

**Bevelling Machine with Variable Angle and  
Automatic Feed**

**NKO MACHINES**

***UZ 15 Rapid***



**Operating and Maintenance Instructions**



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## **General information**

### **1.1 Introduction**

Thank you for purchasing one of our machines. We hope you will be fully satisfied with it.

This manual contains all the instructions for installation, adjustment, operation and maintenance of the UZ15 Rapid machine in conformity with valid safety standards.

**The information and data in this manual are subject to change as a result of further development of the machines. If in any doubt, please contact N.KO if you find any deviations.**

Never carry out any operations on the machine until you have read and understood the instructions in this manual. Most accidents occurring in the workplace result from not observing instructions and recommendations in manuals.

Graphic symbols are used in the manual to highlight important information regarding machine safety and operation.



**Attention:**

**Important information for the operating personnel's safety**



**Important:**

**Instruction which must be observed to ensure correct operation of the machine**

### **1.2 Testing**

The bevelling machine is tested in our technical test room.

During the test, correct functioning of the electric system, and correct functioning of the bevelling plates and profiles of different types and sizes are checked.

### **1.3 Guarantee**

The Seller provides a guarantee for fault free material and workmanship of the UZ 15 Rapid bevelling system for a period of 12 months from the delivery date of the goods.

A guarantee for correct functioning of the goods and materials used is provided for a period of 12 months from the delivery date of the goods.

The Seller undertakes to remove all possible defects covered by the guarantee, free of charge and without undue delay, so that the Purchaser can use the goods appropriately. Should the Purchaser make a claim based on a liability for defects not covered by the guarantee, s/he shall cover the expenses incurred by the Seller.

The guarantee period is suspended on the day when the Purchaser notifies the Seller of a defect covered by this guarantee, due to which the Purchaser is unable to use the goods and makes a claim based on the liability for defects covered by the guarantee granted, until the date when the defect is removed by the Seller.

The guarantee does not cover natural and normal wear of the goods and defects caused by incorrect use of the goods contrary to the training and documentation provided. Further, the guarantee does not cover defects due to overloading of the goods or those resulting from incompetent interference in the goods or incompetent repair or modification. Incompetent interference, repair or modification means any interference, repair or modification executed contrary to the training or documentation provided, or executed by any person other than the Seller or a person authorized or approved by the Seller.

Claims based on liability for defects under the guarantee granted must be made at the Seller without undue delay after the Purchaser has found the defect; at the latest, by the end of the guarantee period, however, otherwise these claims expire.

To make a claim based on liability for defects under the guarantee granted, the guarantee certificate must be submitted; otherwise, the Purchaser's claims cannot be allowed.

The Seller's liability for defects covered by the guarantee does not arise if the defects have been caused by passage of the risk of damage to the goods by external events. Particularly, external events include natural disasters, force majeure, or third persons' acts.

N.KO. considers the guarantee invalid in the event of:

- improper use of the machine;
- use contrary to national or international standards;
- incorrect installation;
- defective electrical power supply;
- serious maintenance shortcomings;
- incompetent modifications and/or interferences;
- usage of unoriginal or incorrect spare parts and equipment for the given model;
- full or partial infringement of instructions;
- exceptional events, natural or other disasters.

#### **1.4 Identification data**

The identification data of the bevelling machine are indicated on the aluminium CE label attached to the top of the bearing housing.

## 1.5 Reference standards (CE Declaration of Conformity)

# EC Declaration of Conformity

1. Publisher's name statement: N.KO, spol. s r.o.  
Adress Tábořská 398//22  
293 01 Mladá Boleslav  
Czech republic  
Identification number: 26161109
2. Scope statement:  
Name: Bevelling machine  
Type: UZ15  
Producer: N.KO spol. s r.o.
3. Purpose of use: Bevelling the edges of plates welding preparation
4. The object of declaration described above is in conformity with the requirements of the following documents

Directive 2006/42/EC: Safety of machinery – Basic requirements  
Directive 2004/108/EC: Electromagnetic compatibility

EN ISO 12100: Safety of machinery – General principles for design.  
Risk assesment and risk reduction  
EN ISO 13857: Safety of amchinery – Safety distances to prevent hazard  
zones being reached by upper and lower limbs  
EN 953: Safety of machinery - Electrical equipment of machines  
EN 60204-1: Safety of machinery – Electrical equipment of machines  
EN 61000-6-3: Electromagnetic compatibility – Generic standards – Emission  
Standard for residential, commercial and light-industrial  
environments

5. Information about accredited/ notified person:

Date and place of issue: 2.1. 2014 Mlada Boleslav, Czech Republic

Name and title of authorized person: Mr. Milan Richtr – managing director

   
spol. s r.o.  
Tábořská 398, 293 01 Mladá Boleslav  
ICO: 26161109 DIČ: CZ26161109  
Tel: 326772001 fax: 326774279  
www.nko.cz

## SAFETY

### 2.1 Safety recommendations



#### **Attention:**

**Read the following instructions carefully to prevent personal injuries and/or property damage.**

- Never try to operate the machine unless you have carefully acquainted yourself with its functions. If after having read this manual carefully and fully you are still in doubt, contact the N.KO company.
- Make sure that all technical workers entrusted with operation and maintenance of the machine are fully acquainted with all the relevant safety recommendations.
- Transport and installation of the machine can only be done by specialized workers in conformity with the instructions in this manual.
- Before starting the machine, the operator must check that all safety devices are functional and all safety guards are in place.
- Never use the machine for any purposes not indicated in this manual. Never process products other than what is indicated here.
- If you want to use the machine for purposes other than those defined, ask the N.KO company for approval.
- The machine supply voltage values are dangerous; check whether all connections are executed correctly. Never perform any maintenance of the machine or replacement of its parts if the machine is connected to the electrical power supply. Never install any branches on the electrical connections.
- Replace defective parts with those recommended by the manufacturer. Never use non-original spare parts.
- Never wear clothing or jewellery which may get caught in the moving parts. It is recommended to use protective clothing, non-slip shoes, and protective goggles.



#### **Important:**

**If during the machine lifetime any defects occur which cannot be removed with the help of this manual, it is advisable to ask the N.KO company to resolve the problem as soon as possible.**

## 2.2 Safety labels

Safety labels are placed on the bevelling machine to protect the operators.

Meaning of the labels:

This label is placed on the electrical panel of the bevelling machine, and indicates the presence of high voltage.



**Do not remove the label from the machine.**

## 2.3 Qualification and protection of operators

The employer is obliged to inform the operators about safety standards; moreover, he must ensure their observance and make sure that the working area is large enough and well lit.

The term “operator” means any person who carries out installation, operation, adjustment, maintenance, cleaning or repairs of the machine.



**Attention:**

**Before starting work on the machine, the operator must be acquainted with its properties and have read this entire manual.**



**Attention:**

**The operator must always:**

1. Check that all safety guards are in place and safety devices are functioning before starting the machine.
2. Avoid wearing clothes or jewellery which may get caught in moving parts.
3. Wear approved protective clothing, such as non-slip shoes, ear protectors and protective goggles.
4. Apply safety standards; see that they are observed at all times; and, if in doubt, consult this manual again before taking any measures.
5. Contact the machine supplier if unable to remove defects causing its malfunction, if there are defective parts or the running is abnormal.

## 2.4 Safety devices

The machine is equipped with safety guards to isolate the zones potentially dangerous to the operators. The guards are attached to the frame or screwed to with the machine housing. They can be dismantled with suitable tools. This operation may be necessary during certain maintenance activities. An acrylic glass guard is mounted in front of the cutting tool (position A. Fig. 2.4.1) to protect the operator during bevelling.



### Attention:

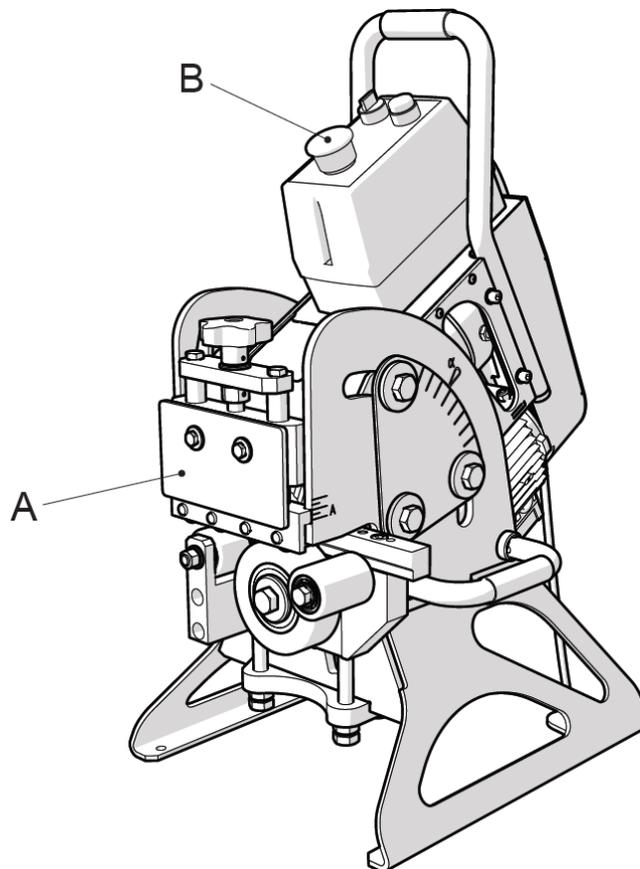
**The guard can only be removed if the machine is at standstill, with the power supply plug disconnected. Never use the machine without the safety guards in place.**

The machine is equipped with a mushroom emergency button. This red button overrides all other operations and stops the machine immediately (position B, Fig. 2.4.1).

Use the emergency button:

- in case of immediate danger or mechanical accident;
- for short interventions, if the machine is switched off, to perform maintenance in this state;
- the button is also equipped with a lock to prevent start of the machine by an unauthorized person.

Fig. 2.4.1



## 2.5 Residual risks

The machine has been designed and manufactured with all devices and equipment for health protection and the safety of operators.

The machine is fully covered to minimize the risk of contact with movable parts.

There is, however, one risk remaining:

As mentioned above, the working zone is protected as much as possible; however, it has to remain open partly to enable feeding of the material to be bevelled.

Therefore, there is a risk of the operator putting his/her fingers into the zone in which both the cutting tool and the work piece holder are.



**Attention:**

**Always keep your hands as far from the cutting zone as possible.**



**Attention:**

**Always apply the safety regulations contained in this manual and ensure their observation and the elimination of all residual risks.**

## TECHNICAL SPECIFICATIONS

### 3.1 Machine description

The bevelling machine model UZ 15 Rapid has compact dimensions. One of its main features is the adjustable bevel angle and automatic material feed.

The machine is equipped with a hardened cutting tool, sturdy work piece holder, direct-reading scale used for setting values (bevel size and angle), and a special guide facilitating the loading of material.

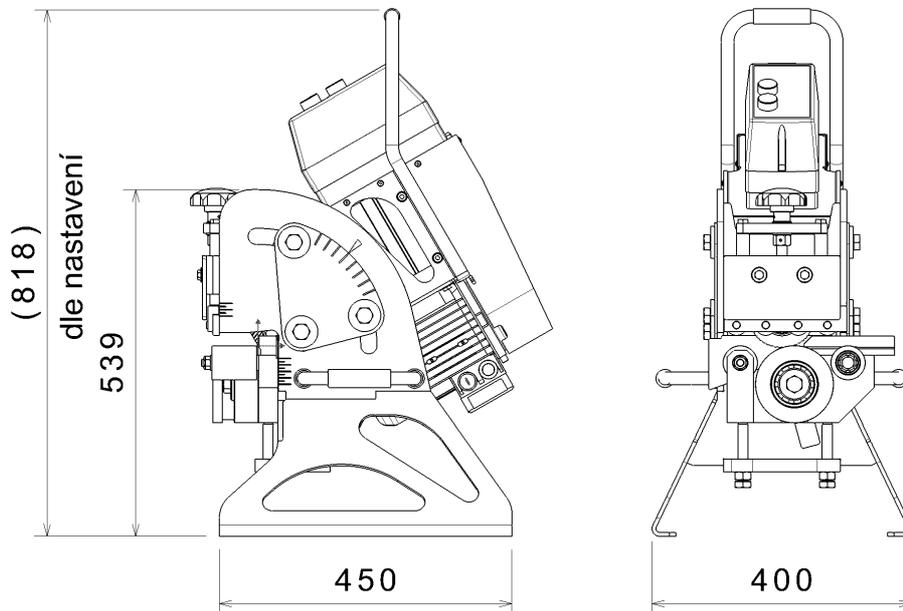
These characteristics enable easy setting of the working angle without exchange of the lower cylinder, and precise regulation of the bevel angle.

The UZ 15 bevelling machine is reliable and requires minimum maintenance.

### 3.2 Technical data

Voltage	220/380 V*
Frequency	50/60 Hz*
Motor power	1.5 kW, 2800 rpm
Sheet thickness	6 ÷ 40 mm
Bevel size on steel R = 45 kg at 45°	approx. 11 x 11 mm
Max. material strength	= 60 kg/mm <sup>2</sup>
Bevel angle range	15° ÷ 50°
Bevel cutting speed	3600 mm/1'
Dimensions	450 x 800 x 400 mm
Weight	88 kg

(\*) Exact voltage and frequency values are indicated on the motor identification label.



dle nastavení = by adjustment

### 3.3 Noise level

The machine has been designed and manufactured so that it emits the minimum noise possible.

Measurements done at the operator's workplace, when the machine is running in the automatic cycle mode, ascertained these values:

- during cutting: **LpA m. = 74.9 dB**

**LwA = 84.1 dB**

- during unloaded operation: **LpA m. = 64.5 dB**

**LwA = 76.4 dB**

### 3.4 Working conditions

The work environment of the machine must satisfy these values:

Temperature: 0 °C - 50 °C  
Humidity: 10 % - 90 % (without condensation)

The machine must be placed in a covered room protected from rain.

Working conditions different from the above-mentioned ones might result in serious damage to the machine, particularly its electrical equipment.

If the machine is not used, you can store it in a place with temperatures ranging between:  
-10° C and 70° C.

All the other values remain unaltered.

## INSTALLATION

### 4.1 Transport and lifting



**Important:**

**Activities described in this section must be performed by qualified personnel only.**

Suitable unloading and setting means (cranes, forklift trucks, etc.) must be provided at the destination.

When delivered to the destination, check (in the presence of the forwarding firm) whether the machine conforms to the order specifications and has not been damaged during transport. Should you find any damage or parts missing, immediately send a detailed message to N.KO and the forwarding firm.

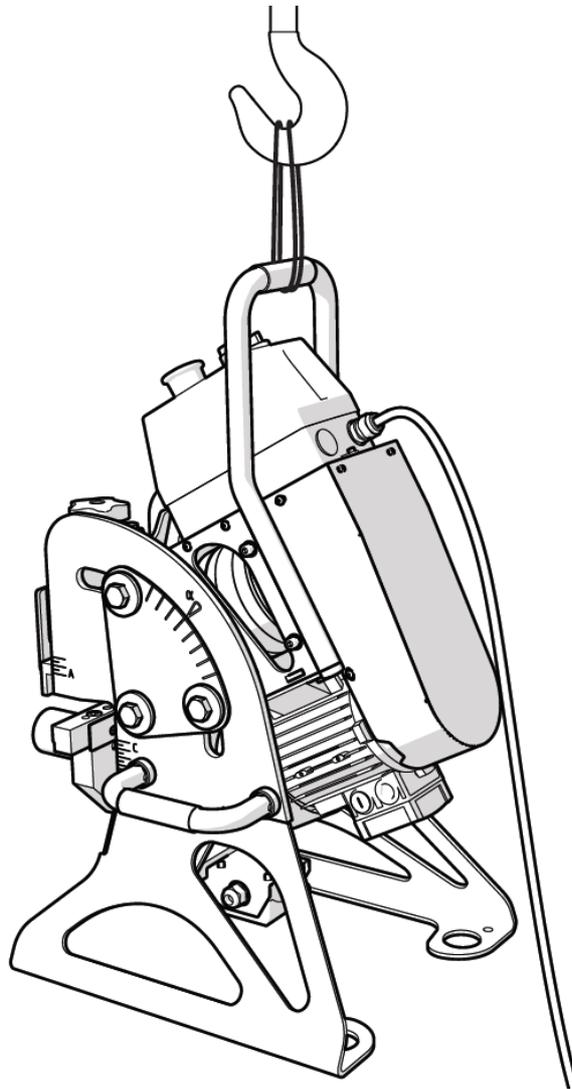


**Attention:**

**Observe the following rules to ensure safe handling of the machine:**

- Keep your distance from suspended loads and check that the lifting equipment and pertinent tools are in perfect condition, and suitable for the loads stated in paragraph 3.2.
- During handling of the machine, wear protective clothing, such as work gloves, non-slip shoes and helmet.
- If the machine is in the transport packaging, remove it and dispose in conformity with valid regulations of the pertinent country.
- Lift the bevelling machine. To do that, use the band attached to the upper handle. See Fig. 4.1.1.

Fig. 4.1.1



## 4.2 Setting and connection



### **Important:**

**Activities described in this section must be performed by qualified personnel only.**

If you use the machine for processing small pieces, you must fix it to a level surface by means of the holes at the bottom of the stand (Fig. 4.1.1).

If you use the machine for processing large pieces, you must place it on the work piece, on which it will move itself. When approaching the material and leaving the work piece at the end, it is advisable to suspend the machine on the belt, as illustrated in Fig. 4.1.1.

During electrical installation, proceed as follows:

- Check the frequency and voltage values on the motor identification label;
- Connect the electrical supply cable end to a plug according to your local power supply network.

### **Checking before use**



### **Important:**

**Never start the UZ 15 Rapid without carrying out the checks described in this section.**

Before starting the machine, check whether it is in working order by means of the following checks and inspections in order to ensure the highest possible efficiency and to meet safety regulations:

- **Check whether there are no loose screws or other parts.**
- Make sure that all electrical connections are correct and the electrical cable is fixed in place with a cable gland.
- To start the machine, proceed as follows:
  - Release the red emergency locking button (position B, Fig. 2.4.1).
  - Start the motor with green switch. The cutter must rotate clockwise.**
  - If this is not the case, turn the phases in plug.

### 4.3 Dismantling and disposal

When dismantling the UZ15 Rapid machine, keep in mind it is made of safe materials. They involve in particular:

- enamelled and plated ferritic steel;
- stainless steel, series 300/400;
- plastic materials of various characteristics;
- hydraulic oil;
- electric motor;
- electrical cables with corresponding sheaths;
- electrical monitoring and exciting equipment.

Follow this procedure:

- Observe the regulation concerning work environment safety valid in your country.
- Disconnect the machine from the power supply.
- Dismount the machine; classify the parts according to their chemical characteristics.
- Scrap the machine parts in conformity with the regulations valid in your country.
- During dismantling, strictly follow valid work safety regulations.

## USAGE

### Correct usage

The bevelling machine model UZ 15 Rapid has been designed, manufactured and sold for the purpose of bevelling the following kinds of metal parts and rolled metals: **iron, steel up to  $R=60\text{kg/mm}^2$** , stainless steel, brass, copper and aluminium.

The maximum bevel dimensions and processed material thickness are indicated in detail in chapter 3, paragraph 3.2, "Technical specifications".

Usage other than that described above is forbidden. Strictly speaking, it is forbidden to:

- process products different to those for which the machine has been designed and sold;
- modify operation of the machine;
- replace parts with non-original ones;
- modify electrical connections and bypass internal safety devices in this way;
- remove or modify protective guards;
- operate the machine in places with aggressive environment.



### **Attention:**

**It is strictly forbidden to bevel materials other than those indicated, since their processing may pose a risk to the operators and damage the machine.**

Before making any modifications, you must ask the N.KO company for the corresponding approval. If you fail to do so, the N.KO company will reject any responsibility.

## Description of control elements

The bevelling machine is operated by means of control devices located on the distributing box.

### A) Green switch:

**The green switch starts machine. KEEP IN MIND the tool rotation direction. Only the clockwise direction is intended for work.**

### B) Red button:

Push this button to cut off the power supply.

### C) Emergency switch

Red mushroom button on a yellow background. Pushing it stops the machine immediately, overriding any other commands.

## Preliminary settings



### Attention:

**During setting, use working gloves. The operations must be done on a stopped machine, disconnected from the power supply.**

Before starting work, you must execute some settings according to the material thickness and bevel angle.

### Setting the bevel angle

The bevel angle can be set from 15° to 50°. Perform the setting as follows:

- Loose sufficiently the 3 and 3 screws (position A, Fig. 5.3.1) located on both sides of the machine.
- Grasp the upper handle and pull it to set the entire cutting unit to the required angle.
- You can view the set angle value on the graduated scale located on the side of the machine (position B, Fig. 5.3.1).
- To complete the operation, fully tighten the 3 and 3 side screws (position A, Fig. 5.3.1).



### Important:

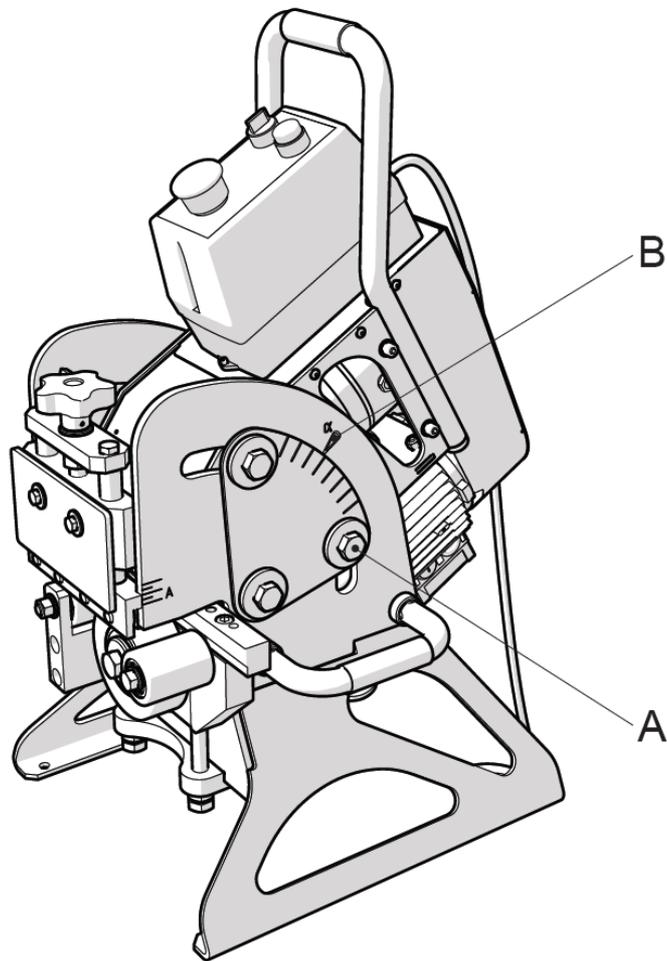
**If you have problems setting the angle, the screws may not be loose enough (position A, Fig. 5.3.1).**



**Important:**

The machine offers a range of operating angles from 15-50 deg.. In practice, it is very difficult to achieve these limits. The condition for the attainment of these limit angles is the perfectly prepared the edges of the material. However, the edges before beveling usually does not have 90 deg and there is no place to keep the machine on the material.

Fig. 5.3.1



**● IMPORTANT Adjusting the lower cylinders (rest):**

By adjusting the lower cylinders (rest), you can set the bevel angle.  
Proceed as follows:

- Loosen the central cylinder screw sufficiently (position A, Fig. 5.3.2).
- Raise or lower the rest by means of the lower right screw (position B, Fig. 5.3.2). If the left-hand support screw hampers lowering the lower rest, loosen it.
- Meanwhile, check the graduated scale (position D, Fig. 5.3.2), making sure the desired value has been reached.  
(The transition between two materials serves as a guideline)
- After setting of value of size of bevel, you have to adjust also the left screw as follow. Tighten this screw up to touch with body of bottom support and after that turn more around one or two for lift on up to horizontal position.  
During this operation the right screw has to be still in contact with the body of bottom support.

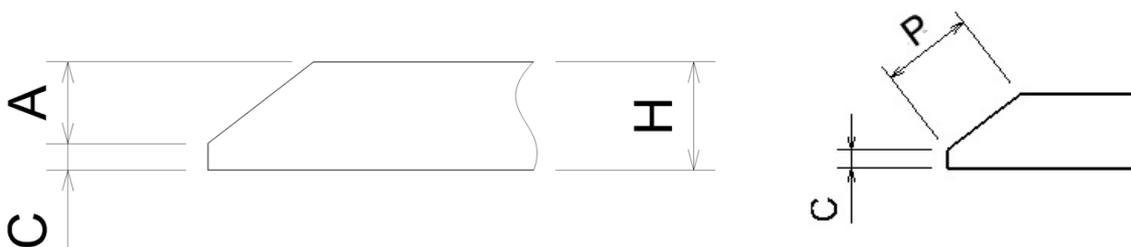
**● Important:**

The scale value (position D, Fig. 5.3.2) corresponds to the difference between the bevel height (dimension A in Fig. 5.3.1.0) and the total material thickness. So you set the so-called facet (feather, butt) on the scale (dimension C, Fig. 5.3.1.0).  
(Therefore, to adjust a bevel size of 8x8x45° on 10-mm-thick material, you must set a scale value of 2 mm.)

It is necessary to realize that when setting the facet height, you cannot set a value at which the hypotenuse length of the bevel created (dimension P, Fig. 5.3.1.0) exceeds 15 mm (maximum performance of the machine). You can check that in the table (Fig.5.3.1.1).

- After adjusting the lower rest, firmly tighten the central cylinder screw (position A, Fig. 5.3.2) and the left-hand support screw to the rest. Secure both the left and right-hand support screw with the locknuts included (position C, Fig. 5.3.2)
- Finally, check whether the main central cylinder is loose and can rotate freely.

Fig.5.3.1.0



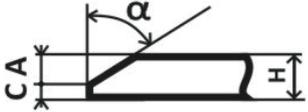
**Important:**

**Table of maximum material removal.**

On the scale (position D, Fig. 5.3.2.), it is **FORBIDDEN** to set a value lower than that indicated in the right-hand column of the table. Otherwise, the machine may become overloaded.

Note: The data is valid only for strength of steel to 45 kg/mm<sup>2</sup>.

Fig.5.3.1.1



H	$\alpha$	C $\geq$
6 - 10 mm	20° - 50°	0 mm
12 mm	50°	2,5 mm
	45°	1,5 mm
	30°	0 mm
	20°	0 mm
15 mm	50°	5,5 mm
	45°	4,5 mm
	30°	2 mm
	20°	1 mm
20 mm	50°	10,5 mm
	45°	9,5 mm
	30°	7 mm
	20°	6 mm
25 mm	50°	15,5 mm
	45°	14,5 mm
	30°	12 mm
	20°	11 mm
30 mm	50°	20,5 mm
	45°	19,5 mm
	30°	17 mm
	20°	16 mm
35 mm	50°	25,5 mm
	45°	24,5 mm
	30°	22 mm
	20°	21 mm
40 mm	50°	30,5 mm
	45°	29,5 mm
	30°	27 mm
	20°	26 mm

It is forbidden to set value C lower than indicated in the table – the machine may become overloaded.

Material thickness up to 10 mm = no limit when setting C. Set as necessary.

All of bevels where is the width of bevel (hypotenuse - position P Fig.5.3.1.0) bigger than 10mm, is necessary to make in two steps. For first step, set value C = C+1/2 A

**Example No. 1:**

Can you create a bevel of 15x15x45° on 20-mm-thick material?

For correct setting, you must set the difference between the desired bevel height and the material thickness on the graduated scale (position D, Fig. 5.3.2); that is,  $20-15=5$ ; so the scale should read 5 mm. Use the table to check whether the machine will not become overloaded.

The table indicates that the graduated scale minimum value can be 9.5 mm. This means the bevel cannot be made because 5 mm is less than 9.5 mm; at this setting, the total bevel hypotenuse (dimension P, Fig. 5.3.1.0) exceeds the permissible 15 mm. So the machine may be damaged.

**Example No. 2:**

Can you create a bevel of 10x10x45° on 12-mm-thick material?

For correct setting, you must set the difference between the desired bevel height and the material thickness on the graduated scale (position D, Fig. 5.3.2); that is,  $12-10=2$ ; so the scale should read 2 mm. Use the table to check whether the machine will not become overloaded.

The table indicates that the graded scale minimum value can be 1.5 mm. This means the bevel can be made because 2 mm is more than 1.5 mm; at this setting, the total bevel hypotenuse (dimension P, Fig. 5.3.1.0) does not exceed the permissible 15 mm.

**Example No. 3:**

Can you create a bevel of 8x8x45° on 10-mm-thick material?

For correct setting, you must set the difference between the desired bevel height and the material thickness on the graduated scale (position D, Fig. 5.3.2); that is,  $10-8=2$  so the scale should read 2 mm. Use the table to check whether the machine will not become overloaded.

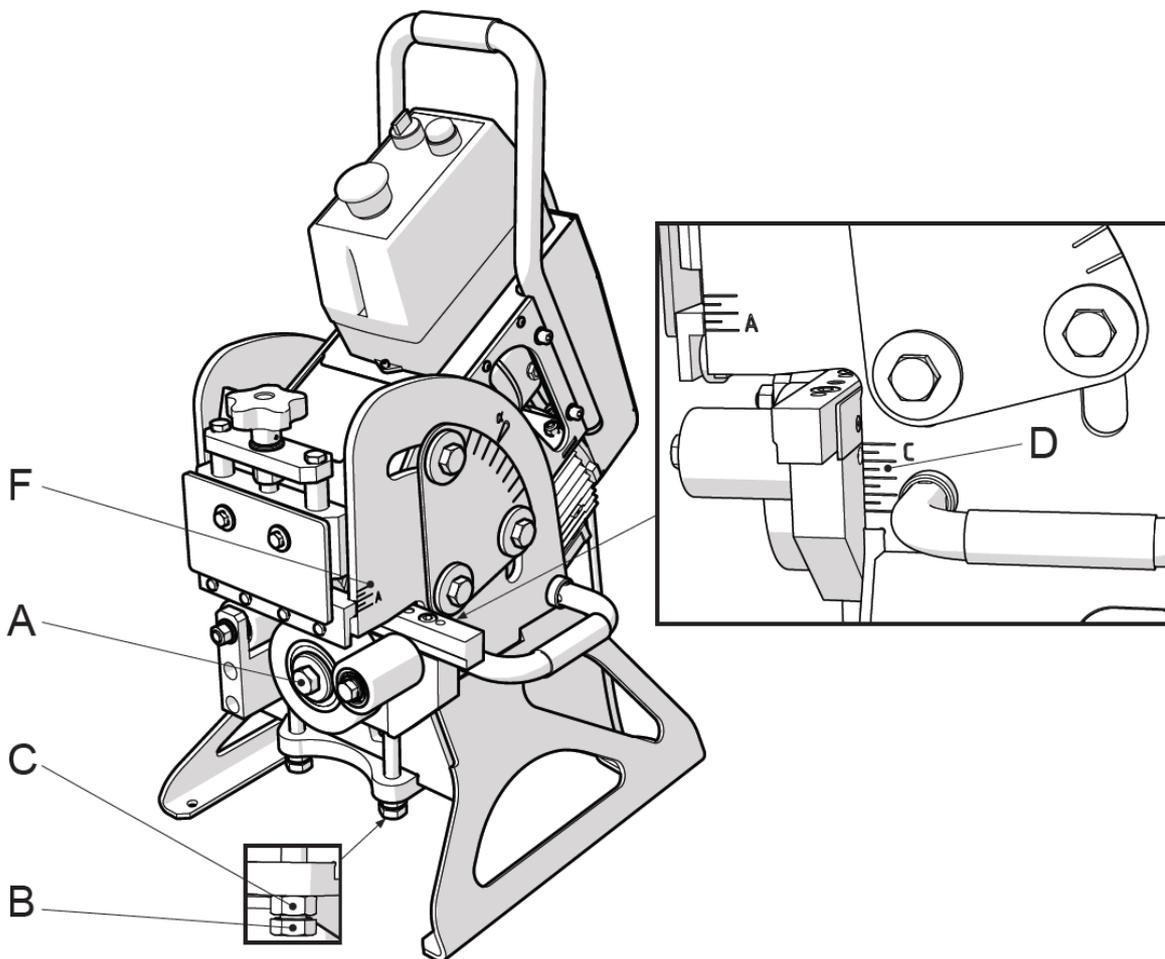
The table indicates that there are no setting limits for materials up to a thickness of 10 mm. This means that the bevel can be made because even if you set 0 mm on the scale and create a so-called sharp bevel on the plate, the total hypotenuse of the bevel (dimension P, Fig. 5.3.1.0) will not exceed the permissible 15 mm.

## Adjusting work piece holder cylinders

To ensure correct functioning of the machine, the work piece holder cylinders must slightly push on the work piece. Carry out their adjustment as follows:

- Turn the hand wheel in the upper part of the work piece holder (position E, Fig. 5.3.2) to adjust the holder cylinder height.
- Adjust the cylinders so that they push on the work piece slightly, and check their correct position by reading the value (dimension A, Fig. 5.3.1.0) on the pertinent graduated scale (position F, Fig. 5.3.2). The upper edge of the cylinder bar is the guideline.

Fig. 5.3.2



## Bevel cutting

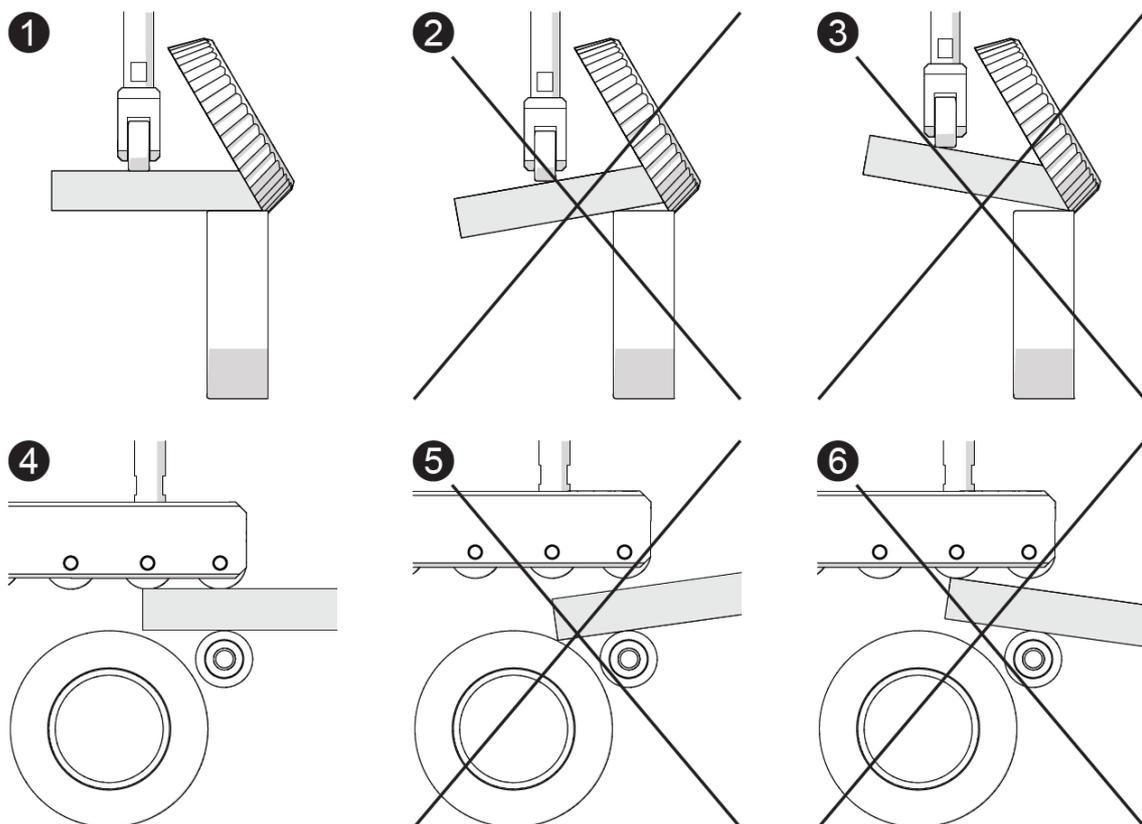


### Important:

Activities described in this paragraph must only be done after the adjustment according to the previous paragraphs.

To ensure correct operation of the machine, it is important to check whether the settings are correct. None of the illustrated situations can occur: the location of the work piece machined in relation to the lower and holder cylinders must be as illustrated in situations 1 and 4 in Fig. 5.4.1.

Fig. 5.4.1

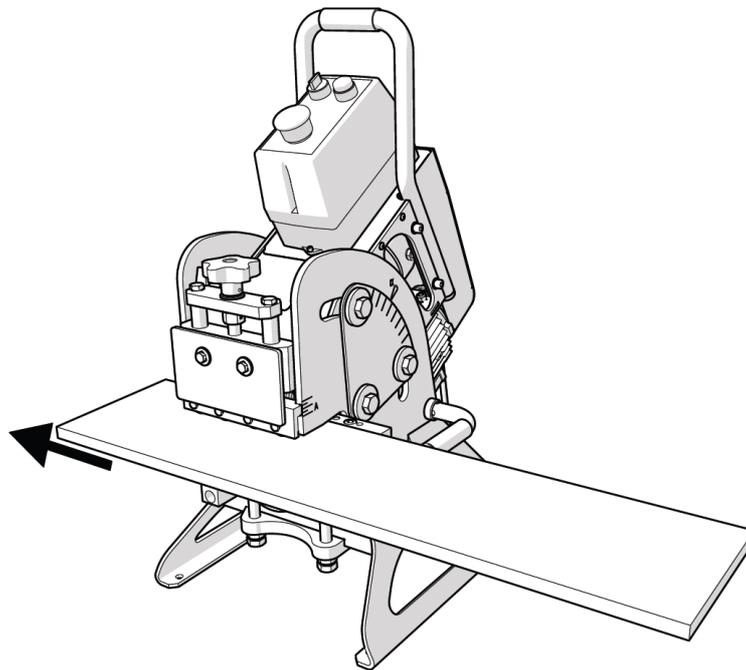


If profiles or rolled materials have small dimensions, the machine must be placed as illustrated above (paragraph 4.2). In this case, the work pieces move during processing (Fig. 5.4.2).

After adjusting and starting the machine, push the work piece to all stops, from right to left, so that it can be caught by the cutting tool. **Protect the work piece coming out of the machine from falling by grasping it with both hands and pushing it to the rear part of the machine to prevent it spinning forwards.**

● **KEEP IN MIND the tool rotation direction.**  
**The working direction is only clockwise. The opposite direction of rotation is used for running the machine off an unfinished bevel in case of a defect or an impassable bevel.**

Fig. 5.4.2



If you need to bevel large and heavy work pieces, you must locate them at a minimum height of 400 mm above the ground. Then lift the machine and place it onto the left end of the work piece, viewing from the front of the machine (Fig. 5.4.3).

After completing the above operation, the upper part of the work piece is bevelled. If you need to bevel the lower part, you must place the machine upside down on the opposite side of the work piece (Fig. 5.4.4).

Fig. 5.4.3

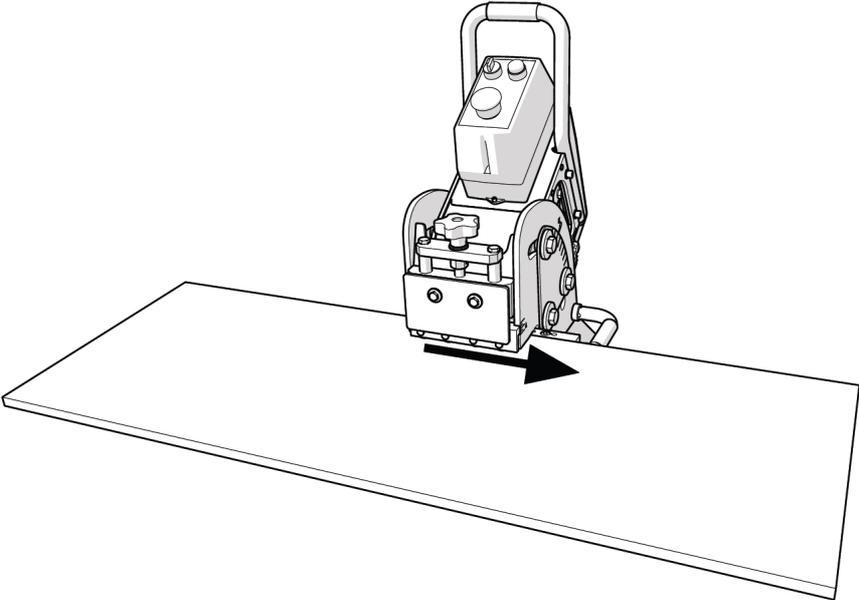
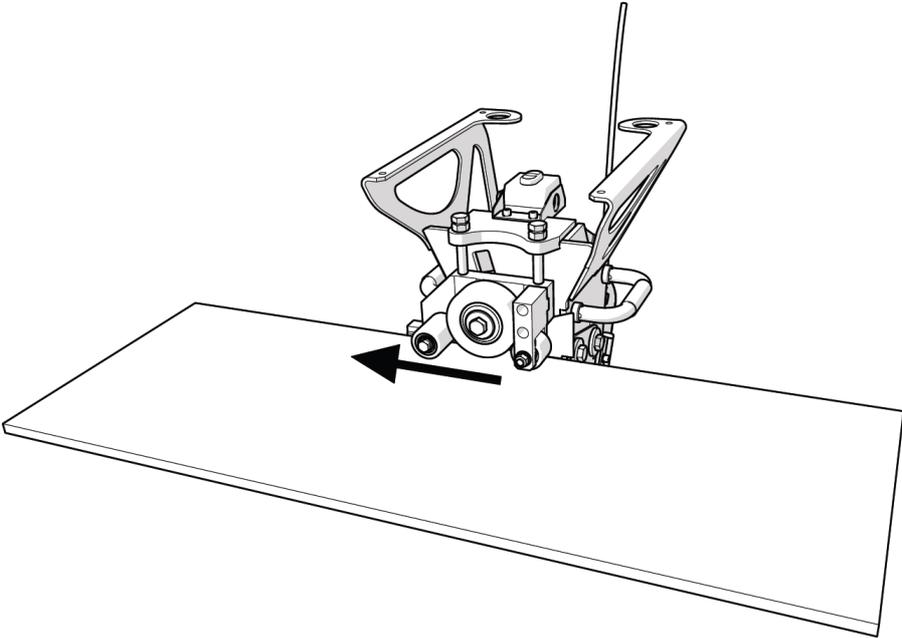


Fig. 5.4.4



**In both cases, the machine moves on the work piece without any pedestal required. However, you must hold the machine at the end of the bevel to prevent it from falling to the ground.**



**Attention:**

**When executing the above-described operations, wear work shoes and protective goggles.**

## **MAINTENANCE AND ADJUSTMENT**

### **6.1 Recommendations**



**Important:**

**Maintenance personnel must be qualified technicians.**

Never work on moving parts of the machine, not even with tools or other objects.

It is strictly forbidden to remove safety devices, modify them, or handle the safety equipment of the machine. The manufacturer will reject any responsibility for machine safety in case of such activities.

Always use original spare parts (see chapter 8 “Spare parts”).



**Attention:**

**Always wear work gloves when maintaining the machine. Perform maintenance operations with the machine at standstill, disconnected from the power supply.**

Before every work shift, and as necessary during work, clean the tool, cylinders and support ruler with compressed air.



**Attention:**

**When using compressed air for cleaning, wear protective goggles and never use pressure over 2 bar.**

Use the delivered 24-mm spanner for setting screws when adjusting the machine.

## 6.2 Oil exchange and refilling

To ensure correct running of the machine, check the oil level with the pertinent gauge on the side of the transmission box. Check whether the level is correct.

If the level is low, refill the oil to the correct height. Refilling can be done through the holes after dismantling the indicator when the machine is put on its side.

### ● Important:

The oil must first be exchanged after 100 work hours. Then, exchange the oil every 1500 work hours. Use the same oil, or one of the oils recommended in paragraph 6.3.

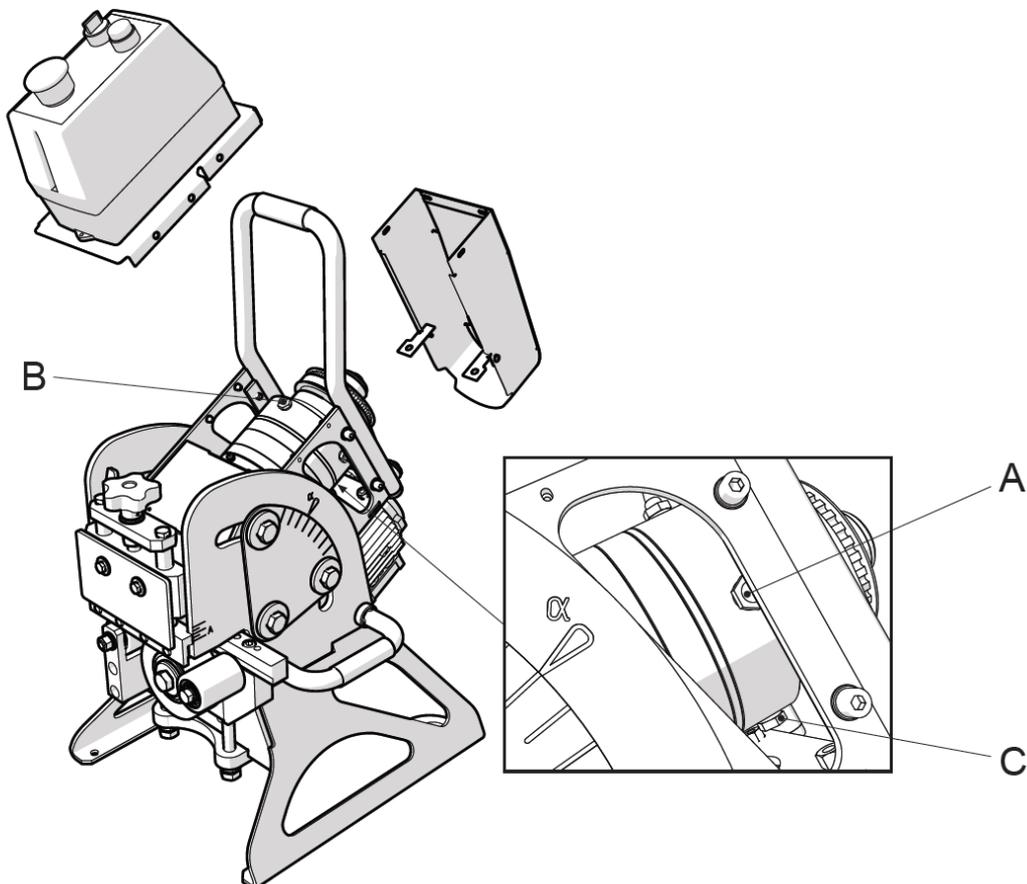
When changing the oil, proceed as follows:

1. Stop the machine and disconnect it from the power supply.
2. Put the machine on its side and unscrew both oil indicator plugs (position A, Fig. 6.2.1.). Let all the oil drain off into a suitable bin.
3. Screw the draining indicator plug back in and pour fresh oil through the filling indicator plug (position A, Fig. 6.2.1.) up to the correct level, approx. 0.45 l.
4. You can also pour oil through the filling hole (position B, Fig. 6.2.1.).

### ● Important:

Collection and disposal of used oil must be done in conformity with valid local laws. Never pour oil into gutters, sewers or soil.

Fig. 6.2.1



### 6.3 Recommended transmission oils

Výrobce maziva Producer of lubricant	Typ maziva dle teploty na pracovišti Type of lubricant according to workshop temperature			
	-20° C/+5°C IV 95 min.	+5° C/+30°C IV 95 min.	+30° C/+50°C IV 95 min.	-30° C/+65°C IV 165 min.
ISO 3448	VG 100	VG 150	VG 320	VG 150 - 220
AGIP	BLASIA 100	BLASIA 150	BLASIA 320	BLASIA S 220
ARAL	DEGOL BG 100	DEGOL BG 150	DEGOL BG 320	DEGOL
BP MACH	GR XP 100	GR XP 150	GR XP 320	SGR XP 220
CASTROL	ALPHA SP 100	ALPHA SP 150	ALPHA 320	ALPHA SN 6
CHEVRON	NON LEADED GEAR COMPOUND 100	NON LEADED GEAR COMPOUND 100	NON LEADED GEAR COMPOUND 100	
ESSO	SPARTAN EP 100	SPARTAN EP 150	SPARTAN EP 320	COMPRESSOR OIL LG 150
GULF		EP LUBRIFICANT HD 150	EP LUBRIFICANT HD 320	
I.P.	MELLANA 100	MELLANA 220	MELLANA 320	TELESIA OIL 150
MOBIL		MOBILGEAR 629	MOBILGEAR 632	GLYGOYLE 22 GLYGOYLE 30 SHC 630
SHELL	OMALA OIL 100	OMALA OIL 150	OMALA OIL 320	
TOTAL	CARTER EP 100 N	CARTER EP 150	CARTER EP 320 N	
KLUEBER	LAMORA 100	LAMORA 150	LAMORA 320	SYNTHESO D 220 EP
ELF	REDUCTELF SP 150	REDUCTELF 320	REDUCTELF 320	ELF ORTIS 125 MS ELF SYNTERMA P 30

### 6.4 Exchange of tools



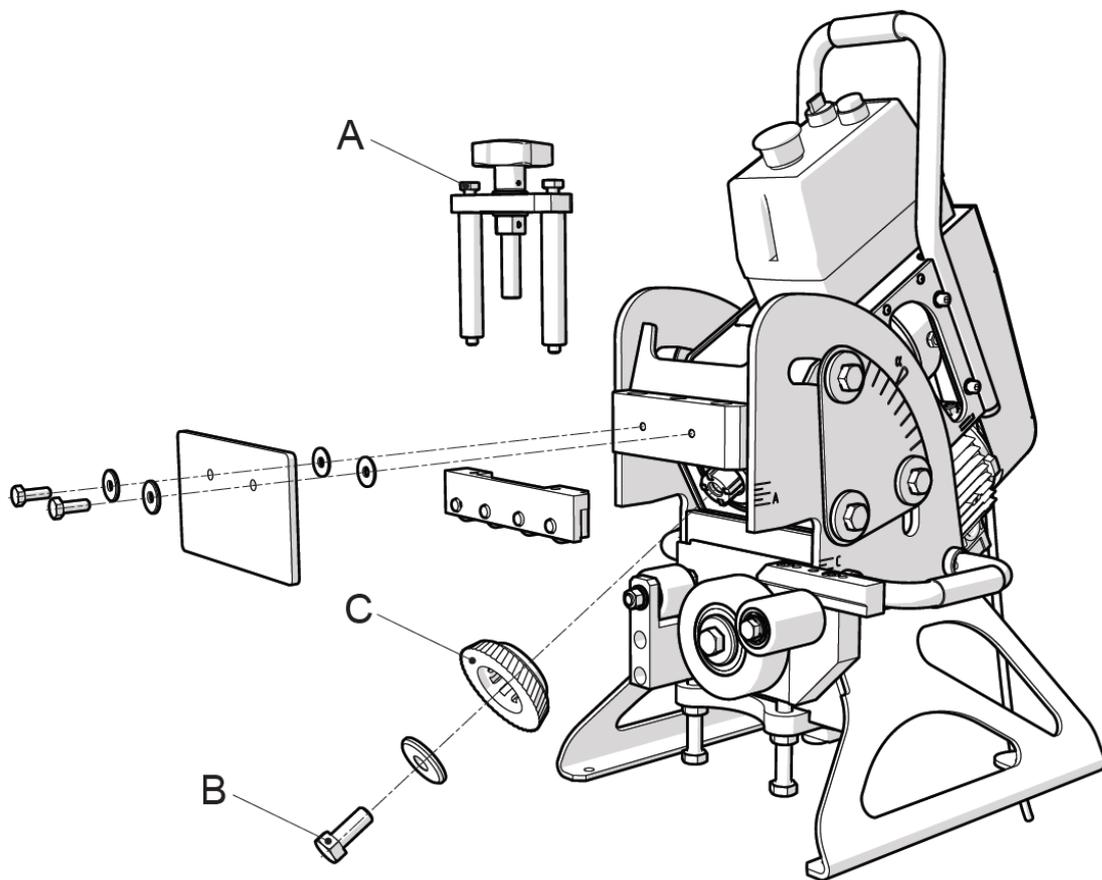
#### Attention:

**Wear protective gloves when exchanging tools.**

When exchanging worn tools, proceed as follows:

- Dismount the protective acrylic glass.
- Dismount the upper thrust bar (two screws, position A, Fig. 6.4.1).
- Loosen the main central roller and let the lower rest down to its lowest position.
- Loosen the screw securing the tool (position B, Fig. 6.4.1) and remove the tool from the shaft. If the tool cannot be dismounted easily, use a two-handed extractor.
- Mount a new cutting tool (position C, Fig. 6.4.1) and retighten the securing screw (position B, Fig. 6.4.1).
- Remount the upper thrust bar (two screws, position A, Fig. 6.4.1) and the protective acrylic glass.

Fig. 6.4.1



■ **TIP:**

You can grind the tool for maximum utilization. Do so on a magnetic flat-grinding machine, from the tool face until the galled, blunt edges are sharp again.

A blunt tool can be recognized visually. Its edges are galled, rounded. Now it is time to grind it.

If you continue working with a blunt tool, the blunt teeth may crack deep into the tool. Then, a tool damaged in this way must be ground until the cracked teeth disappear. Thus, you of course lose many precious meters of potential bevel.

The grinding allowance is approx. 5 mm.

For correct functioning of the machine, it is advisable to pad out the ground tool by the height ground off. For that, use the original 0.5/1/2 mm pads, or a combination.

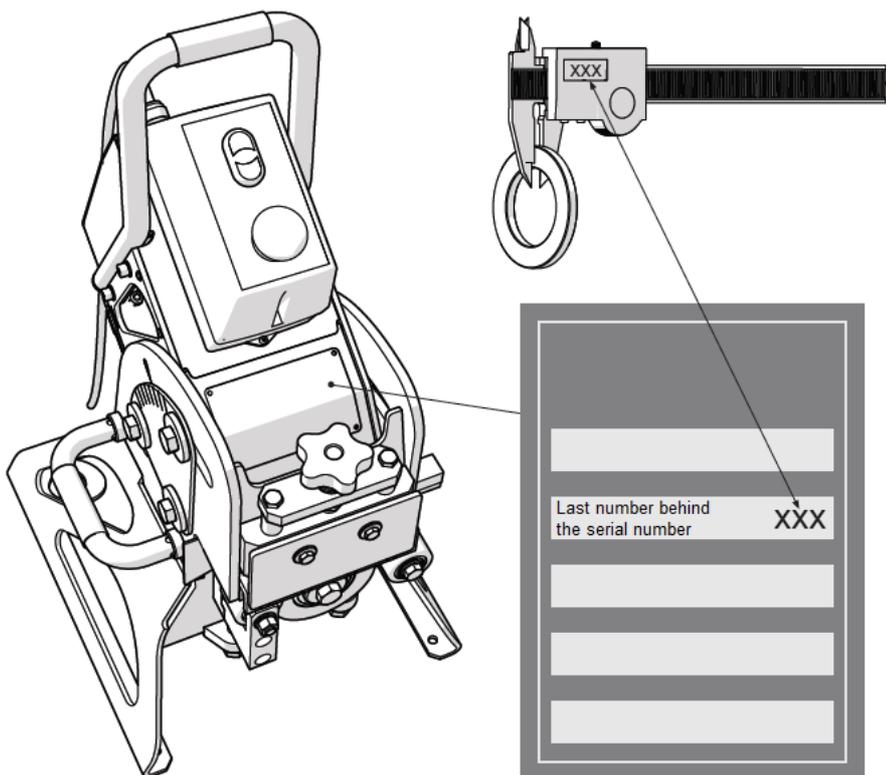
**Set of compensating washers (0,5 / 1 / 2mm) order.nr. 2140.**

The thickness of a new tool is 29 mm.

You must bear in mind that the tool is conical. Therefore, even if the tool is padded correctly, the machine will not be able to achieve the maximum possible bevel (15 mm hypotenuse) with a mill at the end of its lifetime. This fact is also apparent on the graduated scale for setting the lower cylinders; this scale may not correspond to the bevel created.

**ATTENTION:** The tool padding (added to the current mill thickness) must not exceed 29 mm.  
In such case, the machine will not work correctly and may be damaged.

**ATTENTION:** Under the cutter you can see also a base washer (see Exploded position 4011). This washer is unique and different for each machine. If for some reason you lose or damage this washer, for new one, inform us about its precise thickness. This information can be found on the nameplate behind the serial number. In the case of using incorrect washer, the machine will not work correctly.



## TECHNICAL DIAGRAMS

### 7.1. Wiring diagram

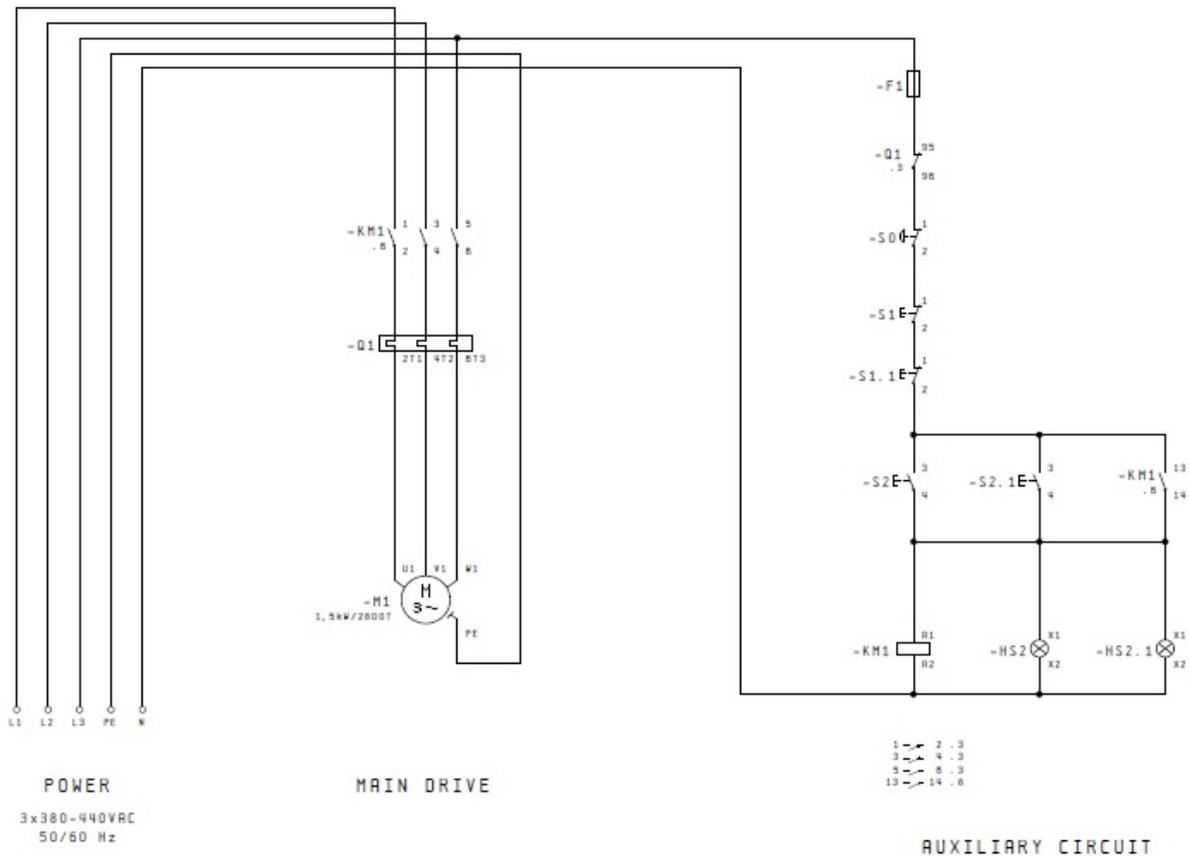
Q1.1- over-current protection relay – motor thermal protection

KM1, KM2- motor contactor

KM1.1, KM2.1- auxiliary contacts

S2.1, S2.2- push-button controller (STOP).

S3.1, S3.2- emergency push-button controller (NOT-AUS).



**When operating the machine in areas with particularly dangerous influences, AD or more, you must take measures to increase the machine protection against electric shock!**

**Electrical energy-** the electrical power supply must immediately be cut off in case of defects.

Work on the electrical equipment of the machine can only be done by a qualified electrician, or persons under his supervision, so that the work complies with electrical engineering regulations.



All parts maintained or repaired must be disconnected from the power supply. You must check that the disconnected parts are not under voltage by means of a bipolar measuring device, then connect them to the ground, and isolate neighbouring parts under voltage!

Cut off voltage by turning the main switch to “0”, take out the key, and



disconnect the machine from the power supply.

Regularly check, or test, the filtration electrical equipment. Defects, loose contacts or sloughed cables must be replaced immediately.

## SPARE PARTS UZ15 Rapid

### 8.1 How to order spare parts

Orders for spare parts should contain the following information:

- machine type;
- serial number;
- required part description and its number;
- quantity.

### 8.2. Most wearing parts:

- 1) **cutting tool (can be ground) - pos. 2137**
- 2) lower cylinders (bearings) - pos. 2020
- 3) work piece holder cylinders - pos. 3002
- 4) transmission belt - pos. 5007 (5019)
- 5) support bar - pos. 2002
- 6) spindle feathers - 4 pcs. - pos. 4012
- 7) cover sheet for drain off the chips - pos. 2004
- 8) body of lower support – pos. 2001
- 9) washer under the lower cylinder – pos. 2026
- 10) bearings – pos. 2023
- 11) **Set of compensating washers (0,5 / 1 / 2mm) order.nr. 2140.**

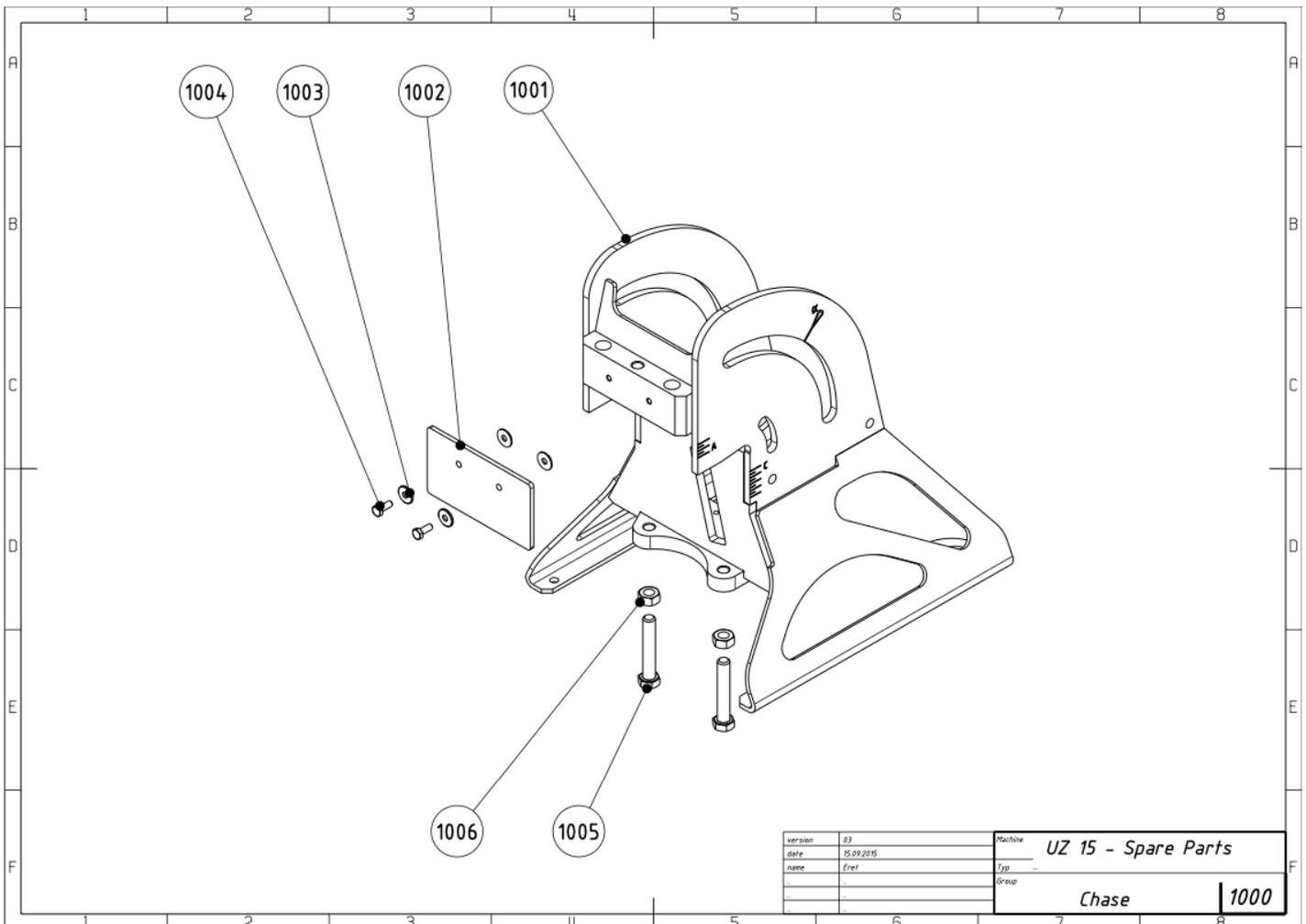


### TIP:

The support bar fig 2002 guides the material towards the tool. All the bevelled material chafes against this bar. Take into account that the bar will wear out eventually.

If this happens, you must repair the bar by welding it up, or replace it. If you fail to do so, the machine may be damaged or the tool destroyed.

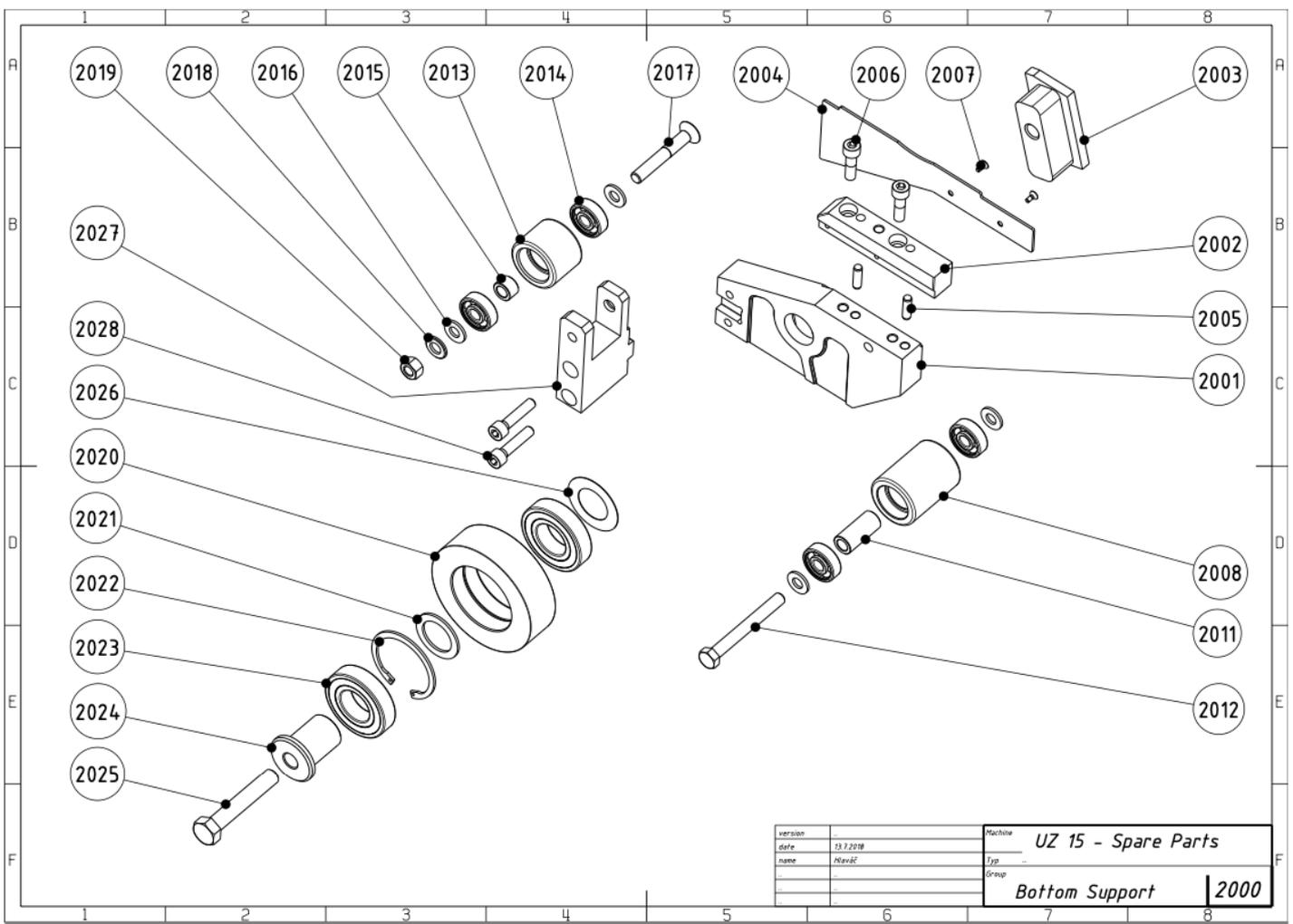
Bear in mind that the bar is conical.



**UZ15 SPARE PARTS**

drawing no. **1000 Chase**

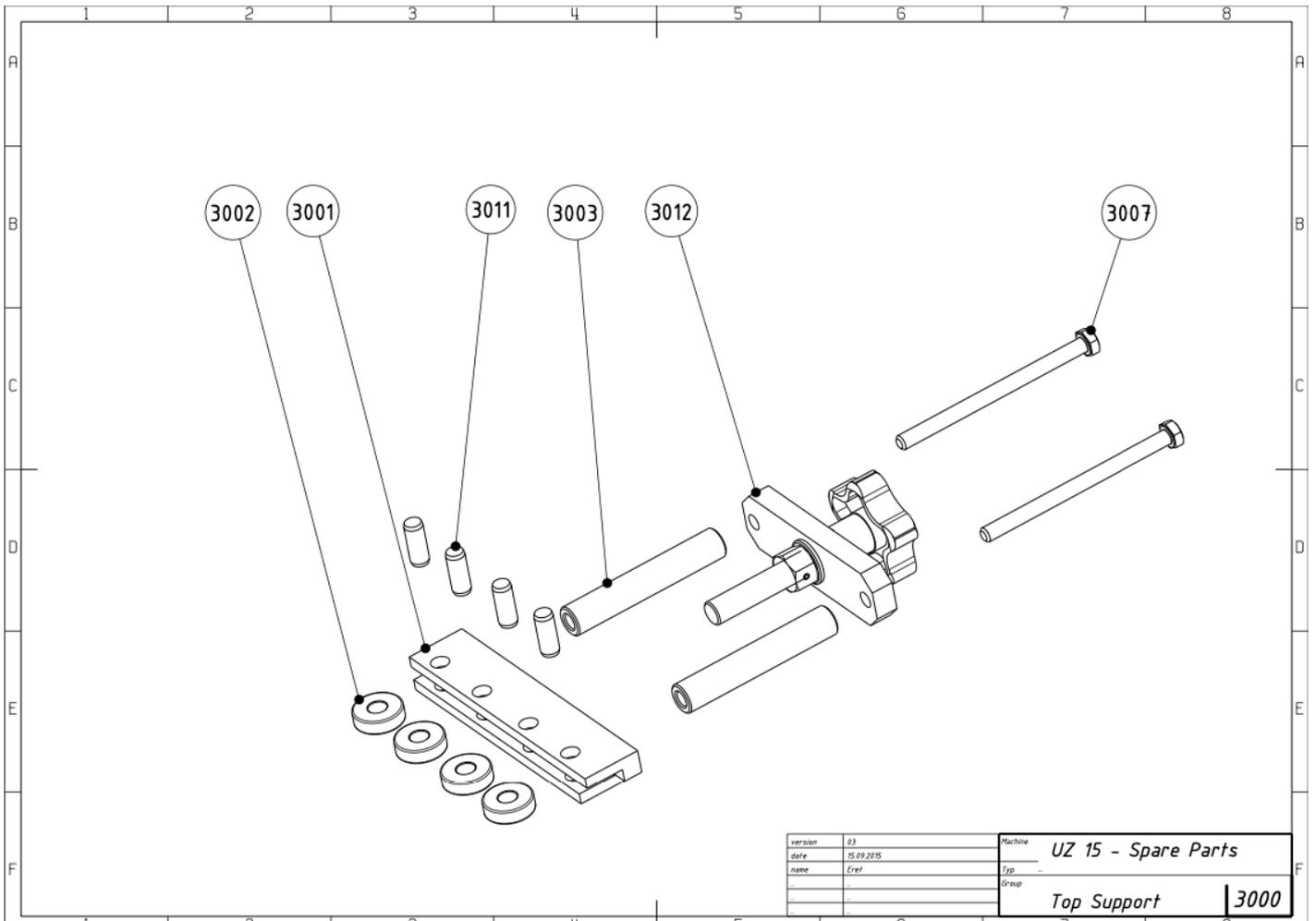
Number	Fig	Part name	Note	Pcs
1931.1001	1001	Chase		1
1931.1002	1002	Cover		1
1931.1003	1003	Washer		4
1931.1004	1004	Screw		2
1931.1005	1005	Screw		2
1931.1006	1006	Nut		2



## UZ15 SPARE PARTS

drawing no. 2000 Bottom Support

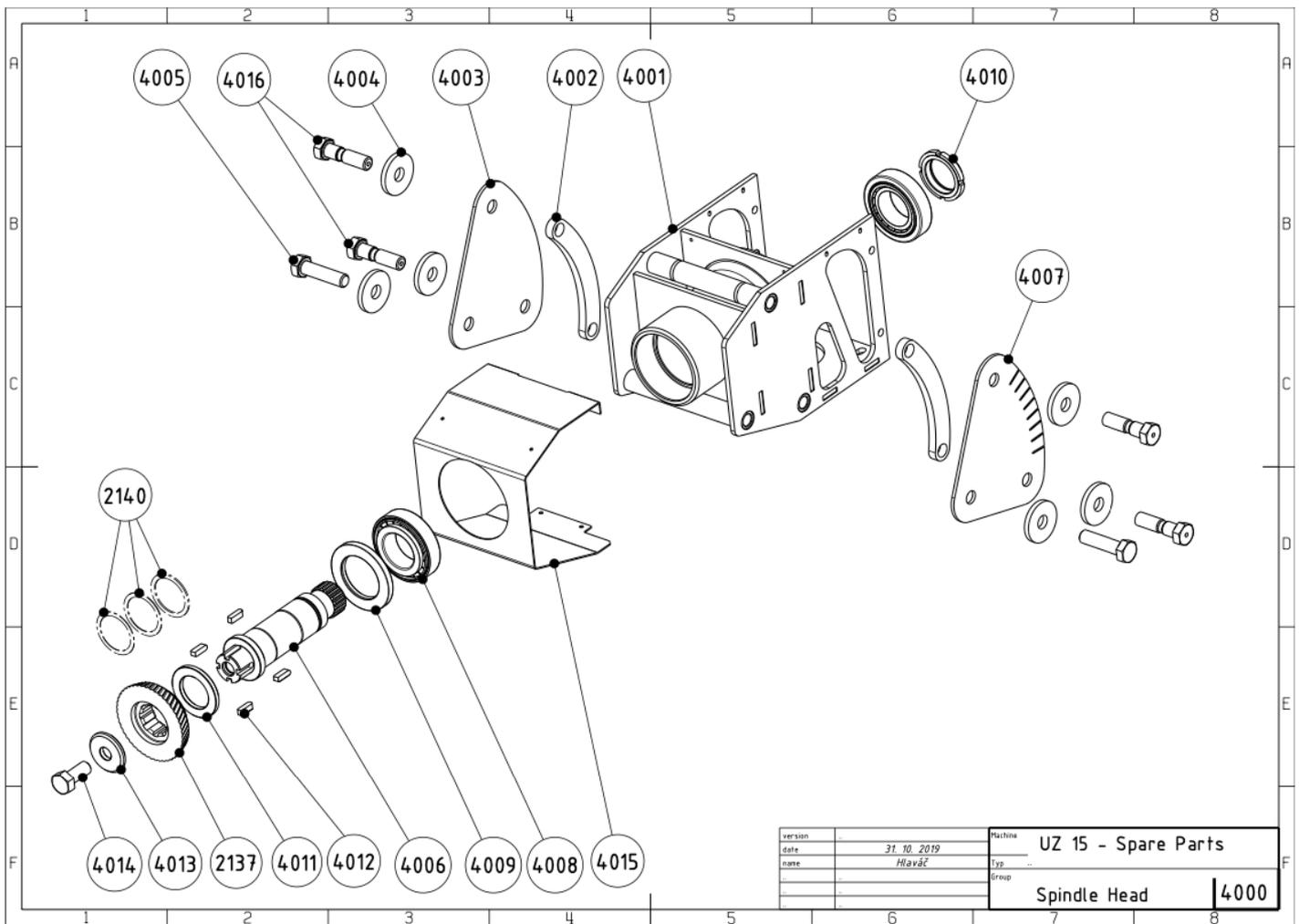
Number	Fig	Part name	Note	Pcs
1931.2001	2001	Body		1
1931.2002	2002	Support		1
1931.2003	2003	Block		1
1931.2004	2004	Sheet metal		1
1931.2005	2005	Pin		2
1931.2006	2006	Screw		2
1931.2007	2007	Screw		2
1931.2008	2008	Pulley 1		1
1931.2011	2011	Tube 1		1
1931.2012	2012	Screw		1
1931.2013	2013	Pulley 3		1
1931.2014	2014	Ball-bearing		4
1931.2015	2015	Tube 2		1
1931.2016	2016	Washer		4
1931.2017	2017	Screw		1
1931.2018	2018	Washer		1
1931.2019	2019	Nut		1
1931.2020	2020	Pulley 2		1
1931.2021	2021	Ring		1
1931.2022	2022	Lock Ring		1
1931.2023	2023	Ball-bearing		2
1931.2024	2024	Neck		1
1931.2025	2025	Screw		1
1931.2026	2026	Washer		1
1931.2027	2027	Brace		1
1931.2028	2028	Screw		2



**UZ15 SPARE PARTS**

drawing no. **3000 Top Support**

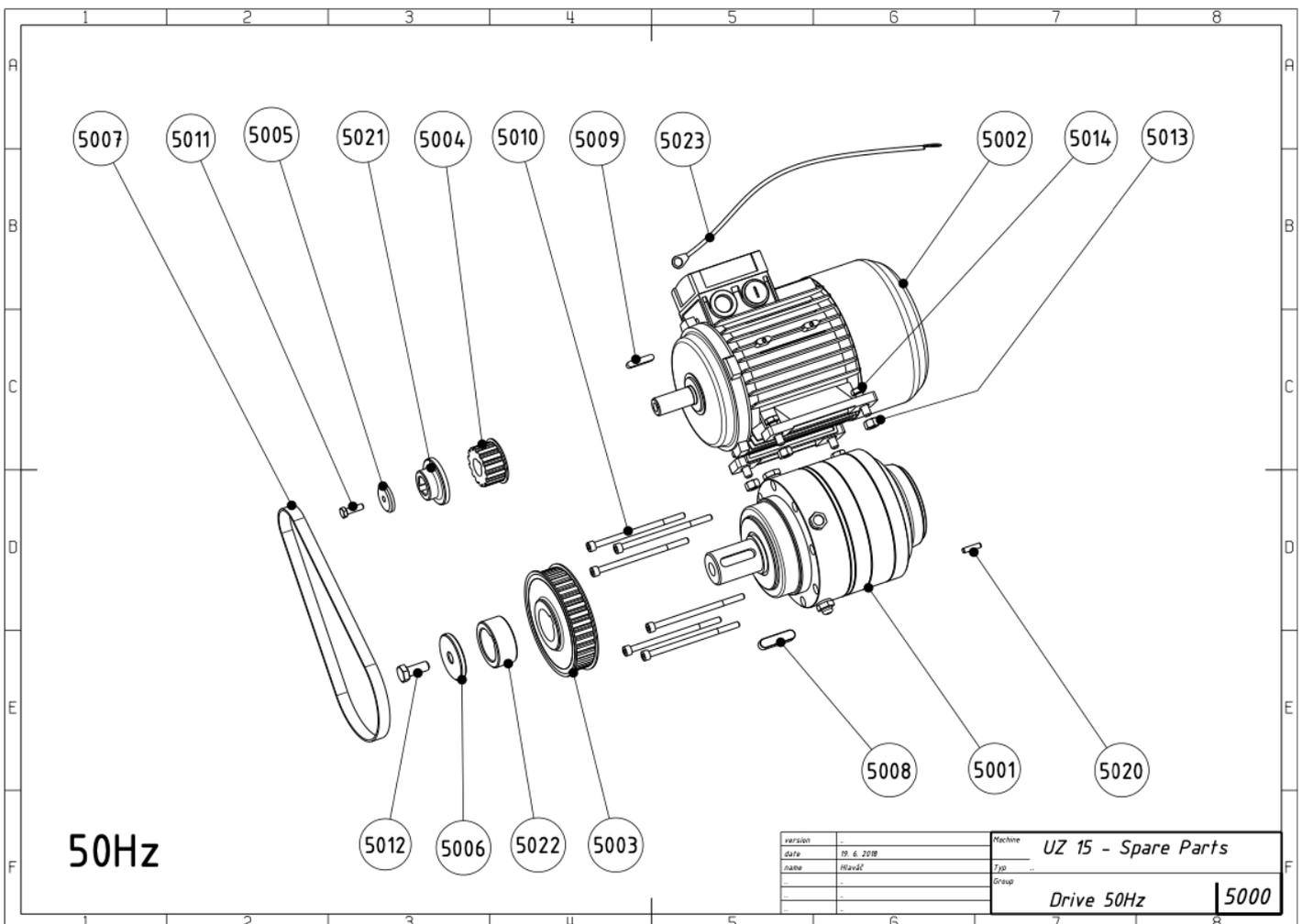
Number	Fig	Part name	Note	Pcs
1931.3001	3001	Ribbon		1
1931.3002	3002	Pulley		4
1931.3003	3003	Tube		2
1931.3007	3007	Screw		2
1931.3012	3012	Endless screw		1
1931.3011	3011	Pin		4



## UZ15 SPARE PARTS

drawing no. 4000 Spindle Head

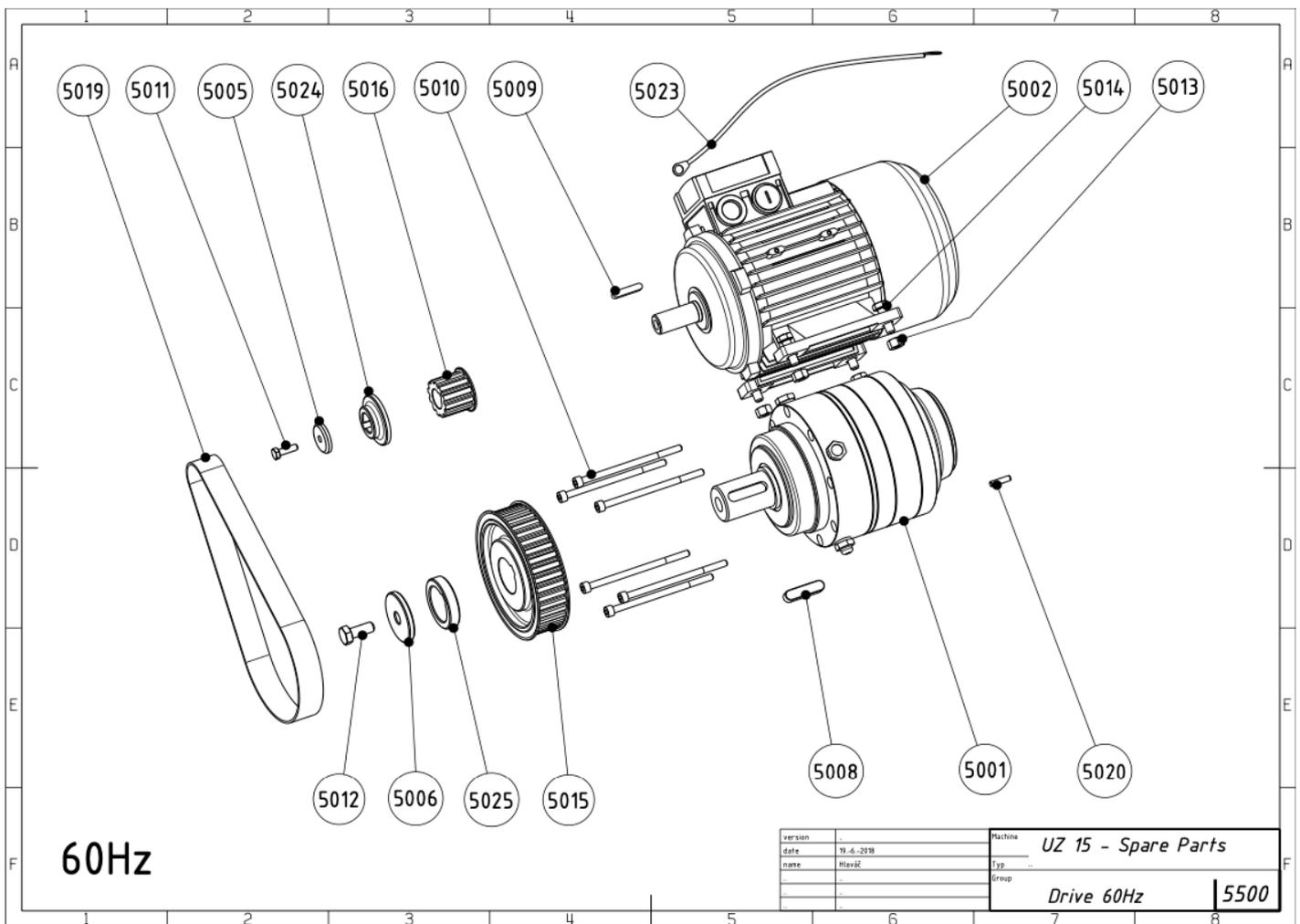
Number	Fig	Part name	Note	Pcs
1931.4001	4001	Spindle body		1
1931.4002	4002	Insert		2
1931.4003	4003	Sheet metal R		1
1931.4004	4004	Washer		6
1931.4005	4005	Screw		2
1931.4006	4006	Shaft		1
1931.4007	4007	Sheet metal L		1
2137	2137	Universal ECO tool	see other types in the N.KO price list	1
1931.4008	4008	Ball-bearing		2
1931.4009	4009	Seal		1
1931.4010	4010	Nut		1
1931.4011	4011	Tool washer	ATTENTION, ALWAYS UNIQUE! see chapter 6.4	1
1931.4012	4012	Key		4
1931.4013	4013	Washer		1
1931.4014	4014	Screw		1
1931.4015	4015	Cover		1
1931.4016	4016	Inox screw		4
2140	2140	Washer kit		1



## UZ15 SPARE PARTS

drawing no. 5000 Drive 50Hz

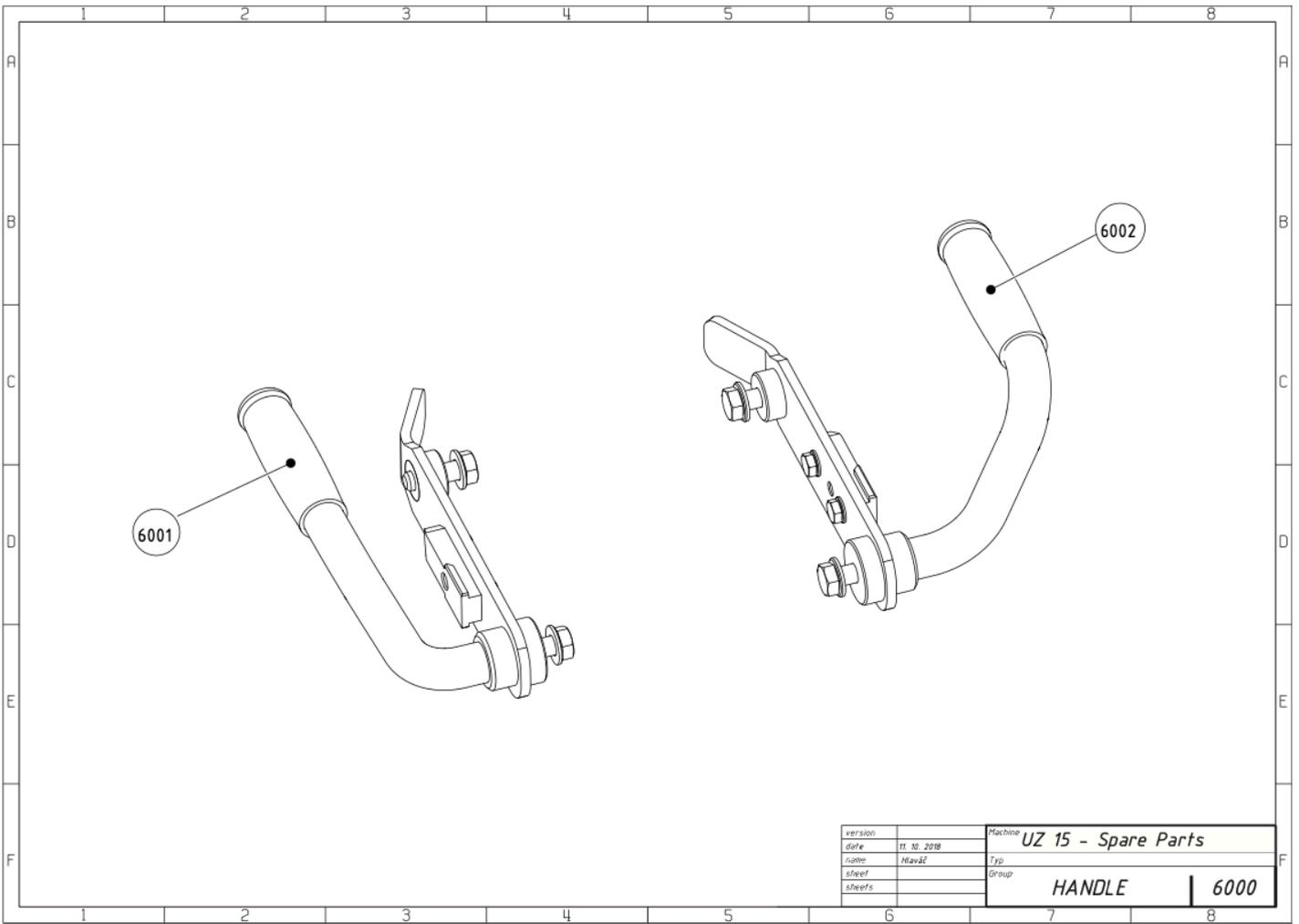
Number	Fig	Part name	Note	Pcs
1931.5001	5001	Gear		1
1931.5002	5002	Engine		1
1931.5003	5003	Belt pulley	for 50Hz drive	1
1931.5004	5004	Belt pulley	for 50Hz drive	1
1931.5005	5005	Washer		1
1931.5006	5006	Washer		1
1931.5007	5007	Belt	for 50Hz drive	1
1931.5008	5008	Belt pulley key		1
1931.5009	5009	Belt pulley key		1
1931.5010	5010	Screw		6
1931.5011	5011	Screw		1
1931.5012	5012	Screw		1
1931.5013	5013	Nut		4
1931.5014	5014	Screw		4
1931.5020	5020	Pin		1
1931.5021	5021	Washer	for 50Hz drive	1
1931.5022	5022	Waher	for 50Hz drive	1
1931.5023	5023	Earthing conductor		1



## UZ15 SPARE PARTS

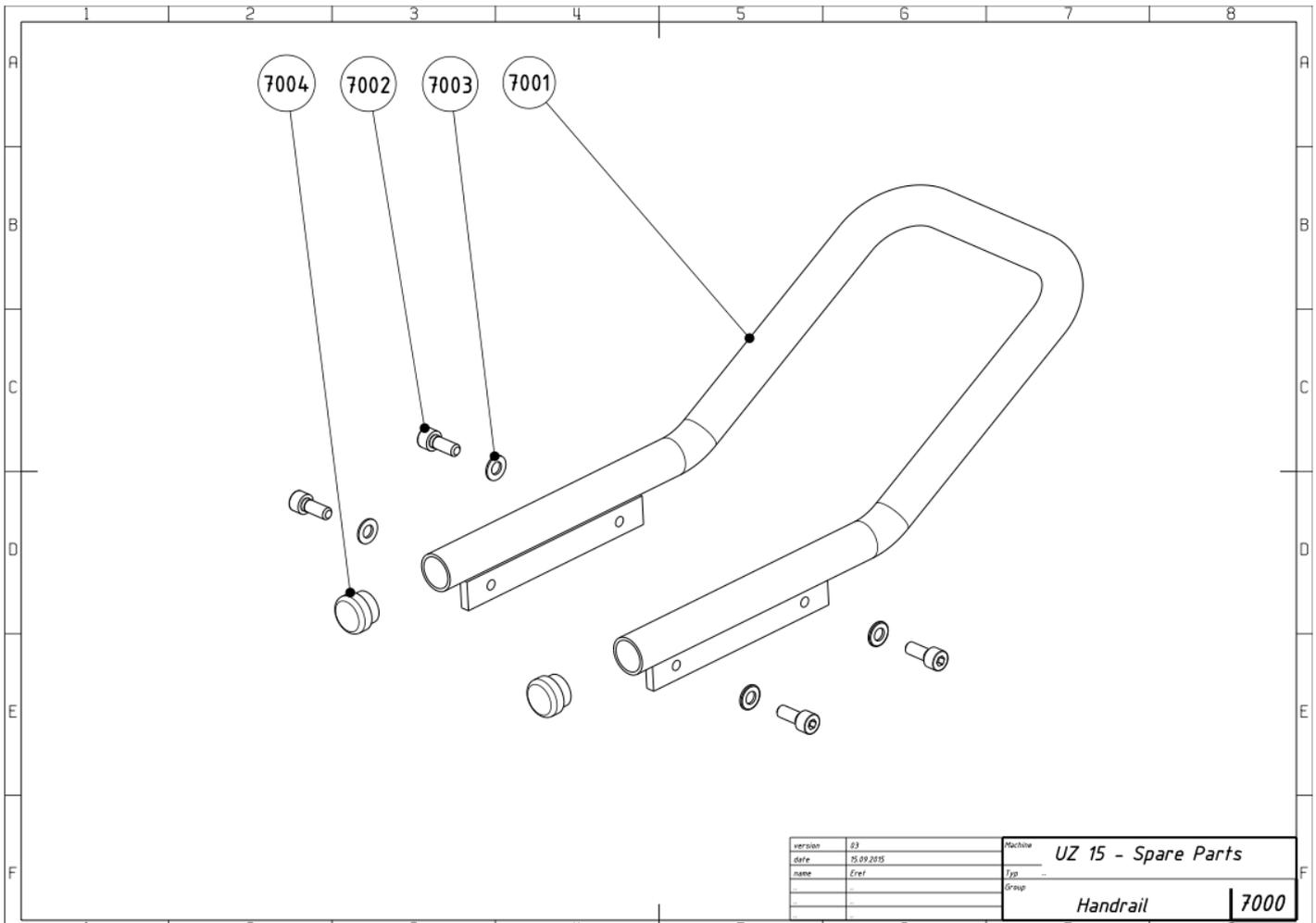
drawing no. 5500 Drive 60Hz

Number	Fig	Part name	Note	Pcs
1931.5001	5001	Gear		1
1931.5002	5002	Engine		1
1931.5005	5005	Washer		1
1931.5006	5006	Washer		1
1931.5008	5008	Belt pulley key		1
1931.5009	5009	Belt pulley key		1
1931.5010	5010	Screw		6
1931.5011	5011	Screw		1
1931.5012	5012	Screw		1
1931.5013	5013	Nut		4
1931.5014	5014	Screw		4
1931.5015	5015	Belt pulley	for 60Hz drive	1
1931.5016	5016	Belt pulley	for 60Hz drive	1
1931.5019	5019	Belt	for 60Hz drive	1
1931.5020	5020	Pin		1
1931.5023	5023	Earthing conductor		1
1931.5024	5024	Washer	for 60Hz drive	1
1931.5025	5025	Washer	for 60Hz drive	1



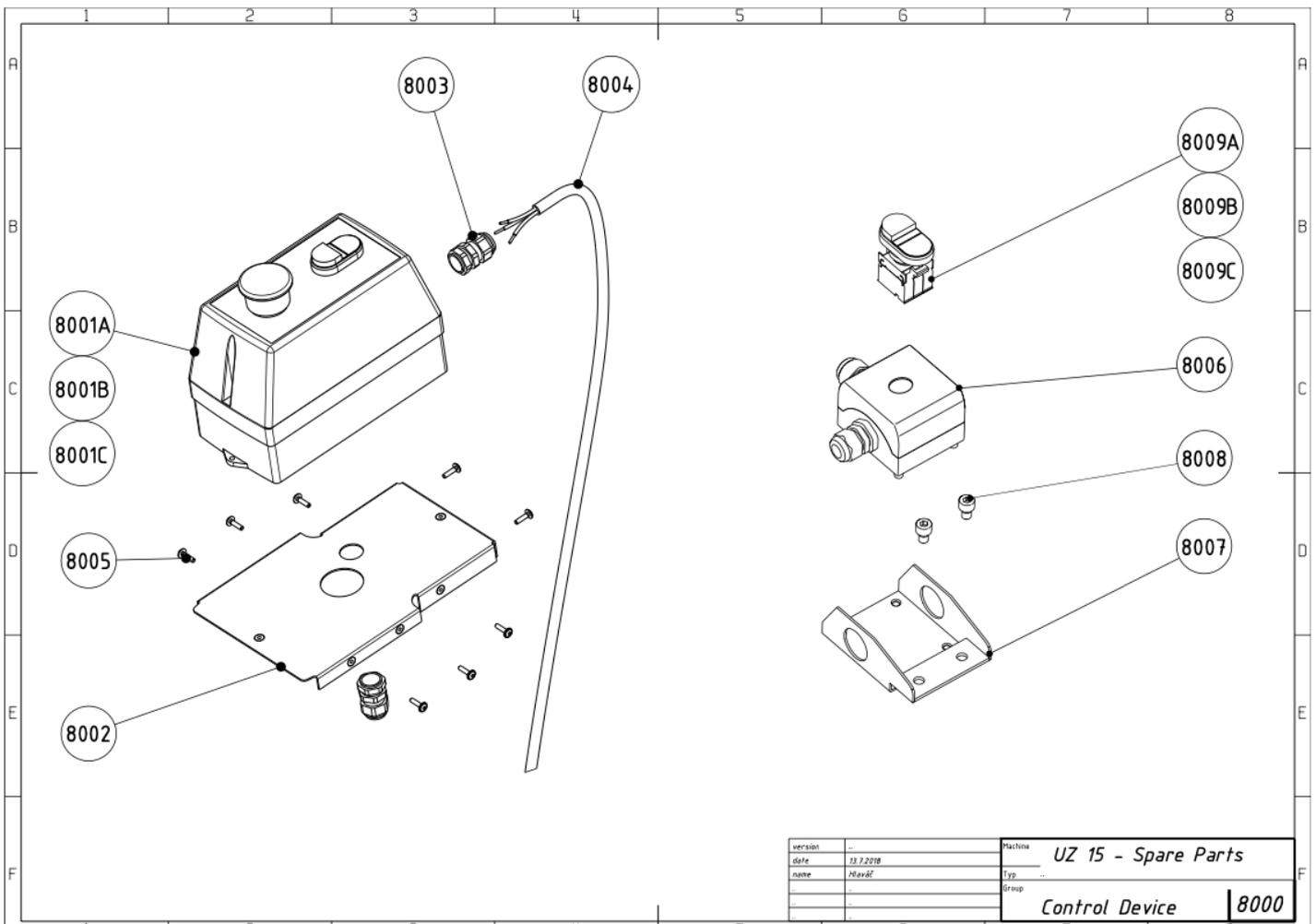
version		Machine	UZ 15 - Spare Parts	
date	11.10.2018	Typ		
name	Mavaz	Group	HANDLE	6000
sheet				
sheets				

UZ15 SPARE PARTS		drawing no. 6000 Handle		
Number	Fig	Part name	Note	Pcs
1931.6001	6001	assembled left handle with adapter 3D		1
1931.6002	6002	assembled left handle with adapter 3D		1



version	03	Machine	UZ 15 - Spare Parts
date	15.09.2015	Typ	..
name	Eref	Group	Handrail
			7000

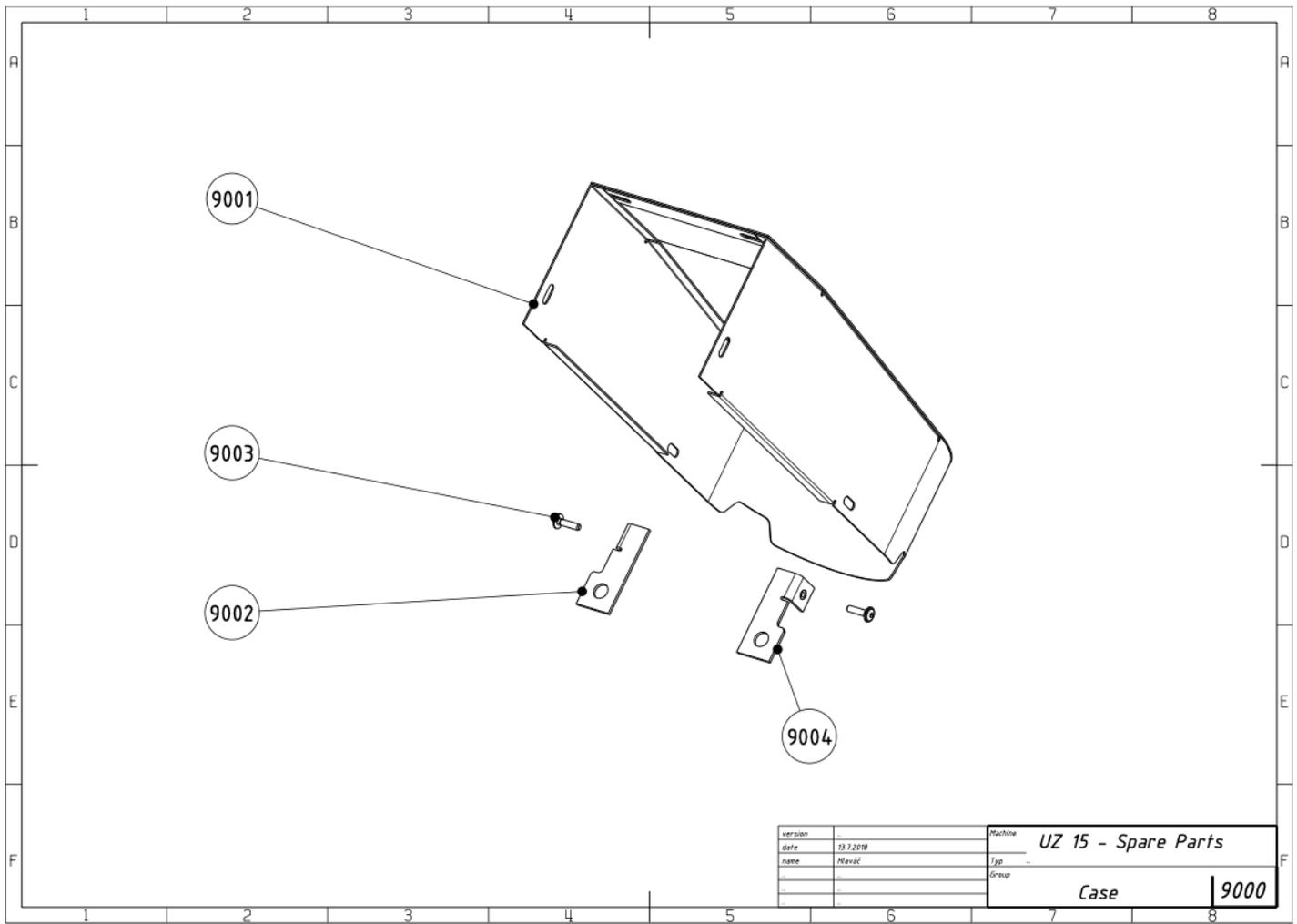
<b>UZ15 SPARE PARTS</b>		drawing no. <b>7000 Handrail</b>		
Number	Fig	Part name	Note	Pcs
1931.7001	7001	Tube		1
1931.7002	7002	Screw		4
1931.7003	7003	Washer		4
1931.7004	7004	Plug		2



## UZ15 SPARE PARTS

drawing no. **8000 Control Device**

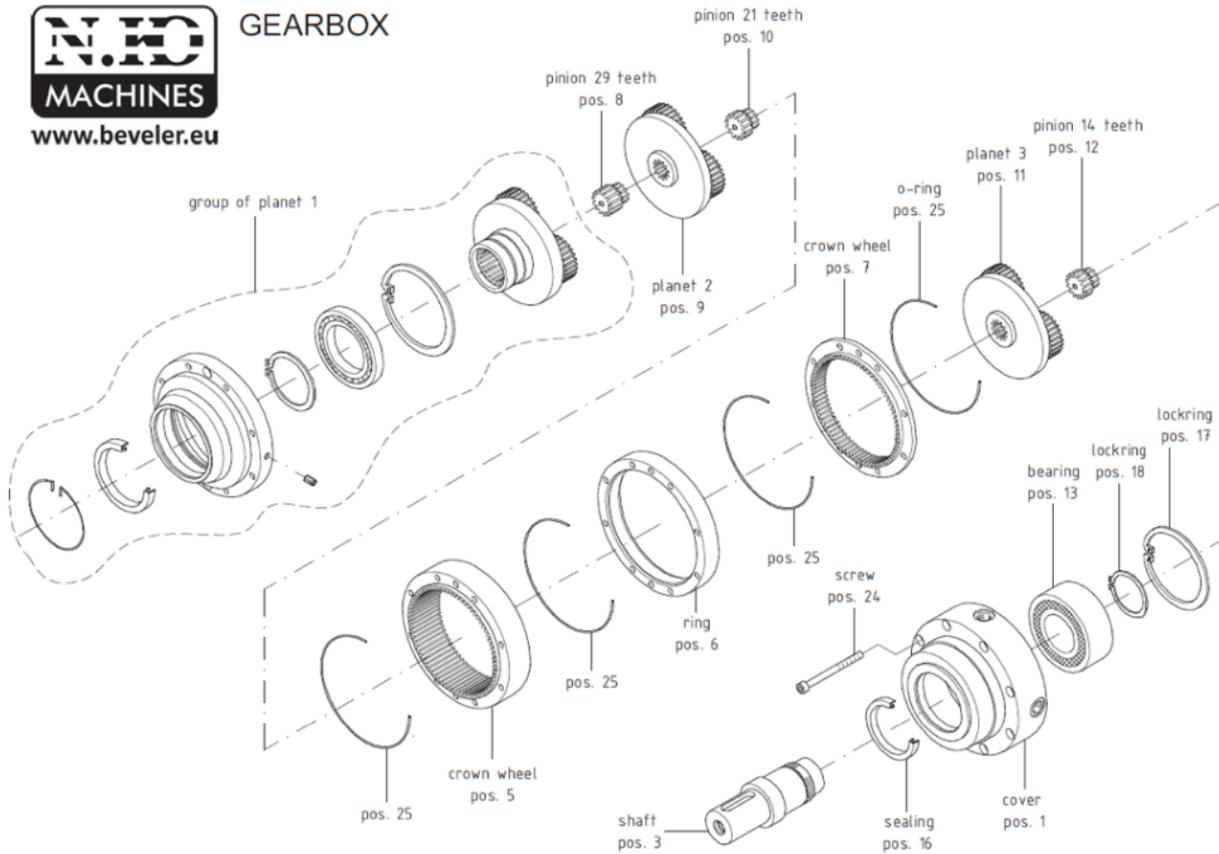
Number	Fig	Part name	Note	Pcs
1931.8001A	8001A	Electro cabinet complete	400V/50Hz	1
1931.8001B	8001B	Electro cabinet complete	480V/60Hz	1
1931.8001C	8001C	Electro cabinet complete	3x220V/60Hz	1
1931.8002	8002	Sheet metal		1
1931.8003	8003	Cable grommet		2
1931.8004	8004	Cable		1
1931.8005	8005	Screw		8
1931.8006	8006	Switch box		1
1931.8007	8007	Holder		1
1931.8008	8008	Screw		2
1931.8009A	8009A	Switch	400V/50Hz	1
1931.8009B	8009B	Switch	480V/60Hz	1
1931.8009C	8009C	Switch	3x220V/60Hz	1



# UZ15 SPARE PARTS

drawing no. 9000 Case

Number	Fig	Part name	Note	Pcs
1931.9001	9001	Belt cover		1
1931.9002	9002	Holder R		1
1931.9003	9003	Screw		2
1931.9004	9004	Holder L		1



version	03	Machine	UZ 15 - Spare Parts
date	15.09.2015	Typ	
name	Erel	Group	GEARBOX

## UZ15 SPARE PARTS

## drawing - GEARBOX

Number	Fig	Part name	Note
1931.PLANET1	group of planet 1	group of planet 1	complete assembled cover and planet 1
1931.1	pos. 1	cover	
1931.3	pos. 3	shaft	
1931.5	pos. 5	crown wheel	
1931.6	pos. 6	ring	
1931.7	pos. 7	crown wheel	
1931.8	pos. 8	pinion	(29 teeth)
1931.9	pos. 9	planet 2	
1931.10	pos. 10	pinion	(21 teeth)
1931.11	pos. 11	planet 3	
1931.12	pos. 12	pinion	(14 teeth)
1931.13	pos. 13	bearing	
1931.16	pos. 16	sealing	
1931.17	pos. 17	lock ring	
1931.18	pos. 18	lock ring	
1931.24	pos. 24	screw	
1931.25	pos. 25	O-ring	

## Recommended spare parts for one machine UZ15

Nr. of the part	Name	Nr. of the drawing	Recommended number of the spare parts pc/year	probability factor (on scale 1-5)	note
2137	cutter	4000	Depends on the using	5	NKO Machines offer more type of the cutters. Have a look to the pricelist.
2140	Set of washers	-----	1 set	4	Compensation washers for regrinded cutters
1931.1005	screw	1000	1pc	1	Depends on the care about the machine
1931.1002	glass	1000	2pc	4	No important spare part. It is possible to work without this part
1931.2004	sheet	2000	1pc	3	Depends on the using and the type of the material
1931.2002	guidance bar	2000	1pc	3	Depends on the using and the type of the material
1931.2026	shim	2000	1pc	2	Depends on the care of the machine
1931.2023	bearing	2000	2pc (one set)	2	Depends on the care of the machine. Need 2pc for one exchange.
1931.3011	pin	3000	2pc	1	Depends on the care of the machine.
1931.3002	wheel	3000	2pc	1	Depends on the care of the machine.
1931.4009	Armored sealing	4000	2pc	3	Depends on the using and the type of the material
1931.4012	key	4000	4pc (one set)	2	Depends on the skills of the staff
1931.4013	shim	4000	1pc	1	Depends of using
1931.5007	Belt for 50Hz	5500	4pc	4	Depends on the skills of the staff. The belt for 50Hz of electrocity
1931.5019	Belt for 60Hz	5000	4pc	4	Depends on the skills of the staff. The belt for 60Hz of electrocity
1931.8001	electrocabinet	8000	1pc	1	Risk of mechanical damage or unstable electrical network
1931.9003	screw	9000	10pc	3	Risk of damage during removal and assembly of the cover of the belt
1931.8	pinion	gearbox	2pc	4	Depends on the skills of the staff
1931.OLEJ	Oil 1L.	---	1L.	5	Period for exchange of the oil in operation manual

We recommend you, to keep these spare parts on your stock for providing of the high standard service.

Compare the spare parts with the operation manual.

Link to video operation manual and etc:

[http://www.youtube.com/user/firmanko/videos?shelf\\_index=0&view=0&sort=dd](http://www.youtube.com/user/firmanko/videos?shelf_index=0&view=0&sort=dd)

A copy of this manual is supplied with each machine UZ15 RAPID.

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