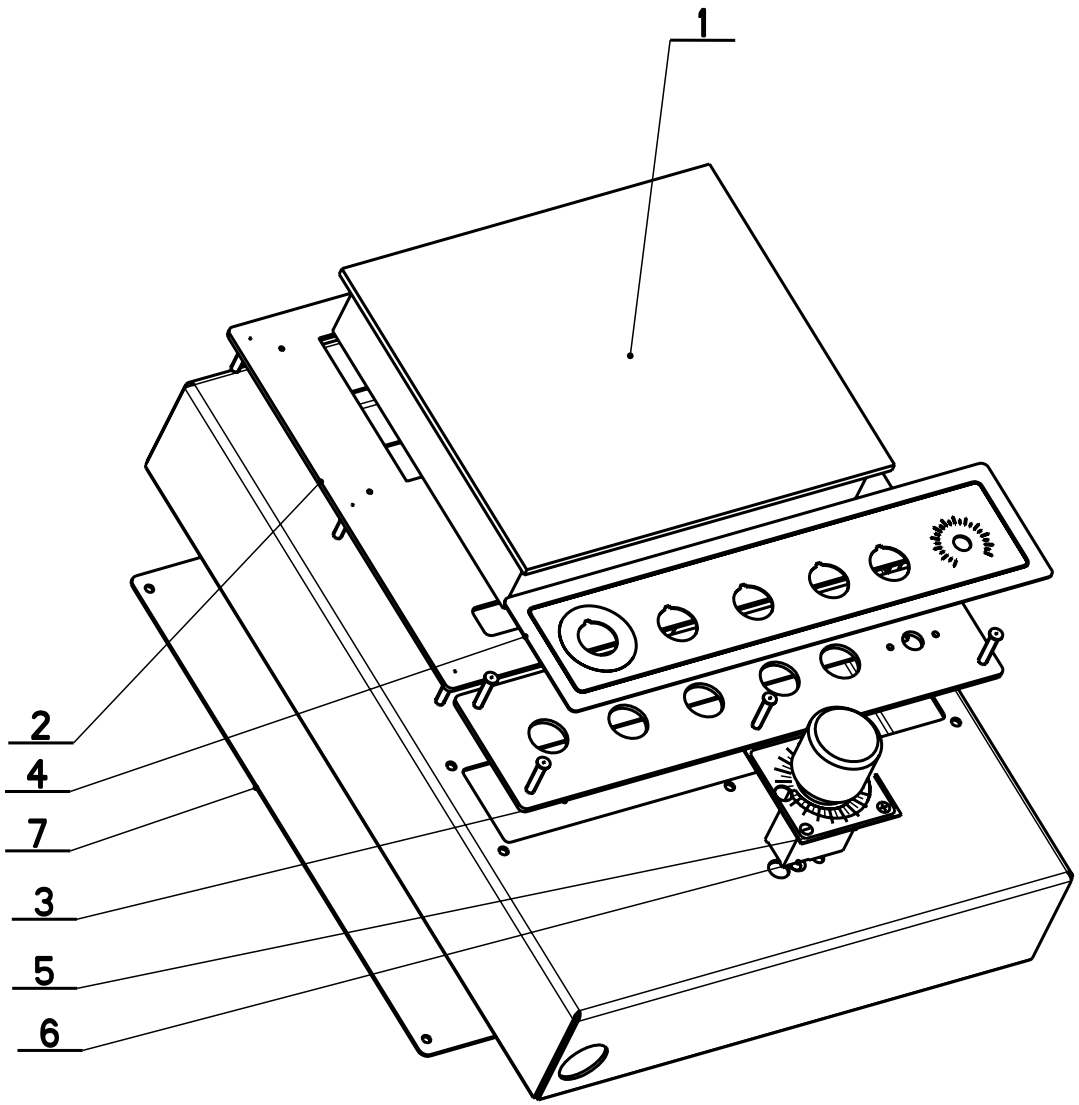
Manual version: 3.01 / Jan. 2011
Manual rev.: 1

Cislo Sestavy	Ver.	Nazev sestavy
201.7906-100	0	CHLAZENI/COOLING/KÜHLUNG

Poz.	Objednaci cislo	Ver.	Nazev polozky	Rozmer	Ks
1	30.7906-101	1	VANA / TANK / WANNE		1
2	30.7906-102	0	VIKO / COVER / DECKEL	P2x213.1	1
3	30.7906-104	0	VIKO / COVER / DECKEL	P3-184	1
4	30.7906-105	0	VANA / TANK / WANNE		1
5	30.7906-106 (1)	0	PLECH / PLATE / BLECH	P1.5-100	1
6	31.7217-032	0	TESNENI / SEALING / DICHTUNG	TL4	1
7	90.001.25.031	0	SROUB IMBUS CERNENY / ALLEN HEAD BOLT / IMBUSSCHRAUBE	8x16	6
8	90.001.25.092	0	SROUB IMBUS / ALLEN HEAD BOLT / IMBUSSCHRAUBE	M6X14	4
9	90.100.55.004	0	MATICE DIN 934 / NUT / MUTTER	MATICE _ M6	4
10	90.150.50.005	0	PODLOZKA / WASHER / UNTERLEGSCHEIBE	PODLOZKA 8,4	6
11	91.020.005	0	CERPADLO CHLAZENI / COOLING PUMP / KÜHLMITTELPUMPE	3COA 2-17	1
12	94.202.005	0	REDUKCE / REDUCTION / ADAPTOR / REDUKTION	3/4"-6	1

1.PRIDAN PLECH 30.7906-106. 030/ZM051 26.2.2009 SLEZACKOVA

7.35. Ovládací panel / Bedienpult / Control panel

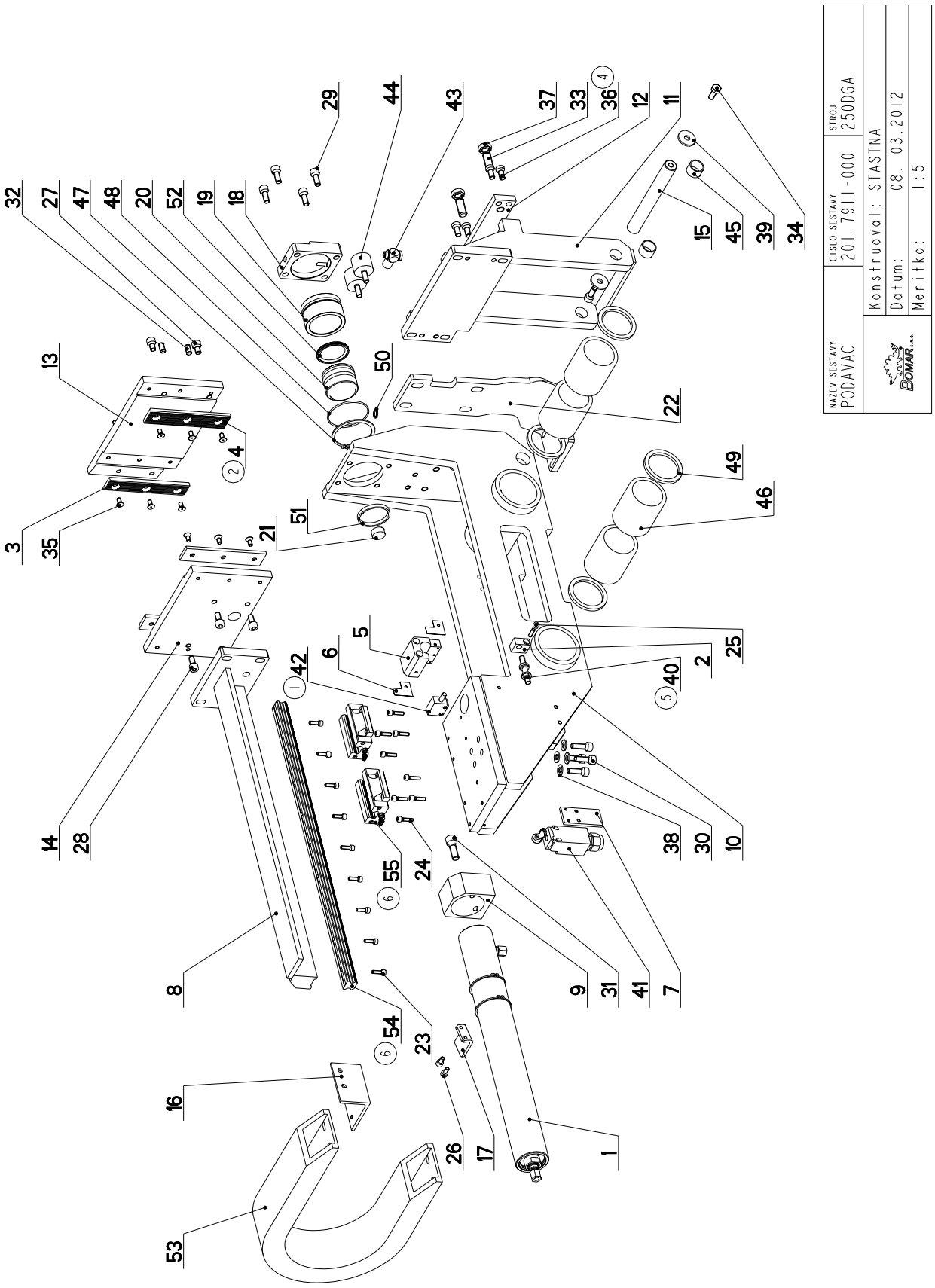


NAZEV SESTAVY	CISLO SESTAVY	STROJ
OVLADACI PANEL	201.7913-100	250DGA
	Konstruoval: KRPEC	
	Datum: 18. 01. 2010	
	Meritko: 3:10	

Cislo Sestavy	Ver.	Nazev sestavy
201.7913-100	0	OVLADACI PANEL/CONTROL PANEL/BEDIENPULT

Poz.	Objednaci cislo	Ver.	Nazev polozky	Rozmer	Ks
1	30.7913-101	0	SKRIN / /	SVARENO	1
2	30.7913-007	0	DESKA / BOARD / PLATTE		1
3	30.7913-008	0	DESKA / BOARD / PLATTE		1
4	31.7913-002	0	PANEL / PANEL / PANEL		1
5	31.0699-003	0	STITEK / LABEL / SCHILD	P 1-66	1
6	92.152.001	0	VENTIL SKRTICI / CHOKE VALVE / DROSSELVENTIL	VS01-04/R 2.5-0	1
7	30.7913-102	0	KRYT / COVER / ABDECKUNG	P1.5-300	1
8		0	SYSTEM RIDICI / CONTROL SYSTEM / STEUERUNGSSYSTEM		1

7.37. Podavač / Vorschhub / Feeder 1

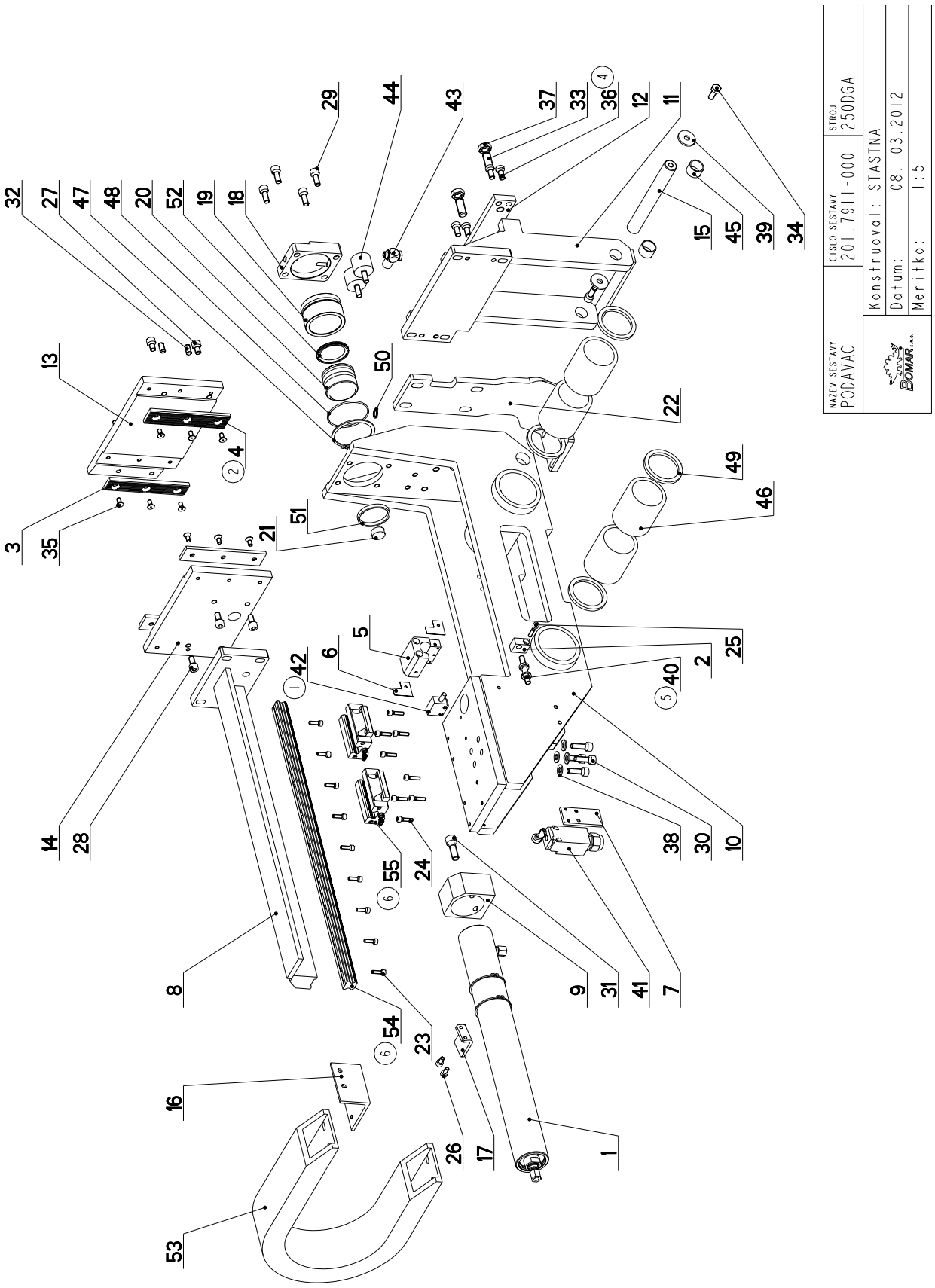


Cislo Sestavy	Ver.	Nazev sestavy
201.7911-000	6	PODAVAC/FEEDER/VORSCHUB

Poz.	Objednaci cislo	Ver.	Nazev polozky	Rozmer	Ks
1	201.7907-200	0	VALEC SVERAKU / VICE CYLINDER / SCHRAUBSTOCKZYLINDER		1
2	30.2114-001	0	DRZAK / HOLDER / HALTER		1
3	30.2803-006	0	LISTA CELISTI / JAW TRIM / BACKENLEISTE	HR 30x10	2
4	30.2811-011 (2)	3	LISTA CELISTI / JAW TRIM / BACKENLEISTE	HR 30x10	2
5	30.2911-029	0	DRZAK / HOLDER / HALTER	HR 50x50	1
6	30.2911-030	0	STERAC / WIPER / ABSTREIFER	P 0.2-26.5	2
7	30.7901-032	0	DRZAK / HOLDER / HALTER	TYC 30x5	1
8	30.7903-001	3	VEDENI / GUIDE / BACKENFÜHRUNG		1
9	30.7903-004	0	KOSTKA / CUBE / WÜRFEL	TYC 60x40	1
10	30.7911-001	3	TELESO / BODY / KÖRPER		1
11	30.7911-002	2	CELIST POHYBLIVA / MOVING JAW / BEWEGLICHE BACKE		1
12	30.7911-003	2	PRILOZKA / STRAP / LASCHE	TYC 35 x 10	1
13	30.7911-005	0	DESKA / BOARD / PLATTE	TYC 140x20	1
14	30.7911-006	1	DESKA / BOARD / PLATTE	TYC 140x20	1
15	30.7911-008	0	CEP / LUG / BOLZEN	TYC 20	1
16	30.7911-014	0	DRZAK / HOLDER / HALTER	PROFIL 70x50x5	1
17	30.7911-015	0	DORAZ / STOP PIECE / ANSCHLAG	HR 30 x 5	1
18	30.7911-051	0	VIKO / COVER / DECKEL	TYC 70x20	1
19	30.7911-052	0	TRUBKA / TUBE / ROHR	TRUBKA 62/50	1
20	30.7911-053	0	PIST / PISTON / KOLBEN	TYC 50	1
21	30.7911-058	0	PODLOZKA / WASHER / UNTERLEGSCHEIBE	TYC 20	1
22	30.7911-114	0	DRZAK / HOLDER / HALTER	P 10x135x362	1
23	90.001.25.009	0	SROUB IMBUS / ALLEN HEAD BOLT / IMBUSSCHRAUBE	M5X16	9
24	90.001.25.010	0	SROUB IMBUS / ALLEN HEAD BOLT / IMBUSSCHRAUBE	M5X20	8
25	90.001.25.011	0	SROUB IMBUS / ALLEN HEAD BOLT / IMBUSSCHRAUBE	M5X25	1
26	90.001.25.015	0	SROUB IMBUS / ALLEN HEAD BOLT / IMBUSSCHRAUBE	M6X10	2
27	90.001.25.029	0	SROUB IMBUS / ALLEN HEAD BOLT / IMBUSSCHRAUBE	M8X12	4
28	90.001.25.031	0	SROUB IMBUS / ALLEN HEAD BOLT / IMBUSSCHRAUBE	8x16	4
29	90.001.25.032	0	SROUB IMBUS / ALLEN HEAD BOLT / IMBUSSCHRAUBE	8x20	5
30	90.001.25.033	0	SROUB IMBUS / ALLEN HEAD BOLT / IMBUSSCHRAUBE	8x25	4
31	90.001.25.048	0	SROUB IMBUS / ALLEN HEAD BOLT / IMBUSSCHRAUBE	M10X30	1
32	90.002.2D.012	0	SROUB STAVECI / ADJUSTMENT BOLT / STELLSCHRAUBE	SROUB M8X16	4
33	90.002.2D.020	0	SROUB STAVECI / ADJUSTMENT BOLT / STELLSCHRAUBE	SROUB M12X30	2
34	90.005.55.015	0	SROUB 6HRANNY / 6 SIDED BOLT / SECHSKANTSCHRAUBE	SROUB M8X20	1

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

7.39. Podavač / Vorschhub / Feeder 2



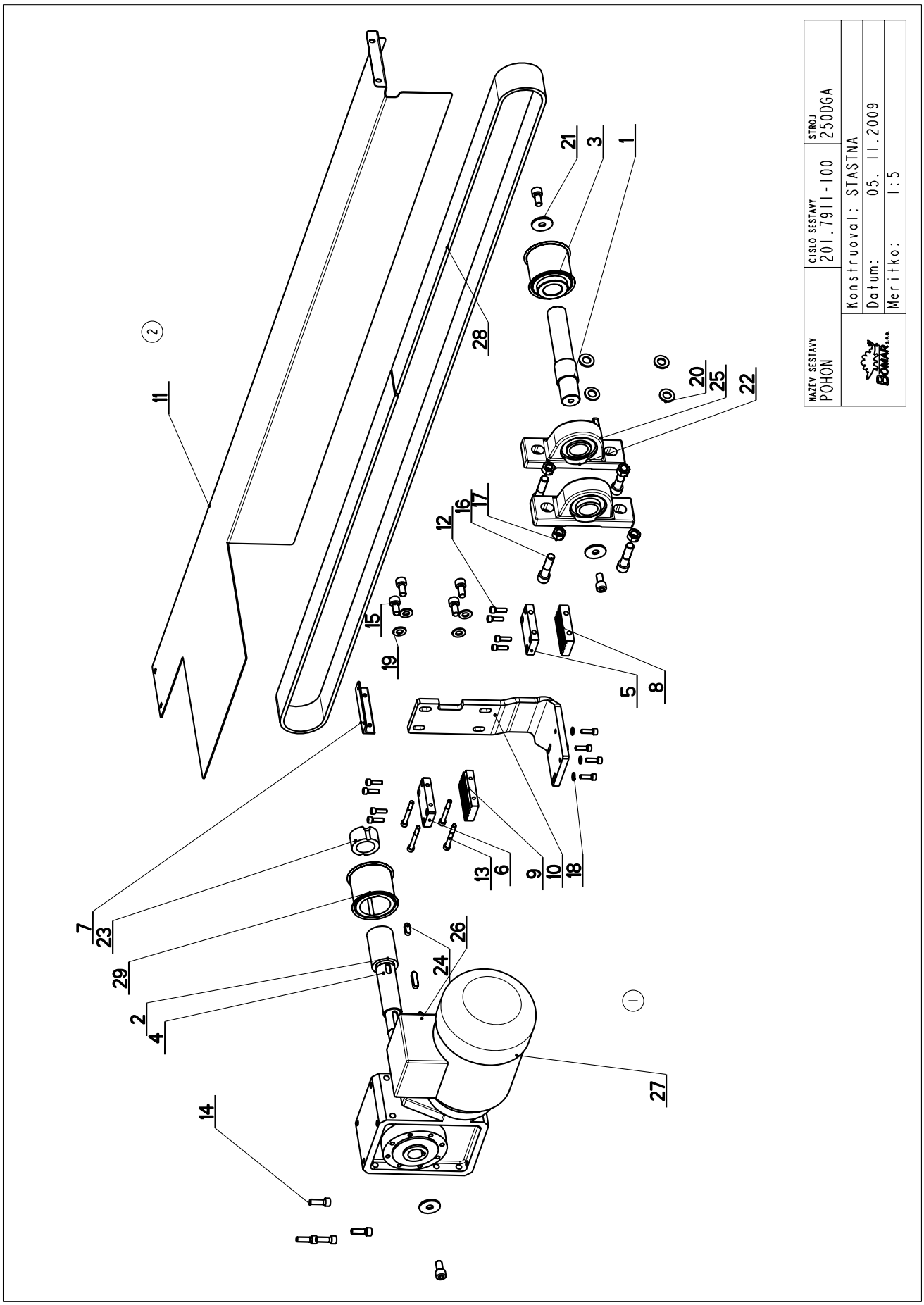
Manual version: 3.01 / Jan. 2011
Manual rev.: 1

35	90.011.27.005	0	ZAPUSTNY IMBUS / COUNTERSINK BOLT / SENKSCHRAUBE	SROUB M6X12	12
36	90.015.25.009 (4)	0	SROUB IMBUS / ALLEN HEAD BOLT / IMBUSSCHRAUBE	8x16	4
37	90.101.55.006	0	MATICE / NUT / MUTTER	MATICE M12	2
38	90.150.50.005	0	PODLOZKA / WASHER / UNTERLEGSCHEIBE	PODLOZKA 8,4	4
39	90.151.50.005	0	PODLOZKA / WASHER / UNTERLEGSCHEIBE	PODLOZKA 8	2
40	91.172.009 (5)	0	SPINAC INDUKTIVNI / /	JPS30D08I.5PNOFC	1
41	91.173.009	0	SPINAC KONCOVY / END SWITCH / ENDSCHALTER		1
42	91.270.006 (1)	0	SNIMAC MAGNET. / MAGNETIC SENSOR / MAGNETSENSOR		1
43	93.007.002	0	SROUBENI UHLOVE / ANGLE BOLTING / WINKELVERSCHRAUBUNG	G1/8"-8/6	1
44	94.700.002	0	SILENTBLOK / SILENT BLOCK / SCHWINGUNGSDÄMPFER	silentblok 80.1	4
45	95.700.003	0	POUZDRO / SLEEVE / BÜCHSE	20X15	3
46	95.710.002	0	POUZDRO / SLEEVE / BÜCHSE	50x70	4
47	95.800.021	0	SEGR HRIDEL. / OUTSIDE SAFETY RING / SICHERUNGSRING AUßEN	POJISTNY KROUZEK 62	1
48	96.001.030	0	KROUZEK O STATICKY / STATIC O RING / O-RING STATISCH	58X2	1
49	96.040.004	0	KROUZEK STIRACI / SCRAPER RING / ABSTREIFRING	50x62x5	4
50	96.082.001	0	TESNENI / SEALING / DICHTUNG	KROUZEK CU 10/14	1
51	96.084.001	0	KROUZEK VODICI / LEAD RING / FÜHRUNGSRING	GP6500500-T47	1
52	96.900.001	0	TESNENI KOMBINOVANE / COMBINATION SEALING / KOMBIDICHTUNG		1
53	99.170.012	0	RETEZ ENERGII / ENERGY BELT / ENERGIEKETTE	25 clanku+2 koncovky	1
54	99.200.274 (6)	0	VEDENI LINEARNI / LINEAR GUIDE / LINEARE FUHRUNG	MSA20R 540 30//30N	1
55	99.201.045 (6)	0	VOZIK LINEARNIHO VEDENI / LINEAR GUIDE CART / LINEARFÜHRUNGSWAGEN	MSA20E SS F0 N	2

1. ZRUSENA SOUCAST 91.270.007 SENZOR MAGNET A NAHRAZENA 91.270.006. 356/ZM152 16.6.2006 SLEZACKOVA
2. ZRUSENA SOUCAST 30.2803-006 LISTA CELISTI A NAHRAZENA 30.2811-011.ZM171 24.4.2007 VINOHRADSKY
3. ZRUS.4xSROUB M6x20(90.001.25.018) A NAHR.4xSROUBEM M8x20(90.001.25.032. 169/ZM177 15.6.2010 SLEZACKOVA
4. ZRUS.SROUB M8x20(90.001.25.032) A NAHR.M8x16 DIN7984 (90.015.25.009). 177/ZM259 24.9.2010 SLEZACKOVA
5. ZRUSEN SPINAC 91.172.001 A NAHR.91.172.009. 203/ZM245 9.9.2011 SLEZACKOVA
6. ZRUS.LIN.VEDENI 99.200.047 A NAHR.99.200.274,ZRUS.LIN.VOZIK 99.201.012 A NAHR.99.201.045.056/ZM078 7.3.2012 SLEZACKOVA

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

7.41. Pohon / Antrieb / Drive

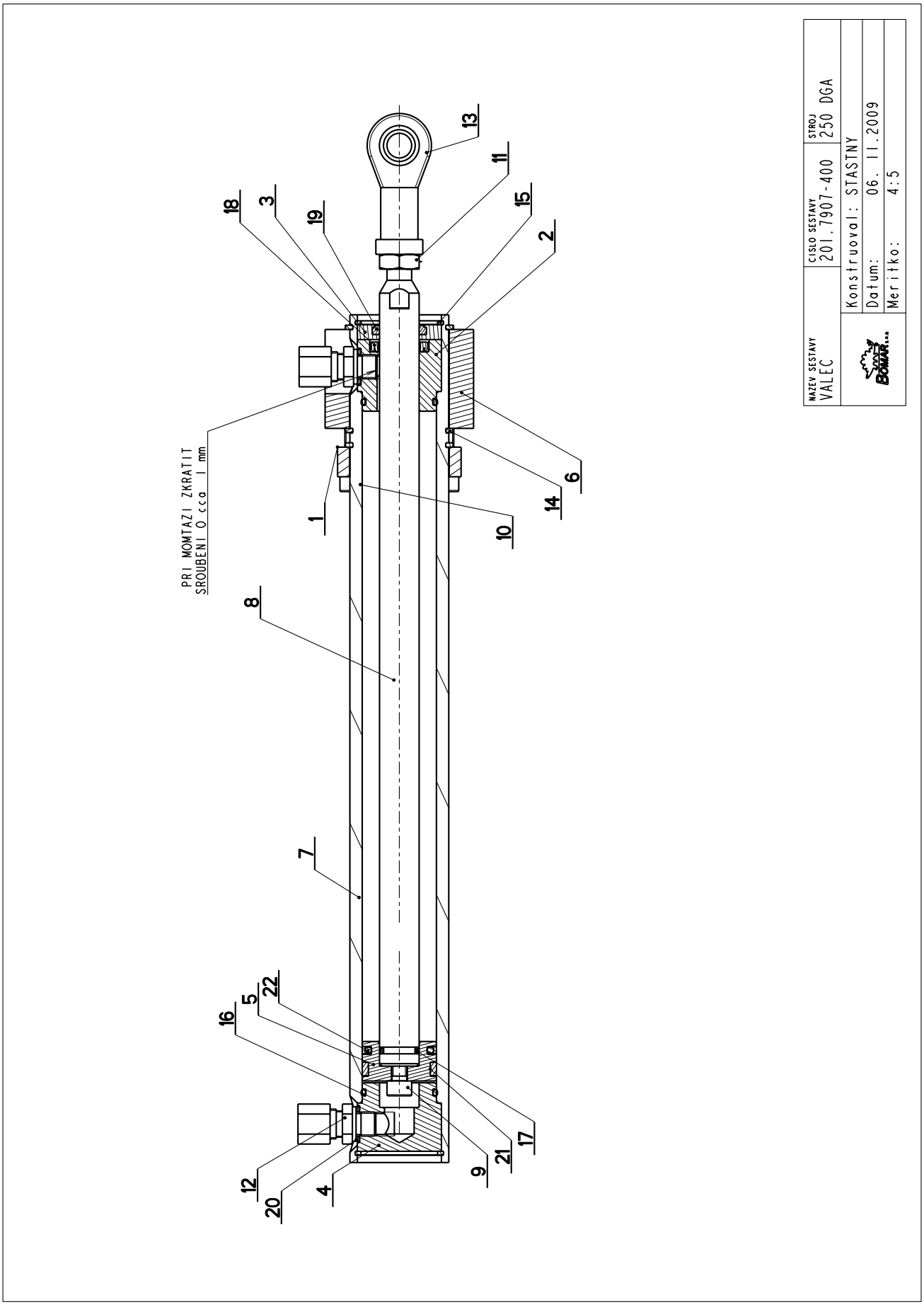


Cislo Sestavy	Ver.	Nazev sestavy
201.7911-100	0	POHON/DRIVE /ANTRIEB

Poz.	Objednaci cislo	Ver.	Nazev polozky	Rozmer	Ks
1	30.7911-102	0	HRIDEL / SHAFT / WELLE	d 35	1
2	30.7911-103	0	KROUZEK DISTANCNI / DISTANCE RING / DISTANZRING	TRUBKA 42x10	1
3	30.7911-104	0	REMENICE / PULLEY / RIEMENSCHEIBE	28-8M-50F HTD	1
4	30.7911-106	0	HRIDEL / SHAFT / WELLE	TYC 32	1
5	30.7911-108	0	DESKA / BOARD / PLATTE	HR 40x12	1
6	30.7911-109	0	DESKA / BOARD / PLATTE	HR 40x12	1
7	30.7911-110	0	LISTA / TRIM / LEISTE	L 20X3	1
8	30.7911-111	0	DESKA / BOARD / PLATTE	HR 40x16	1
9	30.7911-112	0	DESKA / BOARD / PLATTE	HR 40x16	1
10	30.7911-114	0	DRZAK / HOLDER / HALTER	P 10x135x362	1
11	30.7911-116 (2)	0	KRYT RAMENE / SHOULDER COVER / RAHMENABDECKUNG	P1.5-374.1	1
12	90.001.25.018	0	SROUB IMBUS / ALLEN HEAD BOLT / IMBUSSCHRAUBE	M6X20	12
13	90.001.25.024	0	SROUB IMBUS / ALLEN HEAD BOLT / IMBUSSCHRAUBE	M6X55	4
14	90.001.25.033	0	SROUB IMBUS CERNENY / ALLEN HEAD BOLT / IMBUSSCHRAUBE	8x25	4
15	90.001.25.046	0	SROUB IMBUS / ALLEN HEAD BOLT / IMBUSSCHRAUBE	M10X20	7
16	90.001.25.062	0	SROUB IMBUS / ALLEN HEAD BOLT / IMBUSSCHRAUBE	M12X50	4
17	90.100.55.007	0	MATICE DIN 934 / NUT / MUTTER	MATICE _ M12	4
18	90.150.50.004	0	PODLOZKA / WASHER / UNTERLEGSCHEIBE	PODLOZKA 6,4	4
19	90.150.50.006	0	PODLOZKA DIN125 / WASHER / UNTERLEGSCHEIBE	PODLOZKA 10,5	4
20	90.150.50.007	0	PODLOZKA DIN125 / WASHER / UNTERLEGSCHEIBE	PODLOZKA 13	4
21	90.151.50.001	0	PODLOZKA / WASHER / UNTERLEGSCHEIBE	PODLOZKA 10	3
22	95.160.002	0	LOZISKO / BEARING / LAGER	206	2
23	95.710.004	0	POUZDRO UPINACI / FIXING SLEEVE / SPANNHÜLSE	Taper lock 1210	1
24	95.810.006	0	PERO TESNE / SPRING / FEDER	PERO 8X7X20	1
25	95.810.010	0	PERO TESNE / SPRING / FEDER	PERO 10X8X40	1
26	95.810.015	0	PERO / SPRING / FEDER	PERO 8x7x30	2
27	99.001.030 (1)	0	PREVODOVKA / TRANSMISSION / GETRIEBE	W 63 U 19 P80 B	1
28	99.024.006	0	REMEN OZUBENY / COG BELT / ZAHNRIEMEN	HTD 8M 50	1
29	99.280.014	0	REMENICE / PULLEY / RIEMENSCHEIBE	28-8M-50F HTD T	1

1. VYMENA PREVODOVKY SNEKOVE W63 U P80 B14 i=15 NAHRAZENA W63 U 19 P80 B14 V5 PV 91.001.030. 222/ZM029. 5.4.2006 SLEZACKOVA
2. ZRUSENY KRYTY 30.7911-119, 30.7911-115, KARTACEK 49.250.004, NOVY KRYT 30.7911-116 104/ZM062 25.3.2008 KRPEC

7.43. Válec / Zylinder / Roller 1



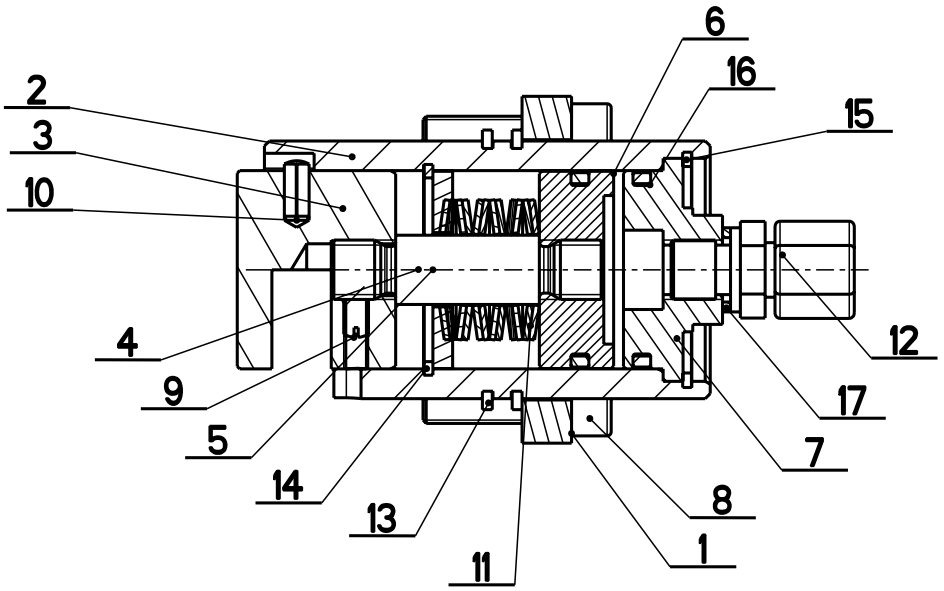
Manual version: 3.01 / Jan. 2011
Manual rev.: 1

Cislo Sestavy	Ver.	Nazev sestavy
201.7907-400	0	VALEC/ROLLER/ZYLINDER

Poz.	Objednaci cislo	Ver.	Nazev polozky	Rozmer	Ks
1	30.6803-006	0	VIKO / COVER / DECKEL	TYC 50x12	1
2	30.6807-103	0	VIKO / COVER / DECKEL	TYC 35	1
3	30.6807-104	0	VIKO / COVER / DECKEL	TYC 35	1
4	30.6807-105	0	VIKO / COVER / DECKEL	TYC 35	1
5	30.6807-106	0	PIST / PISTON / KOLBEN	TYC 32	1
6	30.7903-015	0	KOSTKA / CUBE / WÜRFEL	TYC 60x40	1
7	30.7907-401	0	VALEC / ROLLER / ZYLINDER	TRUBKA 40/30	1
8	30.7907-402	0	PISTNICE / PISTON ROD / KOLBENSTANGE	TYC 16	1
9	90.001.25.017	0	SROUB IMBUS CERNENY / ALLEN HEAD BOLT / IMBUSSCHRAUBE	M6X16	1
10	90.001.25.018	0	SROUB IMBUS / ALLEN HEAD BOLT / IMBUSSCHRAUBE	M6X20	4
11	90.101.55.009	0	MATICE / NUT / MUTTER	MATICE M10X1,25	1
12	92.002.102	0	SROUBENI PRIME / DIRECT BOLTING / GERADE VERSCHRAUBUNG	S-GEV-8LLR	2
13	95.170.001	0	HLAVICE / HEAD / KOPF	M10x1,25	1
14	95.800.015	0	KROUZEK POJIST.VNEJS / OUTSIDE SAFETY RING / SICHERUNGSRING AUßEN	POJISTNY KROUZEK 40	3
15	95.801.026	0	SEGR DIRA / INSIDE SAFETY RING / SICHERUNGSRING INNEN	POJISTNY KROUZEK 34	2
16	96.001.008	0	KROUZEK O STATICKY / STATIC O RING / O-RING STATISCH	26X2	2
17	96.002.006	0	O-KROUZEK DYNAMIC / DYNAMIC O RING / O-RING DYNAMISCH	12X2	1
18	96.041.001	0	KROUZEK / RING / RING	16x24x4	1
19	96.060.001	0	KROUZEK STIRACI / SCRAPER RING / ABSTREIFRING	16x22	1
20	96.082.001	0	KROUZEK TESNICI / SEAL RING / DICHTUNGSRING	10/14	2
21	96.084.002	0	KROUZEK VODICI / LEAD RING / FÜHRUNGSRING		1
22	96.900.007	0	TESNENI KOMBINOVANE / COMBINATION SEALING / KOMBIDICHTUNG		1

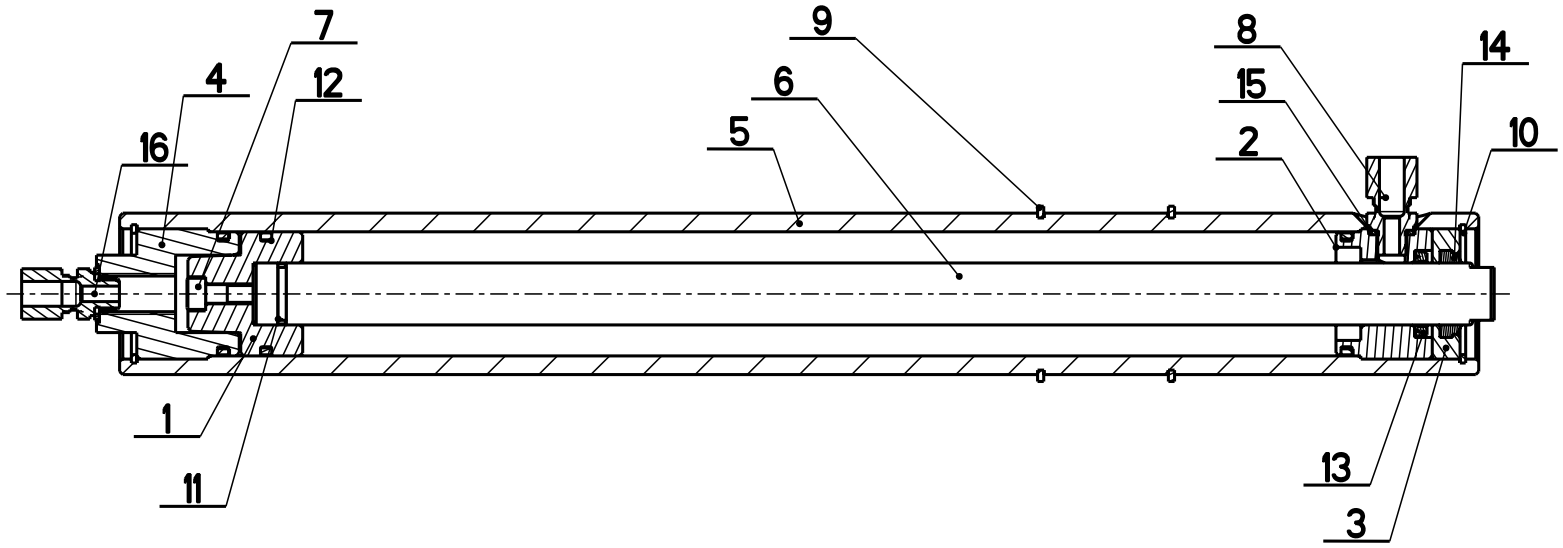
Cislo Sestavy	Ver.	Nazev sestavy
201.7907-500	0	VALEC/ROLLER/ZYLINDER

Poz.	Objednaci cislo	Ver.	Nazev polozky	Rozmer	Ks
1	30.3511-009	0	PRILOZKA / STRAP / LASCHE	HR 70x10	1
2	30.7907-501	0	TRUBKA / TUBE / ROHR	TRUBKA 52/40	1
3	30.7907-503	0	PIST / PISTON / KOLBEN	TYC 46	1
4	30.7907-504	0	TAHLO / GUY ROD / ZUGSTANGE	TYC 14	1
5	30.7907-505	0	PODLOZKA / WASHER / UNTERLEGSCHEIBE	D 40	1
6	30.7907-507	0	PIST / PISTON / KOLBEN	TYC 45	1
7	30.7907-508	0	VIKO / COVER / DECKEL	d 45	1
8	90.001.25.034	0	SROUB IMBUS / ALLEN HEAD BOLT / IMBUSSCHRAUBE	M8X30	4
9	90.003.2D.003	0	SROUB STAVECI / ADJUSTMENT BOLT / STELLSCHRAUBE	SROUB M5X12	1
10	90.303.0Z.006	0	KOLIK / PIN / BOLZEN	KOLIK 5X12	1
11	90.350.0Z.014	0	PRUZINA TALIROVA / DISC SPRING / TELLERFEDER	28x14 2x1 2x2 1	12
12	92.002.101	0	SROUBENI PRIME / DIRECT BOLTING / GERADE VERSCHRAUBUNG		1
13	95.800.019	0	KROUZEK POJIST.VNEJS / OUTSIDE SAFETY RING / SICHERUNGSRING AUßEN	POJISTNY KROUZEK 52	2
14	95.801.005	0	KROUZEK POJIST.VNITR / INSIDE SAFETY RING / SICHERUNGSRING INNEN	POJISTNY KROUZEK 40	1
15	95.801.007	0	KROUZEK POJIST.VNITR / INSIDE SAFETY RING / SICHERUNGSRING INNEN	POJISTNY KROUZEK 45	1
16	96.002.017	0	KROUZEK O DYNAMICKY / DYNAMIC O RING / O-RING DYNAMISCH	34X3	2
17	96.082.002	0	TESNENI / SEALING / DICHTUNG	KROUZEK CU 13/17	1



Cislo Sestavy	Ver.	Nazev sestavy
201.7907-200	0	VALEC SVERAKU/VICE CYLINDER/SCHRAUBSTOCKZYLINDER

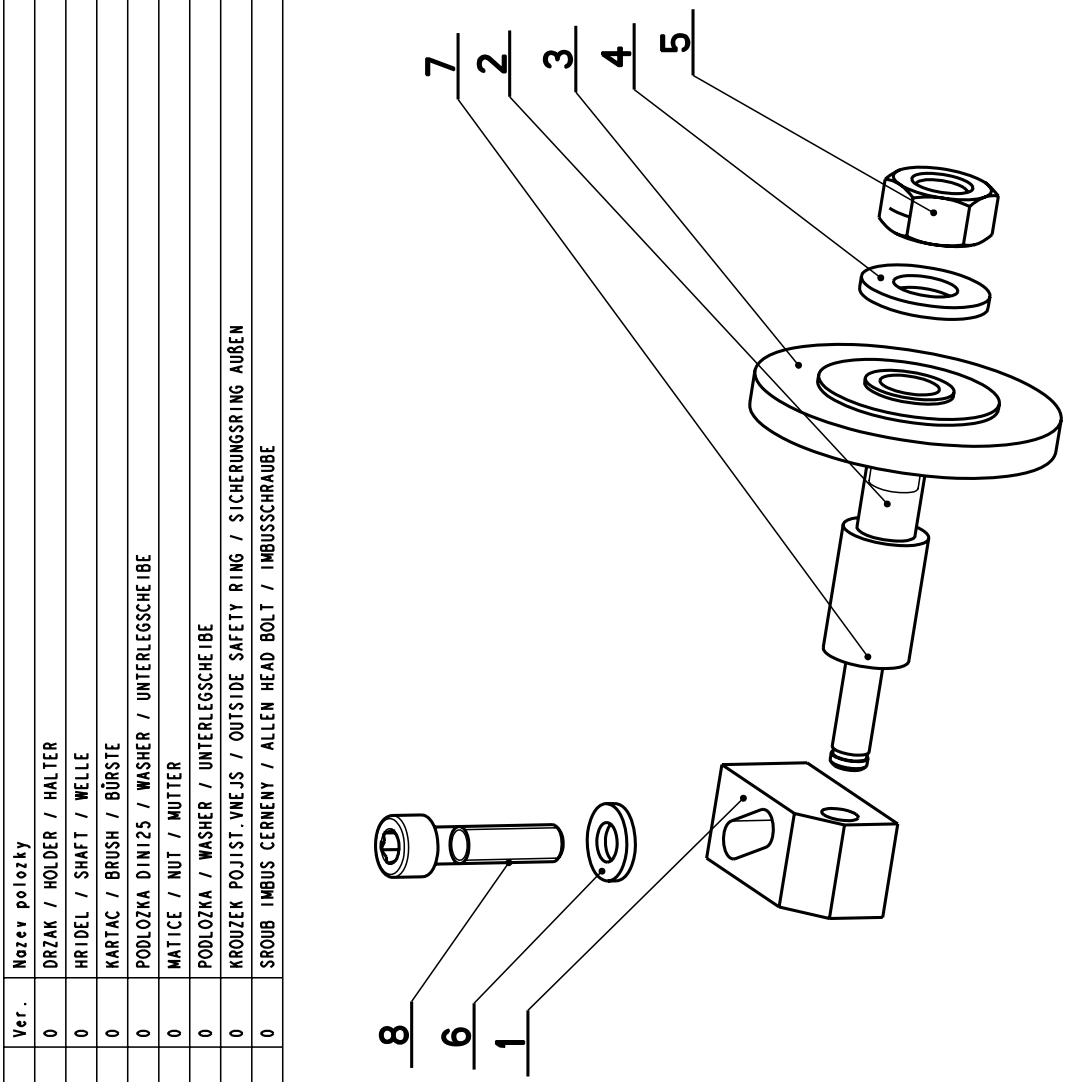
Poz.	Objednaci cislo	Ver.	Nazev polozky	Rozmer	Ks
1	30.2107-001	0	PIST / PISTON / KOLBEN	d 45	1
2	30.2107-002	0	PRIRUBA / FLANGE / FLANSCHE	TYC 45	1
3	30.2107-003	0	VIKO / COVER / DECKEL	d 45	1
4	30.2107-004	0	VIKO / COVER / DECKEL	d45	1
5	30.7907-201	0	VALEC VZDUCHOVY / AIR CYLINDER / LUFTZYLINDER	TRUBKA 52/40	1
6	30.7907-202	0	PISTNICE / PISTON ROD / KOLBENSTANGE	TYC 20	1
7	90.001.25.019	0	SROUB IMBUS CERNENY / ALLEN HEAD BOLT / IMBUSSCHRAUBE	M6X25	1
8	92.002.102	0	SROUBENI PRIME / DIRECT BOLTING / GERADE VERSCHRAUBUNG	S-GEV-8LLR	2
9	95.800.019	0	KROUZEK POJIST.VNEJS / OUTSIDE SAFETY RING / SICHERUNGSRING AUßEN	POJISTNY KROUZEK 52	2
10	95.801.006	0	SEGR DIRA / INSIDE SAFETY RING / SICHERUNGSRING INNEN	POJISTNY KROUZEK 42	2
11	96.002.007	0	O-KROUZEK DYNAMIC / DYNAMIC O RING / O-RING DYNAMISCH	16X2	1
12	96.002.017	0	O-KROUZEK DYNAMIC / DYNAMIC O RING / O-RING DYNAMISCH	34X3	3
13	96.041.002	0	KROUZEK / RING / RING	20x28x4	1
14	96.060.002	0	KROUZEK STIRACI / SCRAPER RING / ABSTREIFRING	KROUZEK STIRACI 20	1
15	96.082.001	0	KROUZEK TESNICI / SEAL RING / DICHTUNGSRING	KROUZEK CU 10/14	1
16	96.082.002	0	KROUZEK CU TESNICI / SEAL RING / DICHTUNGSRING	KROUZEK CU 13/17	1



7.47. Kartáč / Bürste / Brush

Cislo Sestavy	Ver.	Nazev sestavy
201.0704-100	0	KARTAC/BRUSH/BÜRSTE

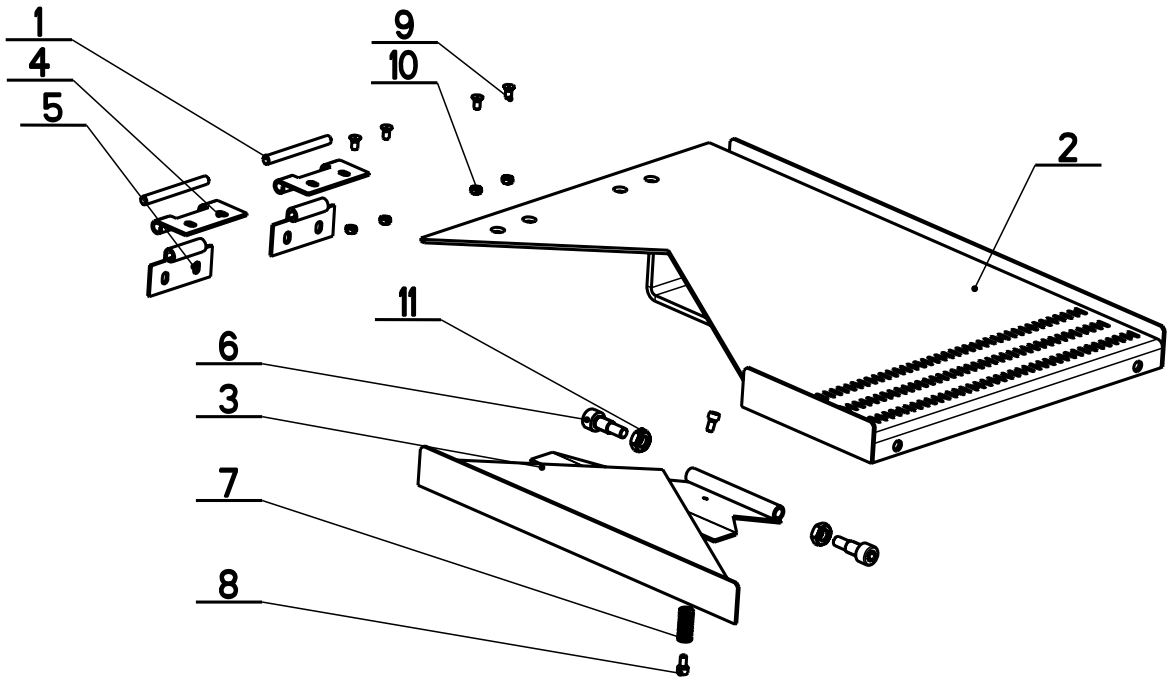
Poz.	Objednaci cislo	Ver.	Nazev polozky	Rozmer	Ks
1	30.0104-022	0	DRZAK / HOLDER / HALTER	HR 16x16	1
2	30.0704-029	0	HRIDEL / SHAFT / WELLE	d 14	1
3	31.0704-031	0	KARTAC / BRUSH / BÜRSTE		1
4	90.150.50.006	0	PODLOZKA DIN125 / WASHER / UNTERLEGSCHEIBE	PODLOZKA 10,5	1
5	90.100.55.006	0	MATICE / NUT / MUTTER	MATICE - M10	1
6	90.150.50.004	0	PODLOZKA / WASHER / UNTERLEGSCHEIBE	PODLOZKA 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 CERNENY / ALLEN HEAD BOLT / IMBUSSCHRAUBE	M6X25	1



Manual version: 3.01 / Jan. 2011
Manual rev.: 1

Cislo Sestavy	Ver.	Nazev sestavy
201.7914-210	0	SKLUZ/SLIDE/RUTSCH

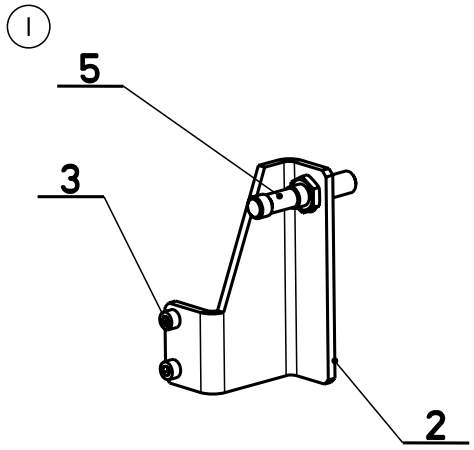
Poz.	Objednaci cislo	Ver.	Nazev polozky	Rozmer	Ks
1	30.7217-028	0	CEP / LUG / BOLZEN	7h9	2
2	30.7914-211	0	SKLUZ / SLIDE / RUTSCH		1
3	30.7914-212	0	STUL / TABLE / TISCH		1
4	30.7914-213	0	PANT / HINGE / TÛRBAND	P 2x54.3x70	2
5	30.7914-214	0	PANT / HINGE / TÛRBAND	P 2x54.3x70	2
6	30.7914-305	0	SROUB / BOLT / SCHRAUBE	SROUB 10x30	2
7	31.6016-003	0	PRUZINA / SPRING / FEDER	d 11.6x2	1
8	90.001.25.007	0	SROUB IMBUS CERNENY / ALLEN HEAD BOLT / IMBUSSCHRAUBE	M5X10	2
9	90.011.27.003	0	SROUB ZAPUSTNY / COUNTERSINK BOLT / SENKSCHRAUBE	SROUB M5X10	4
10	90.100.55.003	0	MATICE DIN 934 / NUT / MUTTER	MATICE _ M5	4
11	90.101.55.002	0	MATICE NIZKA / NUT / MUTTER	MATICE M10	2

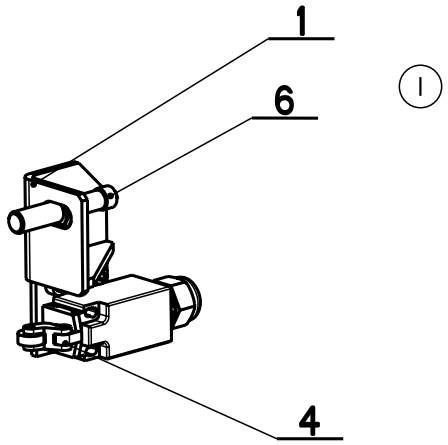


Cislo Sestavy	Ver.	Nazev sestavy
201.7911-310	0	ZAVORA OPTICKA/OPTICAL GATE/LICHTSCHRANKE

Poz.	Objednaci cislo	Ver.	Nazev polozky	Rozmer	Ks
1	30.7911-311	0	DRZAK / HOLDER / HALTER		1
2	30.7911-312	0	DRZAK / HOLDER / HALTER	P 5x120x116	1
3	90.001.25.015	0	SROUB IMBUS / ALLEN HEAD BOLT / IMBUSSCHRAUBE	M6X10	4
4	91.173.009	0	SPINAC KONC.S KLADK. / END SWITCH WITH PULLEY / ENDSCHALTER MIT ROLLE		1
5	91.400.017 (I)	0	SNIMAC / SENSOR / SENSOR	BOS 12M-XT-LS11-S4	1
6	91.400.018 (I)	0	SNIMAC / SENSOR / SENSOR	BOS 12M-PA-L10-S4	1

I.ZRUS.SNIMAC 91.400.002 A NAHR. SNIMACEM 91.400.017, ZRUS.SNIMAC 91.400.001 A NAHR.SNIMACEM 91.400.018.
058/ZM079 19.3.2009 SLEZACKOVA

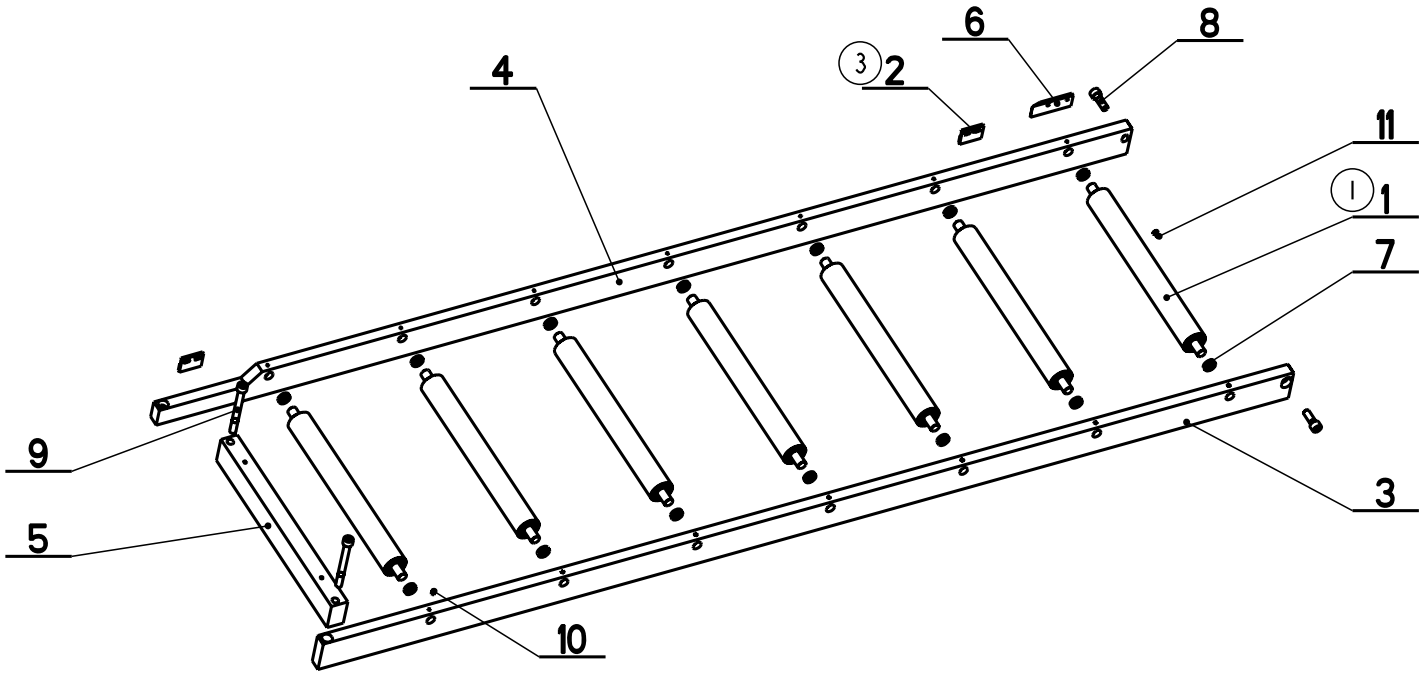




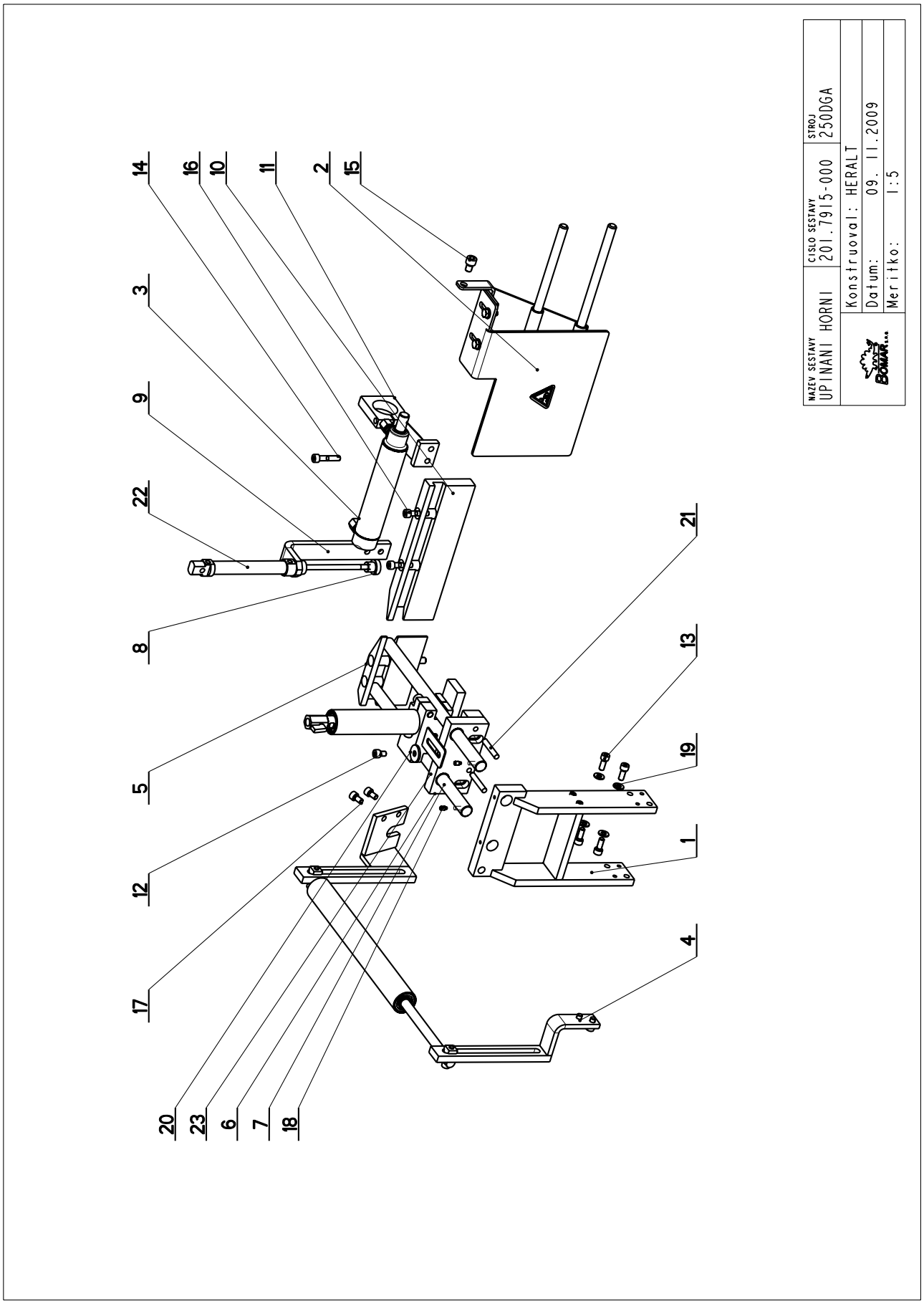
Cislo Sestavy 201.7911-200	Ver. 0	Nazev sestavy TRAT/TRACK/BAHN

Poz.	Objednaci cislo	Ver.	Nazev polozky	Rozmer	Ks
1	201.7911-211 (1)	0	VALEC / ROLLER / ZYLINDER		7
2	30.7911-010 (3)	0	DORAZ / STOP PIECE / ANSCHLAG	HR 30x4	2
3	30.7911-201	0	TYC / POLE / STANGE	HR 60x20	1
4	30.7911-202	0	TYC / POLE / STANGE	HR 60x20	1
5	30.7911-203	0	TYC / POLE / STANGE	TYC 50x30	1
6	30.7911-205	0	LISTA / TRIM / LEISTE	TYC 25x5	1
7	30.7911-206	0	PODLOZKA / WASHER / UNTERLEGSCHEIBE	TR 20x2	14
8	90.001.25.048	0	SROUB IMBUS / ALLEN HEAD BOLT / IMBUSSCHRAUBE	M10X30	2
9	90.001.25.069	0	SROUB IMBUS / ALLEN HEAD BOLT / IMBUSSCHRAUBE	M10X100	2
10	90.003.2D.002	0	SROUB STAVECI / ADJUSTMENT BOLT / STELLSCHRAUBE	SROUB M5X10	7
11	90.011.27.003	0	SROUB ZAPUSTNY / COUNTERSINK BOLT / SENKSCHRAUBE	SROUB M5X10	2

1 ZRUSENO VIKO VALECKU 31.131.502, TRUBKA 30.1313.501, NAHRAZENO VALEC 201.7911-211 037/ZM062 5.3.2008 KRPEC
2 PRIDANA SOUCAST 30.6711-347 ODMEROVACI LISTA /ZM 22.7.2008 KRPEC
3.ZRUS.LISTA 30.6711-347 A NAHRAZENA DORAZEM 30.7911-010. 171/ZM176 14.6.2010 SLEZACKOVA



7.51. Horní upínání / Spannvorrichtung oben / Top clamping



Manual version: 3.01 / Jan. 2011
Manual rev.: 1

Cislo Sestavy	Ver.	Nazev sestavy
201.7915-000	0	UPINANI HORNI/TOP CLAM/SPANNVORRICHTUNG OBEN

Poz.	Objednaci cislo	Ver.	Nazev polozky	Rozmer	Ks
1	201.7915-300	0	KONZOLA / CONSOLE / KONSOLE		1
2	201.7916-000	0	DRZAK / HOLDER / HALTER		1
3	201.7917-200	0	VALEC / ROLLER / ZYLINDER	SESTAVA	1
4	201.7918-100	0	UPINANI HORNI / TOP CLAM / SPANNVORRICHTUNG OBEN		1
5	202.7915-008	0	UPINANI HORNI / TOP CLAM / SPANNVORRICHTUNG OBEN		1
6	30.7915-001	0	DESKA / BOARD / PLATTE	HR 70x20	1
7	30.7915-002	0	DISTANC / DISTANCE / DISTANZ	HR 30x20	1
8	30.7915-007	0	NASTAVEC / EXTENSION / ANSATZ	D 25	1
9	30.7915-008	0	DRZAK / HOLDER / HALTER	P 10x30	1
10	30.7915-009	0	CELIST / JAW / BACKE	HR 90x 20	1
11	30.7916-006	0	DRZAK / HOLDER / HALTER		1
12	90.001.25.029	0	SROUB IMBUS / ALLEN HEAD BOLT / IMBUSSCHRAUBE	M8X12	1
13	90.001.25.032	0	SROUB IMBUS CERNENY / ALLEN HEAD BOLT / IMBUSSCHRAUBE	8x20	4
14	90.001.25.036	0	SROUB IMBUS / ALLEN HEAD BOLT / IMBUSSCHRAUBE	M8X40	1
15	90.001.25.044	0	SROUB IMBUS / ALLEN HEAD BOLT / IMBUSSCHRAUBE	M10X14	1
16	90.001.55.035	0	SROUB IMBUS CERNENY / ALLEN HEAD BOLT / IMBUSSCHRAUBE	M8X35	2
17	90.001.55.082	0	SROUB IMBUS ZINEK / ALLEN HEAD BOLT / IMBUSSCHRAUBE	M8X14	4
18	90.004.2D.002	0	SROUB STAVECI / ADJUSTMENT BOLT / STELLSCHRAUBE	SROUB M6X12	2
19	90.150.50.005	0	PODLOZKA / WASHER / UNTERLEGSCHEIBE	PODLOZKA 8,4	4
20	90.151.50.005	0	PODLOZKA / WASHER / UNTERLEGSCHEIBE	PODLOZKA 8	1
21	90.301.0Z.XXX	0	KOLIK VALCOVY / PIN / BOLZEN	KOLIK 8X50	2
22	93.004.003	0	VALEC VZDUCHOVY / AIR CYLINDER / LUFTZYLINDER	20x100	1
23	95.700.004	0	KROUZEK KU / KU RING / KU-RING	20X20	2
24	99.900.039	0	SAMOLEPKA / STICKER / AUFKLEBER		1

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