

**Machine for Bevel Chamfering with a Variable Angle  
and Automatic Feed  
NKO MACHINES  
UZ 12 Ultralight**



**Instructions for Use and Maintenance**

**Customer** \_\_\_\_\_  
**Model** \_\_\_\_\_  
**Serial number** \_\_\_\_\_  
**Year** \_\_\_\_\_



## Table of Contents

<b>1</b>	<b>General Information</b>	
	Introduction	3
	Tests	3
	Warranty	3
	Identification Data	4
	Reference Standards	5
<b>2</b>	<b>Safety</b>	
	Safety Considerations	6
	Qualifications and Protection of Operators	7
	Safety Devices	8
	Other hazards	9
<b>3</b>	<b>Technical Specifications</b>	
	Machine Description	9
	Technical Data	10
	Noise Level	11
	Working Conditions	11
<b>4</b>	<b>Installation</b>	
	Transport and Hoisting	11
	Setting Up and Connection	12
	Checks before Commissioning	14
	Destruction and Disposal	14
<b>5</b>	<b>Use</b>	
	Proper Use	15
	Description of Control Elements	15
	Setting	16
	Chamfering / Bevelling	21
	Using a Pipe Adapter	23
<b>6</b>	<b>Maintenance and Adjustment</b>	
	Recommendations	25
	Changing the Oil	25
	Changing the Tool	26
	Calibration of the Machine	27
<b>7</b>	<b>Technical Diagrams</b>	
	Wiring Diagram	27-29
<b>8</b>	<b>Spare Parts</b>	
	How to Order Spare Parts	29
	Drawing Diagram of Spare Parts	
	List of Spare Parts	30 - 37

## 1.1. General Information

### 1.1 Introduction

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

This manual contains all instructions for installation, adjustment, operation and maintenance of the UZ12 Ultralight machine in accordance with the applicable safety standards.

**Information contained in this manual may be subject to changes due to further improvement of machines. In order to get rid of any doubts, please contact N.KO if you find any differences.**

Never carry out any operations with the machine until you read the instructions contained in this manual and understand them. The majority of accidents which happen in the workplace are caused due to failure to comply with instructions and recommendations contained in the manual.

Graphic symbols used in the manual are used for highlighting of important information concerning safety and operation of the machine.



**Caution:**  
**Important information for personal safety of operators.**



**Important:**  
An instruction which must be followed to ensure the correct operation of the machine.

### 1.2 Tests

The chamfering machine is tested in our testing laboratory.

Correct function of the electrical system and the correct bevelling function of sheets and profiles of various types and dimensions are subject to the test.

### 1.3 Warranty

The seller grants the warranty that the bevelling system UZ 12 Ultralight will not have any material or manufacturing defects for the period of 12 months from the date of delivery of the goods.

The warranty for flawless function of the goods and the materials used is granted for the period of 12 months from the date of delivery of the goods.

The seller undertakes to remove any possible defects covered by the warranty free of charge and without undue delay, so that the buyer of the goods can use the product properly. Should the buyer exercise rights arising from the liability for the defects which are not covered by the warranty, he/she shall pay all related costs to the seller.

The warranty period does not run from the date when the buyer reports the defect covered by the warranty and due to which the buyer cannot use the goods to the seller, thus exercising his/her rights arising from the liability for defects covered by the warranty, until the date of its removal by the seller.

The warranty does not apply to natural and common wear and tear of the goods and defects caused due to improper use of the goods contrary to the provided training and documentation. Furthermore, the guarantee does not apply to defects caused due to overloading of the goods or to defects caused after unprofessional intervention in the goods or unprofessional repair or modification to the product. The unprofessional intervention, repair or maintenance shall mean any intervention, repair or maintenance carried out contrary to the provided training of documentations or carried out by a person other than the seller or a person authorized and approved by the seller.

The rights arising from the liability for defects covered by the warranty shall be exercised at the seller without undue delay after the seller finds out the defect, but no later than the end of the warranty period; otherwise these rights void.

The warranty card must be submitted upon exercising of rights arising from the liability for defects covered by the warranty; otherwise these rights cannot be conferred upon the buyer.

Seller's liability for defects covered by the warranty does not arise if these defects are caused by external events. These external events shall mean, in particular, a natural disaster, force majeure or actions of third parties.

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

- improper use of the machine,
- use contrary to national or international standards,
- incorrect installation,
- faulty power supply,
- serious deficiencies in maintenance,
- unauthorized modifications and/or interference,
- use of wrong or other than genuine spare parts and accessories intended for the respective model,
- total or partial non-compliance with the instructions,
- exceptional events, natural disasters and others.

## **1.4 Identification Data**

The identification data of the machine for bevel chamfering are stated on the CE rating plate attached to the engine case.

## 1.5 Reference Standards (EC Declaration of Conformity)

### EC Declaration of Conformity

1. Name and surname of the declaration issuer: N.KO spol s.r.o.  
Address of the declaration issuer: Tábořská 398/22  
CRN: 2616109
  
2. Subject matter of the declaration:  
Name: MOBILE BEVELLING MACHINE  
Type: UZ 12 Ultralight  
Manufacturer: N.KO, spol. s r.o.
  
3. Intended use: Edge bevelling of sheets as preparation for welding
4. The above-stated subject matter of the declaration complies with requirements of the following documents:

Directive 2006/42/EC: Machinery Safety – Basic Requirements

Directive 2004/108/ES: Electromagnetic Compatibility

EN ISO 12100: Safety of machinery - Basic concepts, general principles for design – Risk Assessment and Risk Reduction

EN ISO 13857: Safety of machinery – Safety distances to prevent hazard zones being reached by upper and lower limbs

EN 953: Safety of machinery – Guards – General requirements for the design and construction of fixed and movable guards

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. Data on accredited / notified body:  
Date and place of issue: 12 June 2015, Mladá Boleslav  
Name and position of the authorized person: Milan Richtr – managing director  
Signature of the authorized person: (signature illegible)



## 2.0 SAFETY

### 2.1 Safety Considerations



#### **Caution:**

**Acquaint yourself thoroughly with the following instructions to avoid personal injuries and/or damages to property.**

- Never try to work with the machine until you acquaint yourself thoroughly with its operation processes. If you are still on doubt after careful and entire reading of this manual, contact N.KO or your vendor.
- Make sure that all technical staff who are going to use and maintain the machine, have been thoroughly acquainted with all the relevant safety recommendations.
- The machine must be transported and installed only by specialized workers in compliance with the instructions contained in this manual.
- Prior to start of the machine, operators are obliged to make sure that all safety devices are working and that all safety guards are fitted.
- Never use the machine otherwise than stated in the guide. Never process materials other than indicated and allowed.
- Prior to use the machine for other than stated purposes, contact N.KO and ask for permission.
- Voltage values used for supplying of the machine are dangerous: make sure that all connections are made correctly. Never maintain the machine or replace its parts if it is connected to power source. Never make any branches on electric connections.
- The components you consider faulty shall be replaced by components recommended by the manufacturer. Never replace with other than genuine parts.
- Never wear clothing or jewellery which can be caught by moving parts. It is advisable to wear safety clothing: footwear with an anti-skid sole, ear protectors and safety goggles.



#### **Important:**

**If any defects which cannot be repaired according to this guide occur during the service life of the machine, it is advisable to contact N.KO to sort out the problem as soon as possible.**

## 2.2 Qualifications and Protection of Operators

The employer is obliged to inform operators of safety standards and to ensure that they are adhered to. The employer is obliged to make sure that the workplace is sufficiently large and well lit.

“Operators” shall mean people who install, operate, adjust, maintain, clean and repair the machine.



**Caution:**

**Prior to commencement of works, operators must be acquainted with features of the machine and they must have read the entire manual.**



**Caution:**

**The operators must always:**

1. make sure that all safety guards are fitted and that all safety devices are working prior to start of the machine,
2. avoid wearing of the type of clothing or jewellery, which can be caught in moving parts,
3. wear approved safety clothing, such as footwear with an anti-skid sole, ear protectors and safety goggles,
4. apply safety standards, see to compliance with them; if on doubt, they must look into this manual before taking any steps,
5. contact the vendor of the machine if they cannot remove the defects causing malfunction of the machine, if the defects are related to faulty components or irregularities of operation.

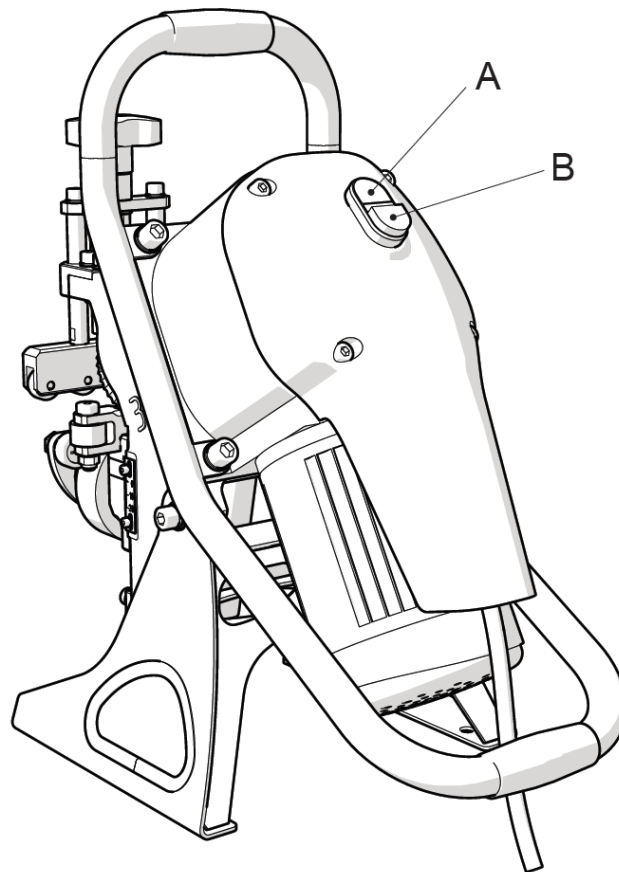
## 2.3 Safety Devices

The machine is equipped with an emergency stop button. It is red and it stops the machine immediately as a priority before all other operations (position B, fig. 2.4.1).

This emergency stop button is used for:

- stopping of the machine
- in the event of any imminent dangers or mechanical accidents

Fig. 2.4.1



## 2.4 Other hazards

The machine was designed and manufactured with all devices and equipment for ensuring the health and safety of operators.

The machine is designed to reduce the risk of contact with moving parts to the lowest level.

However, there is one remaining hazard:

As it has been already mentioned above, the working zone is protected as much as possible, but it must remain partly open to insert the material subject to machining into the working zone.

Therefore, it may happen that operators insert fingers into this zone, where there are the cutting tool and workpiece holder.

**⚠ Caution:**

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

**⚠ Caution:**

**Always follow safety rules contained in the manual and ensure that they are adhered to and that all other remaining hazards are excluded.**



### 3.0 TECHNICAL SPECIFICATIONS

#### 3.1 Description of the Machine

The machine for bevel chamfering, model UZ 12, is small. One of the main advantages is its low weight and low noise level.

The bevel angle can be adjusted by exchanging the yoke of the bottom support.

Material feed is automatic. The machine can be used both stationary for machining of small parts, and suspended on large workpieces, when the machine moves automatically along the material and makes bevel.

The machine is equipped with a hardened cutting tool, a robust holder of the workpiece, the scale for direct reading which is used for adjusting of the bevel size, and special conduction, which allows insertion of material.

These properties allow easy and effective bevelling while maintaining the high level of occupational health and safety.

The bevel chamfering machine UZ 12 Ultralight is reliable and requires only minimal maintenance.

#### 3.2 Technical Specifications

Voltage 400V (480V a 3x220V - special version) \*  
Frequency 50/60 Hz\*  
Engine power 400W  
Speed (rpm) 6.3 - 50Hz (7.5-60Hz)

**Sheet thickness** 3 - 35 mm (at 22.5°; 30°;37.5°)  
3 - 22 mm (at 45° and 50°)

**Steel bevel size** 12 mm bevel width  
at 45° bevel height approx. 8.5 x 8.5 mm  
at 30° bevel height approx. 10.5 x 6 mm

**Minimum dimension of processed material is**

**Wx30x3mm.**

$\alpha$ (°)	w (mm)
22,5	65
30,0	65
37,5	80
45,0	85
50,0	100

**Max. material strength**

**Rm = 70kg/mm2**

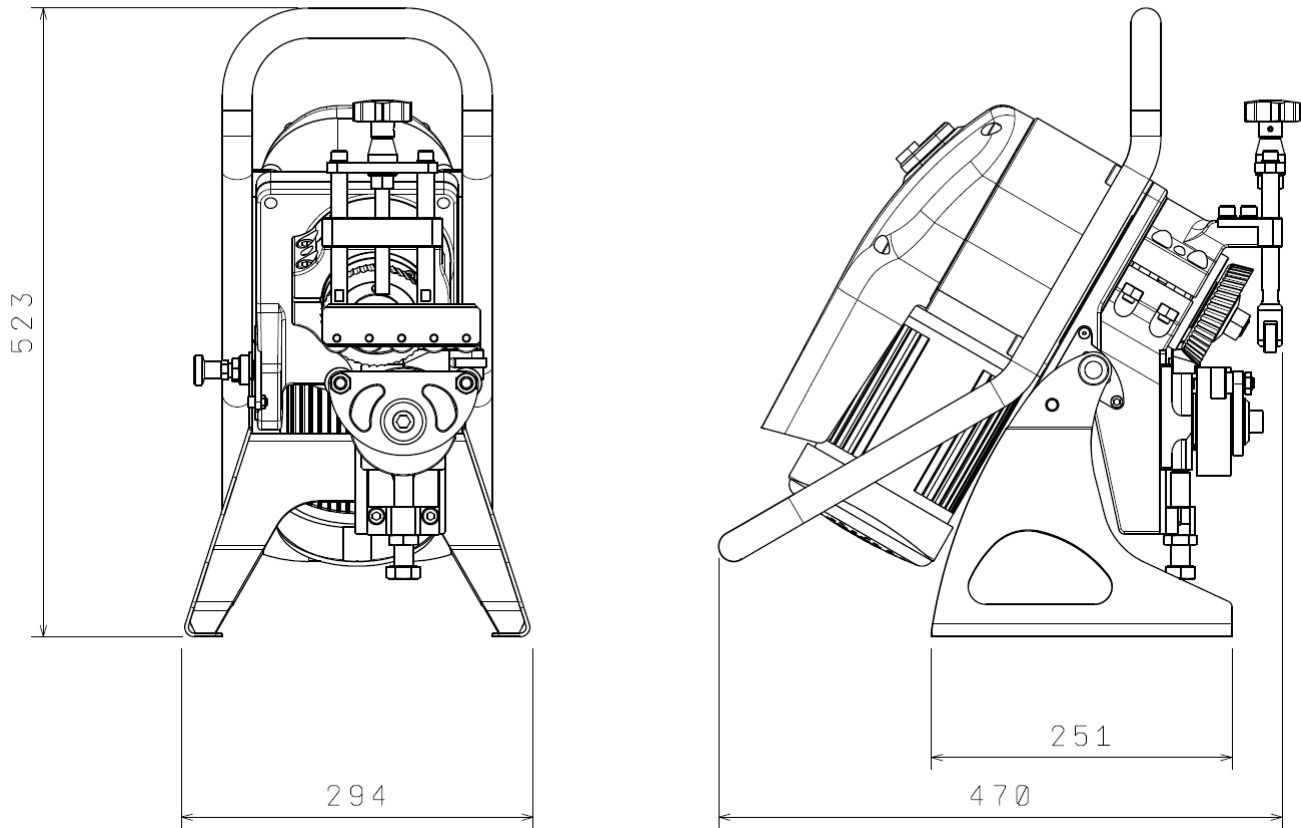
The range of possible angles 22.5° 30°, 37.5°, 45°, 50° (using removable yokes – KITS)

Bevel cutting speed 1800 mm/min

Dimensions 470 x 294 x 523mm

Weight 30kg

(\*) The exact voltage and frequency values are indicated on the motor rating plate.



### 3.3. Noise Level

The machine was designed and manufactured to make the lowest possible noise. Measurements carried out from the operator's site, while the machine was running in the automatic cycle mode, showed the following values:

- during cutting                    **74.9 dB**
- during idle operation        **64.4 dB**

### 3.4 Workplace Conditions

The environment, where the machine works, must comply with the following values:

Temperature:            0° C - 50° C  
 Humidity:                10% - 90% (non-condensing)

The machine must be placed in the roofed space and it must not be exposed to rain.

Working conditions other than mentioned above can cause serious damages to the machine, especially to the electrical equipment.

If the machine is not operated, it can be stored in a place where the temperature varies between -10°C and 70°C.

All the other values remain unchanged.

## 4.0. INSTALLATION

### 4.1. Transport and Hoisting



#### **Important:**

**The activities described in this section must be performed only by qualified staff.**

Appropriate unloading and installation means (cranes, forklifts, etc.) must be ready at the destination.

Upon delivery of the machine to the destination, make sure (while the haulier is present) that the machine complies with the specifications in the order and that it has not suffered any damage during transport. Otherwise notify N.KO and the haulier immediately of any deficiencies and damages. In your own interest make the report of damages and take photos.



#### **Caution:**

**Adhere to the following instructions and make sure that the handling of the machine is safe:**

- Keep the distance from suspended loads and make sure that the hoisting device and the respective tools are in a perfect condition and that they are suitable for weights indicated in the section 3.2.
- Wear protective clothing, such as working gloves, footwear with an anti-skid sole and helmet during handling of the machine.
- If the machine is in the crate, discard it and dispose of it in accordance with the applicable legislation of the specific country.
- If you are not able to bear the machine, lift it using suitable handling equipment and strap for lifting of loads. The strap must be placed on the upper handle. It is shown in fig. 4.1.1.

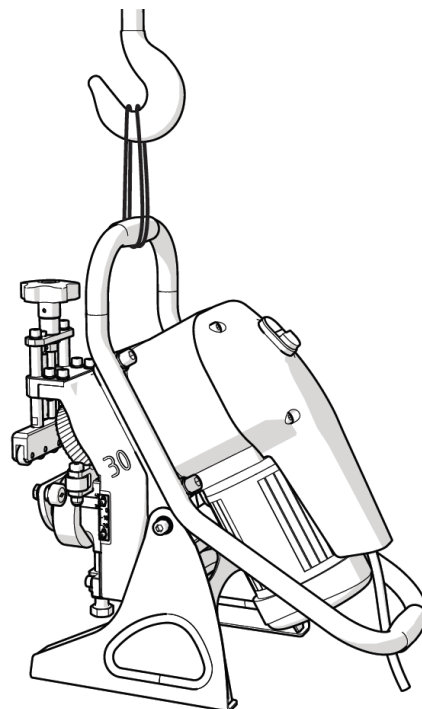


Fig. 4.1.1

## 4.2 Setting Up and Connecting

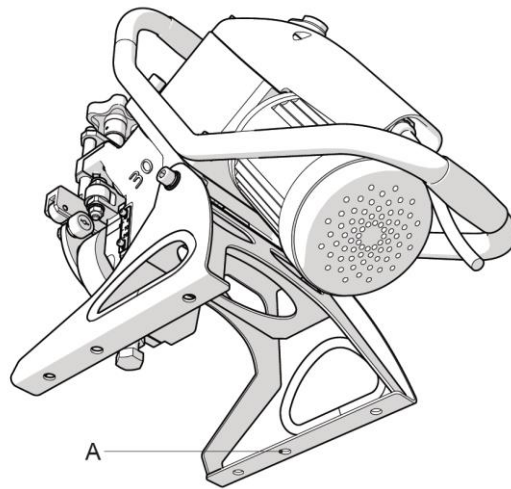


### **Important:**

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

If the machine is used for machining of small workpieces, it must be fitted on a flat surface (e.g. a workbench) using the opening in the bottom part of the stand (position A, fig. 4.2.1.).

Fig. 4.2.1.



If the machine is used for machining of large workpieces, it must be placed on the actual workpiece and it must travel along the workpiece by itself during the work. The workers must put the machine on the material and at the end of the process, they must take it off again. It is

advisable that the machine is suspended on the crane using a strap, as shown in fig. 4.1.1, at least during approaching the material and at the end, when the material leaves the workpiece.



### **Caution:**

**If the machine is not adjusted correctly, the tool will not be sharp enough or the machine will not be in a good condition. If inappropriate material to be machined is selected, fall of the machine off the workpiece may occur.**

While performing electrical connection, proceed as follows:

- check frequency and voltage values on the engine rating plate,
- attach the end of the cable to the mains using a plug according to your local electric distribution system.

### 4.3 Inspections before Commissioning



#### **Important:**

**Never start UZ 12 Ultralight without performing inspections described in this section.**

Prior to starting the machine, make sure that the machine is operational within the following inspections and checks in order to achieve the highest possible efficiency and compliance with safety regulations:

- **make sure no bolts or other parts are loose,**
- make sure that all electrical connections have been made correctly and that the electrical cable is held in its place by the cable bushing.

To start the machine, proceed as follows:

- Connect the machine to the mains
- **Start the motor using the green button** (position A, fig. 2.4.1). **The cutter must rotate in a clockwise direction.**  
If not, adjust wiring of the phase in the plug.

To stop the machine, use the red button placed next to the power button (position B, fig. 2.4.1).

### 4.4 Discard and Disposal Considerations

When disposing of the machine UZ12 Ultralight, keep in mind that materials it is made from are not safe and that they include mainly the following items:

- painted or metal-coated steel and ALU alloys
- stainless steel, series 300/400
- plastic materials of various nature
- gear oil
- electric motor
- electric cabling and appropriate sheathing
- electrical monitoring and exciting devices.

Follow these steps:

- follow the applicable laws in force in your country relating to occupational safety,
- disconnect the machine from the power supply,
- dismantle the machine and sort the components into groups according to their chemical properties,
- scrap machine parts in accordance with the applicable laws in force in your country,
- during dismantling stages, strictly adhere to applicable regulations for occupational safety.

## 5.0 USE

### 5.1. Intended Use

The machine for bevel chamfering, model UZ 12 Ultralight was designed, manufactured and sold for chamfering of metal semi-finished products and rolled profiles of the following types: **steel and stainless steel up to the strength  $R_m = 70 \text{ kg/mm}^2$** , brass, copper and aluminium. Maximal bevel dimensions and thickness of the material subject to machining are detailed in chapter 3, section 3.2, “Technical Specifications”.

Applications other than the above-mentioned intended ones are considered inappropriate. To be specific, it is forbidden to:

- process products differing from those, for which the machine has been manufactured and sold,
- modify the operation of the machine,
- replace parts with other than genuine components,
- modify electrical connections, thus eluding internal safety regulations,
- remove or modify safety guards,
- use the machine in places with aggressive atmospheres.



#### **Caution:**

**It is strictly forbidden to perform bevel chamfering with materials other than those mentioned above as their processing might expose the operator and the machine to risk.**

Prior to any modifications, contact N.KO to issue the respective authorization. Otherwise N.KO will not be held liable.

### 5.2 Description of Control Elements

- **Green button** (position A, fig. 2.4.1) - **pressing the button starts the engine. BEWARE of the sense of machine rotation. The working direction is clockwise only.**
- **Red button - Emergency stop button** (position B, fig. 2.4.1) - pressing this button disconnects the power source.

### 5.3 Adjusting the Machine



#### **Caution:**

**While adjusting the machine, use working gloves and other personal protective equipment. Operations must be performed with the still machine and after the machine has been disconnected from the power source.**

Prior to start of any works, it is necessary to perform some adjustments.

#### **Change to Bevel Angle**

The machine UZ12 Ultralight as a standard comes with one or two kits determining the bevel angle

order no. 1920 - UZ12 + KIT 30°

order no. 1921 - UZ12 + KIT 45°

order no. 1922 - UZ12 + KIT 30° + 45°

Other kits for angles of 37.5°/ 22.5°/ 50° can be purchased as optional accessories

order No. 11925 - KIT 37.5°

order No. 11926 - KIT 22.5 °

order No. 11929 - KIT 50°

Should you require a special angle, contact your vendor.

To change the bevel angle, proceed as follows:

- Loosen the bolts of the upper support console (position A, fig. 5.3.1) and dismantle the entire assembly of the upper support.
- Loosen the central bolt (position B, fig. 5.3.1) of the lower support and dismantle the entire support.
- Loosen the bolts of the console of the elevating screw (position C, fig. 5.3.1) and dismantle the entire assembly of the elevating screw.
- Loosen the main nut of the cutter (position B, fig. 5.3.2) and dismantle the cutter (position A, fig. 5.3.2).
- Now, it is the time to dismantle the kit. Loosen two Allen head bolts (position E, fig. 5.3.1).
- Using the distance bolt (position D, fig. 5.3.1) loosen the kit on the neck of the machine and remove the kit (refer to fig. 5.3.2).
- Select the suitable kit according to the desired bevel angle and reassemble the machine in the same way.

Fig. 5.3.1

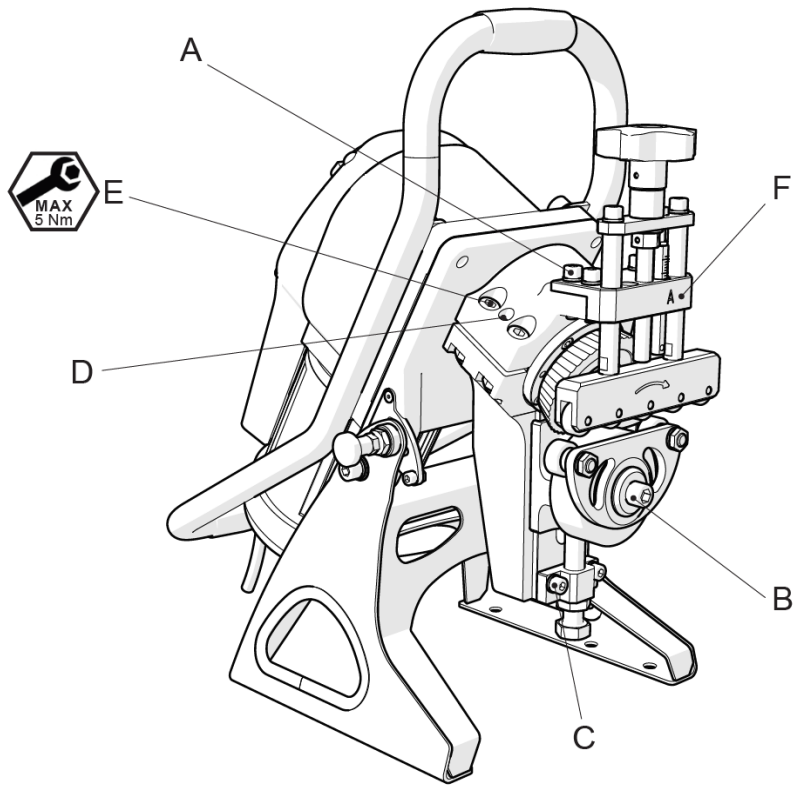
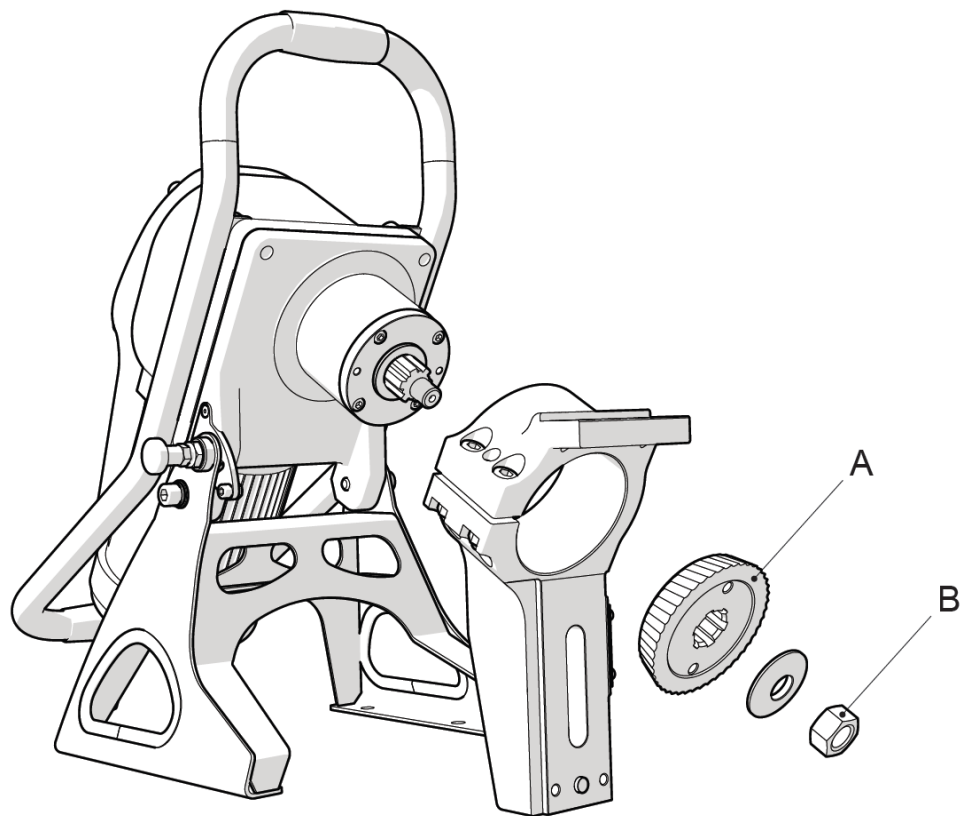


Fig. 5.3.2





**Important:**

Adjusting the elevation of the lower cylinders (the support) sets the C value = the dulling height, refer to fig. 5.3.3.!!!

The C value, which can be read on the scale (position C, fig. 5.3.5) indicates the difference between the bevel height (dimension A in fig. 5.3.3.) and the total thickness of the material.

Therefore, you set the so-called dulling on the scale (dimension C, fig. 5.3.3.).

(This means that for setting of the bevel size 8x8x45° on the material with a thickness of 10 mm, you have to set the value 2 mm on the scale).

It is important to note that while adjusting the dulling height C, such a value, at which the hypotenuse length of the resulting bevel (dimension P in fig. 5.3.4.) would exceed 12 mm (maximum output of the machine), must be avoided. This can be checked in the table 5.3.6.

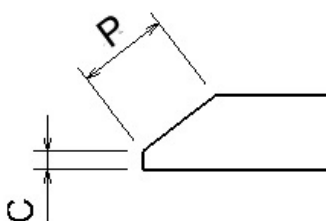
Proceed in the following way:

- Loosen the bolt of the central cylinder (position A, fig. 5.3.5) sufficiently.
- Loosen the counter nut on the elevating screw (position B, fig. 5.3.5).
- By turning the elevating bolt (position D, fig. 5.3.5), set the required value of the dulling height.
- The dulling value C can be read on the scale (position C, fig. 5.3.5).
- Having done the correct adjustments, lock the elevating bolt (position D, fig. 5.3.5) using the counter nut (position B, fig. 5.3.5).
- Re-tighten the bolt of the centre cylinder (position A, fig. 5.3.5).
- Finally make sure that the main centre cylinder is free and can rotate. Otherwise it is necessary to clean the room behind the centre cylinder.

fig. 5.3.3



fig. 5.3.4



**Table 5.3.6**

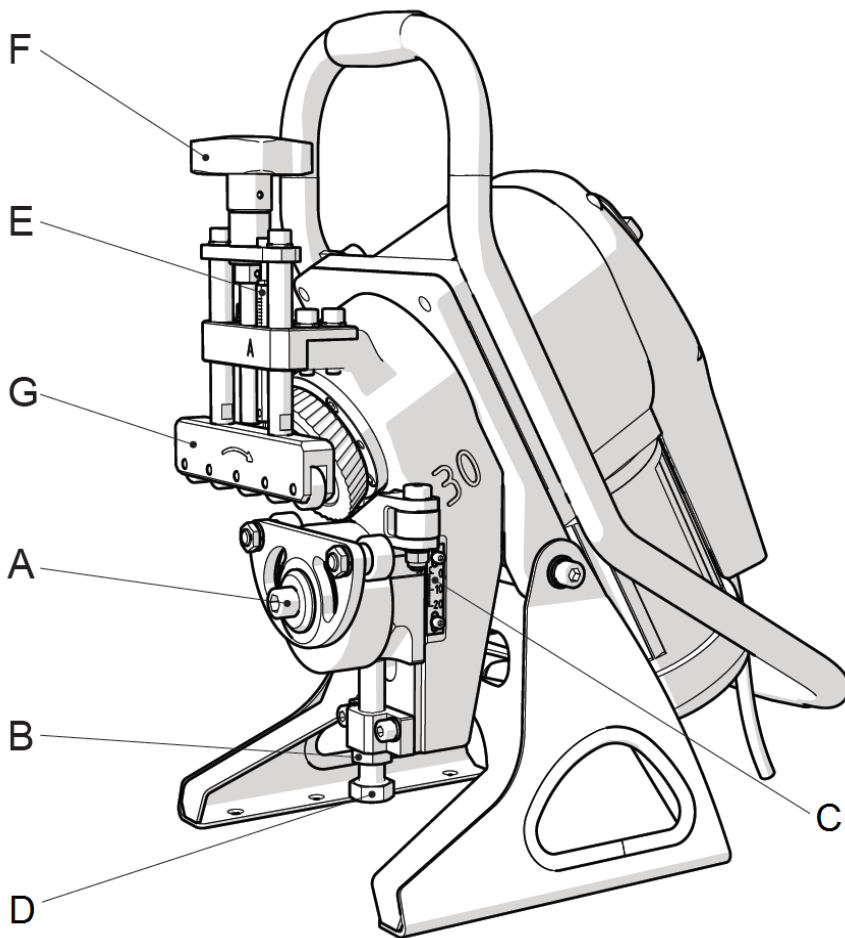
**On the dulling scale C (position C, fig. 5.3.5)**

**it is FORBIDDEN to set lower value than indicated in the right column of the table.**

**There is a risk of machine overloading.**

Note: The indicated data apply to the steel strength up to 45 kg/mm<sup>2</sup>.

Fig. 5.3.5.



H	$\alpha$	C $\geq$
3 – 8mm	22,5° - 50°	0mm
10	50°	2mm
	45°	1,5mm
	37,5°	0,5mm
	30°	0mm
	22,5°	0mm
12	50°	4mm
	45°	3,5mm
	37,5°	2,5mm
	30°	1,5mm
	22,5°	1mm
15	50°	7mm
	45°	6,5mm
	37,5°	5,5mm
	30°	4,5mm
	22,5°	4mm
20	50°	12mm
	45°	11,5mm
	37,5°	10,5mm
	30°	9,5mm
	22,5°	9mm
22	50°	14mm
	45°	13,5mm
	37,5°	12,5mm
	30°	11,5mm
	22,5°	11mm
25	37,5°	15,5mm
	30°	14,5mm
	22,5°	14mm
30	37,5°	20,5mm
	30°	19,5mm
	22,5°	19mm
35	37,5°	25,5mm
	30°	24,5mm
	22,5°	24mm

**It is forbidden to set the C value lower than indicated in the table. Otherwise there is a risk of machine overloading.**

All bevels, where the bevel width (hypotenuse P, fig. 5.3.4) exceeds 10 mm, must be performed in two steps.

For the first draft, set the C value = required C +  $\frac{1}{2}$  A.

For the second draft, set the required C value.

### **Examples of Setting:**

#### **Example No. 1:**

**Can we create a bevel of 10x10x45° with a 12mm-thick material?**

**In order to perform the correct adjustment, we have to set the dulling C, i.e. the difference between the height of the required bevel and the thickness of the material, on the scale. This means: 12-10=2.**

**Therefore, 2 mm should be on the scale. To check whether the machine will not be overloaded, use the table (fig. 5.3.6).**

**It can be read from the table that the minimum possible value on the scale can be 3.5 mm. This means that this bevel cannot be created, because 2 mm is less than 3.5 mm. With this setting, the total hypotenuse of the bevel (dimension P in fig. 5.3.4) exceeds the permitted 12 mm. Therefore, there is a risk of machine destruction.**

#### **Example No. 2.**

**Is it possible to make a bevel of 8x8x45° with 12mm-thick material?**

**To perform the correct adjustment, it is necessary to set the difference between the height of the required bevel and the material thickness on the scale. This means: 12-8=4. The scale should thus show 4 mm. To check whether the machine will not be overloaded, use the table (fig. 5.3.6).**

**It can be read from the information that the scale can show the value of min. 3.5mm. This means that this bevel can be made because 4 mm is more than 3.5 mm and with this settings, the total bevel hypotenuse (dimension P in fig. 5.3.4) does not exceed the permitted 12 mm.**

**But since the P hypotenuse exceeds 10 mm, it is advisable to make the planned bevel in two steps. Step no. 1. C=8mm. Step no. 2. C=4mm.**

#### **Example no. 3:**

**Can we make the bevel of 6x6x45° with the 8mm-thick material?**

**For the correct adjustment, we have to set the difference between the required bevel height and the material thickness on the scale (position C, fig. 5.3.5), i.e 8-6=2. Therefore, 2 mm should be on the scale. To check if the machine is not overloaded, use the table in fig. 5.3.6.**

**It can be read from the table, that the dulling for materials whose thickness does not exceed 8 mm can be set without any limitations. This means that the bevel can be**

created despite of the fact that we have set 0 mm on the scale and the sheet will be sharp bevelled, the total bevel hypotenuse (dimension P in fig. 5.3.4), because the bevel does not exceed the permitted 12 mm.

**Adjustment of Workpiece Holder Cylinders**

To ensure the correct operation of the machine, the workpiece holder cylinders (position G, fig. 5.3.5) must exercise light pressure on the workpiece. Their adjustment shall be done as follows:

- Turn the hand wheel in the upper part of the workpiece holder (position F, fig. 5.3.5) which adjusts the height of holder cylinders.
- Make adjustment so that the cylinders exercise light pressure on the workpiece. Make sure that the position is correct; read the value of the bevel height (dimension A in fig. 5.3.3) on the respective scale (position E, fig. 5.3.5).

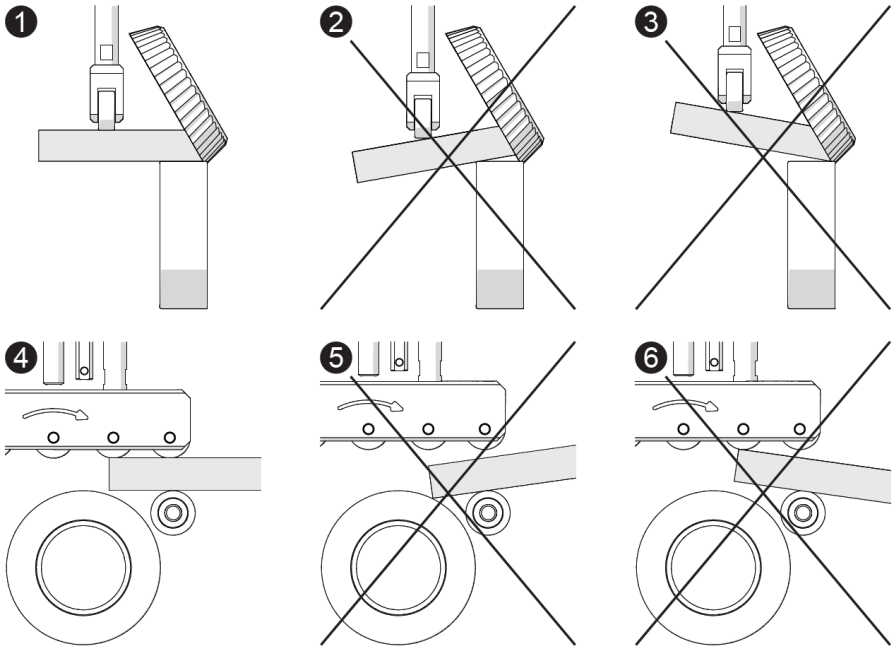
**5.4. Bevelling**

**Important:**

Activities described in this section must be performed only after adjustments referred to in the preceding sections.

To ensure correct operation of the machine, make sure the adjustments have been made correctly. No indicated situation must occur: the workpiece subject to machining must be placed relative to the lower cylinders and holder cylinder as described in situations 1 and 4 in fig. 5.4.1.

Fig. 5.4.1



If the machine is used for machining of small workpieces, it must be fixed on a flat surface (e.g. a workbench) using the opening in the bottom part of the stand (Position A, fig. 4.2.1). The workpiece moves automatically during machining (fig. 5.4.2).

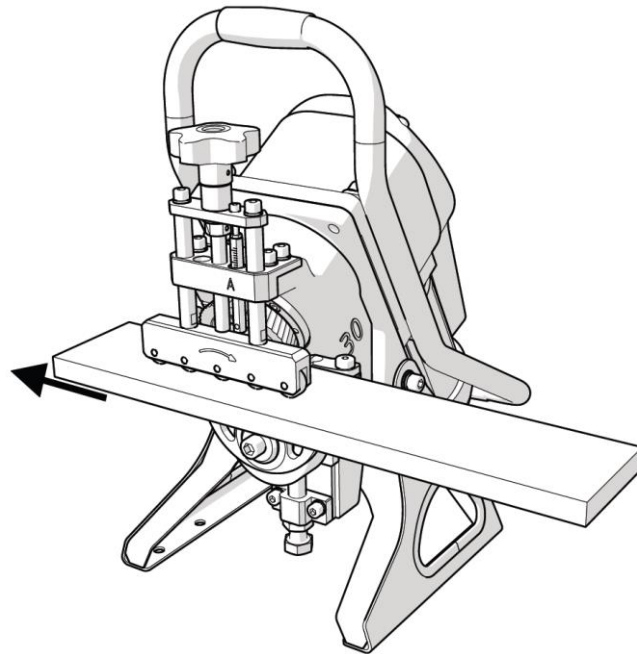
After adjustments and start of the machine, press the workpiece into all stops in the left and right directions, so that it is caught by the cutting machine. When the workpiece leaves the machine, protect it from fall on the ground, holding it with both your hands and pressing it towards the rear part of the machine in order to prevent its forward twisting.



**Important:**

**Beware of the sense of machine rotation. The working direction is clockwise only.**

Fig. 5.4.2



If you are planning to bevel large and heavy sheets or profiles, the workpieces must be placed at a minimum height of 400 mm from the ground on suitable supports. Then you can lift the machine and put it on the right end of the workpiece if you are standing behind the machine (fig. 5.4.3).

This is the case when you are going to bevel the upper side of the sheet/profile. If you are going to bevel the bottom part of the sheet/profile, the machine must be put on the workpiece upside down and on the opposite end of the workpiece (fig. 5.4.4).

**In both the cases, the machine moves around the workpiece without any need for a support. It is, however, necessary to hold the machine at the end of the bevel in order to prevent its falling on the ground.**

**Observe the recommendations from chapter 4.2.**

The machine moves automatically during machining (fig. 5.4.3 and 5.4.4).

**⚠ Caution:**

**While performing the above-described operations, wear safety footwear and safety goggles.**

Fig. 5.4.3

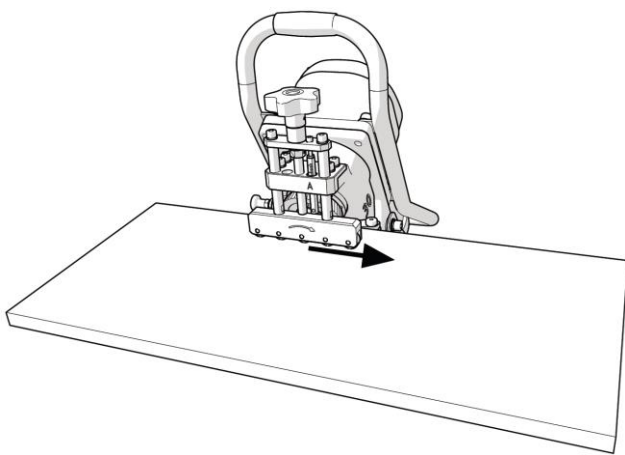
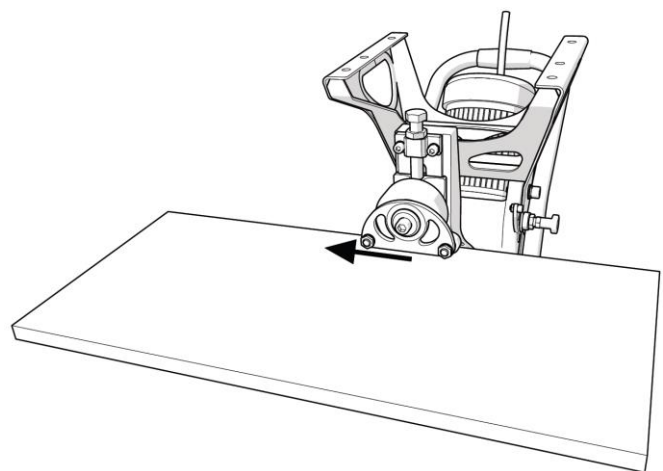


Fig. 5.4.4



**● Important:** The machine was designed for preparation of weld surfaces. The accuracy of machining is in the range of  $\pm 1$  mm. Satisfactory results can be achieved only under the condition that the edges of the material have been prepared perfectly. Unfortunately, material is often burned or sheared. These inaccuracies, of course, have impact on the results of machining.

## 5.5 Using the Pipe Adapter

The UZ12 machine is also able to bevel pipes with diameters from 95 mm. The maximum diameter of the pipe is not specified. Sheet/A pipe can be theoretically bevelled up to the expanded state, i.e. to the flat sheet.

In order to bevel pipes, it is necessary to buy a special adapter, order no. 1919.

The installation of the adapter shall be performed as follows:

- Dismantle the console of auxiliary pulleys (positions A, B and C, fig. 5.5.1).
- Install the adapter (position D, fig. 5.5.2) instead of the console (position A, fig. 5.5.1).
- Install the pad (position B, fig. 5.5.1) and re-tighten the bolt (position C, fig. 5.5.1).

## 5.6 Beveling of Pipes with the Adapter

- Set the machine normally, refer to chapter 5.4. Beveling.
- Lead the pipe to the machine and hold it until the machine catches it (fig. 5.6.1).

Keep in mind that the machine was designed for flat sheets and beveling of pipes is less comfortable. Occasionally you may experience some complications.

fig. 5.5.1

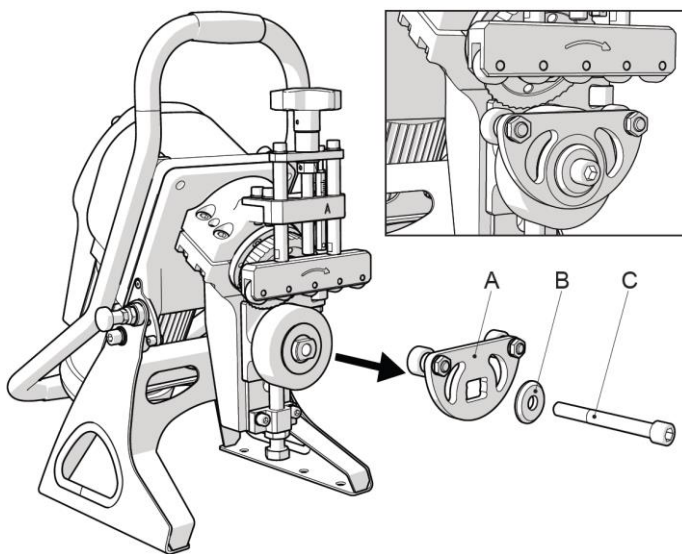


fig. 5.5.2

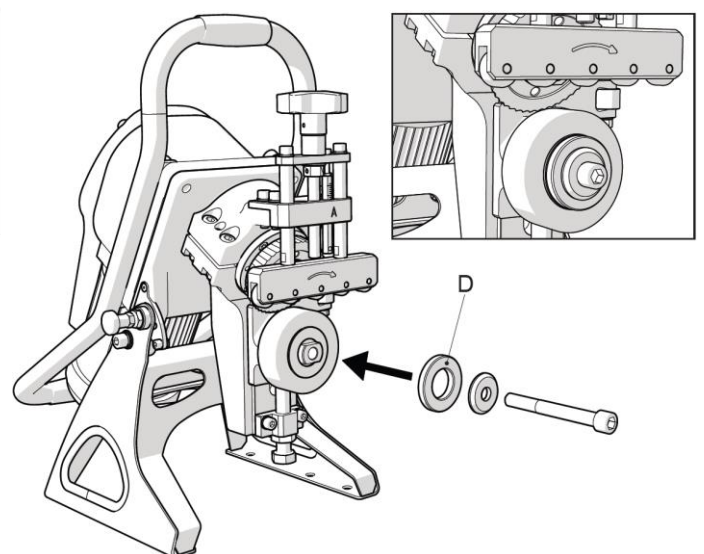
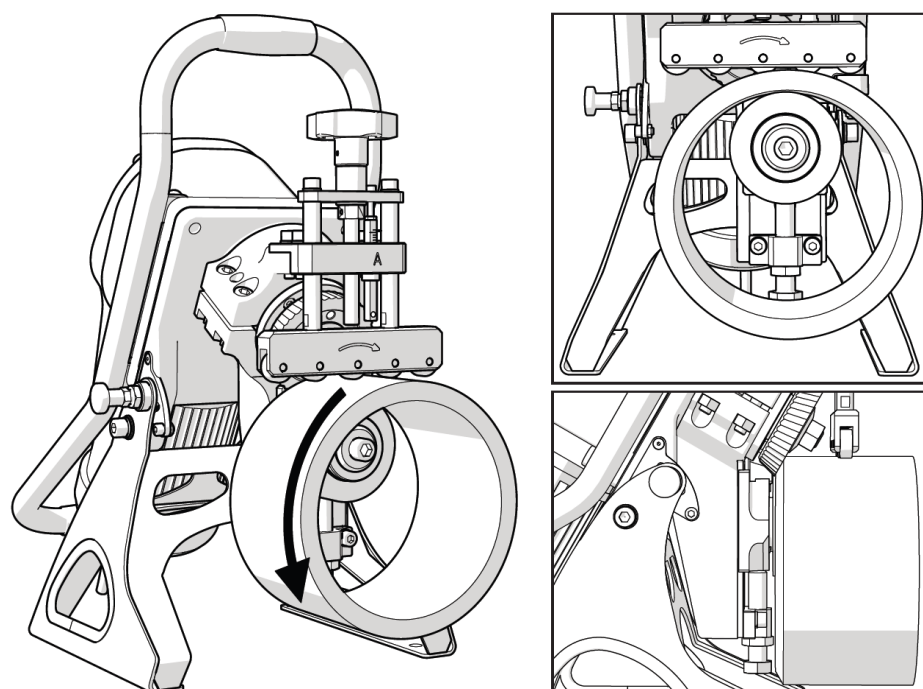


fig. 5.6.1



## 6.0 MAINTENANCE AND ADJUSTMENT

### 6.1 Recommendation



**Important:**

**Maintenance staff must always comprise qualified technicians.**

Never touch moving parts of the machine, not even using any tools or any other objects.

It is strictly forbidden to remove any safety labels and devices, to modify them or to handle the safety devices on the machine. Should it be the case, the manufacturer disclaims any liability for the safety of the machine.

Always use genuine spare parts (refer to chapter 8 “Spare Parts”).



**Caution:**

**Always wear personal protective equipment while performing maintenance of the machine. Maintenance can be performed only if the machine is still and disconnected from the mains.**

Before each work shift and then during the shift as required, clean the tool, cylinders and the supporting bar (ruler) with compressed air.



**Caution:**

**While using compressed air for the purpose of cleaning, wear safety goggles and never use pressure exceeding the value of 2 bars.**

### 6.2. Oil filling in the gearbox

The machine is equipped with a gear box with a permanent grease filling. The gearbox is maintenance-free.



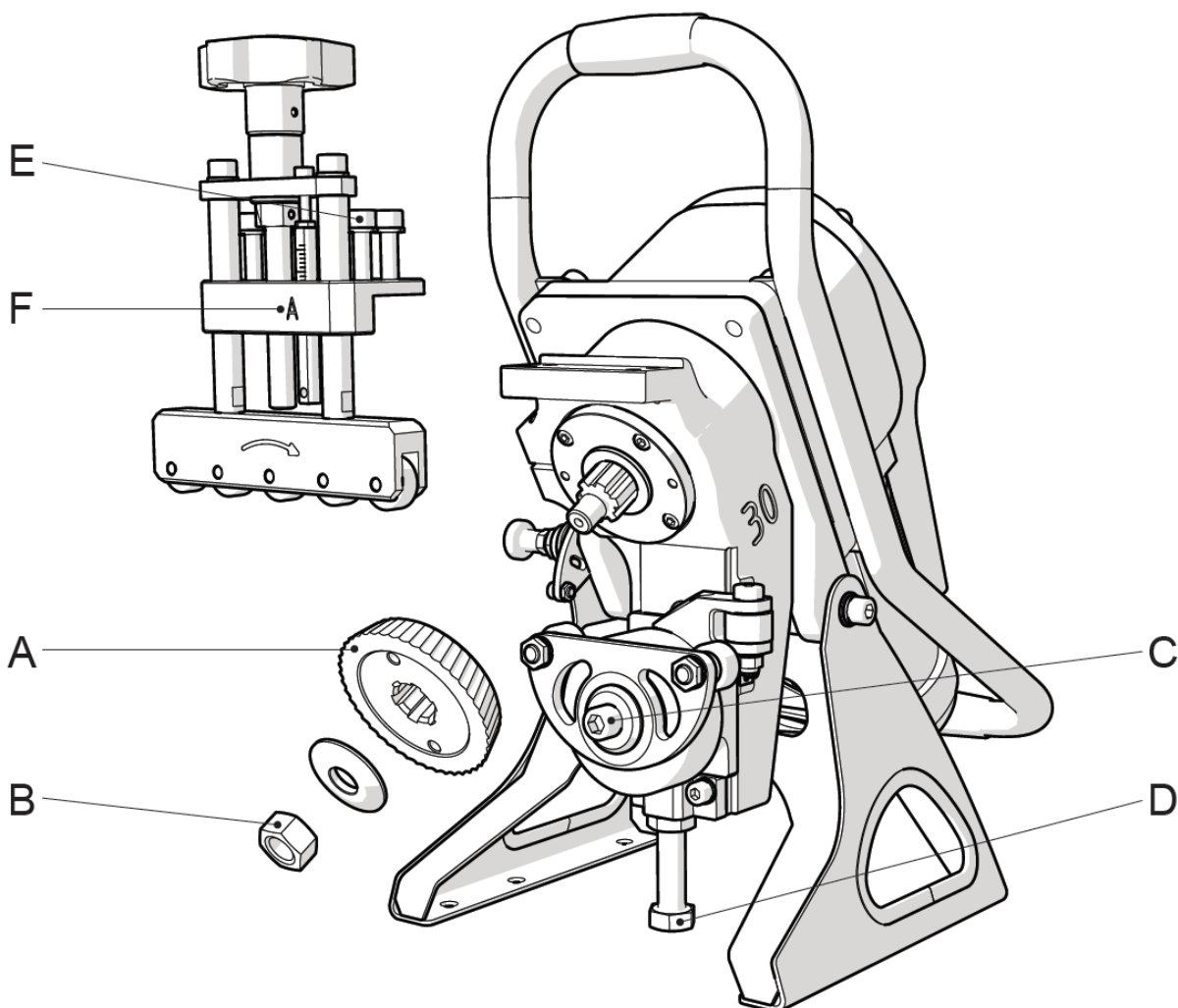
### 6.3. Changing the Tools

**⚠ Caution:**  
While changing the tools, use working gloves.

While changing the tools, follow these steps:

- Dismantle the upper holder of the workpiece (position F, and four bolts - position E, fig. 6.3.1).
- Loosen the bolt of the lower support cylinder (position C and D, fig. 6.3.1) and lower the bottom support to its lowest position.
- Unscrew the nut of the tool (positions B and A, fig. 6.3.1) and remove the tool from the shaft. If the tool cannot be removed from the shaft easily, use two M8 bolts, which shall be screwed into threaded openings in the cutter, to remove it. Use the bolts to push the tool from the bed.
- Install the new cutting tool and tighten the nut (position B, fig. 6.3.1).
- Re-install the upper holder of the workpiece (four bolts, positions F and E, fig. 6.3.1).

Fig. 6.3.1.



## **HINT:**

For maximum use, the tool can be sharpened. Sharpening shall be done using a magnetic surface grinding machine from the face of the tool, until the sharpness of impressed, blunted edges is achieved.

The tool sharpness shall be continuously visually checked. The cutting edges of worn tools are impressed and rounded. This is the right time for sharpening.

If you work with such a blunted tool further, there is a risk of subsequent break of already blunted teeth deep into the tool.

In this event it is necessary to sharpen the damaged tool until the broken teeth disappear and undamaged blade appears on the tool.

Thus lots of valuable meters of possible bevel are lost.

The addition for grinding is approx. 3 mm.

It is advisable for the correct operation that the tool subject to grinding is padded by the height which has been ground. For padding, use the genuine pads 0.5 and 1 mm or a combination of them.

The thickness of a new tool is 20 mm.

Keep in mind that the tool is conical. So despite correct padding, the machine with the cutter on the brink of service life will not be able to achieve the maximum possible bevel (hypotenuse 12 mm). This is also reflected on the scale for the C value of bottom cylinder setting. This scale may not correspond to the created bevel.

## **Important:**

**Padding of the tool must not exceed 20 mm (adding the current thickness of the cutter). If this occurs, the machine will not work properly and there is a risk of machine destruction.**

**- The set of compensation pads to adjustment of the cutter position Order No 1922.1025**

### **6.4. Calibration of the Machine Settings**

The C scale (position C, fig. 5.3.5) is calibrated from the factory. If, for any reason, the C values diverge from the set and performed bevel, it is necessary to re-calibrate the scale. Measure the exact C value on the already-machined material and calibrate/set the scale (position C, fig. 5.3.5) according to the measured values. The calibration must be performed only with a new tool.

### **7.0 Wiring**

Q1.1- over-current safety relay - thermal protector of the engine.

KM1, KM2- engine contactor.

KM1.1, KM2.1- auxiliary contacts.

S2.1, S2.2- pushbutton controller (STOP).

S3.1, S3.2- emergency safety pushbutton controller (NOT-AUS).

**If the machine is operated in spaces with exceptionally dangerous effects of AD and more, it is necessary to provide for increased protection of the machine as to prevention of electric shock!**

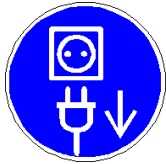
**Electric energy** - in the event of failures, electric power must be immediately disconnected.

Works with electrical equipment of the machine may be carried out only by a qualified person or persons subordinated to the qualified person and supervised by him/her, so that the works are performed in compliance with electrical regulations.



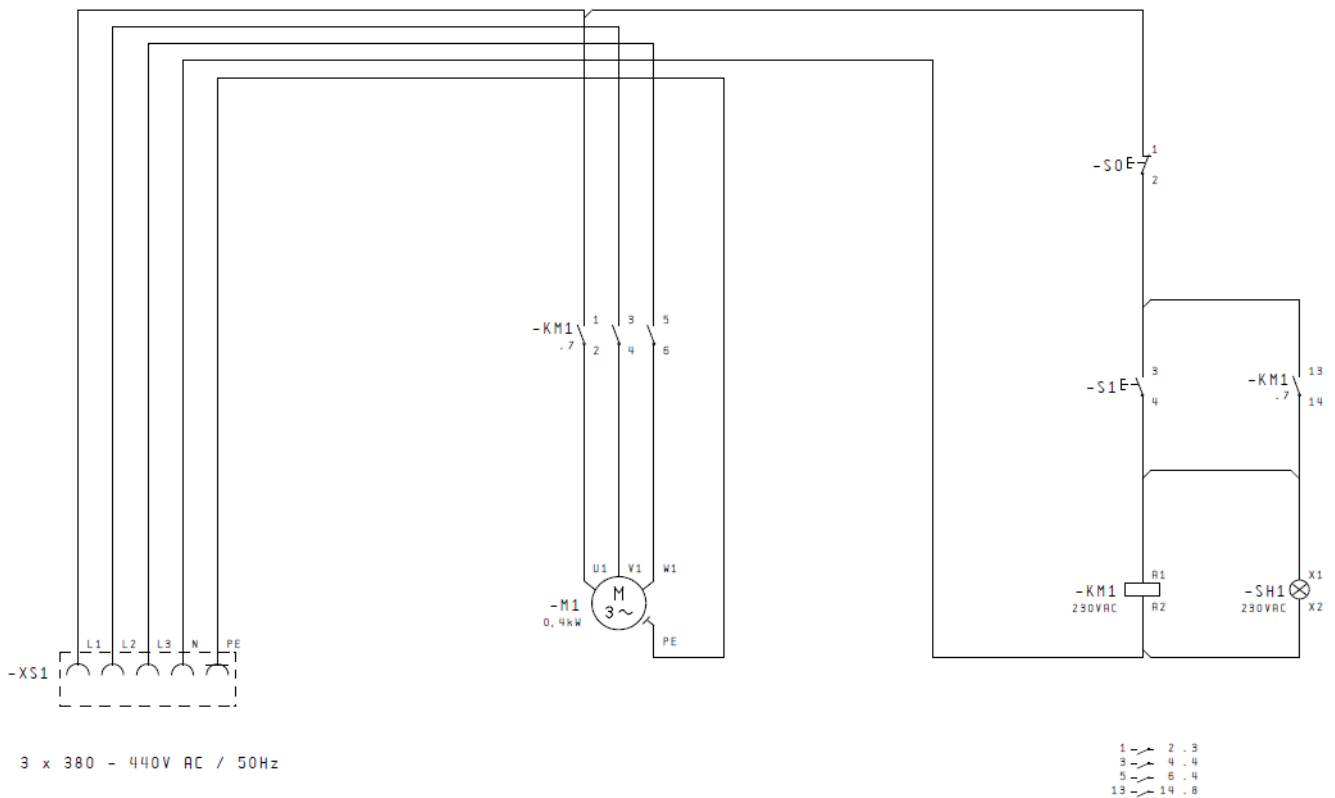
No components subject to maintenance and repairs can be powered. These disconnected components must be checked using a two-pole measuring device to make sure that they are not powered. These components must then be grounded and the components in the vicinity which are powered must be insulated.

Power can be cut off turning the power switch to the position “0” - cutting off the machine.

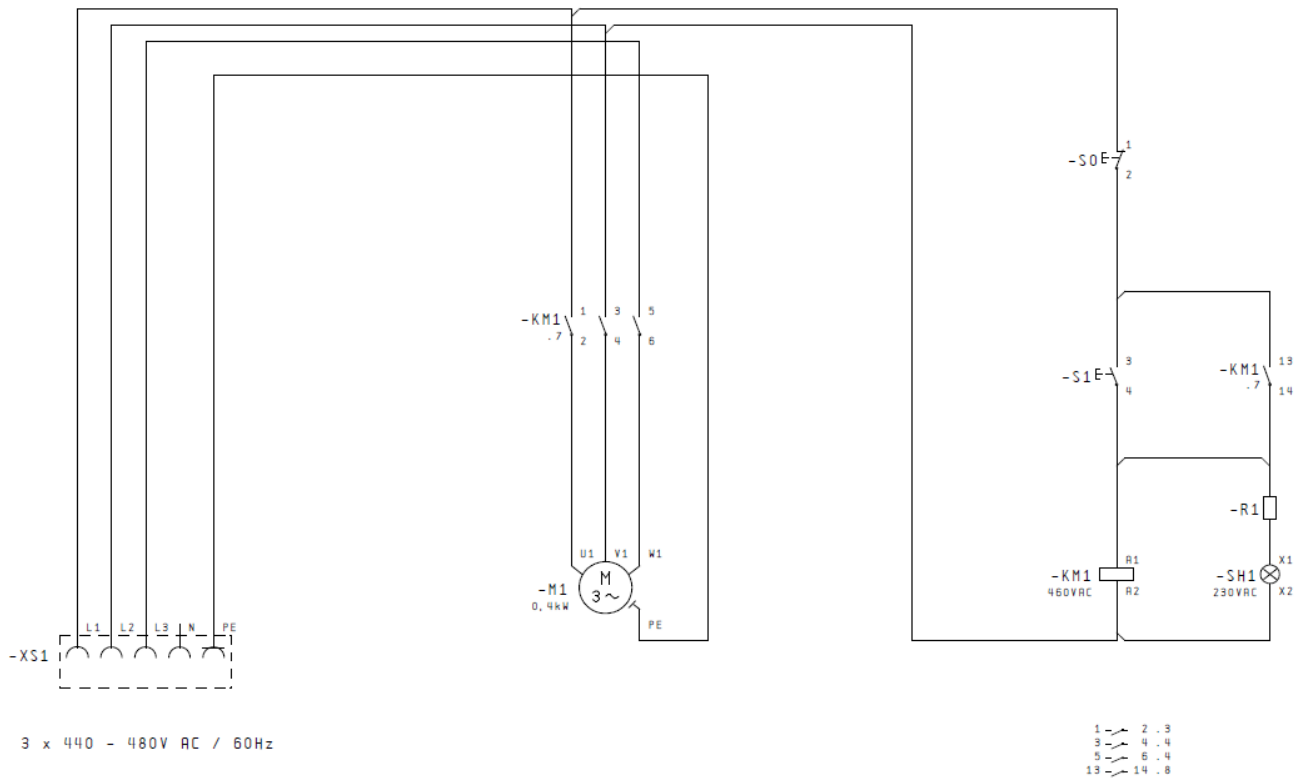


The electrical equipment of filtration must be regularly checked and/or tested. Deficiencies, loose joints and burnt cables must be replaced immediately.

## 7.1 Electric Diagram for the Machine Working with the Voltage of 400V



## 7.2 Electric Diagram for the Machine Working with the Voltage of 480V



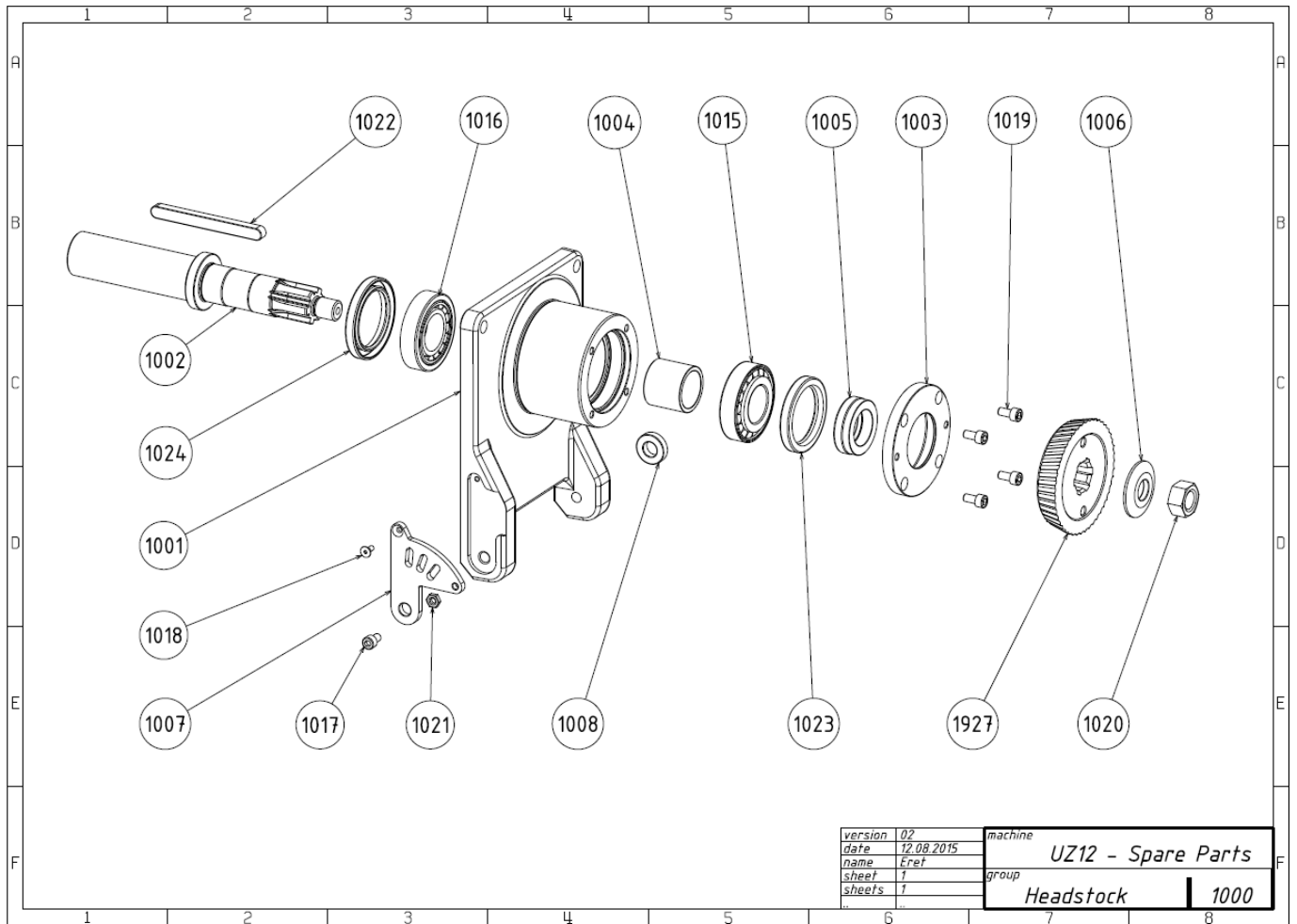
## 8.0 SPARE PARTS

### 8.1 How to Order Spare Parts

Orders of spare parts must include the following data:

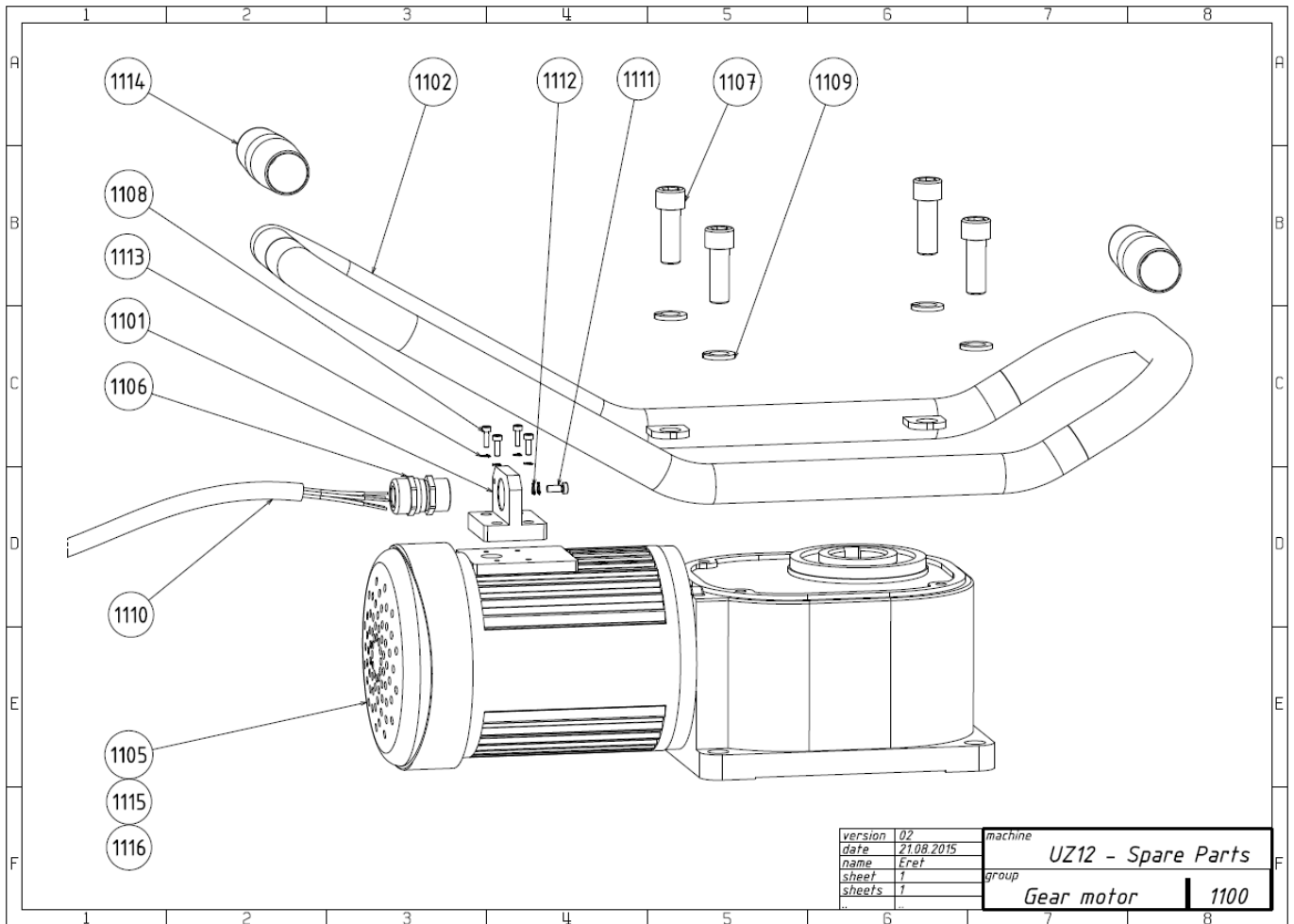
- machine type,
- serial number,
- description of the required component and its number,
- quantity.

### 8.2 List of Spare Parts



**UZ12 SPARE PARTS** drawing no. **1000** Headstock

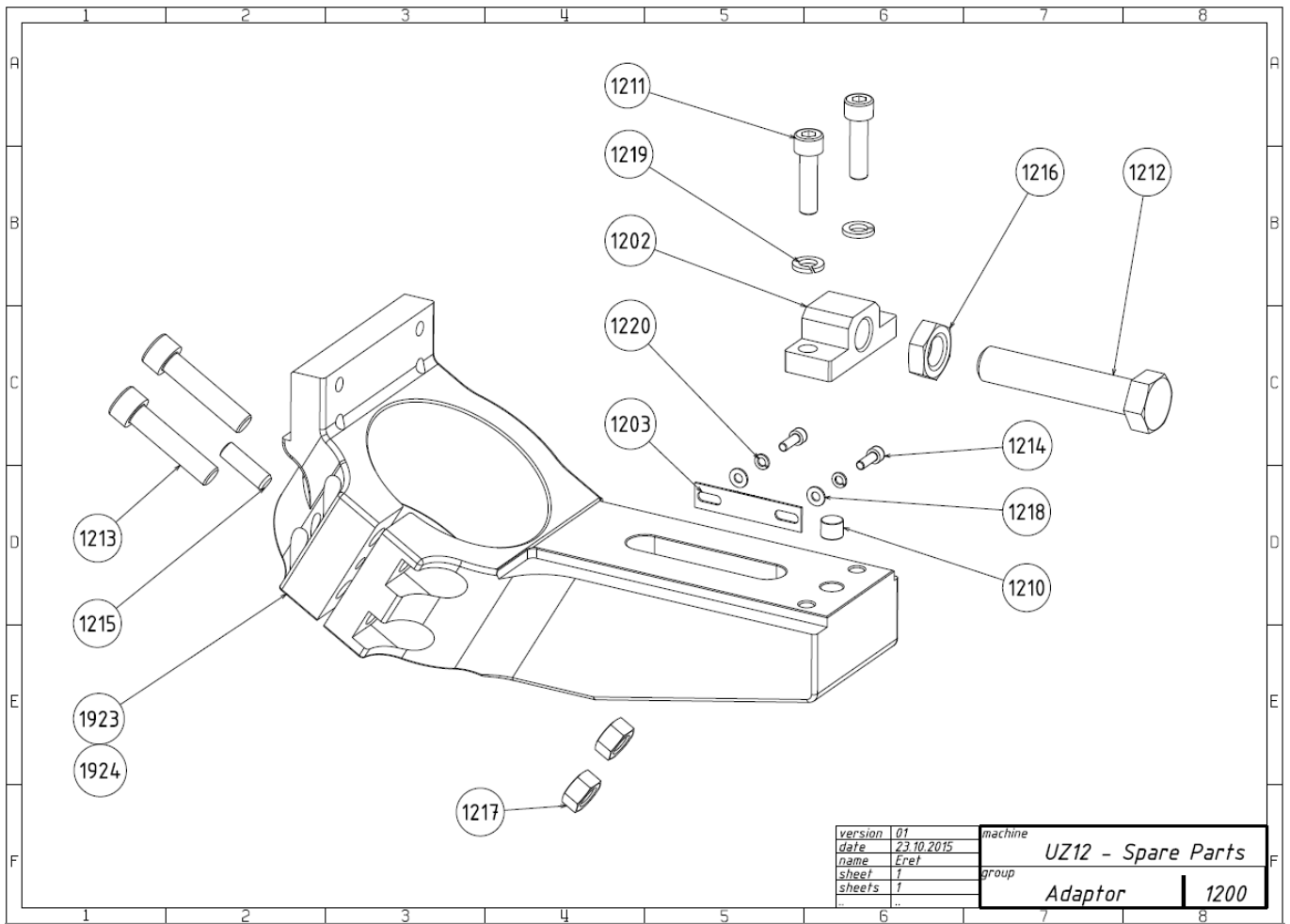
Number	Fig	Part name	Note
1922.1001	1001	body	
1922.1002	1002	shaft	
1922.1003	1003	ring	
1922.1004	1004	distance ring	
1922.1005	1005	support ring	
1922.1006	1006	washer	
1922.1007	1007	sheet	
1922.1008	1008	washer	
1922.1015	1015	conical bearing	
1922.1016	1016	conical bearing	
1922.1017	1017	screw	
1922.1018	1018	screw	
1922.1019	1019	screw	
1922.1020	1020	nut	
1922.1021	1021	nut	
1922.1022	1022	key	
1922.1023	1023	shaft seal	
1922.1024	1024	shaft seal	
1927	1927	cutter disk	



## UZ12 SPARE PARTS

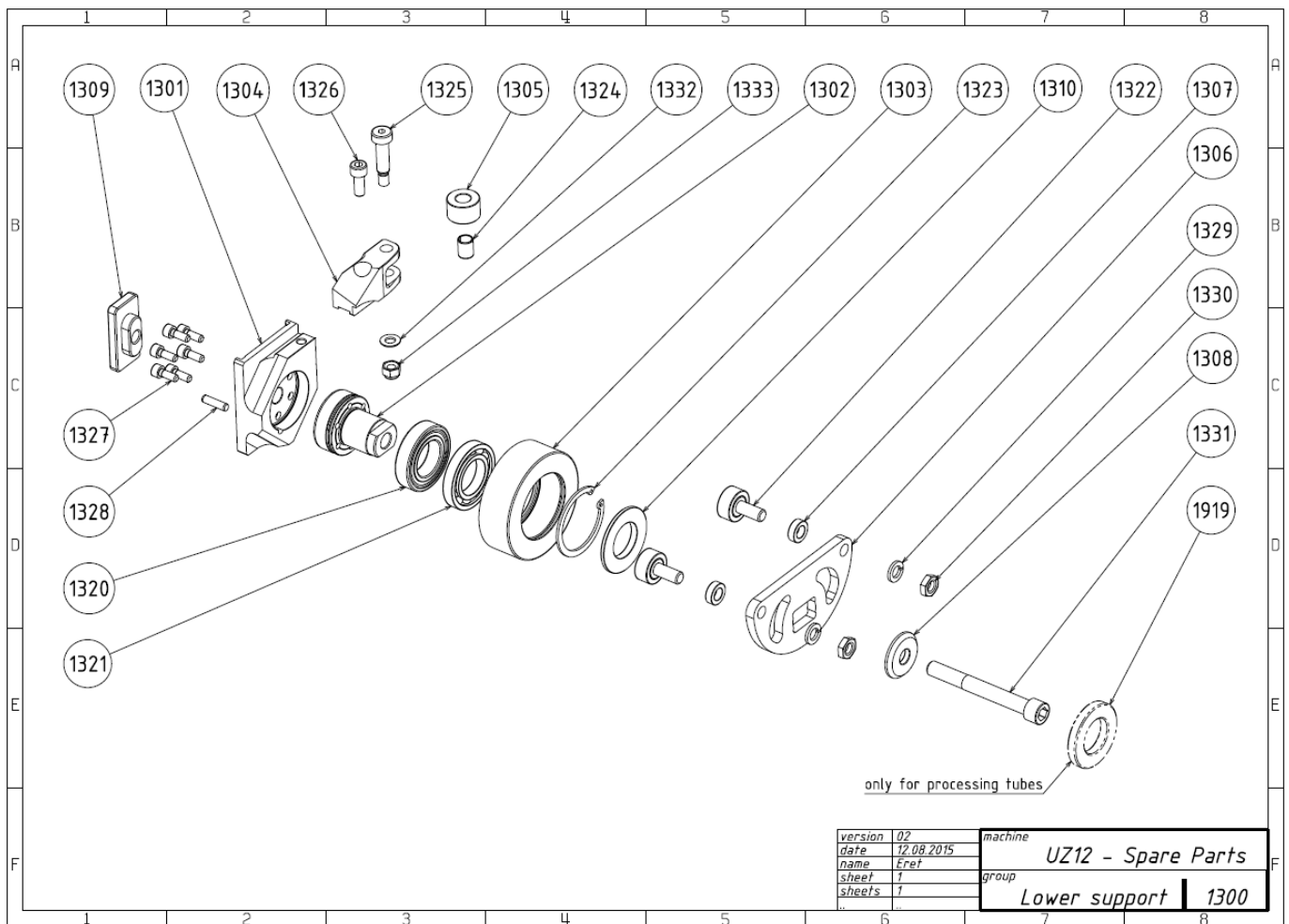
drawing no. **1100** Gear Motor

Number	Fig	Part name	Note
1922.1101	1101	holder	
1922.1102	1102	handrail	
1922.1105	1105	gear	3x400V
1922.1106	1106	cable grommet	
1922.1107	1107	screw	
1922.1108	1108	screw	
1922.1109	1109	washer	
1922.1110	1110	cable	
1922.1111	1111	screw	
1922.1112	1112	washer	
1922.1113	1113	washer	
1922.1114	1114	grip	
1922.1115	1115	gear	3x220V
1922.1116	1116	gear	3x480V



**UZ12 SPARE PARTS** drawing no. **1200 Adaptor**

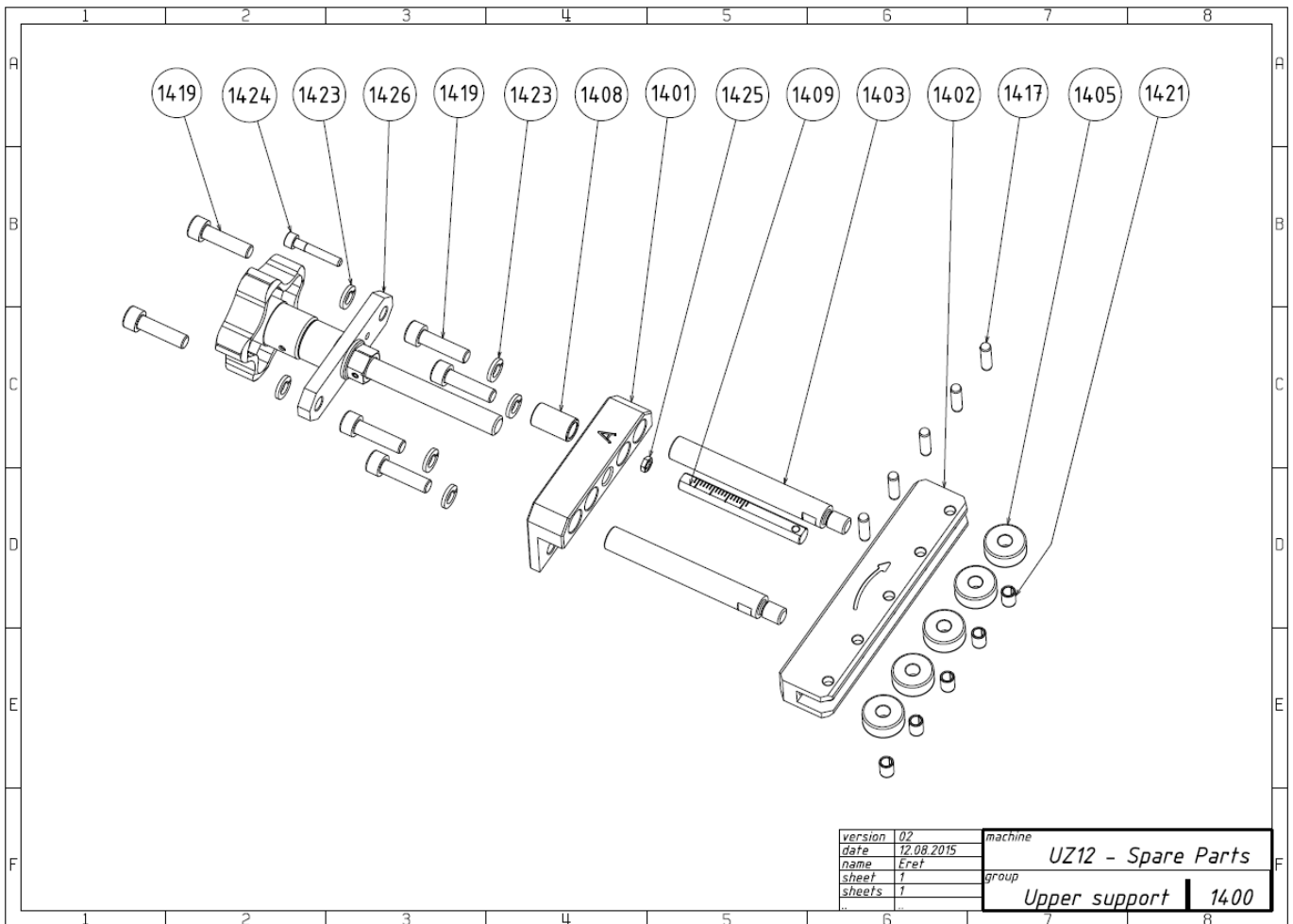
Number	Fig	Part name	Note
1922.1202	1202	nut	
1922.1203	1203	ruler	
1922.1210	1210	pin	
1922.1211	1211	screw	
1922.1212	1212	screw	
1922.1213	1213	screw	
1922.1214	1214	screw	
1922.1215	1215	screw	
1922.1216	1216	nut	
1922.1217	1217	nut	
1922.1218	1218	washer	
1922.1219	1219	washer	
1922.1220	1220	washer	
1923	1923	adaptor 30°	
1924	1924	adaptor 45°	



**UZ12 SPARE PARTS** drawing no. **1300 Lower Support**

Number	Fig	Part name	Note
1922.1301	1301	body support	
1922.1302	1302	plug	
1922.1303	1303	pulley D90	
1922.1304	1304	backstop	
1922.1305	1305	pulley D26	
1922.1306	1306	pulley holder	
1922.1307	1307	distance ring	
1922.1308	1308	washer	
1922.1309	1309	nut	
1922.1310	1310	ring	
1922.1320	1320	ball-bearing	
1922.1321	1321	ball-bearing	
1922.1322	1322	pulley	
1922.1323	1323	lock ring	
1922.1324	1324	sleeve bearing	
1922.1325	1325	screw	
1922.1326	1326	screw	
1922.1327	1327	screw	
1922.1328	1328	pin	
1922.1329	1329	washer	
1922.1330	1330	nut	
1922.1331	1331	screw	
1922.1332	1332	washer	
1922.1333	1333	nut	
1919	1919	distance ring	only for processing tubes

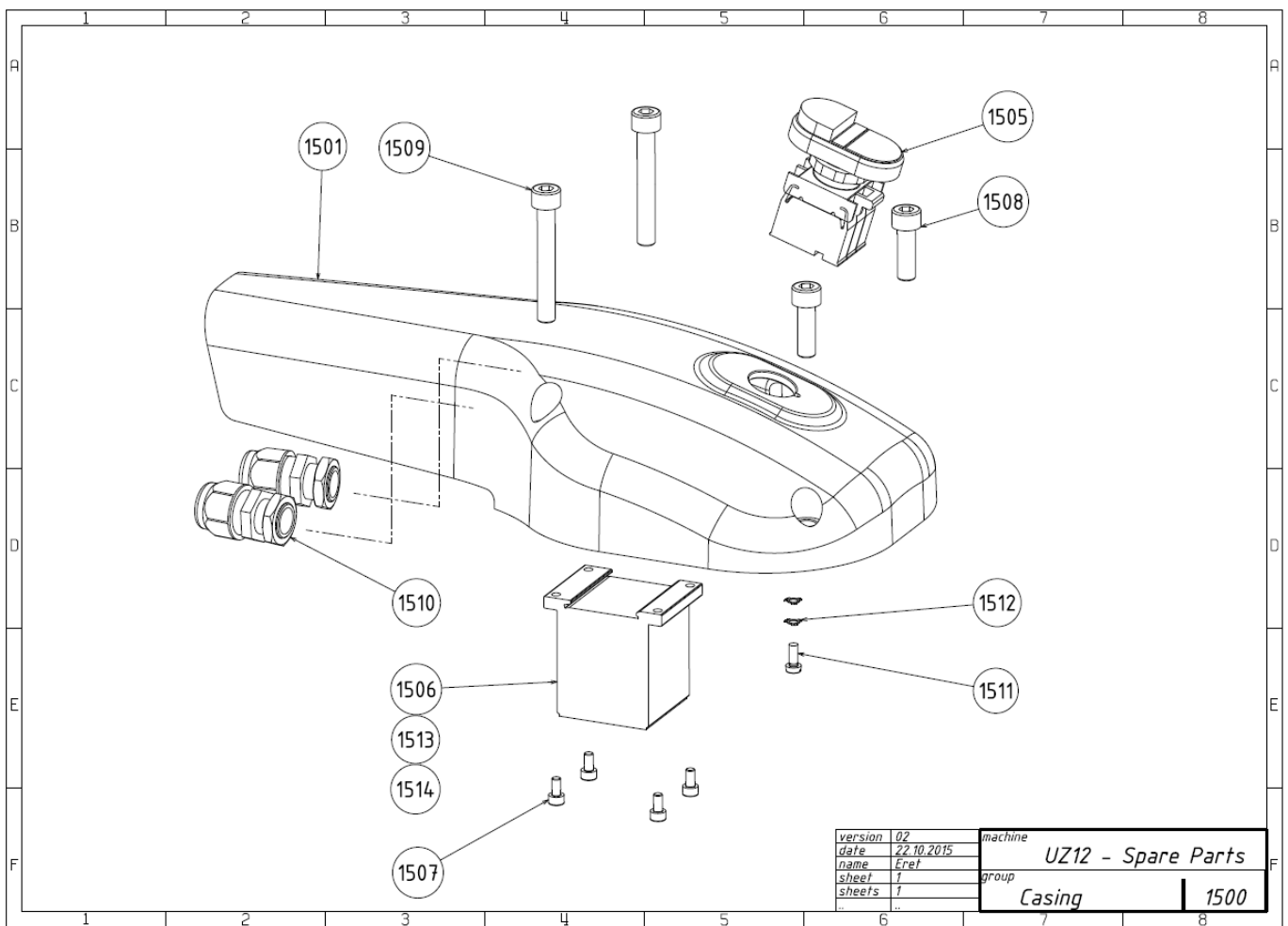




# UZ12 SPARE PARTS

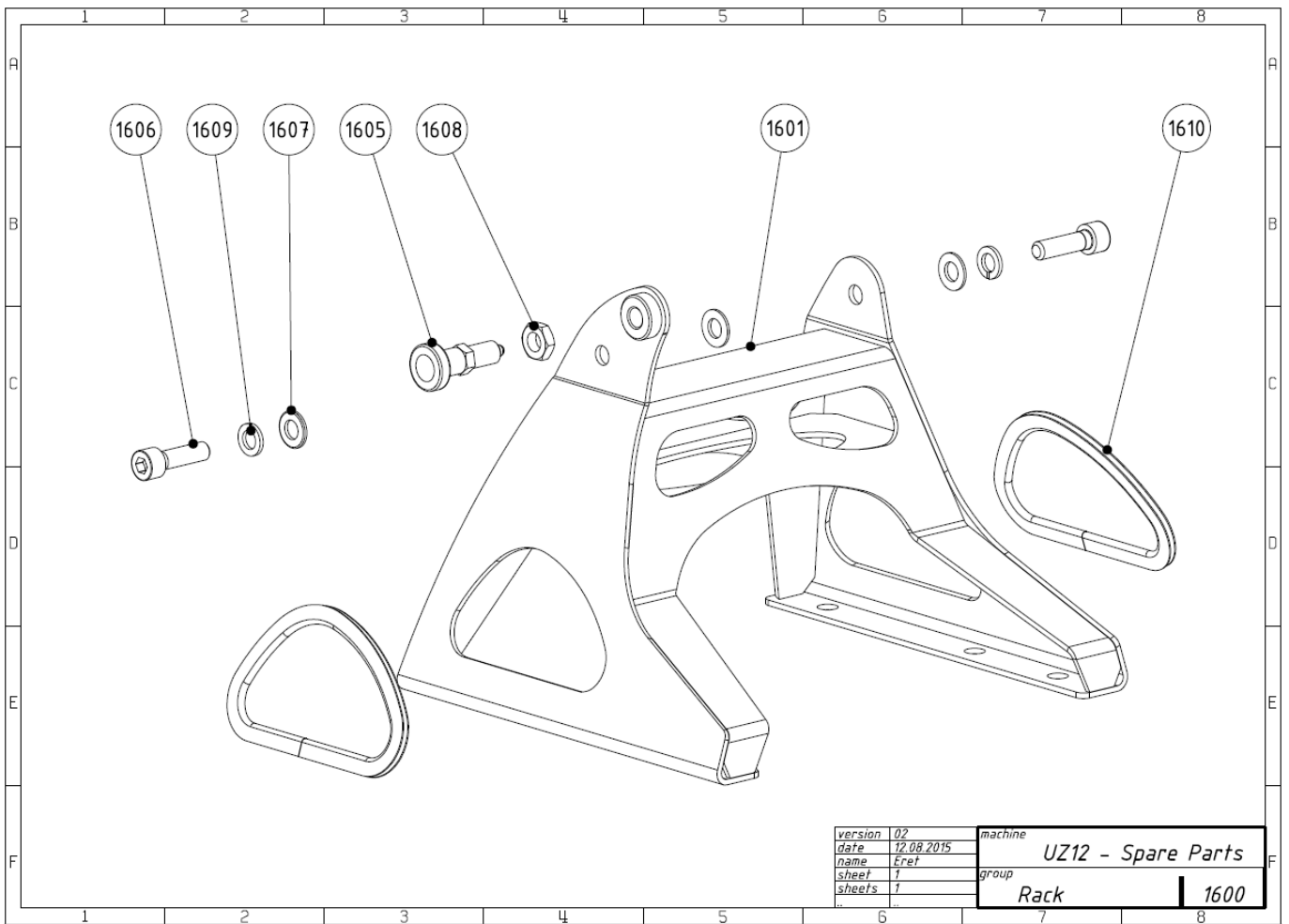
drawing no. 1400 Upper Support

Number	Fig	Part name	Note
1922.1401	1401	body	
1922.1402	1402	pulley rail	
1922.1403	1403	spindle	
1922.1405	1405	pulley D24	
1922.1408	1408	bushing	
1922.1409	1409	indicator	
1922.1417	1417	pin	
1922.1419	1419	screw	
1922.1421	1421	sleeve bearing	
1922.1423	1423	washer	
1922.1424	1424	screw	
1922.1425	1425	nut	
1922.1426	1426	endless screw	



**UZ12 SPARE PARTS** drawing no. **1500** Casing

Number	Fig	Part name	Note
1922.1501	1501	cover	
1922.1505	1505	circuit breaker	
1922.1506	1506	contactor	3x400V
1922.1507	1507	screw	
1922.1508	1508	screw	
1922.1509	1509	screw	
1922.1510	1510	cable grommet	
1922.1511	1511	screw	
1922.1512	1512	washer	
1922.1513	1513	contaktor	3x220V
1922.1514	1514	contaktor	3x480V



**UZ12 SPARE PARTS** drawing no. **1600 Rack**

Number	Fig	Part name	Note
1922.1601	1601	stand	
1922.1605	1605	safety pin	
1922.1606	1606	screw	
1922.1607	1607	washer	
1922.1608	1608	nut	
1922.1609	1609	washer	
1922.1610	1610	lace	

## Recommended spare parts for one machine UZ12

Nr. of the part	Name	Nr. of the drawing	Recommended number of the spare parts pc/year	probability factor (on scale 1-5)	note
1927	cutter	1000	Depends on the using	5	Depends on the skills of the staff
1922.1006	washer	1000	1pc	1	
1922.1020	nut	1000	1pc	1	
1922.1212	screw	1200	1pc	2	Depends on the care of the machine.
1922.1301	Body support	1300	1pc	2	Depends on the using
1922.1304	Back stop	1300	1pc	2	Depends on the using
1922.1325	screw	1300	1pc	1	Depends on the using
1922.1305	Roll D26	1300	1pc	2	Depends on the using
1922.1324	Sleeve bearing	1300	1pc	2	Depends on the using
1922.1306	Pulley holder	1300	1pc	3	Depends on the skills of the staff
1922.1426	Assembling of upper support	1400	1pc	1	Depends on the care of the machine.
1922.1505	Circuit breaker	1500	1pc	1	Depends on the care of the machine.
1922.1506	Contactora (400V) Check your voltage	1500	1pc	1	Risk of mechanical damage or unstable electrical network
1922.1513	Contactora (3x220) Check your voltage	1500	1pc	1	Risk of mechanical damage or unstable electrical network
1922.1514	Contactora (480V) Check your voltage	1500	1pc	1	Risk of mechanical damage or unstable electrical network
1922.1025	The set of compensation pads to adjustment of the cutter position		1set	2	

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

A copy of this manual is supplied with each machine UZ12 Ultralight.

All rights reserved.

No part of this publication may be reproduced without prior consent granted by N.KO.

### **Manufacturer's and Distributor's Address:**

***N.KO spol. s r.o.***

***a Member of Richtr Group***

***Táborská 398/22***

***293 01 Mladá Boleslav***

***Czech Republic – Europe Union***

***Phone: +420 326 772 001 fax: +420 326 774 279***

***email:nko@nko.cz***

**USA Distributor's Address:**

**BEVELER USA INC.**  
**a Member of Richtr Group**  
**Business Office, Workshop, Warehouse**

**328 14th Street**  
**Ambridge, PA 15003**

**Toll Free Number: 1-800-973-1138**  
**Phone Ambridge (PA) office: 1-412-452-2563**  
**email:[service@bevelerusa.com](mailto:service@bevelerusa.com)**